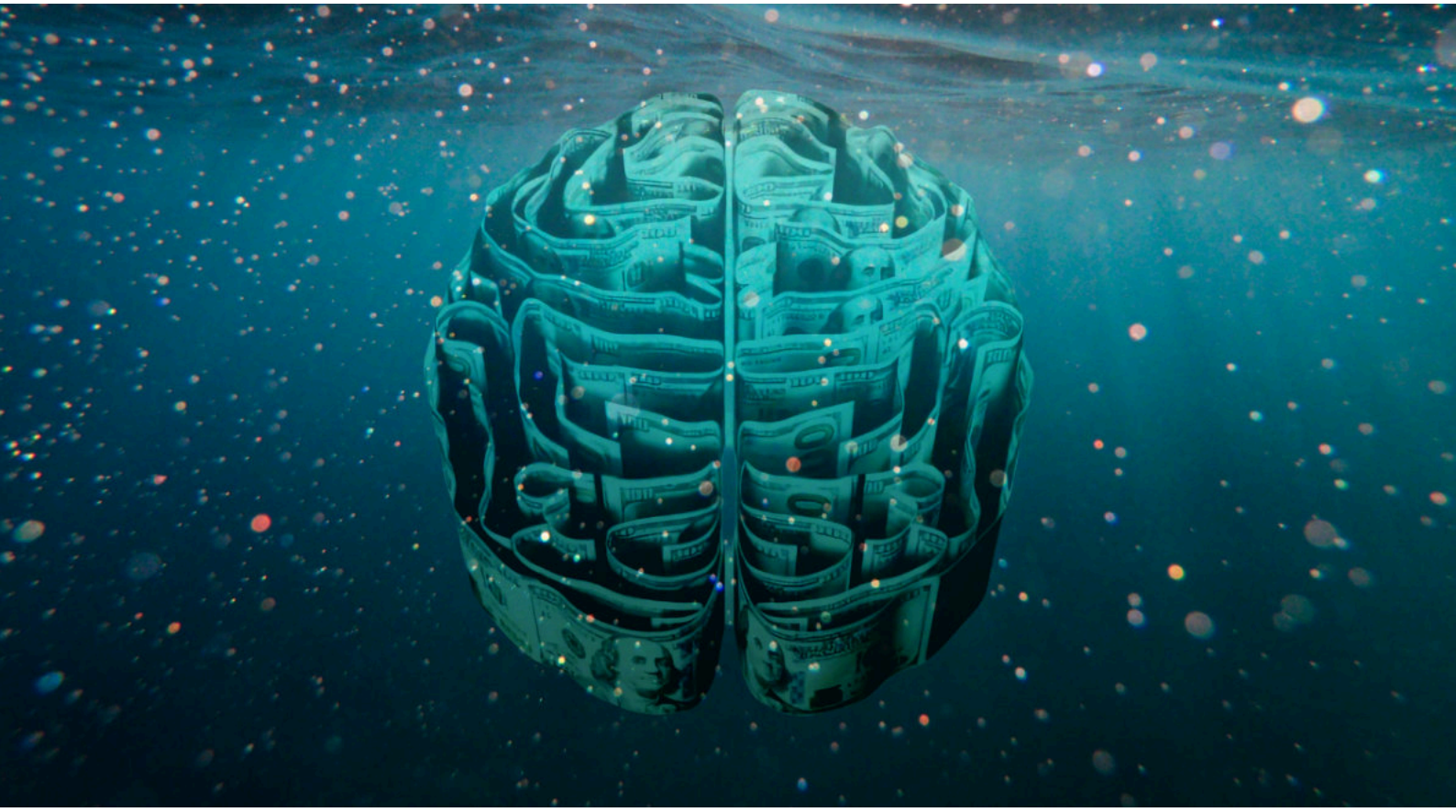
Water Climate Discussion



FINANCE

Report from the discussion held on 2 September 2021

edited by:
Jane O'Connor, Neil Edwards, Laura Fonseca, Paul de Hoest & Laura Currie

organised by:

IChemE Institution of Chemical Engineers · IWA the international water association · Royal Society of Chemistry · Institute of Water · Water UK · British Water · Future Water Association Informing, Innovating, Influencing · Royal Society of Biology · SocEnv Society for the Environment · ice · WaterAid

Welcome

The Water Climate Discussion series creates a space to come together and help the water sector build its leading role in addressing the climate crisis.

This series is the result of close collaboration between water institutions who recognise climate change as an existential threat and wish to have a voice promoting a key message: **water is climate**.

This report is based on the recorded fifth discussion of the series: Finance, which was aired on Thursday, 2 September 2021. The discussion was hosted by Martin Currie and led by Alan Sutherland of the Water Industry Commission for Scotland, Jacob Tomkins of The Water Retail Company, Tseguereda Abraham of WaterAid Ethiopia and the interaction of the online participants.

Chapter numbers in the report refer to chapters marked in the recording.

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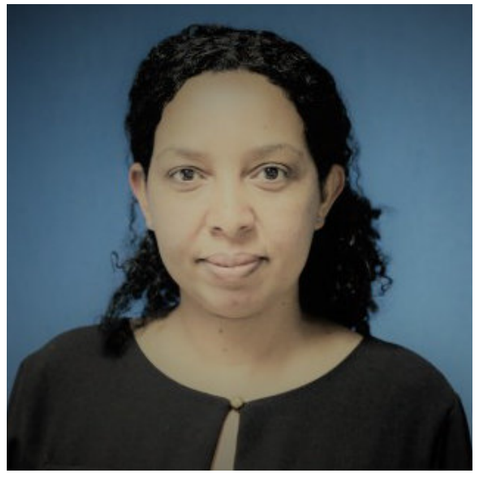
Alan Sutherland

Chief Executive, Water Industry Commission for Scotland

Since his appointment in 1999, Alan has driven substantial improvements in efficiency and service for Scotland’s water and wastewater customers. He put in place a competitive non-household retail market in 2008, a world first at the time.

Unswervingly committed to a customer-centric approach, Alan is working with sector stakeholders to engender greater candour, transparency and collaboration. Alan believes in sharing experience and expertise and, through the Scottish Government’s Hydro Nation initiative, supports international capacity-building projects that facilitate the development of economic regulation and of more sustainable water industries.

Alan’s previous roles were in management consultancy and in the investment banking industry.



Tseguereda Abraham

Head of Policy and Sector Strengthening, WaterAid Ethiopia

Tseguereda Abraham is a Policy Advocacy Expert with long-standing experience in advocacy strategy development and implementation, WASH Campaigns delivery, Program management, and Country program leadership.

Tseguereda has more than 12 years of experience in different International NGOs: WaterAid, OXFAM, CARE especially in the WASH and Livelihood sectors.

Jacob Tomkins

Co-founder and CTO, The Water Retail Company

Jacob is the co-founder and CTO of The Water Retail Company. He is also the founder of The European Water Technology Accelerator, which helps scale and promote water innovation.

Jacob trained as a civil engineer with degrees from UCL and Imperial. He worked as an academic, was water lead for the National Farmers' Union and freshwater advisor at Water UK. He set up and ran Waterwise, the water efficiency NGO. He has developed EU water legislation and chaired a UK Government task force on resilience in the water sector. He was made an honorary Professor at Exeter University and has an OBE for services to water efficiency.

Q&A

1 **Funding:** How should climate change affect the industry's funding?

2 **Know:** What should we already know about what we need to change?

3 **Impact:** How will the very necessary new approaches impact on all of us?

4 **Case:** How can the water sector make the case for investment in WASH?

5 **Highlight:** How can we better highlight the contribution of WASH to resilience?

6 **Pay:** How are we going to pay for the water infrastructure required by climate change?

7 **Models:** How can we develop funding models that don't rely on consumption and can consider externalities?

8 **Engage:** How can we engage the public in the debate around water and wastewater services?

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Alan Sutherland: The challenges facing the financing and funding of the water industry

Alan provided a high-level overview of the challenges facing the financing and funding of the water industry.

Its role in mitigating climate change has been less of a focus than its role in adaptation, but if not addressed, this would be a missed opportunity, given its scale. However, the Government has made climate change mitigation central to water industry policy objectives.

In Chapter 5, Alan discussed the traditional approach of seeking certainty and efficiency. Regulators, regulated companies and customers alike have craved a degree of certainty - a guaranteed outcome in return for a particular price. Efficiency has been regarded as paying the lowest reasonable cost for an appropriate solution and this has promoted seeking engineered ways to achieve excellent water quality and a better

Photo by Joshua Hoehne on Unsplash

environment.

Current challenges to that status quo are:

- Is the pursuit of such certainty desirable, or even achievable, given climate change?
- How should we address embodied carbon as distinct from operational carbon?
- Does our ability to deliver ever more significant engineering projects justify their costs?
- Do our appraisals include carbon and natural and social capitals?
- What should 'efficiency' now mean?
- Will our current calculations be found to be even vaguely right when we look back 50 years from now?

Innovative approaches will be even more important in dealing with uncertainty and weaning society off certain solutions.

In Chapter 6, Alan discussed future funding and financing. Today's focus on immediate compliance, limiting investment and asset maintenance, without considering climate mitigation and adaptation, keeps prices down for current generations, without consideration of future generations. Alan said that there needed to be change in approaches to financing and funding, whether through taxes or charges, whether in private or publicly owned industries, to avoid decisions being rooted in the short-term. For example, the real challenge of specifying delivery of long-term resilience, in a net zero way, with meaningful recourse in case of failure.

In Chapter 7, Alan asked his first question, "How should climate change affect the industry's funding?"

In Chapter 8, Alan contrasted the traditional role and approach of an economic regulator, with that which is needed to deal effectively with current challenges. Traditionally, the role of the economic regulator is to allow prices to vary to reflect supply-demand balance and setting hard budget constraints to mimic the market and competition, whose influences are absent for a monopoly utility. The evidence of the last 20-30 years suggests it's worked well.

But today's role is not just about financial

“It will take experimentation, innovation, collaboration, and constructive rather than adversarial behaviours… a very changed regulatory environment… and a collective effort.”

costs - it’s broader and concerned with the ‘knotty issues’ presented by an uncertain future. Relying on the principles of competition may not reveal appropriate solutions.

Key issues to consider include:

What is it that is to be funded?

- Inclusion of carbon, natural and societal capital means surrendering the traditional ‘hard’ budget constraint.
- How are benefits to be assessed?
  - In traditional control periods or recognising that some benefits will take longer to realise (or even to confirm that they exist).
- How is asset replacement to be funded before its actual failure?
- How can a regulator know what the regulated company knows?
- How can a regulator know what is needed to be known to ensure approaches adopted are consistent with the long-term interests and desires of society?

In Chapter 9, Alan asked his second question, “What should we already know about what we need to change?”

In Chapter 10, Alan suggested what it will take to address these issues. It is no longer enough simply to draw up a list of projects to be delivered. “It will take experimentation, innovation, collaboration, and constructive rather than adversarial behaviours… a very changed regulatory environment… and a collective effort.” Workable rules and processes will be needed, underpinned by robust analysis and candour, to develop stakeholder confidence on direction and delivery.

In Chapter 11, Alan asked his third question, “How will the very necessary new approaches impact on all of us?”

In Chapter 12, Alan suggested how the new approaches needed would impact us all.

For example,

- Government will need to rethink what constitutes ‘value for money’
  - it is not just the acceptability of the next price reset.
- Regulators will need to abandon the comfort blanket of a hard budget constraint
  - efficiency must be assessed differently, though customers will still need assurance on how their money is being spent.
- Water companies will have to take ownership of their societal role
  - delivering their services in a total net zero way.
- We’ll all have to:
  - think longer term and embrace some uncertainty;
  - understand that doing things the way we did before, is not an option now;
  - give up some things we currently really rather like;
  - and pay higher bills.

Alan’s final thoughts for his presentation were, “Are we ready to meet these challenges? Are we ready to do things differently? Do we actually, seriously, have a choice, but to prepare ourselves and to start to act decisively? Because I don’t think we can continue to think in five- or six-year regulatory chunks.”

Photo by Melissa Jeanty on Unsplash

Dry river bed in Ethiopia - WaterAid/Frehiwot Gebrewold

Tseguereda Abraham: Financing Water, Sanitation and Hygiene (WASH) with climate change adaptation

Tseguereda was introduced by Martin Currie, in Chapter 13. Climate change, and its impact on WASH, is a matter of serious concern in Ethiopia, where the effects of climate change are increasing year on year. Effects such as temperature increases, increasing rainfall and less predictable rainfall, are all contributing to more climate extremes such as drought and flooding. This is impacting water sources where springs and rivers are drying up, which in turn increases the risk to WASH services for households and livestock. In Chapter 15, Martin asked Tseguereda if other developing countries were experiencing similar impacts from climate change. In her response, Tseguereda advised that following a recent assessment of West African countries, without purposeful climate change consideration, Ghana is predicted to be a water-stressed country by 2025. Also, Tanzania experienced intense rainfall leading to extreme flooding in 2020, which damaged water and sanitation infrastructure, placing access to WASH services for the poorest households at risk.

In Chapter 16, Tseguereda asked her first question, “How can the water sector make the case for investment in WASH?”

The UN Sustainable Development Goals (SDGs) were set in 2015, with a delivery target of 2030. In Chapter 17, Martin asked Tseguereda if the impacts of climate change mean that increased funding is now required

An Ethiopian farmer with a sample of rain-damaged pepper crop - WaterAid/Frehiwot Gebrewold

to achieve the SDG6 goal of ensuring water and sanitation for all (“Ensure availability and sustainable management of water and sanitation for all”). Tseguereda’s view was that there is a need for increased budget and financing for WASH now. For example, currently in Ethiopia, the estimated financing for SDGs particularly SGD targets 6.1 and 6.2[1], is $8B per year.

Sustainability is an important consideration also for existing WASH facilities, i.e. ensuring existing facilities are resilient to the impacts of climate change. Maintaining availability of existing WASH facilities will be key to achieving the SDGs. There are many causes for the failure of existing WASH systems but climate change driven causes are increasing, for example, destruction due to extreme climate events is unfortunately becoming more common. This climate related destruction will ultimately increase investment needs.

Martin asked about the current level of funding for WASH but Tseguereda advised

“Universal access to WASH is a good economic investment.”

that available funding is significantly lower than the estimated funding requirements, at approximately $800M per annum. Despite increasing funding for climate change, only 7% of current financing is available for climate change adaptation, so there is an urgent need to shift financing priorities to meet the needs of the water sector to improve resilience to climate change.

In Chapter 18, Martin and Tseguereda discussed how WASH investment needs to change to better manage the impacts of climate change. Tseguereda described the need to shift to more sustainable technologies, such as solar technology, as a climate resilience measure. She also outlined investment in WASH itself as a climate change adaptation. As WASH improves opportunities for poorer households, it is an adaptive measure in its own right.

Tseguereda illustrated the value delivered by investment in WASH, saying “…universal access to WASH is a good economic investment.” This type of investment delivers considerable benefits. Having climate resilient WASH services provides resilience against water borne disease, enables people to work and increases the productivity of their communities. Additionally, investments in sanitation bring other benefits such as greater safety and security for women and girls. These multifaceted benefits of investment in WASH should always be considered by decision makers.

In conclusion, in Chapter 19, Tseguereda asked her second question, “How can we better highlight the contribution of WASH to resilience?”

[1] Sustainable Development Goals (SDG 6) | United Nations Western Europe (unric.org)

An Ethiopian farmer with a sample of flood-damaged crop - WaterAid/Frehiwot Gebrewold

Photo by Markus Winkler on Unsplash

Jacob Tomkins: Fundamental change

This session opened in Chapter 22, with Martin asking Jacob if he thought that people understood the scale of the challenge facing the water industry. Jacob was unequivocal on this point: even before we consider the impact of climate change, there is a massive water crisis. This is caused by population growth and ageing, along with years of underinvestment, meaning that the industry is already under “huge pressure” and no one, including the water sector itself and Governments, “really recognises how bad the crisis is”. There are large-scale water scarcity and major pollution problems already. “If we then add climate change on top of this, the crisis that we are facing is absolutely enormous.”

When Martin asked Jacob what he thought the biggest impacts were for the water sector, Jacob said that the additional problems arising from climate are “multi-facetted”, including both floods and droughts. The changes in soil moisture will lead to additional movements of pipes and

“…the crisis that we are facing is absolutely enormous.”

so will increase leakages. The changes in ambient temperatures will change the operating parameters in the water and waste treatment works. Furthermore, there is likely to be an increased use of water by people as the temperature rises. Jacob also pointed out the connected risks to other sectors, "cascading failure", such as in the US, where some power stations are failing due to the river water content being too low or the water being too hot to act as a coolant. Areas of the South West US, and elsewhere in the world, have become arid, such that climate change is making some areas uninhabitable. "Water, energy and food are all interlinked."

Martin mentioned that this sounded Armageddon-like, and asked Jacob which of those issues he thought had the biggest impacts.

In respect of finance, the implications are vast. Jacob responded that the World Bank estimated that for OECD countries (those countries in the developed North), investments of 1-3% GDP will be required in order to just keep water supplies at their current levels, even without considering the crisis management of floods and droughts. The challenge is even greater for less-developed nations, such as in North Africa, the Middle East and Central Asia where the estimate is more like 6% GDP. To place this in context, this means that for the UK, there needs to be an annual investment of at least £30B, which contrasts with today's level of £8-10B – i.e. we need to invest in the future three times the level of today, just to maintain the status quo, for infrastructure maintenance or provision. "The sums of money we're talking about are eye-watering."

In Chapter 24, Jacob's first question for the audience was, "How are we going to pay for the water infrastructure required by climate change?"

Martin asked Jacob how water utility funding and finance are changing to meet the additional investment needs, which are already huge, and what change has happened so far?

Jacob replied that both funding and finance were woefully inadequate and that funding wasn't changing. He emphasised that the funding model is currently based around customers paying for consumption and that regulators have focussed primarily on ensuring consumer prices are set at a minimum. "We are effectively borrowing from the past and stealing from the future. We are relying on Victorian or 1950s infrastructure and we're hoping that people in the future will pay for this infrastructure to be maintained. As I say, we are barely running to stand still at the moment."

Due to water scarcity, people are being encouraged to be more efficient in their use of water and thus the industry generates less revenue. In order to maintain incomes, the utilities need to raise prices which, in turn, leads to a further reduction in consumption, and ultimately to a utility death spiral. We need therefore to think differently about the funding of the industry. Jacob suggested a distributed funding model as has been

"The sums of money we're talking about are eye-watering."

Photo by Jingming Pan on Unsplash

Photo by Michael Longmire on Unsplash

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applied in some other parts of the world (he cited Pakistan and Mozambique) whereby the utility company provides the main central asset to supply the water as a service but the local community, using local resources, builds the local network for distribution to end users.

In Chapter 26, Jacob asked his second question, “How can we develop funding models that do not rely on consumption and can consider externalities (such as social and carbon effects on water)?”

Martin asked if the actions taken by the water sector were sufficient to meet the climate challenge. Jacob responded, “Woefully not. It’s all short term. We need to do more off-grid stuff.”

Jacob promoted the encouragement of “off-grid solutions” and the possibility for some areas to become “water net positive” and thus could export water to other local areas, for example, there are buildings in New South Wales, Australia, and a railway station in Bangalore that do this. “They’re actually using rain water, they’re using grey water and they’re able to export water to nearby buildings - but that’s all done at a local scale.”

In order to encourage greater localisation, Jacob advocated greater “water democracy”, and said that the industry needed to be much more transparent about the challenges faced, the implications and the investment required, in order to encourage much greater public understanding.

Local populations need to be more involved in the delivery of their water services. “Part of the key there is to engage the public and get them to understand how expensive this is going to be, and for them to be involved in the delivery of their own water services. We need more water democracy.”

Rainwater harvesting - Photos by Harry Cunningham and Jay Shah on Unsplash

In some parts of the world, local services have been delivered by “sweat equity”, but in the Global North, fundraising is more likely to be via specific funds set up to address local issues, such as that in the Colorado River Basin.

Jacob was unequivocal that the current funding model that we have in the water sector is not resilient to climate change, could not facilitate the changes we require, and that there needed to be disruption.

In Chapter 29, Jacob posed his third question, “How can we engage the public in the debate around water and waste water services?”

In conclusion, Jacob emphasised that “The situation will get worse as we face climate change. We’re not doing the right things at the moment.”

Photo by Hannah Busing on Unsplash

Q&A

During the discussion:

Alan posed three questions to the participants:

1. **Funding:** How should climate change affect the industry's funding?
2. **Know:** What should we already know about what we need to change?
3. **Impact:** How will the very necessary new approaches impact on all of us?

Tseguereda posed two questions to the participants:

4. **Case:** How can the water sector make the case for investment in WASH?
5. **Highlight:** How can we better highlight the contribution of WASH to resilience?

Jacob posed three questions to the participants:

6. **Pay:** How are we going to pay for the water infrastructure required by climate change?
7. **Models:** How can we develop funding models that don't rely on consumption and can consider externalities?
8. **Engage:** How can we engage the public in the debate around water and wastewater services?

During the discussion, Alan, Tseguereda and Jacob asked 8 questions of the participants. The participants' online responses were collated and their views are shown in the following sections 1-8.

Photo by Art Maltsev on Unsplash

1. Funding

How should climate change affect the industry's funding?

Several alternatives for funding were mentioned by the participants as shown in Figure 1. Mixed funding, i.e. funding coming from the customer and public sector, was given high attention with 47% of answers dedicated to it.

Paul de Hoest led the discussion arguing that we need a mixed funding model of retail prices vs public expenditure, given that addressing climate change is a social good whereas consumer prices are a private good. He argued that we need a greater genuine community involvement in strategies and funding, so that the water industry becomes more 'democratic' and society-led rather than too producer-led. In relation to this argument, Virginie Vinel Kolovos MCIM thinks that the pressure coming from regulators, investors, employees and consumers might encourage utilities to be more democratic.

Other answers addressed the need for a balanced approach, initial funding coming from the government towards preventing risks and future mitigation costs, use of taxes on high emitting industries, followed by companies starting and growing stronger by new market openings. Business models for sustainable and innovative technologies should be set in a way so as to ensure self-sustainability in the long run.

Finally, Adrian Rees believes there is a huge demand from impact investors and ESG (environmental, social and governance) financing. He thinks that there is a need for more clarity and convergence on the metrics being used to assess non-financial capital returns (i.e. the appraisal metrics used in long-term decision-making) and that regulators should be encouraging convergence both within and across sectors.

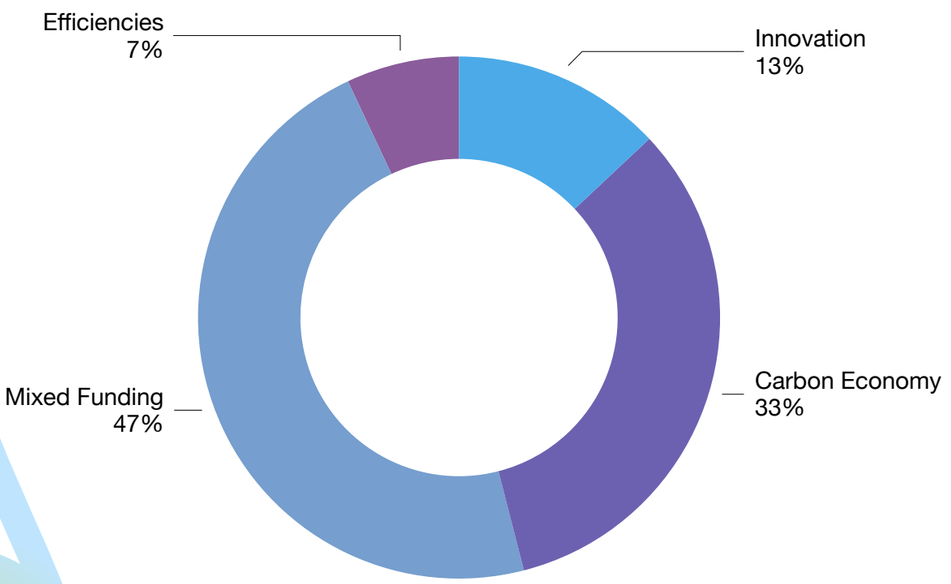

Figure 1 - Participants' responses to Question 1, "How should climate change affect the industry's funding?"

Photo by Mathieu Stern on Unsplash

The second most mentioned subject was about the carbon economy. Several participants believe that an empowered and dedicated carbon economic regulator or even a Government Ministry for Carbon Reduction should ensure that carbon and climate issues are consistently addressed.

Furthermore, a clear definition and carbon-costing pricing is needed for investment balancing, so that water utilities investing towards their net zero 2050 target could assume a revenue from carbon credits bringing down consumer prices, provided that the change was made at a lower cost than the value of the credits.

Jim Marshall believes that the current model isn't particularly suitable to address such big challenges and we need to rethink our relationship with water as a society and how it interacts with everything we do. The industry needs increased and guaranteed long-term funding coming from the national government but also regulators facilitating hybrid funding through grants and private equity which could then lead to accelerated water innovations into commercialisation. Virginie Vinel Kolovos MCIM gave as an example the Horizon Europe EIC Accelerator.

Lastly, Christopher Nankervis shared his thoughts on efficiency, highlighting the need of monitoring the water storage deficit (supply - demand) and rewarding water firms on efforts to adapt water resources to manage and increase efficiencies within a catchment region.

> "water utilities investing towards their net zero 2050 target could assume a revenue from carbon credits bringing down consumer prices…"

"If we begin with certainties, we shall end in doubts; but if we begin with doubts, and are patient in them, we shall end in certainties."

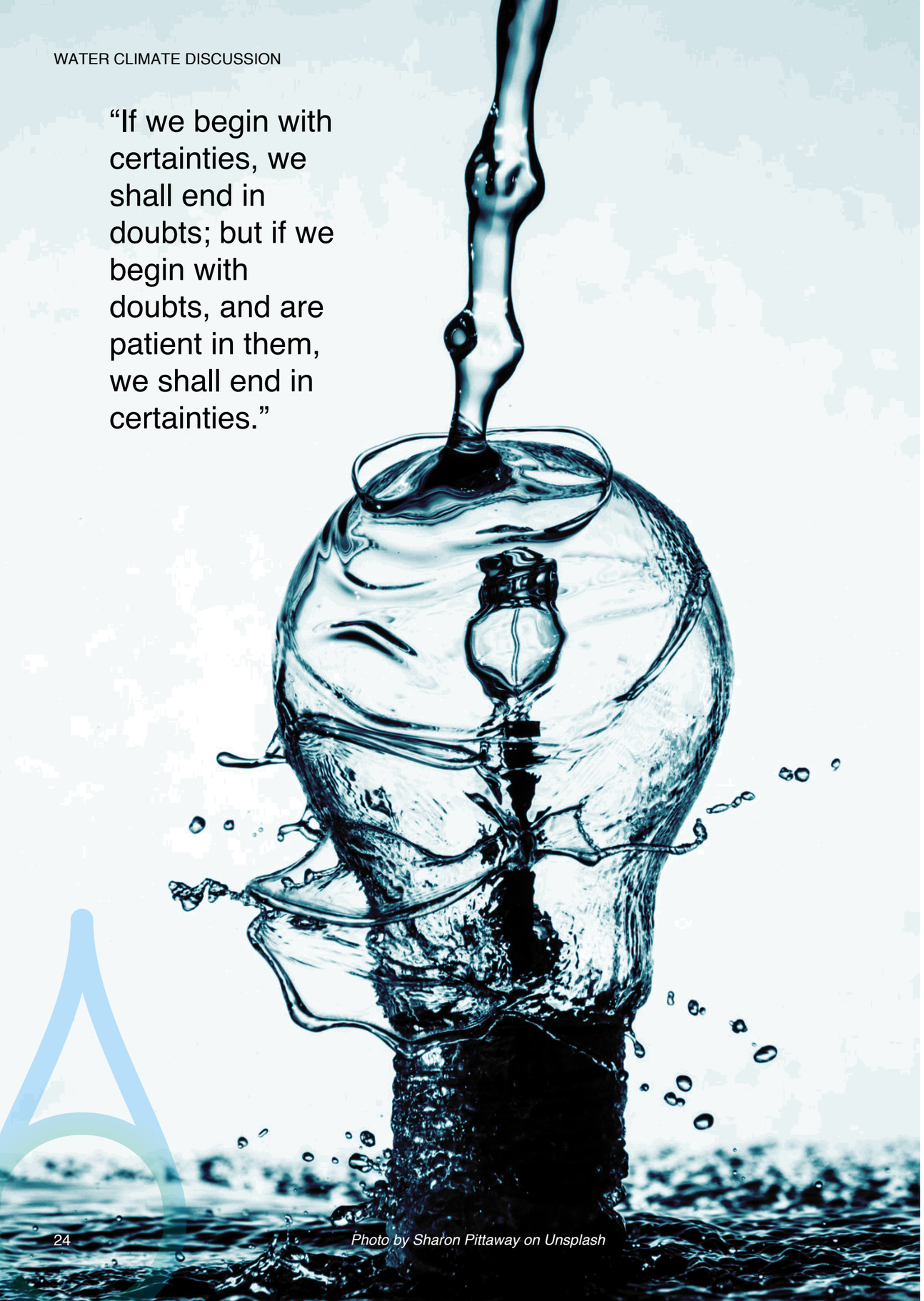

Photo by Sharon Pittaway on Unsplash

2. Know

What should we already know about what we need to change?

The main answers, represented in Figure 2 address the cost involved in dealing with extreme weather events, their impact on services already established and how they will affect prices of services and the poorest people. To face this reality, we should already have a long-term strategy, considering the carbon impact and price of possible alternative technologies, the social price for water leakages in order to stop wasting a scarce resource, among other factors.

Nonetheless, this is challenging in the current context. Adrian Rees thinks that we need to acknowledge that these are messy and wicked problems, which need us to have some humility in accepting that we don't have immediate, precise, one off solutions, so we need to take a more adaptive approach to our planning and delivery. This will need an acceptance in regulatory regimes, that output certainty may need to be tempered by the long-term outcomes goal. He shared a related quote from Francis Bacon "If we begin with certainties, we shall end in doubts; but if we begin with doubts, and are patient in them, we shall end in certainties."

Other ideas consider the impact on increased water usage of changes needed to meet climate change targets, the social impact in jobs and cultural changes, community participation, etc, the need to look for a holistic approach and to not work in isolation. Moreover, strategies will need to account for how sometimes an individual's interests can be an obstacle to innovation.

Figure 2 - Proportional word cloud from participants' responses to Question 2, "What should we already know about what we need to change?"

3. Impact

How will the very necessary new approaches impact on all of us?

Participants' responses to the question of impact are shown in Figure 3.

The main reply from the participants involved a sense of community. Firstly, around the need to stop behaving as individual "customers" and come together with funding and initiatives to achieve a better service. People will need to understand the problem and the likely impacts in the longer term. When people see their day to day changing, they will grasp an understanding of the reality we are facing and change their behaviour in all the aspects related to climate change. As we experienced with COVID-19, when our daily life is impacted, we give attention to the issues and demand more from our leaders.

Secondly, a strong collaboration is needed between all actors of society working together to reduce environmental and economic impact. An example given by Scott McCrae demonstrates the greater need for companies involved in the delivery of capital improvement to form collaborative R&D centres of excellence to develop and share best practice. They also need to involve universities who have played a key role in looking at emerging approaches and technologies. Currently this happens via Scottish Enterprise and Scottish Water, but more needs to be done to increase the inclusion of all companies who contribute to asset improvement within the water industry.

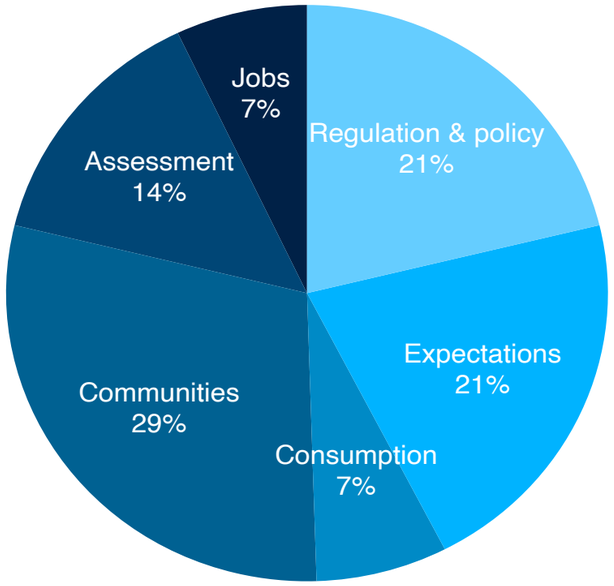

Figure 3 - Participants' responses to Question 3, "How will the very necessary new approaches impact on all of us?"

Regulation or policy and public expectations were considered in 21% of participants' replies. It has been evidenced by the participants that today's level of compliance would not be sustained in the future. Customer's expectations need to be managed to balance higher prices for the service and lower certainty in service quality, even an approach where we would accept a minimum level of service but willing to put in extra effort, in money, organisation and technology for instance, to get a better service as a local community. Jane thinks that it is unrealistic to expect customers to pay more to help the water sector to manage climate change impacts and this warrants a rethink of short-medium-term regulatory objectives.

In the participants' view, there is a need for governments to work together with both public and private regulatory authorities to ensure policies are realigned in this sector as well as incorporation into countries' national development plans. The short-term regulatory periods should be replaced by potentially a combination of long-term, carbon-costed plans and short-term achievable goals.

Moreover, we know of the many opportunities for water utilities to contribute to emission reductions, e.g. methane reductions from better wastewater treatment, reduced fossil fuel consumption by system reconfiguration to reduce pumping and draw energy from the water itself. Tony Slatyer thinks that with the right regulatory framework, the sector can be incentivised to innovate the technologies for these outcomes.

Other answers included the impact on jobs and digital innovations to track consumption patterns, the importance of including societal impacts and outcomes in value / investment assessment and strengthening democratic decision making via an informed forum and citizens assembly.

"…greater need for companies involved in the delivery of capital improvement to form collaborative R&D centres of excellence to develop and share best practice."

4. Case

How can the water sector make the case for investment in WASH?

For most of us, the case is a strong “spending now improves future lives” but we need to put the message out there. As Tony Slatyer mentions, “WASH contributes to social cohesion, health, education and other social and economic outcomes which in turn strengthen the society's resilience and capacity to adapt to climate change”.

5. Highlight

How can we better highlight the contribution of WASH to resilience?

Adrian Rees suggested that a more systems-based approach to resilience would likely show that WASH investment brings numerous advantages globally, so this would appeal to our self-interest as well as philanthropy.

Lmfonsecaa highlighted the importance of data sharing, tapping into the information and examples already available, that show how the lack of WASH is causing problems currently and the steps taken to solve them.

Crops damaged by flooding in Ethiopia - WaterAid/Frehiwot Gebrewold

6. Pay

How are we going to pay for the water infrastructure required by climate change?

A wide variety of responses with ideas and proposals to manage how we pay for the water infrastructure required by climate change were shared by participants. Both Paul de Hoest and Jim Marshall believe that we need a clear understanding of the future investment needs and the future vision for water, to advise the method of payment.

Others, including Tseguereda, proposed alternative funding models such as water derivatives, private sector funding and long-term bond financing. Virginie Vinel Kolovos MCIM raised the point that we, as consumers and customers, may not wish to have large scale private investment in the industry.

Several participants raised alternative tariff regimes, such as varying tariffs to drive down consumption; Tony Slatyer noted that these tariffs have been successful in reducing consumption in Australia. With clean safe water considered essential for public health, Chris Mance asked if we are reaching a stage where customers pay what they can afford, therefore linking water bills to consumption but also to income.

Tony Slatyer made a valid point that customers only pay for the treatment and conveyance of water, should customers pay for water itself as a finite resource? This aligns with the view of Rob Bradley CEnv. MIWater, who proposes educating customers on the true costs of water in the context of a “water footprint”.

Jim Marshall commented, “It all depends on what our vision for water is in the future - is it about paying for what we have now or is it about articulating a different water future - personal consumption but also embedded consumption.”

“It all depends on what our vision for water is in the future - is it about paying for what we have now or is it about articulating a different water future - personal consumption but also embedded consumption.”

7. Models

How can we develop funding models that don't rely on consumption and can consider externalities?

Participants' responses broadly fell into four categories, as shown below in Figure 4.

Scott McCrea articulated the ongoing changes from petrol- and diesel-powered engines to battery power, in the car industry, and the change in public perception that has brought about. He also highlighted the role that social media can play in a wholesale change in mindset of this magnitude, commenting that, "… one of the most powerful approaches is the use of social media to shift public mindsets and acceptance, to pay more for the long term sustainable future of the water industry."

The relationship between water and energy, particularly green energy generated within the water sector and community green energy generation, was highlighted by Paul de Hoest and Rob Bradley CEnv. MIWater as an effective alternative funding model for the water sector. This has the effect of reducing energy costs and generating income.

Over many years and investment cycles, there has been a drive towards centralisation of water and wastewater systems. Christopher Gasson and Jim Marshall both suggested that a hybrid approach with both centralised and decentralised systems (similar to private supplies) would bring benefits in terms of funding. Careful consideration is required to ensure that the responsibility for quality and protecting public health is clearly understood and regulated effectively with any decentralised systems.

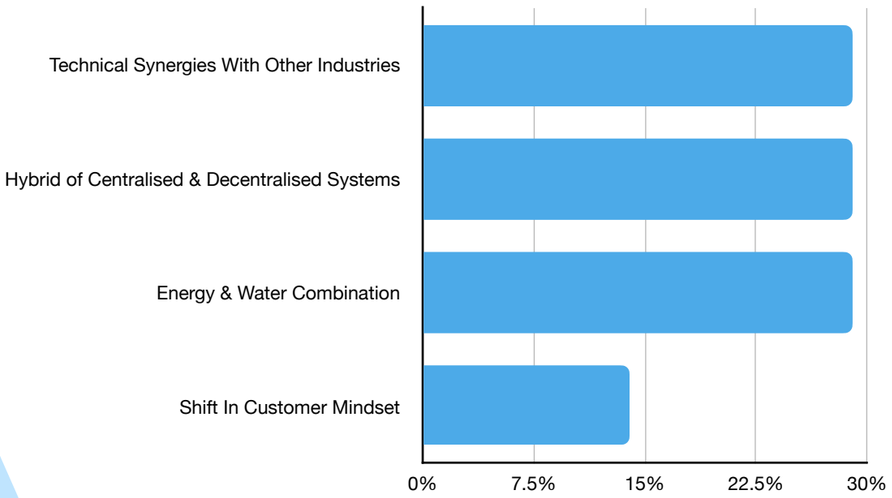

Figure 4 - Participants' responses to Question 7, "How can we develop funding models that don't rely on consumption and can consider externalities?"

Finally, Virginie Vinel Kolovos MCIM and Paul de Hoest agree that there may be lessons and experiences from other sectors and industries that the water sector can tap into and learn from. This could take the form of the introduction of new technologies, applying climate change solutions to manage other water sector needs and developing business models with a social purpose.

"…one of the most powerful approaches is the use of social media to shift public mindsets and acceptance, to pay more for the long term sustainable future of the water industry."

Photo by Steve Gale on Unsplash

8. Engage

How can we engage the public in the debate around water and wastewater services?

Figure 5 shows a random word cloud of participants' responses to Question 8.

There was a common theme running through responses to Question 8, related to raising customer awareness and involving them in their water future. Tseguereda advised that there are many examples of very effective engagement in Ethiopia, these could be scaled up and given a climate focus to help with this engagement worldwide.

Saravanansumi, Virginie Vinel Kolovos MCIM and Tony Slatyer all made the point that the true value (or cost) of water is not widely understood, so public perception of the true value of water must change.

Adrian Rees and Lmfonsecaa took this a step further, identifying the areas where wider consumer education is needed and also the experience that the UK water sector has in customer engagement. In Adrian's words, we have "a lot of learning from UK customer engagement and research, both on how to and how NOT to elicit customers' views and involve them in their water future. Educational modules and gamification appear to have a lot of untapped potential."

Adrian Rees also commented, "Appreciate what Jacob is saying, that to some extent this is simple - but that's the view of those of us working in the sector for a long time. Compare that with Water UK's latest survey that shows that only 3 in 10 adults have heard of the need to save water. A big gap to bridge."

"Water UK's latest survey shows that only 3 in 10 adults have heard of the need to save water. A big gap to bridge."

Jim Marshall and Martin Osborne also built on these points, adding that water is rarely considered in day to day life in the UK but yet, when questioned, customers have demonstrated a willingness to pay more than what regulators require for resilient and sustainable services, indicating that customers will respond favourably when the facts are presented to them.

Michelle Ashford's comment "need to get customers/public 'interested' in water" in many ways summed up the discussion.

Tony Slatyer commented, "Be honest about the true value of water and the consequences of it being underpriced."

"Be honest about the true value of water and the consequences of it being underpriced."

Figure 5 - Random word cloud from participants' answers to Question 8, "How can we engage the public in the debate around water and wastewater services?"

Photo by Erik Mclean on Unsplash

"need to get customers/public 'interested' in water"

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Conference

The **Water Climate Discussion Conference** on 5, 12 and 19 October 2021, from 9:00am. The Programme and Registration details are here.

FURTHER EVENTS:

Live from COP26	TBC November 2021
Conclusion and Next Steps	1 December 2021, 9am

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