

CIWEM 5th DECEMBER 2018 Water Resources: Are we fit for 2050?

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Firstly, thank you to Rob Lawson for inviting me here today to present from the perspectives of the social sciences. For those of you who don't know me I am an environmental social scientist with a background in psychology, sociology, and human geography. I come to this conference with a number of years' experience working for CSIRO in Australia on water demand and infrastructural development during the Millennium Drought. I have worked with the UK water sector for approximately 9 years. My main focus in that time has been thinking through whether we can use social science theory to open up this black box of water demand, and the deep uncertainties we have around future water demand. I have been engaged with a range of water sector stakeholders in academic and industry funded research to see whether social science can help us to think more completely, deeply, and holistically about the complexities of current and future water demand.

I do not come here as a policy maker or policy researcher. I am not a consultant or a whizz kid in water demand modelling. I have no control over the programs and processes and regulatory responsibilities involved in PR19 and beyond.

But I do come here as a critical friend. I do ask the naïve and the hard questions, but with a collective commitment to work alongside the water sector to think about how social science can help to reimagine the practices and procedures related to water demand and water futures within the UK. Because we have a lot to say, us social scientists, we have a lot of big questions to ask. But we need to work together more deeply, in a transdisciplinary way across the various water sciences, social sciences, policy, business and other sectors, to work towards the visions set out in policy documents such as the Ofwat report by Artesia in April this year.

So within my contributions today I provide very few answers, and will be more focused on big questions. I want us to ask how the water sector has come to know its water consumers, and how we might reimagine some of the assumptions we take for granted about everyday practices and water both now and in the future.

As a starting point I ask 'how do we know the water consumer of today'?

Current conceptualisations of water demand are associated with a set of problematic characterisations and assumptions. Specifically in the policy and research context of water in the Global North - behaviour and resultant water demand is characterised in these particular ways.

- 'People' are characterised as rational (that is, they can easily change their behaviour related to resource use);

- they are also irrational (their behaviour deviates from the rational course of action as a result of issues such as insufficient information or lack of skills/capability);
- they are resource focused (they make resource use decisions based on the environment such as knowledge of water supplies or energy consumption/carbon emissions);
- they are economically focused (they make resource use decisions based on economics and costs of water and energy or other products);
- they are technologically focused (they are interested, engaged and savvy with technologies);
- and they are responsive (to technology, to cost, to information provision, to what other people pay or consume).

But such rationalisations of human behaviour, which are largely derived from behavioural psychology and neo-classical economic theory, are rolled out in water and energy demand programs across the world. This is despite it being shown in primary research studies and research reviews, that such understandings have limited correlation to everyday practices that consume water. These ways of framing water demand produce a particular narrow enactment of the water consumer. These approaches underpin research and business investment for water efficiency programs, broader water demand management programs, and supply/demand forecasting worldwide. As the Australian water researcher Zoe Sofoulis neatly puts it, the industry is locked in a (retarding) quest for the average water consumer and does so in a way that skirts complexity within business models and practices.

We see this in the UK in targets such as a lower threshold of desired household pcc – that focus on a target pcc hides already existing diversity amongst the population and the widest variety of water consuming practices in society from the most frugal to the most water thirsty. Such a focus on pcc denies an exploration of the diversity of water practices within a household – generational or gendered differences in showering and laundry. It ignores that people don't necessarily always maintain the same water using profile across their life course – think of the resource intensive periods of time after families have just had a baby, or that period of time when you were so dedicated to being a gym junky or cycling to work that you were showering at home and out-and-about. A target pcc sees water use as a static target – it doesn't reflect that at some points of our lives we may use more water than others; and that we don't always use water just within the home.

These narrow ways of knowing the consumer are then linked to the modelling of current and future demand, which is then used to plan for future water infrastructure. While there are some fascinating examples coming out such as the OFWAT report on "The long term potential for deep reductions in household water demand" there is still a long way to go to move beyond the average consumer. This is not just about an acknowledgement that this complexity exists, but thinking about designing systems for monitoring and planning for demand in a way that reflects this already existing diversity amongst our population.

This planning for the average consumer restricts innovation when it comes to planning for water demand, and when we think of some of the programmes and metrics it spurns. We see this in the increased experimentalism within water demand and water efficiency programmes. There has been

for a number of years an industry wide push to increase the evidence base of intervention programs largely focused on retrofitting technology and environmental/efficiency messaging. But what is it that these programs are evidencing? When it comes to building evidence for water demand and water efficiency programs, I think we need to ask some more critical questions as to whether the industry is now deeply invested in evidencing a priori knowledge about what works for water efficiency, rather than fundamentally questioning and reimagining the complexity of water demand and how it emerges, is maintained and is expressed in daily life. And reimagining what those daily lives might look like in uncertain water futures.

Following some papers by Law and Urry in the early 2000s, in some of our work (Browne et al., 2015) we are asking the questions: what do these current methods of evidencing action in the water sector create? What realities are they helping to generate? What possibilities are methods and metrics of counting success within water demand and water efficiency programs opening up? Possibly more important, how can we be more critical about what sorts of possibilities these metrics and methods of counting success for water efficiency close down? Do the metrics of evidencing that are used in the sector configure it to create only incremental change rather than radical innovation to address the challenges of 2050/2065? We need to be, as a sector, asking these more critical, reflexive questions for PR19 and beyond.

As well as homogenising the water consumer, another way that the industry skirts complexity is by failing to reflect the reciprocal influence that supply systems have on everyday actions. That is, supply systems and related infrastructures and technologies - from the household to the city - shape expectations about service levels, and mediate end-use demand in non-linear ways. The household technologies and infrastructures for water and hot water that emerged a few decades ago shape our expectations today for what Elizabeth Shove calls 'cleanliness, comfort, convenience'. Water use is shaped by cultural expectations as well as unexpected technological and ecological change. In this way water cultures and the practices that we do that consume water in our homes, communities, are not static – so why do we plan for them as if they pretty much are? Why do we take current demand patterns, and average consumption, as a baseline for thinking through future water? it also potentially restricts the creative potential in imagining intervention programmes and campaigns related to water use. The reimagination that has to happen for uncertain water futures is not just one of shower heads, or shower timers, but of a complete reordering of the infrastructural and technological circumstances of our homes and communities to make it easier for people to create 'comfort, cleanliness, convenience' in their life but to do so in water-reduced, or even where possible, water-free ways.

So there are questions here that can be asked about whether in the UK we are being bold enough in collectively reimagining the social, material, and temporal ordering of our lives in ways that make it convenient, possible, for us to be more water efficient, while still delivering health, sanitation outcomes for humans, and maintaining water in rivers for our amazing animal, bird, and invertebrate communities. I think that the sector has shifted substantially in the last decade as to those visions but now we need action.

There is also a recognition that as well as needing to move beyond the average consumer, we also need to move beyond just the engaged consumer as a focus of water demand and water efficiency initiatives. Programs that focus on direct engagement, education are naturally going to be limited to those who are currently already quite engaged. How do we get to, as my colleague Claire Hoolohan and I were talking to Northumbrian Water about the other day, the illusive groups that don't engage with water efficiency? How do you engaged the unengaged? Our perspective there would not be to try and just make sexier campaigns, but for the sector to have a fundamental rethink about who and what we are imagining for our water futures. As I will explore now to do this requires working collectively to think of more creative, systems focused approaches to changing water demand that shifts beyond the individual consumer and direct engagement.

Planning for the Future – who are we imagining?

So what happens when we shift an analysis from the rational, engaged, technologically focused consumer who is thinking about the environment and the resource of water to focusing on what people are actually doing when they consume particular resources in their everyday lives? Potentially counter intuitively for those in the water industry I believe that to really think about the deep reductions required for 2050 and beyond we need to let go of the focus on water and to instead focus on the services such resources provide in everyday lives and how these services could be more sustainably provisioned.

What happens when we instead think about:

- people as service focused (interested in cleanliness, freshness, comfort of bodies and homes and clothes, and different meanings of the garden);
- people are doing day-to-day lives (resources are used as a response to peoples' trivial, routine and habitual daily lives of travelling, eating, and looking after others, the self, the garden, the home);
- when we think seriously about life course matters (resource consumption changes in relation to a person's life stage/course and the life course of those around them – babies, toddlers, teenagers, commuters, retirees, elderly);
- that people use water not as individuals but as a way of doing shared social conventions even if those practices happen in really private spaces (patterns of resource use reflect shared cultural conventions, and these change and shift over time influencing end use consumption e.g., ideas and practices of cleanliness);
- that they use technology in unexpected ways (technology influences behaviour but not in the ways expected and it co-evolves and increases expectations, for example, of cleanliness);
- that infrastructure matters but more in how demand co-evolves with supply systems and constant supply, change the supply you change the demand and vice versa.

Water use occurs alongside other resource consumption – water, is connected to food, is connected to energy, is connected to waste – when we analyse it from the perspective of everyday lives, new

opportunities open up for resource governance and intervention. So water bundles with lots of other resources, and lots of other practices in homes and communities.

The analysis from the social sciences around these dynamics of everyday practices encourages us as a sector to be much wilder, innovative, creative, collaborative, and to think outside the box. This is not just designing one campaign but for us to collectively reimagine how we change the systems in which a diverse range of practices that consume water take place.

This is so much more than just getting people to value water as a natural resource more than they do now. Of course deepening hydrosocial understandings in this society is essential – people need to know the natural world. But knowledge about that natural world is not likely to shift water use practices to the deep reductions we might imagine to be necessary in future scenarios such as the OFWAT/Artesia Deep Reductions report in April this year. And we can't, and shouldn't, wait until crisis hits to start reimagining these deeper systemic changes. The 2018 summer should be a lesson enough that we need to consider how practices and lifestyles coevolve with environmental change and infrastructure.

This reimagination has implications for water governance. To change systems that shape water use and everyday practices, we need to get creative and collaborative in creating cultural change, alongside other technological and water resource governance considerations.

This sits outside of the responsibility of water companies singularly and requires a coalition of actors to mobilise to consider the complex ways that water demand is “created and distributed” across bodies, households, public spaces, water infrastructures, spaces of design and manufacture, beauty care industries, garden and lifestyle designers and manufacturers, and regulatory systems. It is how all of these sectors and distributed actors come together that shapes our water demand, as well as other influences on the social, material, and temporal ordering of our everyday work, home, and community lives. There is no “one actor solution” to reimagine social and infrastructural landscapes for water futures. To still somehow provide the services water currently provides at a fairly consistent level of service provision in the UK (family care, lifestyle, cleanliness and hygiene, health, comfort etc.), while still delivering ecological benefit needs to come from a distributed responsibility (see Evans et al., 2017; Browne et al., 2014) for shaping water cultures, technologies and infrastructures in a way that delivers water services in a way that is water efficient.

This has significant implications for Future Water Partnerships. In our teams we advocate for building partnerships, building wider understandings of socio-cultural and technological and governance innovations for uncertain water futures.

So as I mentioned at the start of the lecture, I don't come here with answers but was invited to be the person asking some critical questions. In summary, I think we need to think more seriously about:

- How do we come to know the water consumer of today?
- What restrictions do our methods and metrics place on really understanding and reimagining the complex relationships between culture, infrastructure, technology, everyday practices, and environmental change?
- How do current metrics for measuring success in the water sector simply evidence *a priori* knowledge and incremental change, rather than invoking radical transformation?
- How can we mobilise as a coalition of actors within and beyond the water sector to more creatively imagine alternative water futures for the UK?

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Some of this text emerges directly from papers that are already published. If you would like copies of any of these, and cannot access online, please contact alison.browne@manchester.ac.uk

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