What's next for water efficiency engagement? Listening to UK public and water managers

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Abstract

The water scarcity problem in the UK is exacerbated by climate change and rising household water use that is attributed to population growth and high-consuming patterns of domestic usage. Recent studies on public engagement to achieve behaviour change for water efficiency suggest that on the one hand, there is public expectation for increased water efficiency support and the other hand, water companies are seeking new ways to enhance water efficiency engagement. However, whilst the public face the challenge of inadequate access to support to change behaviours around water use, water managers grapple with how to effectively plan and deliver initiatives that can disrupt undesirable patterns of water use in households. And although there is increased public awareness of water scarcity and pronounced desire for water efficiency support, the literature lacks pointers in the direction of innovative forms of such support.

This paper therefore explores back-end and end-use experiences of water efficiency engagement in the UK to balance the frame of water governance between people and practitioners. It aims to elucidate the UK public's expectation for improved water efficiency support and to identify practical actions that water managers can take to meet those needs and by so doing, contributes to equitable responsibilisation and coalition in the protection of water supplies.

A systematic literature review was conducted to understand the current challenges facing water efficiency engagement in the UK. This was followed by two primary surveys developed and administered to 70 UK residents and to 33 water managers across 20 organisations respectively. The surveys aimed to explore two influences of behaviour change activities on the part of the public and water managers: attitudes and capabilities.

Our research findings suggest that whilst the UK public recognises its agency to reduce water use but require innovative and collaborative tailored support interventions to achieve behaviour change, water managers face difficulties gaining senior management and customer buy-in when planning and delivering such activities, and their confidence in undertaking evaluation is particularly low.

In view of our research findings and to improve water managers' response to the public's call to action, we propose the development of a collaborative and tailored multi-stakeholder intervention such as a customer/ public workshop that addresses specific usage practices from social, cultural, and material perspectives. The stakeholder group should include professionals who by virtue of their knowledge, expertise, or production, have the capacity to influence the usage practices in focus and can help recognise, reinforce, and (re-) establish desired socio-material and sociocultural patterns as well as support structures that shape usage for participants. Further work is recommended to explore the delivery of such intervention through cross-sector thinking and impact monitoring and evaluation.

Keywords: Water efficiency, behaviour change, public engagement, water demand management.

Introduction

"Behaviour change is noble in principle but… to increase the reliability, activities will need to be: (1) scaled (2) planned and delivered collaboratively; (3) complementary to technology; (4) evaluated using different metrics"

On the public:

- Participants were more likely to be aware of the UK water scarcity issue if they had had a recent and vivid water efficiency engagement experience.
- However, 87% of those who had had a home visit said that they were not engaged in simple conversations about behaviour change during their visit and had no follow-up communication with their water company.

- People desire increased understanding of their agency as water users and want tailored support to make lifestyle changes and take practical actions to reduce their water use.
- The top 2 tailored support interventions desired by the public were: (1) designation of a Water Efficiency Relationship Manager to every household; and (2) participation in collaborative workshops to address high water-consuming usage patterns relating to what we call the 3L&S Circle of Concern comprising lifestyle habits, leaks, and laundry and showering.

On practitioners:

- The top 3 channels through which practitioners deliver water efficiency engagement include: (1) website; (2) social media; and (3) community spaces.
- Practitioners cited lack of company support and customer buy-in as two of the top-3 challenges faced when planning behaviour change campaigns and said that they require increased support to better plan, collaboratively deliver, and soft-evaluate such activities. Nevertheless, they said they were more confident applying social science strategies whilst delivering of water efficiency campaigns.
- Out of the 69% of practitioners that claimed that they learn from failures of water efficiency interventions, 60% said they do not document such lessons, and at least 1 in 5 reported that their organisation did not have a repository for campaign activities.
- The top 2 support needs highlighted by practitioners include: (1) wider sector collaboration with water managers, academics, and skilled experts to improve planning, delivery, and particularly evaluation; and (2) training on applying less-explored behaviour influencing tactics during engagement.

Background

The UK's water scarcity problem has been worsened due to the impact of climate change on availability and as a result of population growth and high-consuming patterns of water use. It has thus become clear that achieving water security is not merely about ensuring freshwater availability but should also be rooted in increasing end-use efficiency. And sustainable access to adequate quantities of an infinite resource such as freshwater should require driving conservation so that what is available is used wisely and future water resources are safeguarded.

There have been recent calls for multiple stakeholders such as policymakers, academics, water practitioners, and the public to increase actions within their various capacities to enhance household water efficiency. More notably is the bidirectional flow of expectation between two key stakeholders – water companies and water users. On the one hand, water managers continue to increasingly call upon the public to maximise their agency and do more to increase water efficiency. On the other hand, water managers are under pressure to increase responsibility for water and improve public engagement as was seen during the recent spate of summer heatwaves and declarations of drought and hosepipe bans where despite high public receptivity to hosepipe bans (Waterwise, 2022), media clamour around other issues such as leakage records and water companies' poor communication of their shared responsibility to address such issues were found to undermine public calls to reduce water use (CCW, 2022).

In the past decade, public engagement to reduce the usage and wastage of water has emerged as an integral part of ensuring a sustainable water system. However, the current water demand management landscape in the UK is still characterised by public campaigns that disperse universal water conservation information but do little to tailor water efficiency calls to action to water users. And even when delivered in person, water efficiency engagement activities that seek behaviour change are typically one-and-done interactions to pass on water efficiency information to the customer and are usually appended to retrofitting projects which are often and overly relied upon for measured water savings. However, if water efficiency engagement is to be nuanced and maximised and long-term water security is to be achieved in the UK, the boundaries of behaviour change activities will need to be pushed.

Literature review

There is evidence in the literature to suggest that public consciousness concerning water use has risen in the UK (CCW, 2016). However, behaviour change for water efficiency continue to be stifled due to lack of knowledge, tools, and resources at the public's disposal (see Ajia, 2020) to ingrain habits which by far are the most important predictors of water conservation (Russell and Knoeri, 2022).

Most people adopt new behaviours when they have successfully moved through key stages of change and solidifying change hinges on one's ability to maintain new or emerging behaviours. The challenge however is that the current water efficiency engagement approach dominating the UK landscape expects the public to contemplate usage and prepare to act for change independently, with minimal intervention from water companies. Only when water efficiency calls to action are dispersed to customers via informational campaigns or are communicated during fit-and-forget home visits do customers become fully aware that they are generally expected to change water use behaviours.

In recognition of the inadequacies of informational campaigns and fit-and-forget interventions, Waterwise (2015) critiqued the industry's sudden and situational switch on of engagement, calling for the 'continued move away from giving out water efficient devices and top tips towards more tailored and personal water efficiency delivery..' And whilst personalisation is key to preventing short-lived behaviour changes or rebounds of high-water usage, it is a feature rarely provided by typical dispersive informational campaigns or fit-and-forget interventions.

This is affirmed by literature evidence which indicate the low impact or outright ineffectiveness of informational campaigns (Moglia et al., 2018) as well the temporality of water efficiency achieved through technical interventions which exclude 'education' or feature it as a supplementary activity (Stewart et al., 2013; DEFRA, 2014). For instance, whilst informational campaigns may increase awareness, they do not necessarily lead to behaviour change (Koop et al., 2019). And when maintenance do not take place after technical interventions such as retrofitting, realised water efficiencies plateau over time or are not sustained long-term because of the absence or reduced consciousness around water use below technological restrictions or due to reversion to old water-inefficient behaviours (see Knamiller, 2006; Stewart et al, 2013; Hamling et al., 2018).

To address the ineffectiveness of the current water efficiency engagement approach, literature proposals for practice improvement point towards provision of enhanced support to the public to sustain new or emerging water-efficient behaviours using active two-way engagements that are adapted to the preference of the audience and the nature of the message (see Borca et al., 2016; Ajia, 2018, 2020; Bevan, 2019; Ajia et al., 2021). In this light, our current research explores how water efficiency engagement could be advanced to address two gaps: (1) the passive engagement between the public and water companies prior to and after the 'action' stage of behaviour change; and (2) the absence of maintenance activities to avert the termination of water-efficient behaviours, rebound of high-water usage, or relapse of water wastage.

Methodology

This research was conducted between January – May 2022. To begin with, we conducted a systematic literature review to identify the challenges faced by the current water efficiency engagement landscape in the UK using recent e-publications that were selected based on meeting the following criteria: (1) focus on enhancing behaviour

Figure 1.1 Location of sample.

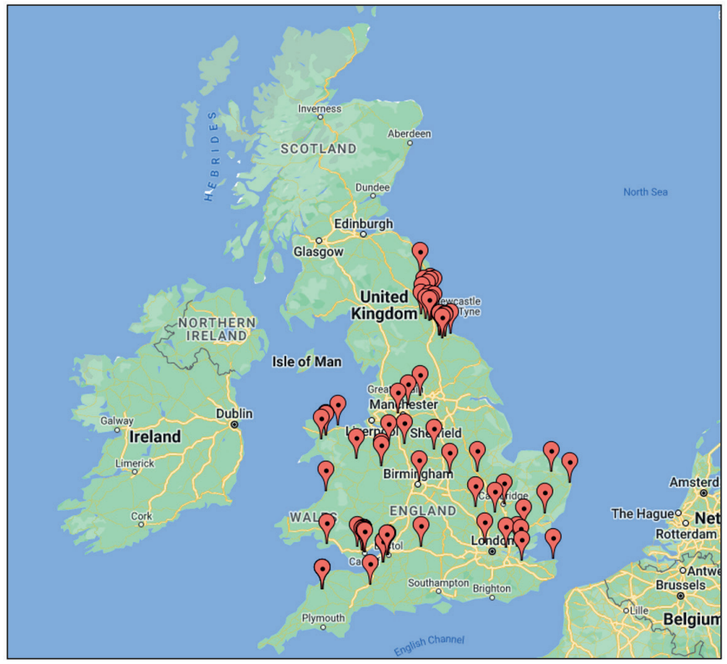
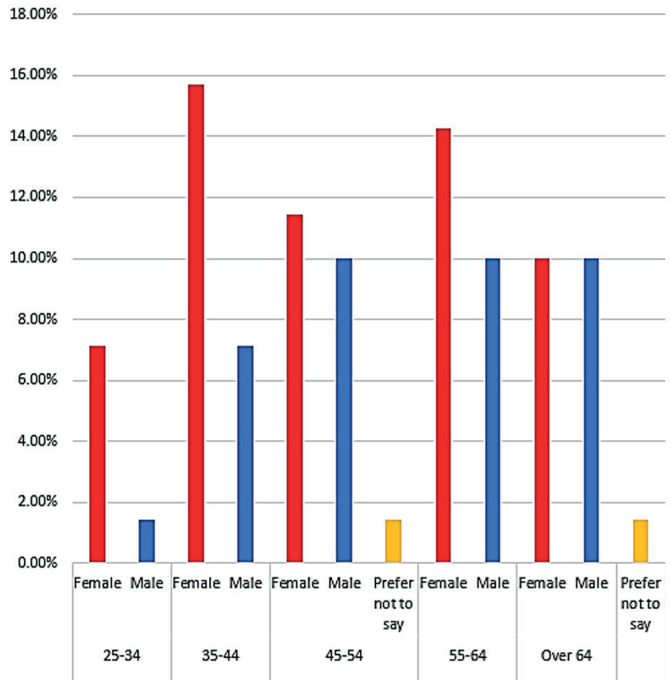


Figure 1.2 Age and gender distribution in sample.



change in the UK context; and (2) descriptive in nature, with a call to action.

Thereafter, we used emerging themes from the literature review to design primary research that comprised two parallel studies: (1) a survey of 70 UK residents to understand people's water efficiency support experiences and future needs; and (2) a survey of 33 water practitioners across 20 organisations to understand attitudes towards water efficiency engagement and to identify practice support needs in relation to planning, delivery, and evaluation. Henceforth, both surveys will be referred to as the public survey and practitioner survey respectively and both studies will be referred to as Study I and Study II.

The public and practitioner surveys were hosted online. Both surveys were publicised at the 2022 Waterwise Conference, after which the public survey was shared with customers through some water companies' communications teams, and the practitioner survey was shared with Waterwise's industry networks. It is important to highlight that the participants for both studies were recruited via convenience sampling and this non-probability method can bring the generalisability of the research findings into question, particularly for Study I because respondents were customers whose e-contacts were known to their water company's communications team and to some degree, they would have had a baseline interest in engaging about water. Also, the distribution of these respondents across geographical areas could have been slightly skewed by the degree to which water companies' communications teams promoted the public survey to their customer base to increase uptake.

About Study I:

Participants were 70 UK residents, with the top-2 participation levels being from Northeast England and Wales (see Figure 1.1). Our public sample had a fair distribution of key sociodemographic factors that influence water usage and by extension, water efficiency, including, age, gender, education, household occupancy, and ownership of a water meter (see Figure 1.2).

Figure 2.1 Meter ownership and occupancy.

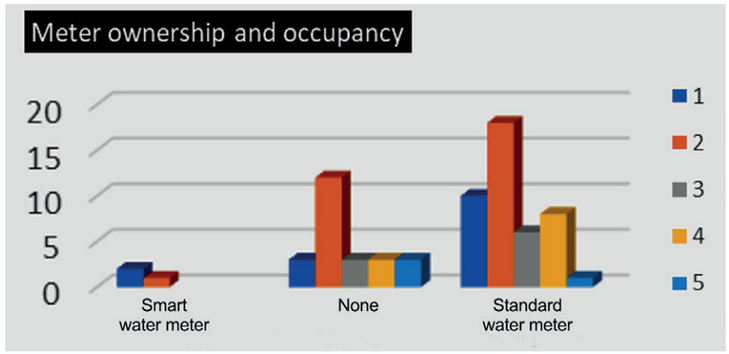


Figure 2.2 Education and awareness of water supply issues.

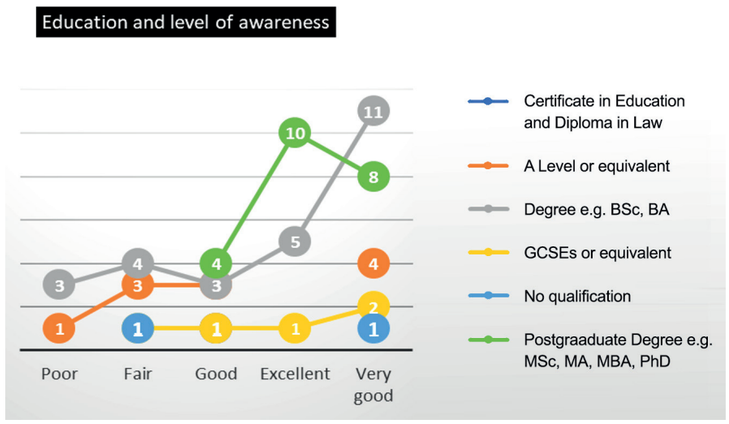
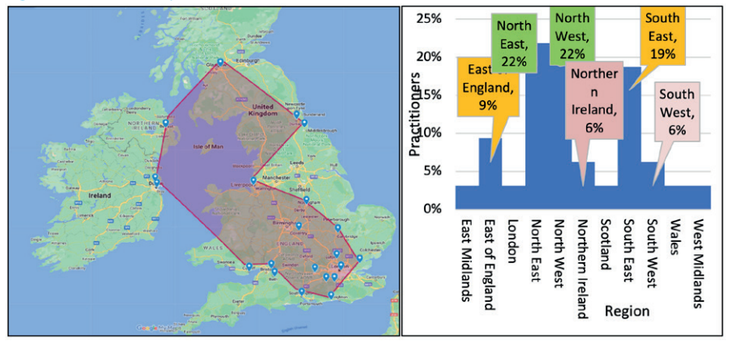


Figure 3 Where water practitioners worked.



As shown in Figure 1.2, our sample comprised 59% female, 39% male, with participation highest amongst the 55-64 age group.

All participants were responsible for paying their water bill. 34% of participants did not have a water meter while 66% were metered, out of which 62% were on a standard water meter and 4% were on a smart water meter (see Figure 2.1). And more participants with degrees or postgraduate degrees reported that they had good – excellent levels of awareness of UK water supply issues than those with lower levels of education (see Figure 2.2).

About Study II:

In the second tranche of the primary research, we administered a survey to water practitioners to explore opportunities to enhance the practice of water efficiency engagement to meet the public's water efficiency support needs.

Notably, 44% of the practitioners who participated in our study worked in the Northeast and Northwest regions combined; over 34% worked in the Southeast, East and Southwest regions combined; and 6% worked in Northern Ireland (see Figure 3).

At the time of the research, 66% of the water practitioners worked on behaviour change campaigns and 52% said they had been working in relation to water efficiency for less than 10 years. When we explored the aspects of behaviour change campaigns that the practitioners were involved in, it emerged that most were involved in planning and delivering face-to-face water efficiency interventions but had little to no experience conducting evaluation of such activities (see Figure 4).

Key findings I

Public attitudes towards water scarcity

Using true statements, we asked public participants about their knowledge of the issue of increasing water demand on a national scale as well as on a household level. Responses indicate that participants were slightly more aware of the overarching problem of water scarcity in the UK than they were aware of usage, wastage, and efficiency (see Figure 5.1). Notably, we found a link between recency of water efficiency engagement and public awareness of water scarcity and demand management plans (see Figure 5.2), with all participants who reported that they could not remember their last water efficiency-related contact with their water company also claiming they did not know that the UK is facing a water scarcity issue and had not been informed of plans to balance demand and supply during PR19 (between 2019 - 2024).

Figure 5.1 suggests that influences such as lifestyle habits, everyday water usage practices, and the configuration of water systems in households are not typically at the forefront for people when they consider the daunting issue of water scarcity. However, as Figure 5.2 demonstrates, people are much more likely to be aware of the contexts of the UK water scarcity issue if they have had a recent and vivid water efficiency engagement experience.

Figure 4 Practitioners' involvement in aspects of water efficiency engagement.

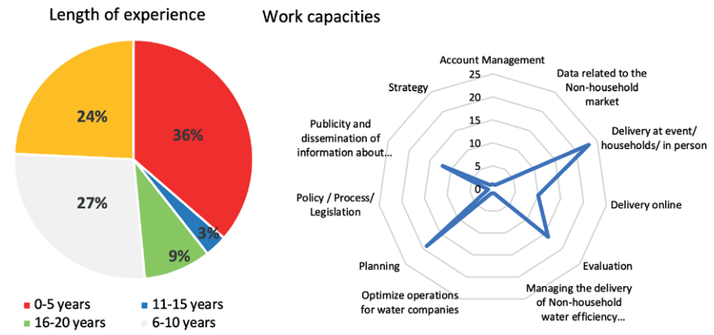


Figure 5.1 Awareness of water scarcity issues.

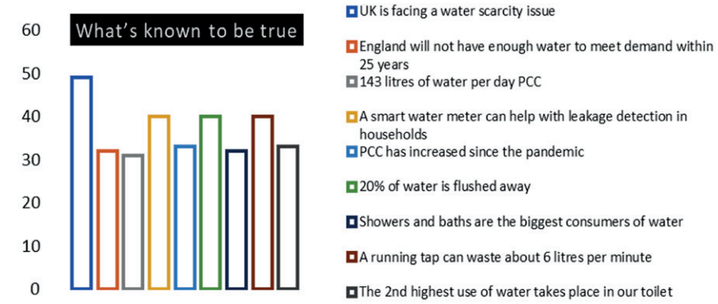
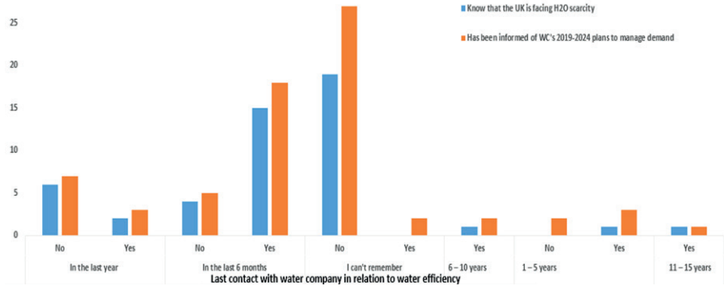


Figure 5.2 Linkages between memorability of communication and public awareness of water scarcity.



Public experiences of water efficiency engagement

We asked public participants about their experience of water efficiency engagement with their water company within the past five years. Responses suggest that the over reliance by water companies on one-way contemporary channels of communication to promote water efficiency still exist (see Figure 6.1), with high reports of public engagement seen via social media and the water bill.

Particularly, 4 in 5 of the 7% who reported that they had had a home visit said that they reached out to their water company to be engaged (see Figure 6.2). Further,

most respondents (87%) who said they had had a home visit reported that they were not engaged in simple conversations about behaviour change during their visit and had no follow-up communication with their water company. Unsurprisingly, all respondents in this cohort also said that their water company did not inform them of any lessons drawn from their home visits (see Figure 6.2).

Further, we shared different types of behaviour influencing tactics with public respondents, including their meaning, and then asked whether they recognise the use of any of the techniques during their home visit. In addition to a high report of having no experience of behaviour influencing tactics during home visits, we found lower levels of reported experience of tailoring and priming (see Figure 6.3).

Challenges faced and support needed by the public

To explore the public's capability to act for change, we asked participants an open question about challenges faced when attempting to increase water efficiency. Three main barriers to behaviour change emerged: (1) lack of understanding of the reasons for and impact of reducing water use; (2) difficulty making lifestyle changes and taking practical actions to reduce usage; and (1) non-socialisation of available support.

In response to the barriers highlighted by participants and in view of the growing practice theory literature that continue to make strong connections between patterns of water use and entire systems of provision (see Watson et al., 2020), we asked participants where their greatest need for water efficiency support lies. We found higher levels of needed support in areas that we call the 3L&S Circle of Concern comprising lifestyle habits, leaks, and laundry and showering practices (see Figure 7).

In relation to the areas of concern identified, two support interventions were most favoured amongst several options we proposed to public participants: (1) having a water efficiency relationship manager

Figure 6.1 Channels through which participants have been engaged about water efficiency.

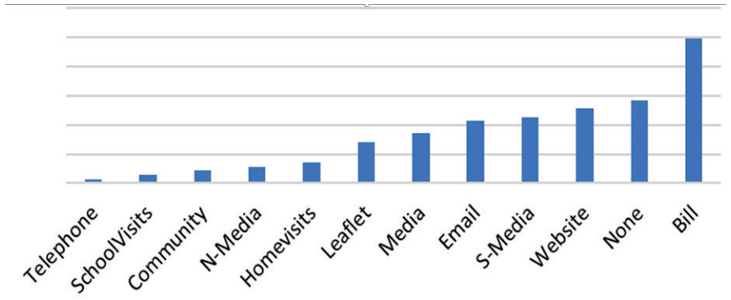


Figure 6.2 Home visits in focus.

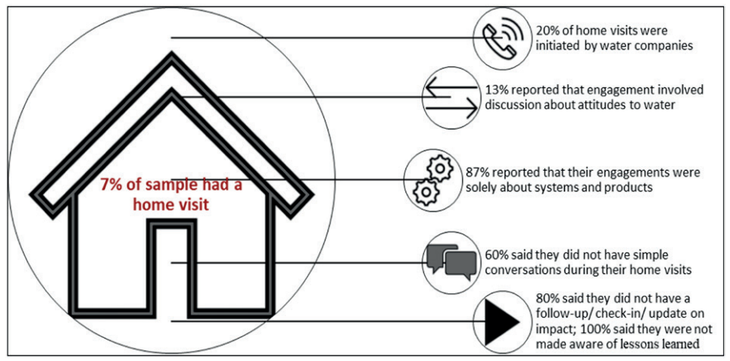


Figure 6.3 What respondents who have had a home visit said about their experience.

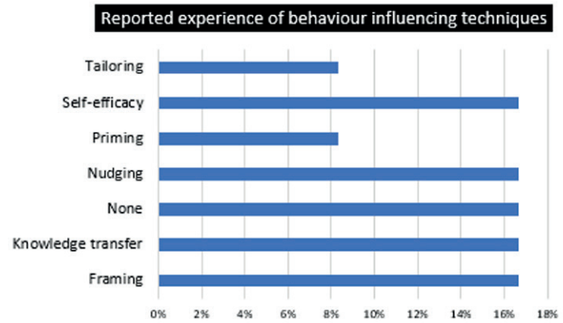
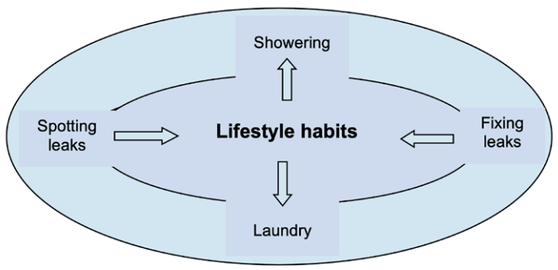


Figure 7 The 3L&S Circle of Concern.



linked to every household; and (2) participating in collaborative workshops to address usage practices that are personally deemed to be high water consuming (see Figure 8).

Collectively, our findings therefore indicate a high level of desire for tailored and personalised water efficiency support amongst through the innovation of existing channels that currently feature on the water efficiency engagement landscape.

Key findings II

Attitudes towards water efficiency engagement

We asked water practitioners about the level of importance they place on behaviour change activities. There was a consensus on such activities being non-perfunctory and crucial to demand management although the difficulty with evidencing their impact was equally recognised. Further, we found a linkage between perceived thoroughness and the level of importance that practitioners attach to behaviour change activities. As succinctly put forward by participants, "behaviour change is noble in principle… [but] to increase the reliability of behaviour change for demand management, activities will need to be: (1) scaled over short and long terms (2) planned and delivered collaboratively; (3) complementary to technical interventions; and (4) evaluated using different metrics and at operational levels over time and stages.

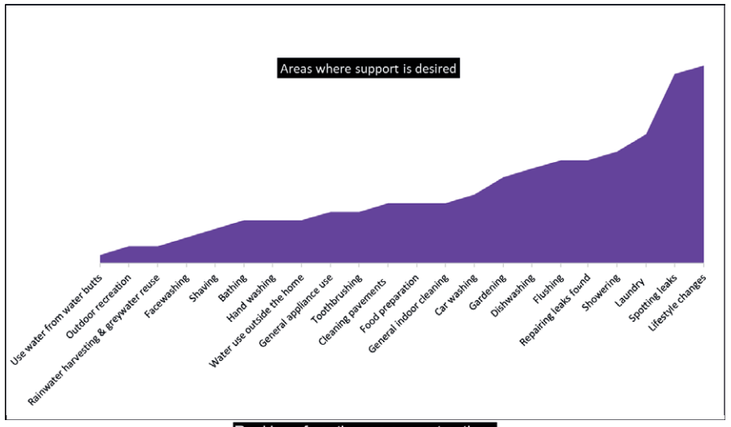
Challenges and capabilities

Planning behaviour change activities

Over half (52%) of practitioners reported that they were confident planning behaviour change campaigns. However, 33% said they did not employ social science strategies while doing so especially in relation to preparing the people who will do the engagement and choosing the right time to engage.

The top 4 challenges that practitioners faced whilst planning (see Figure 9) centred around: (1) having access to the right data; (2) getting customer buy-in; (3) getting senior management buy-in; and (4) incorporating evaluation into interventions.

Figure 8 Public preference for support interventions.



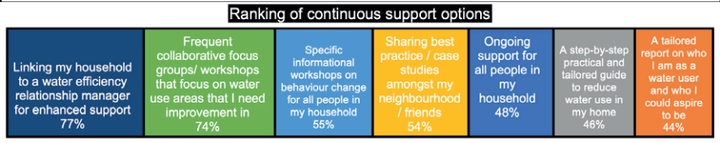


Figure 9 Challenges that practitioners face whilst planning behaviour change campaign activities.

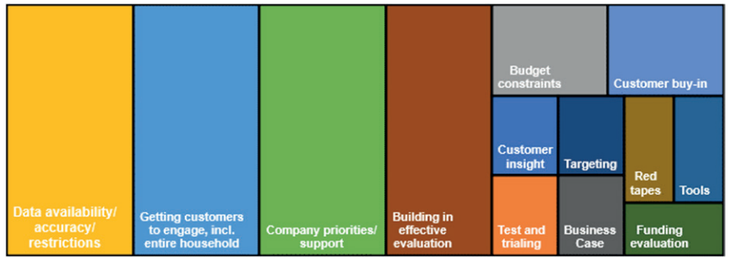
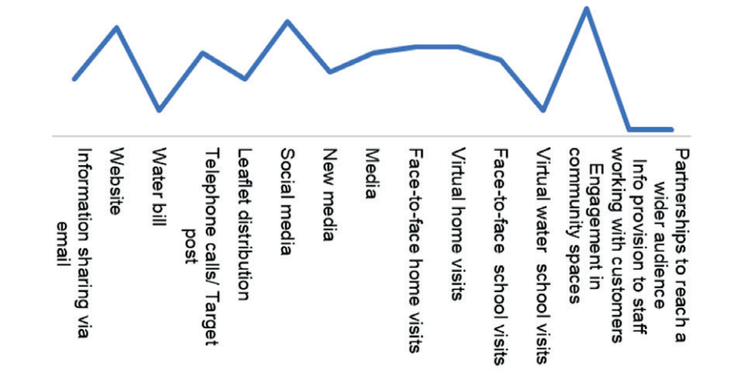


Figure 10 Channels through which practitioners deliver behaviour change campaign activities.



Delivering behaviour change activities

Practitioners reported a higher level of confidence in delivering behaviour change activities in comparison to planning, with over half of participants (60%) responding in the affirmative to the question about the ability to plan and deliver interventions. However, while 33% said that they deliver behaviour change activities complementarily to technical interventions and 24% reported that they deliver activities as independent of or supplementary to technical measures,

meaning that 2 in 3 practitioners do not deliver water efficiency engagement using the sociotechnical approach.

In addition, in line with what public participants told us, we found that practitioners mostly deliver behaviour change activities using one-way channels such as websites and social media (see Figure 10) and most do not use sophisticated tactics such as priming, emotional shortcuts, tailoring, and increasing self-efficacy during engagement.

The top 3 challenges that practitioners face during delivery of behaviour change activities (see Figure 11) centred around: (1) gaining customer buy-in; (2) recruiting plumbers/technicians with the right skills and abilities to engage; and (3) measuring the impact of behaviour change campaign activities.

Evaluating behaviour change activities

Practitioners expressed lower confidence in evaluating behaviour change campaigns in comparison to confidence in the delivery of such activities, with at least 1 in 3 saying that they do not use social science strategies for evaluation and unsurprisingly, all who said they do not know the impact of their campaigns also said that they do not use social strategies for evaluation.

In addition, most practitioners reported that they typically evidence impact of behaviour change campaign activities using quantitative measures such as litres of water saved, number of customers engaged, and number of water-saving devices installed. And although 69% of practitioners claimed that they learn from failures of campaigns, 60% of these respondents said they do not document such lessons, so it is unsurprising that at least 1 in 5 practitioners report that their organisation does not have a repository for campaigns.

Practitioners' the top 3 challenges (see Figure 12) faced during evaluation centred around: (1) ascribing specific savings to behaviour change; (2) measuring the unquantifiable; and (3) the lack of baseline data to track improvement.

Figure 6.1 Channels through which participants have been engaged about water efficiency.

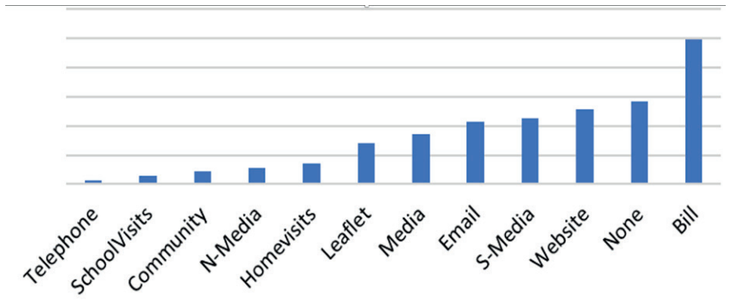


Figure 11 Challenges faced by practitioners whilst delivering behaviour change campaign activities.

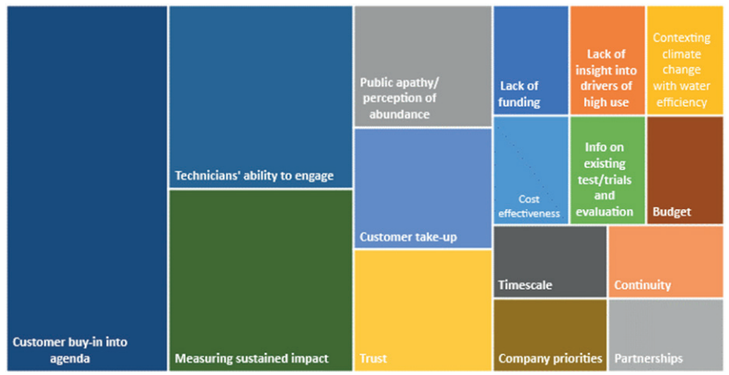
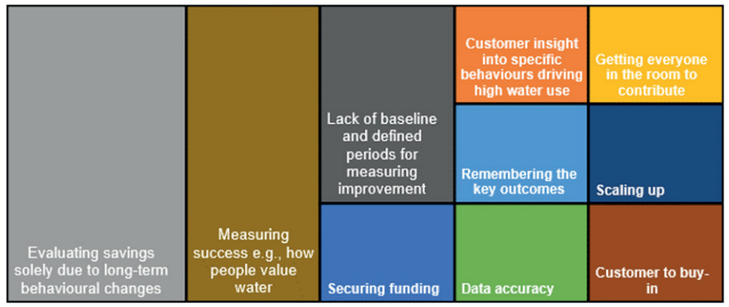


Figure 12 Challenges that practitioners face whilst evaluating behaviour change campaign activities.



Finally, we asked practitioners to reflect on the entire process of planning to evaluation and to identify where their immediate support needs lie. It emerged that collaboration with experts was top on the list, followed by frequent collaborative engagement across the industry, and then training for frontliners delivering behaviour change campaign activities. And when we explored their support needs in relation to the use of behaviour influencing techniques in water efficiency engagement, we found that practitioners were keener to have training on techniques that are not commonly used in practice, for example, emotional shortcuts, nudging and priming.

Conclusion

The water industry is in an era where individual behaviour change for water efficiency is as equally important as that of the collective. Water efficiency managers are therefore facing increased calls for practice improvement. Our findings evidence increased desire for tailored and collaborative water efficiency engagement than is currently available to the public. What is particularly called for is water efficiency support that centre around making lifestyle changes, spotting and addressing leakage, and showering and doing laundry more efficiently. And whilst both the UK public and water practitioners have a positive attitude towards behaviour change, it is clear that for the public's support needs to be met, the capability barriers that practitioners face will need to be addressed, some of which include difficulty gaining customer buy-in during planning, inadequate engagement skills for delivery, and the inability to robustly demonstrate impact.

Considering our research findings, the development of collaborative and tailored multi-stakeholder interventions is recommended. For effectiveness, such interventions, public workshops for example, will benefit from: (1) being designed through the social practice lens; (2) being planned through wider multi-stakeholder collaboration; (3) inviting public participation; (3) delivery using sophisticated sociocentric strategies that address the sociocultural and material influences of specific water usage practices; (4) using tailored but socialised messaging; and (5) evaluation that is not only quantitative but more importantly, qualitative.

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