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The House of Lords Environment and Climate Change Committee Inquiry
Mobilising action on climate change and environment: behaviour change

Written evidence submitted by Dr Claire Hoolohan and Dr Alison Browne, The University of Manchester, 13th December 2021

Introduction

1. Dr Claire Hoolohan is a Research Fellow at the Tyndall Centre for Climate Change at The University of Manchester and ESRC Centre for Climate Change and Social Transformation. Dr Alison Browne is a Senior Lecturer in Human Geography at The University of Manchester.

2. They collaborate on, and individually lead, projects that bring insights from social sciences of everyday practices and socio-technical change into research and policy debates about sustainable consumption and production (water, energy, waste), climate change and environmental resource management. They work with a variety of stakeholders, bringing social science insights into the water sector. Their work has influenced Defra's 25 Year Environment Programme around water and water demand/efficiency policy.

3. They declare they receive no financial benefits from any beneficiaries or stakeholders in preparing this written evidence.

4. This response focusses on lessons from mobilising action to reduce domestic water demand, and related practices.

What are the areas where lifestyle changes may be most needed to reach the Government's long-term climate change and environment goals and commitments?

5. One undervalued area is the intersection between energy and hot water use, which are a substantial contributor to overall UK emissions. Water-related emissions are estimated to be 27.7 MtCO2e per annum (6% of total annual UK emissions). This figure includes emissions associated with water company operations, water supply and wastewater treatment as well as water use in people's homes, which is the largest component of water-related emissions (76%-90% of total).

6. Reducing hot water use in homes, offices, and gyms is vital to reduce emissions and water abstraction. Average water use is around 140 litres per person in the UK, well above a sustainable amount in a changing climate. A report by Waterwise in 2021 estimates 'a very modest 5-6% reduction in UK domestic water consumption could save around 1.33 MtCO2e per year'. Yet current emissions reduction strategies, in the water industry and beyond (e.g. Water UK's Net Zero 2030 Routemap, and the CCC's Sixth Carbon Budget), belittle the role reducing domestic hot water use might play in climate change mitigation, and though its role in reducing abstraction is well-recognised, ambition could be far higher.

7. From our research another overlooked area is waste disposal – not least of fats, oils and greases (FOG) from kitchen spaces, and so-called 'unflushables' from bathroom spaces. These sources of pollution are closely linked to lifestyles and everyday practices, as well as infrastructure and material design.

8. Addressing disposal practices in workplaces, business and homes is key to reducing sewer blockages, water pollution, and indirectly to water sector emissions (e.g. as consumer products in sewerage increases demand for wastewater treatment).

9. Action to reduce hot water use and ineffective disposal practices, would valuably complement other mitigation actions that address everyday lifestyles – mobility, heating, cooling, food, diet, and material consumption – several of which intersect with water use and waste disposal.

For a rapid evidence review of water and emissions in the UK see: Bond & Hoolohan, 2021, and for a case to reduce emissions associated with water use through systemic change see Hoolohan & Browne, 2020.

What can be learnt from successful and unsuccessful behaviour change interventions by the UK Government and other government actors (including in other policy or geographical contexts)?

10. Government departments and the water industry have invested in demand management. However, this has focussed on supply-system change, e.g. targeting products and infrastructures, and individual behaviour (through information provision, eco-labelling, price setting and other incentives). These measures have been shown to offer small benefits at a domestic scale, but are offset by wider developments, e.g. efforts to reduce domestic water demand such as in-shower displays and water efficient devices are offset by increasing hygiene standards that lead to more frequent showers. Trends in bathroom design that favour 'luxury' high flow devices mean that actions of dedicated individuals are outweighed by collective action.

What are the pros/cons and limitations of different frameworks and methods for promoting behaviour change?

11. Many organisations have been developing systemic interventions to mobilise change in lifestyles and behaviour, and several have been using the Change Points toolkit that we developed at The University of Manchester, to reframe interventions in unsustainable lifestyles using insights from social sciences – in particular social practice theories. For example, through one of our projects Anglian Water, with 30+ other organisations, developed an agenda on unflushables ranging from interventions to overcome taboos associated with menstrual hygiene, to increasing accessibility of bins in bathrooms for all genders.
12. Another project *Patterns of Water* is a social practice informed approach that now underpins a 10 year longitudinal policy research programme by Defra. This survey will capture water using practices across time, and reveal how practices change in response to climate, technological or regulatory change. Further investment in detailed social practices research will enable development of more nuanced behavioural interventions.

What are the main evidence gaps relating to these frameworks and methods, and how might they be addressed?

Tailored demand management
13. Projects like *Patterns of Water* evidence considerable household and personal variation in the ways that water is used. Though regional diversity in supply-demand characteristics are recognised in strategy to reduce emissions (e.g. Water UK's Net Zero Routemap), our research demonstrates that going forward, innovative ways of observing household and personal diversity in water use and disposal practices will help both understand hotspots and potential sources of vulnerability. Tools like Change Points provide frameworks to use these insights to develop bespoke demand management initiatives. For example, Northumbrian Water have focussed on reducing water demand in top 5% households, using *Change Points* to identify patterns of water use and avenues for intervention. These new approaches are yet to be evaluated, however they are in keeping with literature on systemic intervention and therefore hold promise for immediate, lasting and deep reductions.

Tracing changes in water use

14. Our research has demonstrated a need for longitudinal research that traces water using practices. This has been highlighted in a recent survey by Defra Floods and Water. To evaluate impact of water reduction initiatives, this research must focus on actual practices of water use and waste disposal (rather than attitudes or values) and be granular enough to detect change in different user groups – including supra- and sub-household scale. Further research highlights the need to consider social diversity and socio-economic inequalities, as the UK aims to achieve its environmental and water targets.

Big data

15. Our research demonstrates the need to understand how novel digital data, and big data sets, can be used to track patterns of water use and disposal practices. These practices occur in very private spaces and are difficult to access through surveys and other 'consumer-focussed' methods, therefore complementary mixed-method approaches are needed to capitalise on already existing datasets and develop insights supporting evidence-based systemic policy making.

Timing and Location

16. Timing and location of water use is often overlooked, but is an important aspect of demand for reducing emissions. For example, when Covid-19 took hold in the UK and lockdown measures were introduced to control transmission, water companies witnessed some of the [biggest peaks in water demand ever observed](#). [Research by ourselves and Artesia](#) illustrates divergence in the usual timing of water use in people's homes, linking these changes to the reorganisation of everyday life, with a relocation and shift in timing of water use resulting from the move to home working and schooling, and changing meanings of hygiene practices such as personal cleanliness and laundry. Our research shows increases in peaks and overall water demand was also due to gardens becoming vital spaces for socialising, relaxing, creating space between household members and managing mental health when usual spaces and practices became off limits. These findings are illustrative of ways water use intersects with other practices and routines throughout the day, calling for future attention to how sequential performance of daily life affects timing, location and nature of resource use.

17. More research is needed on long terms impacts of the pandemic on water use, for example, whether an increased interest in gardening during leads to greater overall outside water use or seasonal increases in water use, and whether escalating hygiene and cleanliness practices 'stick'.

How should the Government consider the balance between, or sequencing of, approaches to behaviour change focused on:
- **Encouraging changes to individual behaviour;**
- **Regulatory approaches;**
- **Fiscal measures?**

18. These are all methods government, and government agencies, have been using for some time to create change and limitations are well documented. In order to achieve emissions reduction, and associated environmental targets, at the pace and scale required, it is necessary to prioritise emerging 'systemic' measures that engage with the social and material conditions in which consumption occurs, and efforts to incentivise personal action.

What are the main strengths and weaknesses of current Government policies on behaviour change, and what are the key improvements that could be made?

19. One weakness is an over-emphasis on individual consumers and appliances. There is greater need to focus on collective action and systemic intervention. Water using appliances

(washing machines, showers, dishwashers, taps) feature in existing strategies to reduce emissions. Much of the focus, however, is on improving technical efficiency of these appliances, and less attention is paid to how, when and why they are used. Existing research shows that marginal efficiency gains are offset by broader changes – for example and as mentioned previously, in bathroom design and hygiene cultures. There are parallels here with domestic energy and mobility practices, for example, improvements in efficiency of conventional vehicles over the last 20 years have been outweighed by increased car ownership, increased travel activity and vehicle design - particularly SUVs.

20. To reduce water demand, attention need be paid not only to appliance efficiency, but also to ownership and use (frequency, duration), this includes spatial and temporal dimensions, as well as market trends that increase use of water to achieve comfort, luxury, cleanliness or relaxation.

21. Our research ([Watson et al., 2020](#), [Browne, 2015](#) and [Browne et al., 2014](#)) emphasises the need for a much wider coalition of actors – not least interior designers, appliance manufacturers, retailers and beauty industry – to participate in the transition towards less-intensive water use, and creative ways of engaging in cultural and material aspects of everyday consumption. Cultures are continuously changing – sometimes quickly and other times slowly – and this raises questions for future of water use and what could be possible if cultural change favoured less-intensive patterns of water use. It is not unheard of for water companies to try to communicate impact of lifestyle choices on domestic water use. However, when they do e.g. by discussing showering and shaving – they receive public and media criticism, which sets this message in contrast with data on leakage. Other companies have more legitimacy to engage in such a conversation with their customers. For example, Soap and Glory have promoted 'The 2 Minute Rinse™', and Batiste market their products as a product for '2nd day hair'. These companies have mobilised less-intensive practices as part of their brand. The government needs to enable coalition between actors within and beyond the water sector to shift water demand and reconfigure disposal practices.

22. Key improvements government could make to engage with socio-technical change include supporting and incentivising the following:
    a. Financial and cultural support for water sensitive design. For example, Water-sensitive gardens, such as the RHS's Gardening for a Changing Climate, are planted in a way that is attuned to the UK's seasonal weather patterns. They enable people to enjoy garden spaces without the water-intensive upkeep of a lawn by incorporating other aspects such as social spaces and play spaces, and recognising the need for spaces for wildlife. Water-sensitive kitchen and bathroom design goes beyond appliances to consider material contents of these rooms and how they are used, and how this shapes water demand. For example, in a water-sensitive bathrooms, showers might be replaced by a splash wash or a tilting tub, and toilets fitted with a sink-to-cistern connection or an air-flushing unit.

    b. To reduce flow of plastic and other unflushables into sewerage systems through toilets and sanitation waste practices, mechanisms to support the uptake and use of reusable products and provision of bins in bathrooms of all genders in businesses, workplaces and educational settings could be encouraged. To reduce flow of fats, oils and greases through kitchen sinks alternative collection mechanisms for households and businesses (such as restaurant/hospitality sector) could be developed and encouraged and linked to development of biofuel industries.

    c. A realistic government objective would be to support normalisation and popularisation of these design practices by engaging with manufacturers, designers, home improvement retailers and media. These wider initiatives require diverse

partnerships and close collaborative relationships; however given the possibility of such initiatives in achieving water efficiency at scale, they should be pursued. Government has an important role in incentivising these forms of collective action. By framing personal water usage in a more systems focused way, the UK government can make a big splash in order to safeguard our future supply and demand for personal water.

23. Hot water use is ineffectively recognised in government policies on behavioural change. In the Sixth Carbon Budget, for example, residential energy use includes specific actions on energy use and is focussed on appliance energy use, and heating on space heating without explicit discussion of hot water use. Hot water use is a substantial contributor to emissions in residential sector (and contributes to non-residential energy use), and recognising it explicitly within the Carbon Budget is an important way to mobilise action to reduce emissions. Though the water industry needn't be recognised as a discrete sector, accounting for emissions from water heating separately to space heating is an essential way to draw attention to, and quantify changes in, this area. Water UK's Net Zero Routemap provides a bespoke vision and recommendations to reduce operational emissions across the water industry, however emissions related to domestic water use are not accounted for in this report. Possible actions to reduce emissions are not well described in these sorts of documents. Beyond heat pumps, low-flow shower heads are the only water-related measure explicitly described in the Sixth Carbon Budget, while the Net Zero Routemap focusses on water labelling to reduce demand beyond the level of reduction already planned for by water companies. Neither consider how systemic change might be supported by government.

24. A key improvement that could be made is to update building standards to reflect the scale of change needed. Building standards provide a powerful steer for the water and construction industry on levels of water use and emissions accepted by government. Today's building standards are insufficient to mitigate climate change or manage water scarcity. In order to comply with existing building regulations, a property's water use must not exceed 125 litres per person per day. In water stressed areas, local authorities can set a lower target, 110 litres per day. Defra are asking whether these targets could be more ambitious.

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