



‘Unflushables 2030? Mapping Change Points for Intervention for Sewer Blockages’

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Unflushables 2030?

Mapping Change Points for Intervention in Sewer Blockages

Workshop Proceedings

27th & 28th January 2020, Manchester, UK

Workshop

27th and 28th January 2020, Elliot House, Manchester, UK

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Overview of Unflushables 2030?

In 2019 Anglian Water, and the Anglian Centre for Water Studies, commissioned researchers at the University of Manchester to better understand the nature of the unflushables challenge and review action on Unflushables to date. This project recognised that in spite of extensive action within the water industry and related sectors, unflushable products are an increasing source of environmental damage in the UK, and a problem there is not yet an adequate solution to.

Underpinning research demonstrated the social, cultural, material and infrastructural complexities of the unflushables challenge, and found that while there are many different approaches taken to manage unflushables, few are addressing the socio-technical nature of this challenge in a systemic way. The persistence of conventional responses that seek to sustain service provision and change behaviour around unflushables stops short of more distributed approaches to alter habits and routines.

In recognition of these findings, ‘Unflushables 2030?’ brought people together from across different business, policy and third sector organisations to think creatively and constructively about how we might respond to the unflushables challenge in a systemic, socio-technical way. In the workshop we developed new ideas for intervention, pathways for their implementation, and created the cross-sectoral commitment for change that is essential if we are to reduce the environmental and economic impacts of unflushables.

The workshop followed the Change Points method (www.changepoints.net); a toolkit developed by Universities of Manchester and Sheffield that enables the design of interventions that unlock unsustainable practices. Participants established a vision for Unflushables in 2030, examined how and why unflushables arise today, and created nine novel ideas for intervention. This report summarises the review undertaken by Anglian Water and the University of Manchester, along with the proceedings of Unflushables 2030 workshop.

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Background research

What are unflushables?

Unflushables are products often found causing problems in sewer systems having been disposed of via the toilet. The most problematic unflushables include a variety of wipes and menstrual absorbents (e.g. sanitary pads, tampons and applicators). Others include incontinence pads, cotton buds, condoms, bandages, disposable nappies, syringes, razors, and dental floss. Some products are more flushable than others, but many of these products cause damage to wastewater treatment systems and contribute to blockages.

What is the problem?

In the UK, the cost of fixing sewer blockages reaches £88 million per year and around half of these blockages are credited to unflushables. Aside from expense, blockages can flood wastewater systems, resulting in damage to properties and the environment. Often unflushables are not contained by wastewater retention systems and end up on our shores and in our water streams, becoming visible contributors to aquatic ecosystem pollution.

Unflushables intersect with other water management challenges, notably water demand management. Flushing toilets is a substantial component of UK water demand, and disposal of unflushables via the toilet increases demand for toilet flushing. In each flush, water that has been treated to drinking water standard is used to remove products that could have been disposed of ways that are less environmentally impactful and less costly. At the same time, water efficiency activities – particularly low-flow toilets – reduce the input of water into sewer systems, impacting on their ability to self-cleanse.

As the UK moves towards lower levels of domestic water use, there is a need also to reduce the inappropriate disposal of unflushables.

How and why do unflushables end up in our sewers?

Unflushables present a ‘distributed problem’, one that is not the direct consequence of individual behaviour, product design or infrastructural decline, but the outcome of myriad social, cultural and material developments in society (Box 1). The formation of blockages in sewers is a complex process in which unflushable products combine with fats, oils and greases and other solids in the sewer.

There are infrastructural factors, such as the size of pipes and velocity of wastewater flows; and material dimensions including the design of unflushable products, how readily they breakdown, and the design of the spaces in which they are used. There are also social aspects to the unflushables challenge. These include cultural and gendered diversity in cleanliness practices; the historical evolution of conventions around cleanliness and hygiene; and political dimensions of infrastructural development and maintenance.

Box 1: Why are unflushables flushed?

Today's disposal practices evolved over many decades and emerge from complex social, cultural and material developments such as changing conventions around cleanliness, contemporary lifestyles, cultural habits, material cultures and infrastructural histories.

Hygiene consumerism and conventions of cleanliness: Today's hygiene conventions have evolved with developments in water and sewerage systems, as well as the commodification of hygiene. The impacts of these changes are visible on both long and short timescales; from the gradual movement of the toilet from the outhouse to the home in the 19th century, to the relative decline in tampons appearing in sewers since the introduction of 'reusable' menstrual hygiene products. Infrastructures and materials are designed to provide for modern lifestyles and be cheap and easy to use, in turn effecting the qualities that consumers expect.

Sensory experience of 'dirt': Even when health professionals assure the risks are negligible, for many people disposing of products "contaminated" with blood or faeces is perceived as a potential threat to human health. The sensory experience produced by scent and sight of bodily fluids effects how we dispose of products, and deters the use of bins.

Gendered dimensions: People have different bodily needs and cultural etiquette dictates many bodily functions are kept private. Often unflushables are associated with women. The stigma associated with menstruation, for example, means that practices that would avoid unflushables reaching sewers (e.g. the disposal of single use products in bins or use of reusable products) are a source of embarrassment, as menstruation becomes more visible. Men also use unflushable products, particularly wipes and incontinence pads, yet research shows these gendered dimensions of the unflushables challenge to be a gap in our understanding. We ought to be cautious to avoid disproportionately associating unflushables with particular groups.

Product design: Though companies have begun to label products, there are more behavioural cues surrounding a product that its packaging conveys. The material properties of many products contribute to misunderstanding about their flushability. For example, many people assume tampons are flushable, given their shape, material, and the fact that they do flush. The act of removing a tampon also makes flushing simple and hygienic. These design characteristics convey an understanding of flushability that is contrary to eradicating unflushables by 2030.

Cultural imaginaries: Bathroom practices vary greatly between countries and cultures. Disposing of unflushables via the toilet is more common in the UK than most European countries. This is explained by the UK's infrastructural imaginaries, where sanitation infrastructure has been designed to 'sweep away' waste and people in the UK have come to expect the effective removal of many kinds of waste. In other countries, sewer systems were designed for human waste only and people are unlikely to dispose of unflushables via the toilet.

The combination of cultural and material developments render domestic practices surprisingly difficult to change; 'locked-in'. Lock-in means that though people may understand the implications of their actions and even have the desire to change; their capacity to act in different ways is limited. For most people, most of the time, their present actions produce satisfactory outcomes, and the challenges that unflushables present remain invisible.

What is being done to address the unflushables challenge?

There are many different strategies being pursued to address the Unflushables challenge in the UK and globally. However, current approaches are unlikely to solve the problem as they overinvest in technological and behavioural interventions that overemphasise the responsibility and agency of individuals (as people who can change behaviour) and water and sewerage companies (as institutions who can manage the unflushables problem) (Box 2). A wider mix of responses, and broader coalition of actors must be involved in change.

Manufacturers and retailers have started to label their products based on their flushability characteristics and there are now guidelines for 'fine to flush' labelling (Water Industry Specification 4-02-06). Labels usefully establish industry standards but the impact of labelling on flushing practices is questionable, as it assumes that people dispose of unflushable objects due to a lack of awareness or concern about the impacts of their everyday actions. In reality unflushable products enter the sewer system due to a myriad of social, infrastructural and cultural factors (see Box 1) which need greater recognition.

Box 2: Four existing models for managing unflushables (and their problems)

Adapted from Hoolohan & Browne (2016) and Foden et al. (2018).

Service provision: This model positions water companies as responsible for managing unflushables. Interventions aim to reduce damage caused by unflushables and though often effective, maintenance is expensive and unsustainable. There is also risk that undesirable practices are sustained as cultural conventions and infrastructural imaginaries remain unchallenged. Given that responsibility is distributed across many actors, holistic interventions are needed.

Individual action: This model positions disposal as the outcome of individual decisions. Interventions aim to change behaviour through education and behavioural cues (nudges). While awareness of the unflushables challenge is increasing, this approach requires a substantial proportion of the population to alter their behaviour in order to be effective and risks blaming individuals for a systemic problem.

Social norms and networks: This model assumes that people are influenced by what they perceive others think is normal and acceptable, and aims to change these perceptions. Interventions are designed to normalise desirable practices, for example by using champions and community groups. Though useful to create conversation around a taboo, this approach shares many of the challenges of Individual Action.

Socio-technical practices: This approach understands flushing practices as part of wider socio-technical developments. Instead of focusing on a particular behaviour, this strategy aims to change collective conventions, routines and infrastructures of consumption. Few interventions have been initiated within this area and further research is needed (see Alda-Vidal et al 2020).

Key messages for intervention

Recognising the multiple developments that have contributed to the emergence of today's unflushables challenge calls for an approach to management that is distributed across multi-sectoral stakeholders and responsibilities for action is not yet well understood. However existing research offers a starting point for what this new approach could look like. The workshop set out to identify new ways of intervening in the unflushables challenge recognising four key observations:

- 1. Interventions must address the multiple cultural, political and material factors that shape how people routinely use and dispose of unflushable products.** It is insufficient to only consider how to design products and infrastructures capable of coping with unflushables. Though this can help, as long as existing sewage systems remain in place we must also consider how to change the multiple factors that affect how people use and dispose of unflushables.
- 2. Interventions must recognise the continuously shifting nature of hygiene practices.** Any appearance of stability is better understood to be the result of repetition and normalisation. Action to solve the problems associated with unflushables should therefore ask how the disposal of these products via the toilet has become normal, how this practice could be unsettled and what could be done to normalise alternatives.
- 3. Distributed problems require distributed solutions.** Action to reduce unflushables must recognise the many actors that share responsibility for unflushables entering the sewer system, and who have agency to affect change. Eradicating unflushables will require not only that water companies and consumers work together, but that change is enabled by the many organisations and businesses that contribute to the organisation of everyday practice.
- 4. What people do in their day-to-day lives varies substantially.** Acknowledging diversity helps identify different opportunities for intervention, and avoid designing interventions that are at best ineffective, or at worst exposes vulnerable people to unintended consequences and cast judgement on particular groups of people.

With these ideas in mind, 'Unflushables 2030?' was held in January 2020. The following pages synthesise the outputs from the workshop. The results presented are not exhaustive, but outline a set of visions, commitments and activities from multi-sectoral stakeholders intended to eradicate unflushable products from sewers and waterbodies by 2030.

Our vision for 2030

The first activity set at the workshop was to establish a common vision for 2030, recognising the different personal and professional investments people have in responding to this challenge. Here's a snapshot of those discussions:

By 2030 ...

The circular economy is taken-for-granted • *The widest form of collaboration is the norm* • Hygiene cultures better align with environmental needs • There are no blockages • *Systems are in place to support essential use of unflushable products without incident* • We feel happy, confident and take pride in our profession • Clean beaches • *We understand the diverse practices and needs of different people; what they are and what impacts they have* • *Unflushables and the practices they're involved in are not taboo* • We have processes for risk assessment, monitoring and reporting that reflect the wider challenges that unflushables create • *Reusables are more common, if not the default* • Everyone is involved, playing a small part so that unflushables are eradicated • *Infrastructures and materials relate to needs (e.g. prescription wet wipes)* • Monitoring show that pipes are clear • *Design and marketing of products is consistent and appropriate* • Products are disposed of properly • *By 2025 a cross-sectoral framework and common objective is enacted* • There is a sense of collective shame, not inevitability, when blockage occurs • *Problematic producers have ceased trading* • We're looking back, content, at the progress we've made.

We then discussed and created a shared vision of why this Unflushables challenge matters, personally, professionally and for society, which is summarised here:

Why is this important?

Not enough has yet been done and we need to step it up • *Environmental impacts need addressing* • Save money, improve services, reduce bills • *Avoid the costs of managing blockages* • Take responsibility for the intergenerational legacy of inaction on unflushables • *Reputation* • We are all part of this and personally and professionally can be part of the solution • *Pride* • The time is now • *We can avoid the impacts on water and the environment* • Hope • *This is our 'ozone moment' – it's an opportunity for positive joined-up action* • Commercial cost • *One part of addressing the problems associated with excess consumption* • Collective responsibilities for more-than-human health • *Need to challenge the convenience of flushing* • We can do it and it is unacceptable not to act now.

Nine new ideas for intervention: At a glance

Unflushables Taskforce

A harmonised approach to eradicating unflushables by 2030; co-ordinating a 10-year strategy with a single standard for biodegradability, a uniform approach to monitoring and a shared understanding of the layers of responsibility.

The Green City League

UK-wide collaborative competition for towns and cities, monitors action on unflushables by recognising joined-up action and participation. There's a prize and all activities contribute to a national observatory; creating a data-rich long-term view of unflushables in the UK.

Bins for Boys

Lobbying for changes to the Workplace (Health, Safety & Welfare) Regulations to ensure sanitary bins are a requirement in all toilet cubicles, with a near-term pledge to ensure that every public/workplace toilet has a sanitary bin by 2025.

Baby Box

A UK-wide service providing new parents with a box full of reusable products. The intention is to widen the services provided by the state in a way that disrupts habitual practices and provides opportunities to experiment with reusable products and alternative disposal practices.

Built-in bins

Redesigning bathrooms to incorporate bins in aesthetic and functional ways, Built-in Bins removes the stigmas around the disposal of unflushables, providing visual and materials cues built into the bathroom design that challenges flushing.

Unblocking menstrual stigma

A platform for conversation about menstrual dignity in schools. The objective is to ensure that infrastructures and objects are in place to enable privacy and dignity; sanitary bins in all toilets, access to reusables and facilities for washing/changing.

C-Flush

Redesigning toilets to separate waste and direct biodegradables to small-scale anaerobic digestion. Integrated design enables the separation of waste streams ensuring that products known to cause blockages in pipes are intercepted to generate bioenergy.

Sanitary recycling lab

Overcome the 'yuk factor' and other challenges involved in identifying circular solutions for waste materials; changing industry perceptions that these wastes are valueless, enabling design of recycling solutions for sanitary wastes, and overcoming implementation challenges.

Reusables: Media moment

A media moment, involving ubiquitous coverage across all media formats to normalise the use of reusable menstrual hygiene products and overcome the taboo around periods. Emphasis is placed on reusable products and alternative disposal practices.

1. Unflushables Taskforce

This cross-sectoral taskforce will provide leadership and drive innovation on unflushables across the UK, setting a standard that countries around the world can follow. The taskforce will provide a harmonised approach to eradicating unflushables in the UK by 2030; co-ordinating a 10-year strategy with a singular sustainable standard for biodegradability, a uniform approach to local monitoring and screening and a shared understanding of the layers of ability / responsibility organisations have for eradicating unflushables. It will also provide a testbed to generate collaborative ideas and a platform to share the lessons learnt from experimental activities.

The taskforce will involve players throughout design, manufacture, retail, and disposal, as well as wider partners involved in shaping use and disposal practices. It will involve companies, regulators, and non-government organisations from both the water and energy sector as well as scientific communities, consumer groups, producers and manufacturers, retailers and environmental charities. The taskforce will also work with the media and public to challenge the invisible nature of unflushables, and further bring the challenge to public attention.

Next steps: The taskforce is a timely and achievable multi-sectoral outcome following discussions at Unflushables 2030, which responds to existing public energy for action and the enthusiasm and collective commitment of stakeholders at the workshop. However, this taskforce needs a leader that can provide ambition and longevity, and commitment from others to foster action.

2. The Green City League

“Competing against each other but working together to defeat the challenge”

This UK-wide competition for towns and cities monitors action on unflushables by recognising joined-up action and participation across all sectors and communities with a prize (the “Green City Award”). The competition provides a platform to stimulate action and show-case best practice; with an online league table, a forum for sharing ideas, and visualisation tools. The Green City League will learn from existing City initiatives and league tables and take a joined-up approach to challenges such as food and fuel poverty, period poverty, and sustainable cities.

As well as providing a competitive incentive, the Green City League will curate an observatory, developing a data-rich long-term view of unflushables in the UK for organisations invested in addressing unflushables. In order to get this initiative off the ground, creative conversations are needed with data users and activity leaders to understand how they would use such a platform. Key people include: water companies, local authorities, student bodies, youth groups, local and national media, regulators, environmental charities, retailers and manufacturers.

Next steps: The immediate step is to find resources to lead the development of the toolkit, website and app, including conversations to understand users' needs. It is intended that the league will be led by a cross-sectoral team and a "united nations of ambassadors" that involves people of all ages and backgrounds in creating a vision for success, identifying useful metrics and championing activities.

3. Bins for Boys

Bins for Boys will lobby for changes to the Workplace (Health, Safety and Welfare) Regulations and similar policies to ensure sanitary bins are a requirement in all toilet cubicles, with a near-term pledge to ensure that every public/workplace toilet has a sanitary bin by 2025. Emphasis is placed on ensuring the provision of bins in men's toilets, as often their needs for sanitary disposal facilities are overlooked, preventing appropriate disposal of unflushable products. By working with organisations that champion LGBTQ+ and disabled rights the wider issues of access and equality that intersect with this issue can be incorporated to ensure everyone has access to disposal infrastructure within toilets and bathrooms.

Bins for Boys will increase accessibility of sanitary bins by working with organisations that provide access to toilets in public spaces, such as Transport for London and Sports Councils. Collaborations with organisations such as Age UK and Rotary Clubs; sporting clubs; and men's magazines, Bins for Boys will start conversation about men's use of unflushable products that currently is taboo.

Next steps: This initiative is good to go, and feels like a timely contribution to ongoing action on accessibility, equality and openness. There is a need for educational material for employers and organisations that manage and provide access to toilets and bins, and a recruitment drive to get them signed up to the initiative with a bin in each of their toilets. In the short term, there is a need for a funding strategy (e.g. a sponsor for a full-time project lead and annual resources), and a means of monitoring uptake until it becomes law.

4. Baby Box

This UK-wide service provides a box of reusable products and disposal guidance and services for non-reusables. The model would be used at different life events such as becoming a parent adopting a child, moving home, reaching adolescence, becoming a carer or receiving a diagnosis. Initially this initiative is focussed on new parents, offering a state-provided service when expecting parents register with medical services. This triggers the delivery of the Baby Box as parents prepare for their new-born's arrival. The intention is to widen state services in a way that disrupts habitual buying and use of disposable products and provides opportunities to experiment with reusables and alternative disposal practices.

A similar scheme exists in Finland, and the initial steps are to connect with the providers of the Finnish scheme to better understand the model of provision.

In the UK, it is anticipated that the most appropriate products and services will be identified through collaboration between manufacturers, local and national government, the NHS and other medical intermediaries (e.g. anti-natal groups) as well as non-government organisations, charities and education providers. Some initial research is needed to ensure that reusable products are not creating unanticipated negative consequences (e.g. high-carbon manufacturing), and to develop a process for identifying whether products are being used as anticipated.

Next steps: This intervention is a timely challenge to the usual transitions in routine that occurs around these life events. The key challenge appears to be logistics and scalability, and collaborative research is needed to find a process for creating, storing and distributing boxes that works for both providers and users.

5. Built-in bins

This initiative redesigns bathrooms and toilets to incorporate bins in aesthetic and functional ways so that they become a useful feature of bathrooms as a matter of course rather than an addition. Built-in bins enable unflushable wastes to be disposed of discretely and effectively, as well as providing a visual/material cue that challenges inappropriate flushing practices.

Next steps: This initiative feels achievable with the right group of people involved, however changing existing bathroom spaces and encouraging changes in bathroom design (both DIY and contracted) is a slow process that will need to involve many actors if built-in bins are to become usual. Initial conversations with innovators, designers, manufacturers and retailers are needed to develop prototypes, and collaboration with providers of toilets in public spaces to establish pilot schemes and demonstration spaces. Early involvement of local authorities and building (housing and commercial) developers will speed initial, large-scale roll out of effective designs in new buildings, and collaboration with home design and DIY retailers will enable uptake in existing buildings. Early-stages could be supported by subsidies or other incentives to buyers, and widespread involvement in trade-shows and events.

6. Unblocking Menstrual Stigma

This initiative provides a platform for conversations about menstrual dignity to undo the taboo that contributes to menstrual hygiene products being disposed of inappropriately. Starting with schools, the objective is to ensure that objects and infrastructures are in place that enable privacy and dignity; sanitary bins in all toilets (see Bins for Boys initiative also); access to reusable products (e.g. menstrual cups and period pants); and private facilities for washing and changing. These material changes will be used to spark conversation around privacy, dignity and hygiene routines with adolescents who are learning how to manage menstruation safely and privately.

In order to encourage openness and ensure design outcomes are effective and appropriate for different people (with different abilities, identities and socio-cultural concerns), this initiative will incorporate student-led research around sanitation. It will also involve school boards, parents, campaigners and companies with experience in enabling inclusivity and menstrual hygiene (e.g. ActionAid, BodyForm, Always), the UK Government taskforce on period poverty, Public Health England, the Department of Education amongst others.

Next steps: This initiative is an important compliment to existing action around dignity, inclusivity and menstrual hygiene that will ensure these agendas also benefit the eradication of unflushables. There is need for a lead advocate to ensure that the initiative is rolled out effectively in different schools, recognising the diverse needs of young people. Funding is needed to support the material changes proposed (potentially a sponsorship scheme). Though none are expensive, ensuring bins and reusable products are available in the necessary volume, and that washing and changing facilities can be provided will require financial investment. There is also need for better understanding of the relationship between menstrual stigma, bathroom facilities and blockages, and to develop means to assess the initiative's benefit for local sewers and waterbodies.

7. C-Flush: a circular solution

C-Flush redesigns toilets and bathrooms to separate waste and redirect solid wastes to small-scale anaerobic digestion (AD). Integrated design enables the separation of waste streams, with toilets themselves separating biodegradable materials, ensuring that even flushable materials known to cause blockages in pipes are intercepted and used to generate bioenergy. There are early questions that C-Flush will research and answer: which products and materials can be processed via anaerobic digestion (or other means); can circular solutions be retro-fitted to existing bathrooms and toilets; what changes in product design are needed to ensure both the management of waste and generation of energy are effective; and at what scale will this work?

Next steps: This idea is early and ambitious, requiring collaboration between designers and engineers, product manufacturers, bathroom manufacturers and organisations involved in waste management (including WRAP, Local Authorities, AD experts and Water Companies) to explore possibilities and feasibility in different bathroom spaces and settings (e.g. through a Design Council Award). Collaboration with other parties re-designing toilets could provide valuable insight into innovation pathways, and opportunities for co-design (e.g. Propelair). There will also be value in involving housing developers and planners in order to build commitment and ensure that design products meet expectations from installers.

8. Sanitary Recycling Lab

Sanitary products are associated with a yuk factor that effects not only the public, but also the research community involved in identifying circular solutions for human waste materials. This initiative intends to overcome that

taboo; changing industry perception that these wastes are valueless and enabling a design process focussed around identifying recycling solutions for sanitary wastes (incontinence pads, menstrual hygiene products and stoma bags etc) into usable low-grade plastics for other uses (e.g., cat litter, construction use). In time, this initiative will provide a platform to design and construct facilities to convert unflushables into new products (for example, for use in construction), enabling collaborative activities to overcome implementation challenges such as planning.

Next steps: The technology to do this already exists and planning and permission obstacles might be overcome if the recycling/reuse plant was placed on a sewerage site. The challenge here is getting the right people working together to identify potential applications for unflushable wastes, and processes for their production. Initial ideas include local authorities (particularly planning department, and waste and recycling managers), government bodies including BEIS, Defra and the Environment Agency, local communities, medical environmentalists, actors involved in producing sanitary hygiene products as well as those involved in their disposal (sanitary bin providers, waste management contractors), large-scale users (e.g. hospitals, care homes, nurseries), and the water industry. It also needs involve potential end-users of recycled products (e.g. the construction industry, plastic industry), and designers and engineers capable of exploring recycling routes. In combination these actors can identify potential solutions, innovation pathways, and learn from existing experiences of waste management challenges.

9. Reusables: a media moment

This initiative will create a media moment to normalise reusable menstrual hygiene products and overcome the taboo around periods. The media moment will involve wide-spread coverage of these products, across all channels and show formats as well as other types of media to reach the widest variety of people.

In order that the media moment is effective, there needs to be consistent coverage and language around different products available to customers on the market, which will be incorporated both subtly and overtly in different ways, and with coverage relating to different social and environmental issues (e.g. blockages, dignity, inclusivity, accessibility and everyday life). There is potential to involve influencers, celebrities and personalities to increase traction on social media; and professionals in the creative industries to develop more nuanced ways of raising the visibility of these products and disposal practices.

Next steps: This is a novel way of re-appearing products and practices that are ordinarily invisible in everyday life. The next step is to establish a cross-sectoral team and project co-ordinator that can ensure ubiquitous reach across different media platforms (both local and national), and establish connections with the media industry. There is potential to develop tracking mechanisms and customer research to gauge impact of this initiative, as well as sales data to assess success.

Final reflections

The research underpinning this workshop calls for recognition of the distributed people, objects and actions that shape everyday resource use, and heightened sensitivity to people's different situations and vulnerabilities. The workshop outputs demonstrate the feasibility and variety of interventions, and underline the importance of a distributed approach to agency and responsibility; one that reflects the wide array of actors that need be involved in shaping changes in flushing practices. The nine new ideas are also indicative of the array of activities needed to intervene in the social, cultural and material developments that give rise to today's flushing practices.

Feedback from the workshop is indicative of the level of enthusiasm and commitment to take forward these nine new ideas:

"A very informative, challenging and insightful workshop"

"Refreshing. Great representation from so many different industries in an ambitious, collaborative and diverse discussion"

"Levelling; providing a space where organisations could work openly together and challenge each other in a wholly constructive manner."

Participants also registered the importance of, and commitment to, further discussion to:

- Identify funding to research, co-ordinate and implement initiatives and cover the costs of resources and materials for interventions.
- Establish clarity on the regulatory steer needed to support coherent cross-sectoral action.
- Assign leaders and teams; several of the nine new ideas merely need teams assembling in order to get underway.
- Continue these challenging discussions to ensure pathways for action are identified and followed effectively to eradicate unflushables by 2030.

The strongest message from this workshop is that unflushables are an urgent challenge that requires cross-sectoral action to address, and one for which there are clear pathways and opportunities for intervention – such as the nine new ideas presented. Though flushing practices are complex and diverse, there are meaningful actions that can be undertaken in the near-term to reduce the volume of unflushables that enter UK sewers and watercourses. However, little will be achieved by individual organisations working in siloes. We need to work together to drive these ideas into action.

Please get in touch with Rachel Dyson (Anglian Water) to discuss what we can do: rDyson@anglianwater.co.uk

Underpinning research:

For further reading and the research behind the review see: Alda-Vidal, C. et al. (2020). Unflushables: Designing new intervention pathways for sewer blockages and environmental pollution in the Anglian Water region, UK. University of Manchester. Available online: <https://bit.ly/2WTyYj9>

The Change Points toolkit is a free, open-access resource that is available here: www.changepoints.net

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