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Editorial

WHAT IS THE FUTURE FOR PUBLIC COMMUNICATIONS ABOUT WASTE AND RESOURCES?

Contemporary society faces many pressing problems, of which the development of a sustainable approach to waste and resource management is just one. Enabling effective resource management requires active public engagement and motivation – alongside appropriate infrastructure and service provision - and this is hugely challenging. Many political, environmental, social, technological, legal and economic approaches have been trialled, but only slow progress has been achieved thus far in many settings.

Communication is a vital tool for scientists' findings to make some form of impact. Research around topics such as climate change, water pollution and food waste often needs to inspire changes in public knowledge and behaviour to catalyse necessary, rapid public action.

When it comes to more emotive topics such as climate change and recycling/incineration, the public may have strong responses to media communications that highlight the potential severity of future events and situations. However, information on the actions or changes they should make to tackle the issue can be lacking (Balmford et al., 2004). Raising awareness may motivate people in a general sense but actual information on necessary and beneficial actions are a vital part of science communication for resolving environmental issues.

There are many traditional methods of public communication about waste. Advisory panels, committees and fora, consultation papers and requests for comments have narrow reach and tend to focus on "experts" not the public. Methods such as community information (posters, leaflets, doorstepping, focus groups), public meetings (private or public), citizens' juries & parliaments, workshops & seminars, stalls at fairs / events, and mass media campaigns (radio / TV / the Internet) tend to have limited, mainly short-term impacts (Timlett and Williams, 2008). Even very high-profile campaigns – including the use of popular children's TV shows (Sesame Street, Captain America, The Wombles, The Regenerators) to highlight the problem of littering - and the Waste and Resources Action Programme's highly acclaimed "Love Food Hate Waste" campaign (Yamakawa et al., 2017) - did not stop litter and food waste, respectively, from continuing to rise. These methods have tended to assume that scientific and public views on such topics are divergent, assuming that the public's knowledge is incomplete and/or flawed. Communication efforts focused on public education and awareness raising ensue, failing to guide and inform the public towards environmentally beneficial actions and behaviours (Brock et al., 2022).

In terms of stimulating public actions, Timlett and Williams (2008) reviewed some of the most popular communication and behaviour change methods used in the waste and resources sector to encourage positive recycling behaviour. This review showed that simple feedback can be highly effective when it is regular, incremental, well communicated, monitored and reinforced. Expensive, complicated options are not always required and positive behaviour change can be achieved using relatively cheap, "low-tech" methods.

In fact, recent research (Cooper and Nisbet, 2016) has highlighted that ideology, not knowledge, best predicts environment-related attitudes and behaviour, leading researchers to move away from investigating cognitive bias towards investigating the effectiveness of e.g. emotion-based approaches (Brock et al., 2022).

Our "communication problem" is particularly obvious in waste management due to the scale and immediacy of the issues to hand and the impacts of failing to make progress towards sustainable use of natural resources in the face of rising human population and increasing demand for goods and services. Whilst the public may be aware of general waste management related issues, they may be unaware of new and emerging issues and the collective positive impacts they can cause by changing their behaviour. This is significant, since: i) citizen support is essential for implementation of new and/or ambitious waste-related policies, and ii) populism and its rhetoric are currently burgeoning, often influencing the public away from policies based on science-based evidence, Hence, in order to communicate waste-and resource-related information in a way that is more accessible to the public, and actually leads to desired behaviour change, new methods must be explored. Citizen support is essential for implementation of ambitious waste-related policies, strategies, and action plans.

Hence a vital research question that needs to be answered is "What is the future for public communications about waste and resources?" This gives rise to other, more specific questions: Are traditional methods of communication waning? Are some of these methods still relevant in the social media age? If so, which methods, and why? Might emotion- and/or ideology-based approaches be more effective? What is the role of inter-generational influence and role models in providing effective and trusted communica-

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tion? Who is trusted to give environmental messages and why are they trusted? Might personal feedback methods work and be more cost-effective in the longer term? This is by no means and exhaustive list of concerns and questions!

As we move rapidly towards the need for urgent behaviour change to ensure climate change and resource-related targets are met by 2030, these questions must be answered. We need to identify which methods are best used to communicate and consult with the public about environment, waste, and resources, and why, providing evidence to support decision-making. And we must be disciplined - anecdotes are interesting but robust, meaningful and representative evidence must be at the heart of the decisions we make and the directions we travel.

Scientists and engineers need to answer this big question now. There is no more time for procrastination when it comes to addressing the global environmental issues of our era.

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