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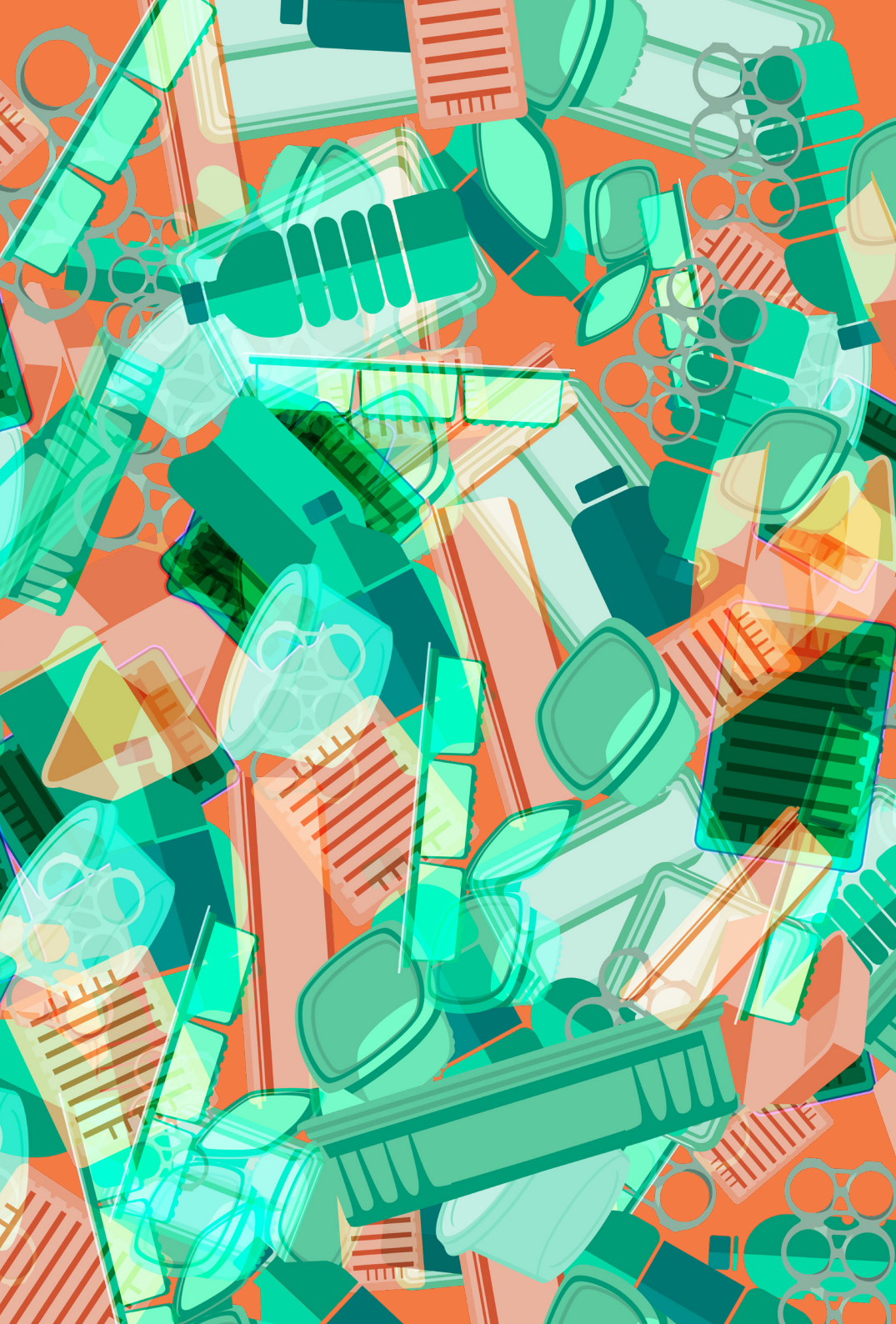
One Bin to Rule Them All

Headlines for Households

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One Bin to Rule Them All

This report shares key findings from the ‘One Bin to Rule Them All’ household trials. It focuses on three areas: 1) what we learnt from participating householders; 2) what we learnt from the ‘One Bin’ bins; 3) and, future steps. None of this would be possible without the support of our participating households. Thanks goes to all involved.

One Bin to Rule Them All is a three-year project researching household plastic recycling. The project is unique. It involves an interdisciplinary team of researchers investigating the material, economic and social realities of household plastics recycling. The project involves collaboration with 30+ policy and industry stakeholders.

The One Bin trials involved in-depth qualitative research with 30 households. These households were split across the indices of deprivation. Each household was given a different 240 litre bin to put all their plastic waste in over two-weeks. Pre and post-trial interviews were conducted. These were professionally transcribed and analysed. This type of research is crucial - the social, material and economic challenges related to plastics are acute.

To cite this report:

Holmes, T., Holmes, H., Kortsen, K. & Shaver, M. 2023. **One Bin to Rule Them All: Headlines for Households.** Available at: <https://drive.google.com/file/d/1rLMuzdFFFSSytFkoYkASaIBQRiOnhD49/view>
DOI: 10.5281/zenodo.8388922

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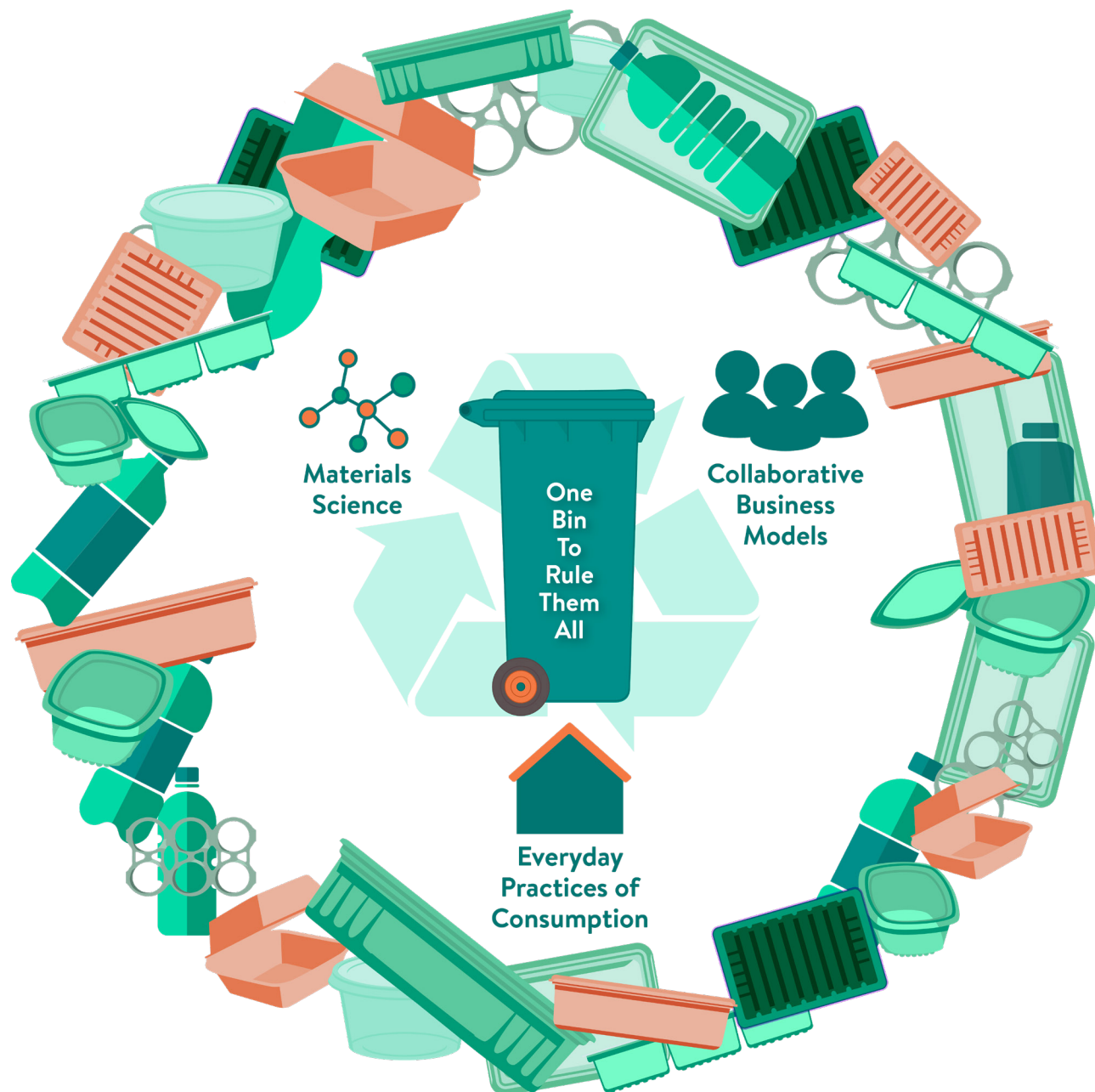
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‘Plastic’ problems

“Plastic waste is one of the biggest global environmental challenges” (House of Commons Environment, 2022, p. 3). In the UK, 2.5 million tonnes of plastic waste were generated in 2021 (DEFRA, 2022). Just 44.4% of this was recycled (DEFRA, 2022). This recycling does not always happen in the UK. “Currently the UK sends over 60% of its plastics abroad” (House of Commons, 2022, p. 3).

Challenges lie in the UK’s waste recycling system. There are approximately 39 different bin collection systems in use across 391 local authorities, with an estimated 3,500 material recovery facilities (MRFs) involved in sorting waste across the UK. In turn, the rules can change from one area to the next.

The social, economic, and environmental implications of poor recycling rates are stark. It is well acknowledged that we need to do things differently. This is why the One Bin trials are important. They shed light on the types of challenges householders face in trying to do the recycling well and what is called for in response. They also provided an opportunity to assess the types, quantities and qualities of plastics flowing through households.



What we learnt from householders

Households are generally interested in playing their part, recycling more, and trying to live more sustainably. Yet, doing the recycling is overly complicated, it is hard to avoid plastic packaging, and sometimes people struggle to manage the amount of waste generated. On the bright side, neighbours and communities help each other out, sharing knowledge and the space in their bins.

Confounding and complicated messaging and materials

- Messaging on packaging, in the press, and on TV and social media leads to confusion. Households are confronted by printed resin codes (e.g., the 1-7 numbered triangles on certain packaging); various recycling symbols (e.g., Terracycle); statements like “widely recycled”, “empty and replace cap”, “recycle lid on”, “plastic in product”; and guidelines from local authorities. These do not always align with the rules employed certain areas.
- Multi-material packaging that is hard to separate poses challenges. Common culprits include – cake and sandwich packets; envelopes; blister packs; crisp tubes; and yoghurts.
- Imitative packaging – things that look like one thing, but are actually something else or a mixture of many materials make sorting a challenge.

In response:

- We need consistent and simplified messaging. This needs to be married up with plainer packaging, made from fewer materials.





People do what they can to avoid excess plastic packaging, but it isn't always easy or an option

- Everyone we engaged with used 'bags for life' and/or reused plastic carrier bags.
- Many avoided using small plastic bags and stickers when getting their fruit and veg.
- Some avoided multi-pack items, wrapped in additional plastic packaging (e.g., multi-packed baked beans).
- Some people used refill shops for dry goods and toiletries.

Crucially, it was those that had time, means and access who were able to fully exploit these options. For those with children and those on a budget – avoiding excess plastic packaging was, understandably, not the top priority. Moreover, the sheer amount of plastic involved in everyday life proved surprising for many. Indeed, once striped out from the general waste bin, participants realised there was little left.

Leaving it down to consumers to try and avoid plastic packaging through their consumption choices and habits is insufficient. It is particularly worrying given the current cost of living crisis, with other priorities likely to trump those to do with plastics.

In response:

- There needs to be greater attention paid to supporting reuse across various communities.
- There also needs to be stronger legislation aimed at limiting the sheer amount of plastic packaging used by manufactures.



There's just so much plastic packaging

- Households are swamped in plastic packaging. A lot of which people think is unnecessary (e.g., wraps around multipacks; double or triple wrapped packages; wrapping on fruit and veg). This contributes to households struggling for capacity in their bins. Family households and those with people working from home struggle the most. Research participants spoke of trips to the tip. Others admitted to “getting creative” and hiding stuff in the wrong bins to get rid of their waste.

In response:

- There could be greater emphasis in policy on reducing excessive packaging to limit what households end up handling.
- Stronger support of innovations and greater investment in related infrastructures would open-up capacity to recycle more, relieving pressure on bins.
- Greater opportunities to dispose of recyclable packaging outside the home could alleviate pressure - flexible packaging collections could be widened beyond major supermarkets; communal bins dotted around neighbourhoods for the purpose of dealing with overflows may also help.
- Ease of access to larger bins for those experiencing persistent challenges due to working from home or a growing household could facilitate better recycling practices.
- Another option would be to promote greater communication between neighbours about their bins and sharing the space within these.

Engaged and engaging neighbours and communities

- Many of the households we engaged with discussed the importance of their neighbours. Be it over text, phone, WhatsApp, or through day-to-day conversation, people discuss what should and should not go in their bins as well as asking if they can use someone else's bins if they have a glut of waste.

In response:

- Local authorities could seek to engage more directly in these conversations. They could establish links with residents willing to act as local champions focused on helping their communities handle their waste more effectively. Some cities in Japan employ this type of approach and it pays dividends.



What we learnt from the 'One Bin' bins

We collected, sorted, and analysed over 5,880 items. That is an average of 196 items per household.

55% (by weight) of the plastic packaging collected is not currently collected for recycling in the research area, including pots, tubs, and trays (31%), and flexible 'soft' plastics (24%).

We also collected, amongst other things, lots of lids, some kids' toys, an item of polyester (and therefore) plastic clothing, and larger containers (e.g., for AdBlue).

The variety of goods collected alerted the team to the effects of asking for anything plastic to go in the 'One Bin' bin. Going forward, we think the One Bin best serves its purpose if it simply contains plastic packaging. Reuse and repair remain important alternatives for things like clothing and toys. We also think that there is more to be done to make it easier to participate in refill systems.

We also need to:

- Limit some types of plastic from production, use and disposal. Ideally, we should not, for example, be using Polystyrene (PS) for the windows in envelopes. The windows can and should be made from cellulose - processed wood fibre. This enables recycling with the rest of the envelope.
- Explore untapped and innovative opportunities to collect and recycle flexible plastics. As it stands, only 5% are recycled across the UK. One reason for this is the sheer diversity of polymers used to make flexible packaging. This makes recycling less efficient. Legislation should aim at limiting forms of variety. Collecting more flexibles will act to spur on investment and innovation. Business as usual will not do. We need to do things differently and support endeavours that move in this direction.
- Simplify the design of plastic packaging. We noticed, for example, that PET bottles, which are widely assumed to be perfectly recyclable, pose their own problems thanks to the range of design choices employed. Lids and labels are often made of different plastic types, with many colours, necessitating their separation either by consumers or recyclers. Many PET bottles will also be coloured or contain additives to give them a different feel and look, further adding complexity to the recycling process. Policymakers can play a big role here, pushing towards more uniformity in plastics.

Future Steps

- We have written and published a policy report, aimed at policymakers and industry stakeholders: [Tackling Household Plastic Waste: Best Practice for a Circular Plastics Economy](#).
- We have developed a digital resource that advises on the best fates for specific plastics. Click through to view the [Interactive Plastics Hierarchy](#).
- These resources have led to media interest and coverage. Our research has been picked up by - I news, LocalGov, and Sustainable Packaging News. The team also participated in a [BBC 1 Morning Live recording](#) on the challenges around recycling and wrote a piece on the same topic for [The Conversation](#). It's titled: The UK's recycling system is confusing, chaotic and broken – here's how to fix it.
- We are also participating in the UN global plastics treaty. As part of a scientists' coalition, members of the team are leading the waste management group, working with 'One Bin' findings to guide responses to the plastic waste problem on a global scale.
- We have already presented at several industry and academic conferences - The Materials Research Exchange 2022, a Local Authority Recycling Advisory Committee (LARAC) regional event, and the Global Research & Innovation in Plastics Sustainability (GRIPS) conference 2022. We will be presenting at several more over the next year.
- We have run several in-person and online workshops to disseminate findings.
- The Economic Realities team continue to focus on the development of innovative business models that support the greater uptake of recycled content in consumer goods.
- We are writing articles for publication in academic journals.

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Thanks again to the participating households and to our industry partners and sponsors.



