

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

### **Written evidence submitted by the UCL Plastic Waste Innovation Hub**

The UCL Plastic Waste Innovation hub is pleased to be able to provide evidence to this inquiry. We hope that the information provided below will help the Committee in its investigations.

#### **Key points**

- Behaviour change requires more than changes to 'lifestyle choices'. Citizens need to have the capability, motivation and opportunity in order to adopt a particular behaviour. This means that any intervention must consider all of these factors simultaneously, rather than focusing just on, say, information provision or incentives for individuals.
- While many UK citizens indicate feeling prepared for the introduction of household food waste collection, to increase success of implementation interventions are needed to: increase knowledge of what can be recycled (capability); provide suitable products to reduce the unpleasantness of dealing with food waste (motivation); and ensure a reliable and efficient collection service (opportunity).
- Many UK citizens want to 'do the right thing' and are motivated to undertake apparently pro-environmental behaviours, such as purchasing compostable plastics in preference to regular plastics.
- Although they are motivated to use compostable plastics, the opportunity to dispose of these products in an environmentally beneficial way is not available to citizens in the UK as there is no collection system in place.

#### **(A) 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?**

It is clear that changes to individual and household behaviours are imperative for reaching the Government's long-term climate change and environment goals and commitments. However, referring to behaviours such as purchasing (e.g., choosing greener products) and waste management behaviours (e.g., recycling) as 'lifestyle choices' might suggest that these decisions lie solely with individuals and their 'choices' when in reality, these 'choices' are affected by the actions of businesses and governments, which inevitably design the social, economic and environmental context within which citizens interact. This can have the unintended consequence of placing excessive responsibility on individuals, households and communities. All sections of society, including government and industry, must contribute to the development and implementation of strategies which deliver environment goals and commitments. Behaviour change is very much the responsibility of businesses and governments as much as individuals and households.

We comment on two particular areas which require the combined effort of citizens, industry and government: purchase of compostable plastic packaging and household food waste recycling.

#### ***Food waste***

Recycling food waste via local food waste collection and processing services poses a key opportunity for reducing the climate change impacts of food waste. Food waste represents

approximately 50% of domestic waste globally<sup>1</sup> and diverting this away from landfill to industrial composting or anaerobic digestion facilities creates fewer greenhouse gases while also sequestering carbon in compost or digestate. Successful food waste recycling however, relies on citizens adopting the appropriate food waste recycling behaviours in their homes.

The Government plans to introduce a separate food waste collection for all households in England by 2023. We carried out a study of UK citizens to understand the factors that might affect levels of household food waste recycling.<sup>2</sup>

While the majority of surveyed participants (including those with and without food waste collection services) felt ready for implementation of nationwide food waste collection services, those who did not reported a number of reasons for feeling unprepared, including:

- A lack of awareness about the government's plan to do this;
- A lack of knowledge regarding the potential rules around food waste collection e.g., whether there will be fines for not separating food waste;
- not having the time or space for taking on the extra responsibility of separating food waste from other household waste;
- a lack of confidence in the need for such a scheme;
- knowledge gaps relating to the importance of recycling food waste to reduce climate change impact;
- concerns relating to pests e.g., foxes, rats, flies;
- concerns relating to neighbourhood pollution e.g., litter and visual clutter from the excess bins required on streets, and;
- concerns relating to implementation e.g., unreliable collection services which may exacerbate pests and pollution.

Our study shows that a behaviour change strategy is needed to promote adoption of food waste recycling. This intervention will need to combine a number of elements to be successful. First, it needs to emphasise the importance of increasing citizens' automatic motivation and psychological capabilities to recycle food waste, for instance, by increasing knowledge of what can be recycled; awareness of the importance of recycling food waste to reduce climate change impact; and designing products that reduce the unpleasantness of dealing with food waste (e.g., functionally designed bags and bins). Second, our study also emphasises the need to reduce existing physical opportunity related barriers, for example, by providing appropriate bins and bin liners free of charge and increasing reliability and efficiency of waste collection services.

### **Compostable plastics**

Compostable plastics are often presented as a sustainable solution to the plastic waste problem but these claims are largely unsubstantiated and have led to widespread confusion among members of the public about how such products should be disposed of. At the moment, there is no UK-wide system for the collection and processing of compostable plastics. If they are mistakenly put in to plastic recycling streams, they will contaminate them and reduce the quality of the recycled plastic. Nor can they be composted: as it is not possible to easily distinguish between compostable and regular plastic, industrial composting facilities used for food waste currently screen out all plastic items. In any case, many of these facilities (such as Anaerobic Digestion plants) do not provide suitable conditions for compostable plastics to break down.

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<sup>1</sup> Chen, D.M.-C.; Bodirsky, B.L.; Krueger, T.; Mishra, A.; Popp, A. *The world's growing municipal solid waste: Trends and impacts. Environmental Research Letters* 2020, 15, 074021.

<sup>2</sup> Allison, A.L.; Lorencatto, F.; Michie, S.; Miodownik, M. *Barriers and Enablers to Food Waste Recycling: A Mixed Methods Study amongst UK Citizens. International Journal of Environmental Research and Public Health* 2022, 19, 2729.

There is very little data about how well compostable plastics break down under home composting conditions (our BIG COMPOST EXPERIMENT – a citizen science project involving 9590 volunteers – aims to fill this gap. See [www.bigcompostexperiment.org.uk](http://www.bigcompostexperiment.org.uk) for more information.)

We conducted a study to identify influences on buying biodegradable and compostable plastic packaging (BCPP) as a basis for designing strategies that enable the benefits of BCPP.<sup>3</sup> We found that key drivers of this behaviour concerned:

- positive beliefs about the environmental impact of this packaging;
- a personal moral resolve to behave pro-environmentally;
- access to appropriate waste management, which also indirectly drove the appropriate waste management behaviours (e.g., recycling via home-compost or council food waste collection).

Key barriers to buying BCPP included:

- scepticism about environmental claims of packaging;
- not understanding terminology used to label packaging;
- not taking notice of packaging;
- preferring other types of packaging and product qualities;
- negative beliefs about BCPP's environmental impacts and;
- having no access to appropriate waste management (e.g., no garden access for home-composting or no local council food waste collection services).

Reducing ambiguity concerning the labels of 'biodegradable' and 'compostable' may reduce scepticism over environmental claims of packaging. Interventions should improve information about the source of the packaging material, how the packaging waste is processed, and how to dispose of the packaging. Labelling and standards are likely to play an important role in this. In order for compostable plastics to be effectively composted citizens will need reliable access to organic waste collection and processing and will need to adopt correct disposal behaviours.

### **(C) What is the UK public's appetite for the key lifestyle changes that may be needed to achieve the Government's long-term climate change and environment goals and commitments, and how does this vary across the population?**

We recently conducted a survey of 1801 members of the UK public to identify influences on household food waste recycling<sup>4</sup>. Although the majority had not heard of the Government's plan to roll out food waste collection to all households by 2023, many reported feeling prepared for it indicating pro-environmental orientations. In addition, in our study of influences on biodegradable and compostable plastic packaging consumption, most of our sample indicated that they'd be more likely to buy this type of packaging: one of the key reasons provided for doing so was that people wanted to do the 'right thing' and to behave in a pro-environmental way. These findings suggest that at least in these contexts there is a public appetite for pro-environmental change. Additional research is needed to investigate how this may vary between different groups of the UK population.

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<sup>3</sup>Allison, A.L.; Lorencatto, F.; Michie, S.; Miodownik, M. *Barriers and Enablers to Buying Biodegradable and Compostable Plastic Packaging*. *Sustainability* 2021, 13, 1463.

<sup>4</sup>Allison, A.L.; Lorencatto, F.; Michie, S.; Miodownik, M. *Barriers and Enablers to Food Waste Recycling: A Mixed Methods Study amongst UK Citizens*. *International Journal of Environmental Research and Public Health* 2022, 19, 2729.

## **(D) What can be learnt from research into consumer attitudes towards climate change, the environment, and the transition towards green products and services?**

Relating to recycling food waste and buying compostable plastic packaging, attitudes are generally positive and people want to do 'the right thing' but scepticism of environmental impacts and pessimism over being able to make an impact is common. Evidence also suggests that the barriers to adoption of sustainable behaviours are not solely to do with capability or motivation as is often assumed (e.g., knowledge gaps or lack of incentive) but also to do with opportunity too.

Society and peoples' physical environments are often not set up in a way that is conducive to behaving in a pro-environmental way. Related to recycling, examples may include only being able to afford living in small, urban environments, with limited kitchen or garden space, which are not conducive to having all the bins required to separate waste items appropriately. Related to biodegradable and compostable plastic packaging consumption, it could also include socio-economic barriers; citizens on low incomes and limited social support are unlikely to be able to prioritise buying premium eco-products if this option is not made easier (i.e., cheaper and available). It is important to remember that in a world that makes behaving 'unsustainably' the easier and cheaper thing to do, there are privileges inherent in being a citizen for whom spending the extra time, effort or money on pro-environmental products and services is an option.

We need to move away from the individual and start thinking how we can restructure peoples' social and material environments so that they are enabled to make more pro-environmental actions. Examples of practices that could help to increase green purchasing behaviour and waste management behaviour include:

- ensuring source credibility (e.g., no 'greenwashing' – the environmental claims of products and services are credible and substantiated),
- affordability, ideally making new behaviours free (e.g., free compostable bags provided for food waste collection),
- reliability (e.g., timely and efficient waste collection services),
- access and convenience (e.g., availability of recycling bins),
- functionality (e.g., a reusable cup that doesn't leak), and
- attractiveness (e.g., a stylish reusable tote for shopping).

## **About the Plastic Waste Innovation Hub**

The [Plastic Waste Innovation Hub](#) is a multidisciplinary team of researchers based at UCL, including scientists, engineers, designers and social scientists. We take a design-led approach to the issue of plastic waste.

Our current focus is compostable and biodegradable plastics and how barriers to a sustainable system for their use might be overcome. [Compostable plastics: unlocking existing barriers to systems change](#) is a 3-year project funded by UK Research and Innovation and the Natural Environment Research Council.

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<sup>5</sup> Note: the original submission was edited March 2022 to include the following reference in footnotes 2 and 4 as it was under review at the time of submission: Allison, A.L.; Lorencatto, F.; Michie, S.; Miodownik, M. Barriers and Enablers to Food Waste Recycling: A Mixed Methods Study amongst UK Citizens. *International Journal of Environmental Research and Public Health* 2022, 19, 2729.