

Written evidence submitted by The Grantham Centre for Sustainable Futures (PW0051)

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Summary

- Reusable packaging systems can save single-use plastics packaging waste. If 20 percent of single-use plastic packaging was replaced with a reusable alternative, the UK could save 200,000 tonnes of single-use plastic packaging waste p.a.
- In order to gain maximum effectiveness, the implementation of reusable packaging systems requires cooperation from stakeholders across the supply chain and between competing businesses. This is only going to be achieved at scale with the introduction of legislation and investment.
- Plastic has an important role to play in society and should be valued.
- Alternatives to single-use plastics i.e., alternative materials, or reusable packaging systems, need to be evaluated using techniques such as Life Cycle Assessment to demonstrate there are no unintended consequences (e.g., increased global warming potential).
- Techniques such as LCA need to be used wisely, and the limitations understood (e.g., marine litter is not currently considered in LCA, although an EU project is looking at this). There is also a lack of data on the impacts of compostable and biodegradable plastics e.g., impact on soil quality and carbon sequestration.
- Consumer acceptance is also key to the successful introduction of a new system – the University of Sheffield is investigating strategies that will achieve this.
- Current targets do not adequately allow for the development of packaging reuse systems

Introduction

The University of Sheffield is a world top-100 university renowned for the excellence, impact and distinctiveness of our research-led learning and teaching. As a research institution, the University of Sheffield has a global reputation for world-leading research, with 99% of research assessed as internationally recognised or better, and a third as world leading.

Co-funded by the Grantham Foundation for the Protection of the Environment, the **Grantham Centre for Sustainable Futures** is a truly multidisciplinary centre for research excellence. The centre works with experts from academia, business and policy to create a sustainable future. A key part of this is mentoring the next generation of sustainability researchers.

Many Happy Returns: Enabling reusable packaging systems (MHR) is a £1 million project funded by UKRI as part of the ISCF Smart Sustainable Plastic Packaging Challenge (UKRI, 2020). Building on *Plastics: Redefining Single-Use* (Grantham Centre, 2019), MHR aims to enable reusable plastic packaging systems and so reduce the need for single-use plastic. The project will provide research into consumer reactions to reusable packaging, the role of language in encouraging reuse, and the technical and scientific basis for making reusable packaging. We are working closely with manufacturers, designers, brand owners, retailers and policy makers to achieve these goals.

Note: for the purposes of this response, we include bioplastics and cellulose film in the definition of plastics. Whilst acknowledging the importance of single-use plastic packaging within the medical sector, especially during the response to COVID, our response focuses on plastic food packaging

1. What measures should the UK Government take to reduce the production and disposal of single-use plastics in England? Are the measures announced so far, including a ban on certain single-use plastics and a plastic packaging tax, sufficient?

For the last two decades, the focus in tackling the plastics waste problem has concentrated mainly on recycling. Whilst recycling is important, it can also normalise and legitimise consumption. Alternatively, we could design systems where plastic packaging containers are used again and again for the same purpose, making them a valuable asset rather than a throw-away commodity.

It has been estimated that replacing 20 percent of single-use plastic packaging by weight represents a global business opportunity of \$10bn (EMF, 2019). In the UK alone, this could prevent 200,000 tonnes of single-use plastic waste per year (This can be visualised as approximately 700 Olympic swimming pools of baled plastic waste).

Although there is a lot of interest in this area (Coelho *et al.*, 2020), and the (voluntary) UK Plastics Pact targets include Reuse, uptake in refill and return systems is still low (George, 2020), There are currently no legal measures in place to drive the implementation of reusable packaging

systems. As we are finding from our research, to gain maximum effectiveness, the implementation of reusable packaging systems requires cooperation from stakeholders across the supply chain and between competing businesses (Greenwood *et al.*, 2020, 2021). This is only going to be achieved at scale with the introduction of legislation to drive it and a considerable amount of investment.

As such we welcome the upcoming Government consultation on the setting of reuse and refill targets as part of the review of the Packaging Essential Requirements Regulations.

We also consider that further funding should also be made available to investigate and implement reusable packaging systems, including cooperative schemes. We suggested in our responses to the DRS and EPR consultations earlier this year that a portion of the funds raised from these schemes be allocated to pump-priming reuse projects.

2. How should alternatives to plastic consumption be identified and supported, without resorting to more environmentally damaging options?

2.1 – Plastic has an important role to play and should be valued.

Contrary to current criticism of plastic packaging as universally bad, ongoing research by The Universities of Bristol and Sheffield suggests that consumers acknowledge the usefulness of plastic's presence in everyday life. Whilst fully aware of the problems associated with plastics, participants highlight the difficulty in imagining alternative materials that could replace plastic whilst providing similar benefits, and that a removal of the material would require an (unwelcome) overhaul of modern life.

We are 'locked in' to the convenience and other functionalities that plastic packaging provides, meaning that solutions should not focus solely on consumer blame or responsibility, rather, we should consider the broader role of firms, policymakers, consumers, and technology i.e., the socio-technical arrangement (Evans *et al.*, 2020). Therefore, it's not necessarily the case of removing or abandoning plastics altogether, nor replacing plastics with other materials, but rather about understanding alternative relationships with plastic, for example the introduction of reusable plastic packaging.

2.2 – Lifecycle Assessment

It is important that any move from one packaging material or format to another is done with consideration for the environment and not as a knee-jerk reaction to popular opinion. Rather than looking at just the material that the primary packaging (the packaging a consumer takes home with them) is made from, it is important that the *whole system* that is used to deliver the product from the manufacturer to the consumer is considered, including the resources used, production methods, the method of disposal of the packaging waste and the amount of product

waste created or saved. This can be done using assessment techniques such as Life Cycle Assessment.

Life Cycle Assessment (LCA) is a useful tool in comparing alternative systems. For example the University of Sheffield recently performed a study considering the (business to business) delivery of Milk from a local dairy to our cafes in returnable steel containers as an alternative to single-use plastic bottles (Błażejowski *et al.*, 2021). The LCA was favourable towards the reusable option, which we are now assessing in a practical trial. In another study we investigated the use of reusable takeaway containers using LCA and combined this with our behavioural work ('willingness to engage') to explore if the system is both environmentally sustainable and socially acceptable (Greenwood *et al.*, 2021).

It should be noted that LCA has its limitations. Comparing LCA studies is often difficult as details of system boundaries and data sources are not always given, and published data for the 'same' systems can be vastly different. We recommend that LCA studies are performed to ISO 14040/4 standards using the Product Environmental Footprint method (Maia de Souza, 2012) to mitigate this. An LCA will only be accurate if good quality data exists for the pathways identified. The environmental impacts considered in most LCAs do not take into account the impact of littering. Inclusion of impacts associated with marine litter is being addressed by the EU funded project MarILCA (Marilca.org, 2021). There is also a lack of data on the impacts of compostable and biodegradable plastics e.g., impact on soil quality and carbon sequestration.

2.3 – Consumer Acceptance

As well as confirming there is an improved environmental impact, consumers must also be willing to engage in any new reuse system. Our research (Greenwood *et al.*, 2021) has suggested that people are more willing to engage with systems that they are already familiar with, meaning that the introduction of novel reuse systems may need to incorporate strategies for promoting and maintaining engagement from consumers. For example, one challenge is that containers that are frequently refilled and reused are likely to become worn and discoloured over time. Given that the appearance of reusable packaging and containers may change with use, a fundamental question for the success of initiatives to promote reuse is whether and how changes in the appearance of a reusable container influences people's willingness to use the container. This is something that the 'Many Happy Returns' project at the University of Sheffield is investigating.

3. Is the UK Government's target of eliminating avoidable plastic waste by 2042 ambitious enough?

We welcome the recent consultations on the Plastics Packaging Tax, the Deposit Return Scheme, Extended Producer Responsibility, Consistency of Collection, Standards for Bio-based, Biodegradable and Compostable Plastics and an upcoming consultation on Refill and Reuse targets. These present a once-in-a-generation opportunity to address the problem of packaging waste (of all materials).

The 25-year plan definition of 'Avoidable' is what is 'Technically, Environmentally and Economically Practicable'. Whilst we would somewhat agree with this definition (and would also include 'Socially'), we suggest that this definition could possibly present a barrier to enabling alternative waste management approaches, such as reuse systems from establishing themselves and indeed becoming mainstream. As a result, ambitious alternatives to waste prevention may not be considered across various packaging sectors as the transition to such systems would, as it currently stands, not be economically viable, without the support of strategic thinking (such as a roadmap) and legislative drivers.

We acknowledge the achievements made by the UK Plastics Pact, but would prefer these to be mandatory rather than voluntary and hope that there will be subsequent pacts beyond the current target end date of 2025.

4. Will the UK Government be able to achieve its shorter-term ambition of working towards all plastic packaging placed on the market being recyclable, reusable or compostable by 2025?

In our opinion no, but significant progress will have been made. As mentioned above, the UK Plastics Pact is voluntary and not mandatory. The introduction of the EPR scheme, should help to drive companies to meet these targets, but possibly not by 2025.

Although good progress is being made in increasing the recyclability of plastic packaging placed on the market, such as in-store collection of packaging films, increased compliance with design for recycling guidelines, and the development of recycle-ready barrier films, there will still be some plastic packaging formats that will not have converted to recyclable formats in this timeframe. A likely example is multilayer high gas-barrier materials used for long shelf-life packaging e.g., for cheese and cured meats. Even so, only HDPE and PET can be closed-loop recycled for use as food packaging at a reasonable scale (and supply is short), so there is a long way to go until plastics recycling becomes as circular as possible.

We also reiterate our point in the answer to question 1 that the focus in plastic packaging waste management over the last two decades has been on recycling. There are circumstances where reuse (and perhaps in a small number of cases, composting) could be a more effective solution to plastics waste management in the longer term and this needs to be accounted for in any subsequent targets.

5. Does the UK Government need to do more to ensure that plastic waste is not exported and then managed unsustainably? If so, what steps should it take?

We have chosen not to answer this question

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