



PLASTIC PACKAGING IN PEOPLE'S LIVES

Mapping the Plastic Packaging Landscape



Acknowledgements

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Glossary and Key Terms

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| BPA | Bisphenol A, a chemical produced in large quantities for use primarily in the production of polycarbonate plastics. |
| DDT | Dichloro-diphenyl-trichloroethane, developed as the first of the modern synthetic insecticides in the 1940s. |
| HCH | Hexachlorocyclohexane, which is a cyclic saturated chlorinated compound that persists in the environment and has eight possible isomers. |
| NGO | A non-governmental organisation. |
| PBDE | Polybrominated diphenyl ethers are a group of man-made organobromine compounds. |
| PCB | Polychlorinated biphenyls, which are highly carcinogenic chemical compounds. |
| PE | Polyethylene. |
| PET | Polyethylene Terephthalate. |
| PFOA | Perfluorooctanoic acid, part of a large group of lab-made chemicals known as perfluoroalkyl and polyfluoroalkyl substances. |
| PP | Polypropylene. |
| SUP | Single-use packaging. |
| SUPP | Single-use plastic packaging. |
| WRAP | Waste Resources and Action Programme. WRAP is a climate action NGO working around the globe to tackle the causes of the climate crisis and give the planet a sustainable future. |

Executive Summary

Challenge

Plastic reigns supreme for a variety of practical reasons - for example durability, affordability, hygiene, and reduction in food waste. These very same properties make it difficult to decompose, especially without degrading the natural environment. Across industry reports, media publications, and academic research, a clear trend is emerging: a shift away from the use of traditional virgin plastic packaging towards the adoption of alternative packaging, including bio-based and biodegradable plastics. This shift stems from growing public concern about plastic pollution and its environmental impact, putting pressure on industry stakeholders to adapt.

Methodology

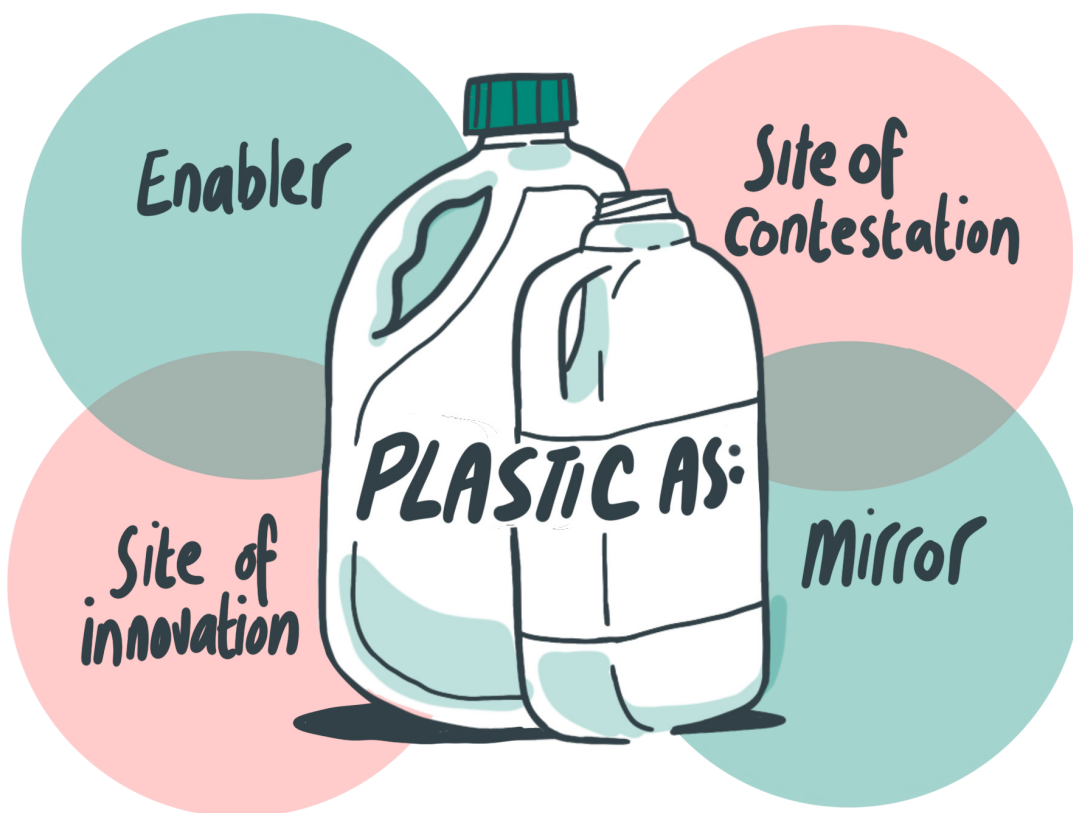
This report presents the findings of an extensive literature review, aiming to set a baseline for the Plastic Packaging in People's Lives projects. We systematically searched for English-language materials on plastic food packaging in the UK from 2015 to 2021, resulting in 309 items, later narrowed down to 119 through screening. Our media analysis covering 1962 to 2022 revealed themes underpinning the interconnected challenges in achieving the goals of the UK Plastics Pact, emphasising the need for multifaceted solutions.



Key findings

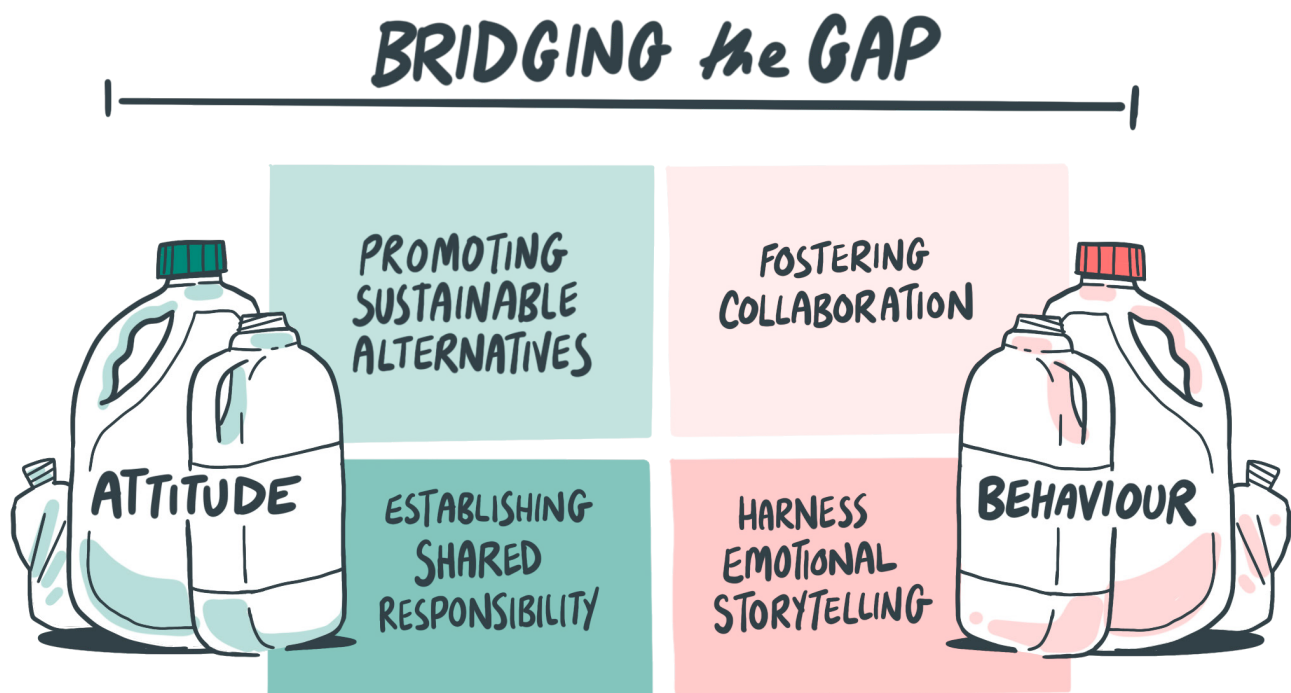
Our analysis revolves around key themes highlighting the multifaceted role of plastic packaging today.

1. **Plastic serves as an enabler**, due to its inherent physical properties, facilitating innovative approaches in manufacturing, transportation, and consumption of food.
2. **Plastic is a site of contestation**, marked by contradictory connotations and uncertainties surrounding its environmental and human health impacts, prompting efforts to reduce negative consequences.
3. **Plastic acts as a mirror**, reflecting the shared responsibility of stakeholders across the food-packaging value chain.
4. **Plastic serves as a site of innovation**, driving stakeholders to enhance recycling and adopt circular economy practices, necessitating a re-think of linear economic models and increased consumer involvement in plastic disposal for environmental sustainability.



The report also includes an analysis of the media and public reactions to the broadcast of BBC1's Blue Planet II in 2017, which, through powerful visuals and Sir David Attenborough's narration, significantly shifted public perception and conversation on single-use plastic pollution, highlighting the programme's impact on reshaping societal views and stimulating increased awareness and concern.

Based on this understanding of the key issues and challenges facing stakeholders at all stages of the consumption cycle, we conclude our report with recommendations for rethinking how to bridge the attitude-behaviour gap.



Introduction

Every year in the UK, approximately five million tonnes of plastic are used, almost half of which is used for packaging¹. Managing and reducing the volume of plastic waste is amongst the most significant challenges facing society today², as environmental pollution and human health are argued to be negatively impacted by this rising tide of plastics consumption and disposal³. Despite this environmental imperative, plastic use remains stubbornly high. Plastic packaging's prominent role in the UK society and food industry is primarily due to the inherent properties and material affordances of plastic⁴. Plastic is, and has long been, celebrated for its durability, and this is its central contradiction.

The UK Plastics Pact, led by WRAP, has brought together UK government, businesses, and NGOs from across the entire plastics value chain to commit to eliminating unnecessary single-use packaging (SUPs) as well as increasing reusability, recyclability, and compostability of plastic packaging considerably by 2025.

In this report, we examine the key issues and challenges for various stakeholders at all stages of the consumption cycle (including pre-consumption, consumption, and post-consumption) to gather insights and suggest opportunities for change in relation to food plastic packaging use.



Approach

Our approach used protocols for a systematic search strategy, covering the period from 2015 to 2021. Initial searches (employing targeted keywords) were conducted across academic databases and the internet, specifically focusing on English-language materials relevant to plastic food packaging in the UK. Out of 309 downloaded items, including books, articles, media sources, policy papers, and industry reports, an initial screening narrowed the selection to 119 items.

Additionally, we conducted a focused media analysis of news items relating to plastic, tracking coverage from 1962 to 2022 in 20-year intervals. We developed a set of themes, which illuminate the interconnected and dynamic challenges in meeting the ambitious goals outlined by the UK Plastics Pact, highlighting the need for multifaceted solutions addressing practicality, sustainability, responsibility, and infrastructural hurdles.

Practicality



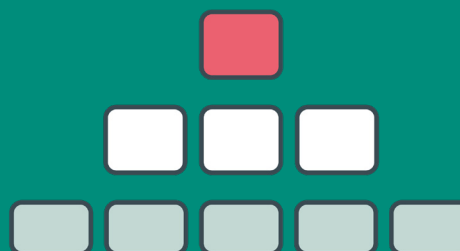
Sustainability



Responsibility



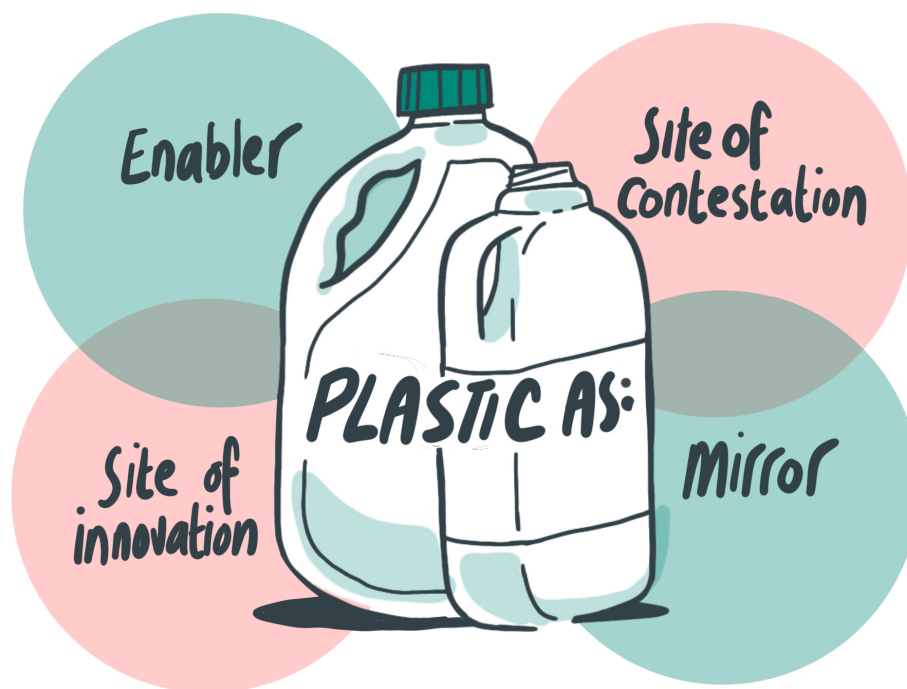
Infrastructural hurdles



Beneath the Surface: Unpacking the Roles of Plastic

The inherent physical properties of plastic, such as density and thermal resistance, offer material affordances to food packaging. These affordances enable society to manufacture, transport, and consume food in innovative ways, reshaping conventional expectations of the capabilities of food packaging.

The contradictory connotations linked to virgin plastic, coupled with uncertainties regarding the environmental and human health impacts of virgin, bio-based, and biodegradable plastics, have given rise to a state of ambivalence surrounding plastic materials. This ambiguity has prompted efforts to identify strategies for reducing negative consequences.



Plastic waste is a driver for stakeholders to improve recycling and implement circular economy. Overcoming challenges in plastic recycling necessitates a rethinking of linear economic models and greater consumer engagement in plastic disposal, aligning with the principles of environmental sustainability.

Plastic reflects the distributed responsibility of all the stakeholders (consumers, companies, and authorities) playing a role in the food-packaging value chain.

Plastic as an enabler: The practical and operational value of plastic

Plastic's very strengths - its durability and resistance to degradation - create its paradoxical environmental threat, blurring the line between artificial and natural worlds.

By virtue of its versatile functionalities, plastic has come to play a vital role in preserving food quality, minimising waste, and enabling efficient distribution. Plastic food packaging is important for its ability to maintain food preservation^{5/6/7}, protection and hygiene standards amongst other capabilities², and to meet the demands of increasingly complex and extended food supply chains. For these reasons, the various forms of plastic - including polyethylene terephthalate (PET), polyethylene (PE) and polypropylene (PP) - have become indispensable to the food industry, eclipsing the roles of alternative packaging materials (including glass, paper, and cardboard).

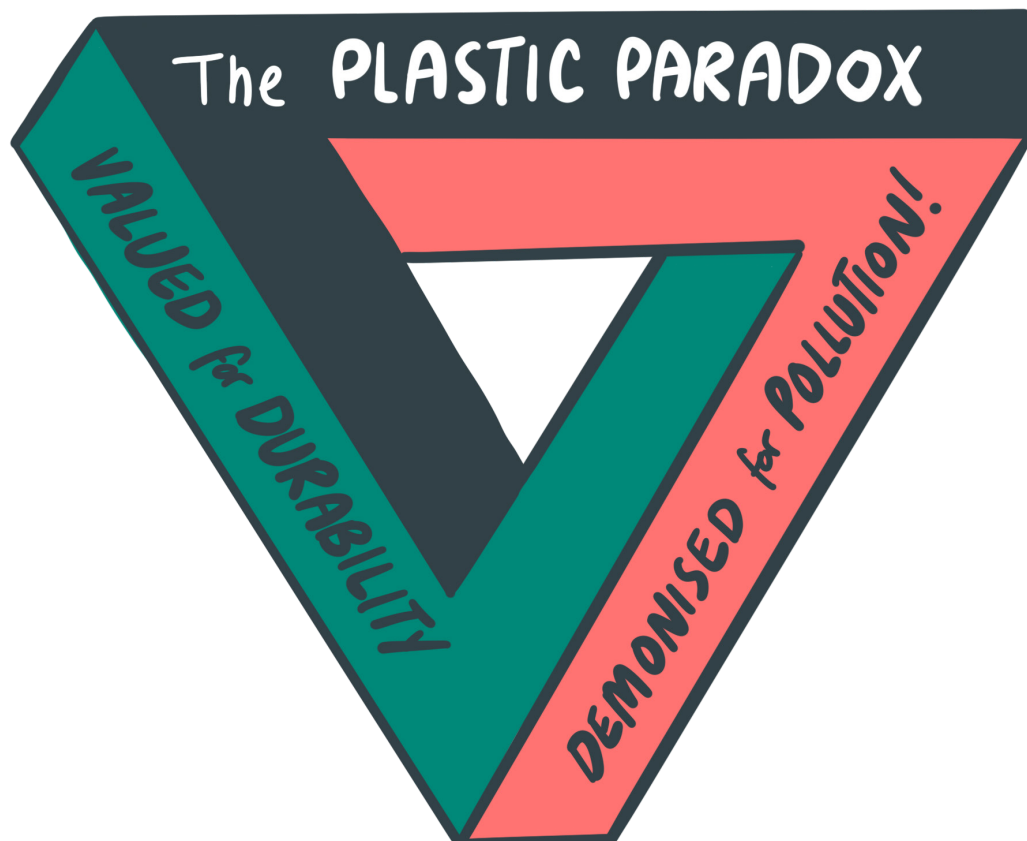
Across media, industry, government and academic publications, plastic is conveyed as a superior material for food packaging, due to its inherent properties and the material affordances associated with these properties. Plastic food packaging is commended for its ability to maintain food preservation, protection, and hygiene standards amongst other capabilities, and to meet the demands of increasingly complex and extended food supply chains. Plastic packaging's impact on shelf life varies with each product and environmental conditions. However, it consistently plays a significant role in enhancing viability, contributing to the reduction of food waste.

To explain what flexible packaging brings to the food industry, experts often point to two examples: cucumbers and meat. Shoppers may wonder what the heck plastic is doing on cucumbers, which did fine on their own for many years. But the polyethylene shrink wrap protects the surface of the cucumber and helps it retain moisture. According to the Flexible Packaging Association (FPA), the film extends the shelf life of a cucumber from three days to 14. The steaks that consumers buy in the supermarket are usually packaged by the store's own meat department in polystyrene foam trays and a film such as polyvinyl chloride. Distributed this way, FPA says, steaks generally last four days. If the meat is processed centrally and vacuum-packed in a multilayer film that includes an EVOH [Ethylene vinyl alcohol copolymer] barrier, it can last for nearly a month (*Tullo, 2016*)⁸.

In academic research, industry media, industry reports, and a policy report, different forms of plastic packaging collectively redefine and shape consumer and market expectations about what food packaging can do and what it enables consumers and stakeholders engaged in the food industry to do (e.g. transnational supply chain networks and the convenience of food on-the-go).

Of the few polymers that are potentially suitable for bottles, PET is the only plastic with a balance of properties such as transparency (near 100% light transmission in a bottle), gloss, lightweight and resistance to carbon dioxide permeation. This has resulted in the nearly full replacement of glass in Europe for all but the most demanding applications that require both an oxygen barrier and UV resistance to protect the contents (*Andrady and Neal, 2009, p.1979*)⁹.

The same physical properties that give plastic its 'material endurance' and 'synthetic immortality' are the same properties that make the material difficult to decompose, especially without environmental degradation^{9/10/11}. The pervasive nature of plastic material further leads to a blurring of the boundary between artificial matter (plastic) and the natural environment^{12/13}. **Together, these points expose the paradox of plastic: a material valued for its durability and properties, yet demonised for its persistence in landfills, oceans, and our bodies.**



Plastic as a site of contestation: The moralities of plastic packaging

Diverse perspectives on plastic's durability, environmental impact, and health consequences fuel complex moral debates and shape potential solutions for a sustainable future.

As a result of its contradictory and ambiguous qualities, plastic is a highly contested material across media, industry, government, and academic debates. This largely stems from concerns about the physical composition of the material *per se*, plastics' durability and endurance, and the consequent implications this can have on the natural environment, eco-systems, and human health and wellbeing. Our focus lies on how these interconnected anxieties shape the moral landscape surrounding plastic and inform potential solutions.

Documentaries and news articles actively demonize plastic, highlighting its harmful consequences through sentimental descriptions of wildlife entanglement, ocean pollution, and microplastic threats¹⁴. The focus extends beyond the material itself to include harmful additives, microplastics formed during degradation, and even chemicals that cling to and amplify the dangers of these tiny fragments (e.g. microplastics).

It isn't just that plastic itself is harmful. Worse still is its tendency to attract other toxins in the water, almost like a magnet. Poisons cling to it, and when the plastic is swallowed, scientists fear those toxins could be released into the gut of the animal. Certainly, some whales and dolphins are among the most contaminated creatures on the planet (*James Honeyborne - Executive Producer of Blue Planet 2, The Daily Mail, 2017*)¹⁵.

Academic researchers highlight the issues associated with quantifying the intricate links between plastic and its diverse impacts on the environment, ocean ecosystems, and human health. From microplastics entangling marine life to plastic-derived chemicals infiltrating food chains, disentangling the full scope of harm proves challenging due to inconsistencies in life-cycle analysis and methodological approaches. Max Liboiron¹⁶ extends this further, highlighting how persistent plastic debris in the ocean, laden with endocrine disruptors, poses a growing threat to marine life.

Ingestion is where the polymer and monomer parts of plastic work together to cause harm. Monomer additives such as BPA readily leach in hot, acidic, abrasive conditions like those of a stomach. In addition, because of their polarity in water, marine plastic polymers also attract and absorb oily chemicals. Hydrophobic plastics absorb the oily chemicals that are repelled by water; they can absorb these chemicals at concentrations of up to a million times higher than the surrounding water (Mato et al., 2001). These oily chemicals pack into the spaces in between strands of polymers, in effect acting as unintended monomer additives. Marine scientists nickname marine microplastics 'poison pills' because ordinary plastic polymers are able to concentrate synthetic chemicals in water in a way they do not on land. When a piece of plastic moves across parking lots, down sewage systems, through harbors, and into open water, it will be accumulating oily chemicals such as the pesticides DDT and HCH, the chemical coolant PCB, flame retardants like PBDEs, and surfactants (waterproofing material) like PFOA (Mato et al., 2001; Ogata et al., 2009; UNEP, 2014; Zarfl and Matthies, 2010). All of these chemicals are endocrine disruptors. When an animal ingests plastics, both the original monomer additives and these absorbed chemicals can accumulate in an animal's tissue, then biomagnify up food webs (Liboiron, 2015, p12)¹⁶.

Across industry reports, media publications, and academic research, a clear trend is emerging: a shift away from the use of traditional virgin plastic packaging towards the adoption of alternative packaging, including bio-based and biodegradable plastics. This surge stems from growing public concern about plastic pollution and its environmental impact, putting pressure on industry stakeholders to adapt.

The food sector is struggling with negative consumer attitudes towards plastic. The sector is striving for less packaging material, better packaging and more recycling. That is a phenomenal task. Worldwide, plastic production is growing by 4% every year. In Europe, the amount of plastic packaging waste is growing by 2% annually (ING, 2019)¹⁷.

While the shift away from virgin plastics seems like a step forward, a closer look reveals further concerns. Various reports point to the potential pitfalls of alternative materials, highlighting how their environmental impact, from production to disposal, can in some cases exceed that of virgin plastic. Moreover, inadequate waste management systems threaten to render some alternatives ineffective, adding another layer of complexity to the sustainability puzzle.

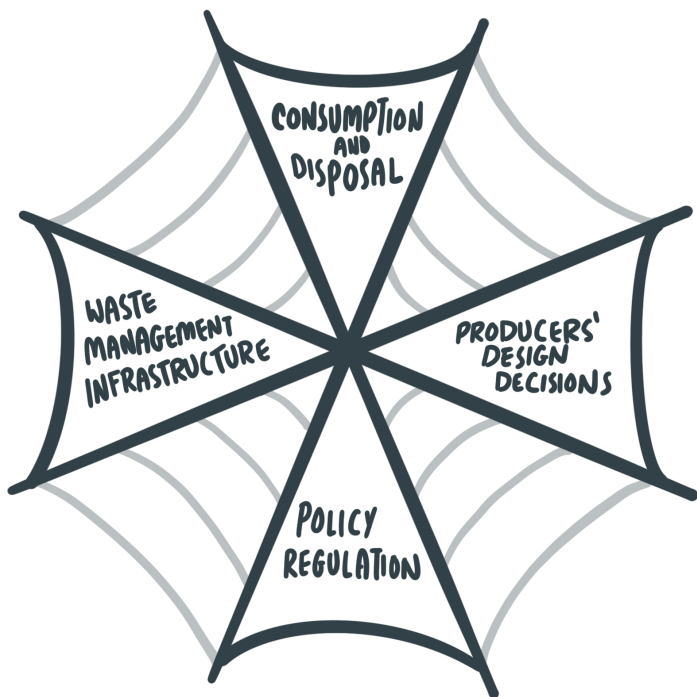
Plastic as a mirror: Reflecting responsibility around plastic packaging

Progress on plastic pollution is hampered by the absence of a shared framework for assigning responsibility, making it difficult to set agreed-upon targets for reducing consumption, finding alternatives, and improving recycling.

Unravelling the tangled web of plastic packaging reveals a complex picture of responsibility. Consumers face choices at the supermarket; producers grapple with design and material decisions; policymakers craft regulations; and waste management organisations face infrastructural limitations. Plastic, a symbol of durability, paradoxically reflects the intricate and shared obligations we all hold in ensuring its sustainable lifecycle.

There is lacking, however, a shared framework for allocating responsibility. Without it, setting common and achievable targets for reducing consumption, implementing plastic-free alternatives, and improving recycling rates is very challenging. This obstacle stems from the lack of a unified understanding of how various stakeholders (**consumers, companies, and authorities**) should share the burden of tackling this complex issue. Each group holds moral and practical obligations to contribute to the solution, but without clear guidelines, efforts risk being disjointed and ultimately ineffective.

"PLASTIC PACKAGING WEB"



Consumers emerge as key players in the effort to reduce plastic consumption, but academic research and the media portray their roles differently. While research delves into forms of consumer participation, highlighting diverse avenues such as deposit return schemes and direct engagement with recycling companies, it also sheds light on the gap between consumers' motivation and their personal economic investment. In contrast, media publications often take a more moral stance, emphasising consumers' agency and responsibility in curbing plastic pollution. They urge shoppers to embrace their power to change by switching to plastic-free products and rethinking their consumption habits.

It has become clear that shifting the responsibility for plastic misuse on to consumers instead of companies will never alone tackle the issue: without low-cost, accessible options, individuals pay a heavy price for the complacency of businesses, be that for everyday staples or small perks (*Davis, Science Correspondent, The Guardian, 2017*)¹⁸.

The media paint contrasting pictures of **companies** in the fight against plastic: some publications showcase them as innovation champions, launching plastic-free solutions and responding to consumers' demands. Others depict them as behind the times, criticised by politicians, NGOs, and activists for their over-reliance on plastic and slow progress in reducing food packaging waste. Understanding these contrasting narratives, along with the motivations behind them, is crucial for evaluating the role companies play in tackling this complex issue.

Recently, some of retail's biggest figures, including former bosses of Tesco, Marks & Spencer, Asda and Debenhams, signed a statement calling for an end to throwaway plastic packaging. They said: Over the past decade Britain's retailers have in the main focused on recycling in a bid to reduce the environmental impact of the plastic waste they produce. But we have to accept that this isn't enough - by recycling plastic, we are merely recycling the problem. It is therefore essential that retailers and packaging manufacturers work together to turn off the tap of throwaway packaging (*Poulter - consumer affairs editor - The Daily Mail, 2018*)¹⁹.

Academic research and media publications see national and international **authorities** as crucial actors in tackling plastic pollution. They advocate for implementing policies, such as bans and taxes on single-use plastics, enacting Extended Producer Responsibility (EPR) schemes to incentivise sustainable packaging, and increasing recycled content in new products. Additionally, authorities are essential for regulating and overseeing effective waste management systems across all levels and collaborating internationally to combat illegal waste trafficking.

The coalition, which includes Extinction Rebellion's zero waste group, Friends of the Earth, the UK Without Incineration Network (UKWIN), Greenpeace and the MP John Cruddas, says the expansion of waste incineration is forcing up carbon emissions. In an open letter to the [UK] prime minister they are calling for a law requiring the waste sector to decarbonise by 2035, similar to legislation passed in the Scandinavian countries and Finland. Rembrandt Koppelaar, an environmental economist and co-author of the open letter, said: "The UK will not be able to deliver on its net zero commitments unless the government intervenes in the waste sector" (*Laville, Environmental Correspondent, The Guardian, 2020*)²⁰.

Plastic as a site of innovation: Recycling is a challenge

Multiple hurdles impede plastic recycling, leaving limited options for consumers, burdensome processing for waste management, and prioritising affordability over sustainable production.

Plastic recycling faces multiple hurdles, from its inherent material properties to complex market dynamics. Academic research points out that our linear economy model contributes significantly to these challenges. For consumers, this translates to limited recycling options, while waste management companies grapple with processing mixed waste streams. On the production side, packaging producers often prioritise affordability over recyclability. These barriers ultimately hinder the transition to a circular economy, where plastic resources are efficiently re-used, and waste is minimised.

Academic research and media publications highlight a key **social challenge** facing consumers: confusing labelling on plastic packaging, including alternative options, such as biodegradables. This often leads consumers to misunderstand what can be recycled, resulting in improper disposal of plastic waste and sometimes of alternative materials.

The [Green Alliance] report says: "Over 80% of consumers think biodegradable or compostable plastic is environmentally friendly, but there is little understanding of what the terms mean and how the material should be dealt with. Our interviewees wanted a clearer approach to where it should be used and how it should be marked to avoid confusing consumers and potentially causing more problems". The retailers worried that confusion could potentially harm the environment if people either put "compostable" plastic in with conventional plastic, or littered it, wrongly assuming it would biodegrade like an apple core. Some companies that had tried using this type of plastic also suggested that the material did not de-grade as expected in real world conditions (*Harrabin, Energy and Environmental Analyst, BBC, 2020*)²¹.

The low recycling rate of plastic waste, compared to other materials, such as paper, glass, or metal, is primarily due to **material and technological challenges**²². Several sources, including academic articles^{22/23}, industry reports^{24/25} and a policy report by the House of Commons¹, highlight specific factors contributing to this issue.

"Attempts to use thinner plastic milk bottles containing more recycled material at Asda, he said, led to bottles bursting and creating more food waste". The former boss of Asda is calling for supermarkets to stop using plastic packaging saying billions of pounds of investment in recycling has failed to resolve the world's plastic proliferation crisis (*Laville, Environment Correspondent, The Guardian, 2017*)²⁶.

Thin plastic linings, as found in cups and tetra packs, pose a major recycling hurdle, with industry stakeholders avoiding them due to damage risks to machinery¹. Material limitations also hamper recycled plastics' functionality, hindering recycling initiatives^{25/26}. Industry reports²⁵ and media²⁶ echo this, as does a former ASDA boss who cited failed supermarket recycling efforts.

The low recycling rate of plastic waste is not solely due to its physical composition, often featuring multiple layers that complicate separation. While industry reports, policy documents, and media highlight this material challenge, they also pinpoint a crucial gap: a lack of sophisticated technological solutions to handle diverse plastic waste effectively.

Industry media and academic sources alike emphasise the need for advancements in retrieval and treatment methods. Investing in advanced recycling technologies is widely advocated as a key strategy to tackle the ever-increasing volume of plastic waste.

Different academic, industry and media publications discuss the shortcomings of the current **waste management infrastructure** leading to inconsistent processes to collect, sort, separate and recycle plastic waste across the waste management sector presenting challenges both at a regional (e.g. poor waste collection at the source) and national level. The inconsistent processes add to the insufficient and often inconsistent supply of, and demand for, recycled content faced by packaging producers. Further, consumer confusion, in the form of misunderstood recycling information and public education gaps hinder proper disposal, impacting access to recycled content^{7/27}.

One of the greatest challenges packaging companies face is the lack of access to recycled content - particularly post-consumer recycling (PCR). Low recycling rates and a lack of consumer education regarding how to recycle properly has made PCR a scarce commodity. Luckily, there are alternative sources for obtaining recycled content (*Heney, Design World, 2020*)²⁷.

Academic, policy, and media discussions identify several market-based challenges that constrain the growth of the recycled plastics industry²⁸. The market's profitability is challenged by the consistently lower price of virgin plastic and concerns about perceived quality differences, further compounded by market volatility caused by unpredictable supply and demand fluctuations.

Recycling beyond the household therefore raises several intersecting themes. First, property rights and obligations over waste are crucial to determining what happens to different kinds of discarded material and are often bitterly contested because of different varieties of latent value such material can contain. Second, waste infrastructures, of which formal and informal labor may be part, can again be sites of contestation over how to deal with wastes and can govern whether a given material or object is destined for disposal or recycling. Finally, the often hazardous and unprotected labor of disassembling objects to recover valuable elements presents a series of questions into the ethical, economic, and environmental trade-offs, sometimes at different scales, of such practices (*Alexander and Reno, 2020*)²⁸.

Spotlight: Blue Planet II



RESOURCE WASTE

It is not just a problem of accumulating waste but of wasting resource that still holds latent value and that should be better used. The disparity between the long disposal and decay time and the short time of active use for single-use packaging for food is particularly striking. It is not the volume of plastic packaging waste that is framed as problematic but the transformation and loss of its economic value. It becomes framed as a problem of mismanagement, losing material in the system.



ENVIRONMENTAL DAMAGE

Volume of plastic and its lack of management appears as escaped litter and environmental pollution instead of well-ordered further resource usage. It is the 'leakiness' of plastic packaging that becomes identified as problematic (see for instance Pew Charitable Trust and Systemiq, 2020²⁹); it ends up in the wrong place and causes ecological harm. Plastic food packaging is portrayed through media publications as a particular and pressing issue in the form of marine litter and pollution.

Celebrated for its durability, plastic's very strength becomes its environmental Achilles' heel. Nature struggles to decompose plastic, a **"victim of its own success"**³⁰, that is piling up due to its excessive endurance. Two main issues emerge: resource waste and environmental harm, both often tied to single-use plastics.

By analysing critical moments when key stakeholders (such as environmental NGOs, industry groups, or government agencies) publicly advocate for a changed status of SUPPs, we can explore how media coverage, public conversations, and broader societal trends shape and reflect these shifting representations and legitimacy. Through this multi-faceted lens, we aim to gain a deeper understanding of how stakeholder dynamics and wider societal context influence the evolving legitimacy of plastic use in the UK.

A significant shift in stakeholder representation occurred following the airing of the 7th episode of BBC1's Blue Planet II (aired in 2017). While the intervention might seem ambiguous due to the interplay between the production company, Sir David Attenborough's iconic voice, and the BBC's broader platform, its impact on the public's perception of SUPPs is undeniable. Through powerful visuals and Attenborough's narration, the programme reshaped the issue by starkly showcasing the devastating impact of SUPP pollution on marine life. This forceful presentation challenged the idea that SUPPs could be 'pushed out of sight and ignored' in television programming, especially on a show not explicitly focused on SUPPs.

The subsequent public outcry and heightened awareness around SUPP pollution, further amplified by media coverage, demonstrate the powerful role of Blue Planet II in changing the social conversation around this issue.

Very many news items were generated about the documentary, across all types of media, with a dominant theme being that the documentary sparked action against plastic^{31/32/33}. The following excerpt from an article published in The Daily Mail, has the executive producer of Blue Planet II, James Honeyborne, sharing his viewpoint on how plastics are interfering with marine ecosystems:

The heartbreaking pictures of a mother whale carrying her dead baby in her mouth - screened on Blue Planet II at the weekend - have provoked shock and sadness in many viewers. As the show's executive producer, I knew the likely effect of screening such an affecting film sequence. I felt the same wrenching emotions when I first saw it - pity for the grieving mother, and horror at the realisation that manmade pollution is probably responsible. I believe strongly that we were right to show it - and I hope these devastating images will help alert everyone to the dangers of plastic now pouring into our oceans. Blue Planet II is not a campaigning series, but we set out to film the story of today's oceans, and the poisonous spread of plastics and chemical pollutants is one of the headline issues we could not ignore. My fervent hope is that these pictures will help to stem the tide of toxic pollution, and above all plastic, into our seas. It's not too late to search for a solution (Honeyborne, 2017)¹².

Spotlight

Blue Planet II

Arguably, it is because Blue Planet II was 'not a campaigning series', as the producer notes, that the programme generated waves of outcry from the general public. This was not the 'usual suspect' voice of environmental campaign groups but a TV series that more traditionally shows wildlife in what are portrayed ordinarily as pristine, natural, and plastic-free environments.

Compared to the arguably dry tone of academic literature, emotion and sentiment concerning the implications of plastic on marine life and our ecosystems are present in these media representations. The profile of plastic and plastic pollution has come to light in public debates due to the success BBC's Blue Planet II series, which 'disseminated the reality of plastics leaking into our environment and the impacts of microplastics'¹⁰. Beyond this representation of plastics as a material with troubling capabilities and the capacity to interfere and harm marine ecosystems, academic literature points out our limited scientific understanding of the impact of plastic waste entering our oceans^{10/23}.

With six square metres of plastic sheeting tangled up inside its stomach, a magnificent Bryde's whale is struggling to breathe and is now on its way to a slow, agonising death off the coast of Australia. It is just another pointless casualty of an ecological disaster, perhaps the biggest environmental catastrophe of all - caused by the millions of tons of poisonous plastic waste being dumped in our oceans. This image is just one scene from a groundbreaking new documentary already described by Sir David Attenborough as the most important of our time. It is a film that lays bare the astonishing extent of plastic waste killing the previously pristine oceans - and which could ultimately kill us, too (*Magnussen, 2017*)³⁴.

Recommendations to Support Rethinking the Consumer Attitude-Behaviour Gap

Based on our analysis of the key issues and challenges for various stakeholders at all stages of the consumption cycle, we propose several ways to rethink the approach to bridging the attitude-behaviour gap.

Material properties of plastic and alternative materials

The material affordances of plastic have fostered a dependency and an increasing reliance on the material in the food industry, which make it difficult for consumers to avoid.

- + **Promote sustainable alternatives:** Encourage the adoption of alternative packaging materials to reduce reliance on traditional plastics and minimise environmental impact.
- + **Collaborate for innovation:** Foster collaboration between industry, policymakers, and researchers to drive innovation in sustainable packaging solutions, addressing the paradox of plastic and promoting a more environmentally conscious approach within the food industry.

Responsibility framing

Assigning and framing of responsibility across the value chain presents challenges for recycling and the disposal of plastic waste.

- + **Establish a shared responsibility framework:** Develop a collaborative and universally accepted framework for assigning responsibility among stakeholders - consumers, companies, and authorities - to address the complexities of plastic pollution. This shared understanding is crucial for setting achievable targets in reducing consumption, promoting alternatives, and improving recycling.

Communications

Building on the Blue Planet example, we recommend developing approaches to communications, that harnesses the power of emotional storytelling and make use of compelling narratives that evoke strong emotions to connect with the public at a deep, personal level.

- + Leverage emotional storytelling: Developing messages that inspire empathy and raise awareness about the consequences of single-use plastic pollution on marine life.
- + Build and harness unconventional stakeholders: Use of unconventional or less obvious stakeholders (distinct from traditional environmental campaigning groups), and harness this perspective to engage a broad spectrum of audiences.
- + Build public engagement and media presence: Bring attention to the widespread public response and increased awareness generated by relevant initiatives. Share success stories and initiatives taken by individuals, communities, and businesses inspired by these efforts, cultivating a shared sense of responsibility. Keep the conversation alive in public discussions by using diverse media platforms to communicate messages, provide regular updates, and share success stories regarding ongoing plastic reduction efforts.
- + Education and advocacy for solutions: Encourage ongoing efforts and solutions to address plastic challenges, highlighting technological advancements and positive behavioural changes.

BRIDGING the GAP



Conclusion

Improving plastic recyclability and recycling rates faces several interconnected hurdles. Inconsistent waste management across regions (for example, where some areas lack kerbside sorting for mixed plastics), leads to contamination and reduced recyclability.

Similarly, technological limitations, such as the inability to efficiently process black plastic, create additional barriers. Furthermore, consumer confusion around recycling guidelines and labelling further complicates the issue.

Addressing these knowledge gaps among different stakeholders, from manufacturers to consumers, is crucial for collective action. However, simply filling these gaps is not enough. Introducing new materials, technologies, and recycling systems must also be carefully coordinated across timelines, systems and processes. Otherwise, we risk creating new problems within the complex web of plastic waste management.

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