RECOUP

UK Household Plastics Collection Survey 2019

A publication to outline the collection of household plastics in the UK.

UK HOUSEHOLD PLASTICS COLLECTION SURVEY

2019

This work was commissioned by RECycling of Used Plastics Limited (RECOUP) using data, estimates and views gathered from UK Local Authorities and waste management companies. It also has the support of LARAC (Local Authority Recycling Advisory Committee) and NAWDO (National Association of Waste Disposal Officers).

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RECOUP is a charity and leading authority providing expertise and guidance across the plastics recycling value chain. Built on a network of valued members, collaboration is central to our activities, and we are committed to securing sustainable, circular and practical solutions for plastic resources both in the UK and worldwide.

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FOREWORD

*The **RECOUP UK Household Plastics Collection Survey** is a specialist, research-based report for those working in or making decisions about household plastics waste and the recycled plastics value chain.*

All Local Authorities in the UK are surveyed in an online questionnaire about many key areas affecting their operations, whether it be Borough, District, City or County Councils or Waste Partnerships. Utilising these distinct, but inter-connected areas, the ***Survey*** provides a comprehensive review of the collection of household plastics for recycling in the UK, and the challenges and opportunities facing Local Authorities and waste management providers.

2019

In 2019, the UK Government began publicly addressing various environmental concerns and supporting the building of a solid, underpinning foundation for a Circular Economy in the UK. The Government launched four consultations to transform the future governance, structure and funding of how it manages packaging waste in the UK and meet the commitments in the ***25 Year Environment Plan***(1) and ***Resources and Waste Strategy***(2). However, the various political uncertainties, including delays to the UK's exit from the EU, ministerial changes and a General Election due to be held in December 2020, have impacted progress.

Current proposals include:

- Reforming the UK Packaging Producer Responsibility System and use of Extended Producer Responsibility (EPR) to fund the full net cost of managing the collection, transport, sorting, reprocessing and disposal of used packaging, whilst also funding consumer communication campaigns and the clean-up costs of littered and fly-tipped packaging;
- Addressing inconsistencies in household and business recycling collections across Local Authorities in England;
- Consultations have taken place around introducing a Deposit Return Scheme (DRS) for drinks containers in England, Wales and Northern Ireland from 2023. Scotland have announced plans to introduce a DRS independently from the rest of the UK, from April 2021; and,
- A Recycled Content Tax to incentivise the use of at least 30% recycled plastic content in plastic packaging.

The 'Blue Planet' Effect

Possibly more so than before, the 'Blue Planet effect' continues to impact consumer behaviours and attitude towards recycling and plastics, particularly those that are termed as 'single use'.

As well as reporting on the progress of Local Authority collections, the ***2019 RECOUP Survey*** will report on the political and regulatory environment around plastics and plastic recycling, the potential use of chemical recycling and the impact of litter, waste and disposal 'On the Go' on Local Authorities and their communities.

The direction which the UK now takes after the General Election and post-Brexit, and what resource strategy and aims are going to look like will start being shaped from now as the UK positions itself for the future. ***It is more important now than ever to provide a balanced and informed view of the use and recycling of plastics.***

Message to Local Authorities - Thank You!

With the continued focus on plastics, the responses from Local Authorities and waste management providers each year are especially important.

We would like to thank the many Local Authority waste management and recycling scheme managers, officers and their service contractors who took the time to respond to the ***Survey*** and continue to make the research that forms the core data both comprehensive and worthwhile.

RECOUP tracks its readership, which reflects the wider interest in the environmental debate. In recent years, the findings in the ***RECOUP Survey*** reports have received coverage in Sky News Ocean Rescue, the BBC, national and industry media, research reports, Government consultations and in other corporate and Non-Governmental Organisations' (NGOs) communications.

Through this report, data and views will feed directly into waste management and resource strategy development through consultations, advisory groups and discussion, and be viewed by industry, decision makers, and national and industry media on a global level.

The ***Survey*** is supported by the Local Authority Recycling Advisory Committee (LARAC) and NAWDO (National Association of Waste Disposal Officers), and RECOUP would like to acknowledge this support and the influence it has, which is invaluable when collecting data and reporting the results.

DATA SUMMARY

Plastics Packaging Placed on the Market

- **New** plastic packaging 'Placed on the Market' data – **2,361,000 tonnes**
- Of this, **1,534,000 tonnes** consumed by households – **634,000 tonnes** plastic bottles, **503,000 tonnes** of plastic pots, tubs and trays, **395,000 tonnes** of plastic film and **202,000 tonnes** of 'Other' plastics packaging

Household Plastics Packaging Collection Data

- **548,663 tonnes** collected for recycling – an overall **4.1%** increase
- More collection data is reported as **'mixed plastics'** and composition analysis of this adjusted the collection data and rates – these do not represent real life changes but a more precise estimate of the data
- Analysis showed an estimated **19,000 tonnes increase** in plastic bottles collected for recycling, an **18,000 reduction** in plastic pots, tubs and trays, and for the **first time** an estimated collection quantity for plastic film
- **370,890 tonnes** of plastic bottles collected for recycling
- **157,135 tonnes** of plastic pots, tubs and trays collected
- **20,638 tonnes** of plastic film collected
- Composition of plastic packaging collected for recycling is **67%** plastic bottles, **29%** pots, tubs and trays, and **4%** plastic film

UK Plastics Packaging Recycling Data

- **1,034,410 tonnes** of plastic packaging declared as recycled from all sectors in 2018
- **63% (649,562 tonnes)** was exported and **37% (384,848 tonnes)** recycled in the UK
- The **548,663 tonnes** collected from UK households makes up over **50%** of the total recycled

Household Plastics Packaging Collection Rates

- Plastic bottles – **59%**
- Plastic pots, tubs and trays – **31%**
- Plastic film – **5%**

Actual Recycling Rates

- Collection data does not reflect **actual recycled material quantities**
- Sorting and reprocessing **yield losses** mean MRF input quantities are typically between **15%** to **50%** higher than the reprocessing output quantities

Kerbside Plastics Collection Service Provision

- **391** Local Authorities in the UK in 2018
- **390 (99%)** provided a kerbside recycling collection service that included plastic bottles as at March 2019 – as of September 2019 **100%** collected plastic bottles as part of their kerbside schemes
- **317 (81%)** collect plastic pots, tubs and trays – an additional **7** than the previous year
- **61 (16%)** collect plastic film – **6** fewer than the previous year and the **3rd** consecutive year of decline – **23** of these collecting plastic carrier bags only (**6%** of Local Authorities) and **38 (10%)** collecting a range of plastic film
- **40** Local Authorities **(10%)** explicitly collect plant pots as part of their kerbside services, with the remaining **90%** either not collecting them or they are omitted from communications to residents

Performance Rate – Average Collection Rates per Household per Year

- Plastic bottles – **12.65 kg**
- Plastic pots, tubs and trays – **6.91 kg**
- Plastic film – **0.86 kg**
- All household plastics packaging – **20.42 kg**

Facts & Statistics

- **14 BILLION** plastic bottles are used each year in the UK – that's **38 MILLION** plastic bottles every day – **1.4 bottles per household**
- **8 BILLION** plastic bottles were collected for recycling in 2018 – that's **22 MILLION** bottles every day
- **5.5 BILLION** household plastic bottles were not collected to be recycled from UK households – that's **16 MILLION** plastic bottles every day
- Average UK household uses **510 plastic bottles a year**, but only **recycles around 300 of them** – **210 bottles are not collected for recycling**
- **425 tonnes** of plastic bottles were collected for recycling in 1994 – since then **87 billion plastic bottles** have been collected – that's **4 million tonnes** collected for recycling

- **9,000 tonnes** plastic pots, tubs and trays were collected in 2007 when data collections levels were first reported, and this is now over **157,000 tonnes**- that's **1.3 MILLION tonnes** collected for recycling

Biggest Challenges to Deliver Effective Collection Services

- **(1) Contamination** of material was the single biggest challenge, which underpinned the other challenges – average **12%** reject rate from comingled recycling material backs this up
- **(2) budget cuts** were the second biggest challenge – **over 50%** of Local Authorities reported receiving budget cuts for providing waste and recycling collections or delivery of communications in 2018
- The next 3 were more about the root causes within the Local Authority geographical and demographic make-up – **(3) Increasing recycling rates from specific housing types**; **(4) Increasing recycling rates from specific areas**; and **(5) Increased population**
- **29%** of Local Authorities reported they had particular success in improving the overall performance of their collection services

Kerbside Collection – Containers & Frequency

- In the last 3 years **14%** of Local Authorities have made changes to their collection service frequency, with **17%** investigating or planning to make changes in the future
- **56%** reported a broadly positive response to any changes made, **40%** neutral and **4%** broadly negative
- **74%** of Local Authorities use fortnightly recyclables collections, **23%** weekly collections and **3%** collect recycling either 3 weekly or monthly

Co-mingled vs Source Separated Collections

- **80%** of Local Authorities collect materials co-mingled with **20%** using source separated collections

Recycling Wheel Bin Colours

- Blue **(32%)** was the most common wheel bin colour, followed by green **(19%)**, with a combined **23%** consisting of black, brown, grey and red bins
- **26%** made up of mixed colour bins – different coloured lids to the main bin – or other bin colours e.g. purple, silver and white
- Colours shouldn't be a priority but **regulatory or voluntary guidance** on bin colours should be implemented to instigate a gradual move to using similar colour bins

Treatment of Residual Waste

- Reported destinations of residual waste – **65%** Energy from Waste (EfW), **34%** landfill, **25%** Refuse Derived Fuel, **19%** Mechanical Biological Treatment, **16% to recycling** and **8%** Anaerobic Digestion (AD)
- Significantly more material is going to EfW – this was reported as **36%** in 2016
- Only **12%** of Local Authorities reported an intention to actively investigate or implement treatment of their residual waste that might otherwise go to landfill or EfW
- **Financial**, **technology** and **political barriers** stop progress and there was a general frustration that investigation of different treatment options couldn't be taken further

Litter & Disposal 'On the Go'

- **51%** of Local Authorities receiving budget cuts for providing waste and recycling collections risks widening the gap from the current situation to achieving a relatively litter free society
- **62%** of Local Authorities felt they were "**predominately free of litter and refuse**", although **38%** reported "**widespread distribution of litter**" including **10%** "**heavily affected by litter**"
- **Litter bins - 71%** of Local Authorities reported they have bins in main shopping streets, **67%** open public spaces (e.g. parks), **61%** secondary shopping streets (mixed retail / residential), **60%** near schools, **50%** in residential areas, **33%** at Council run locations – **69%** of Local Authorities that have sea front locations have litter bins in place
- **Recycling 'On the Go' bins - 51%** of Local Authorities provide collection units in public spaces
- Of the **111kt** PET plastic bottles that are disposed of 'Away from Home' or 'On the Go', **9%** are collected for recycling, leaving over **100kt** of potentially high-quality, recyclable PET bottles not recycled
- From Local Authorities not providing a recycling 'On the Go' scheme, **77%** cited an expectation of high contamination levels (up from 54% in the *2018 RECOUP Survey*), **33%** installation and maintenance costs, and **16%** logistics to deliver the service
- Local Authorities showed high levels of interest in recycling 'On the Go' – if funding was made available to increase existing 'On the Go' collection provision **68%** would focus on both recycling and litter provision, **24%** on recycling 'On the Go' and **8%** on litter
- Operational challenges for litter and recycling 'On the Go' cannot be met until the necessary **'binfrastructure'**, **human resource** and **systems** are put in place to meet these demands
- An **ambitious 'Away from Home' recycling strategy** should be prioritised alongside consistency in kerbside collections – the same materials being collected in the same way using the same signage – so the public can get **'bin right'** and know exactly what packaging they should place in recycling and litter bins

The Balancing Act – Deposit Return Schemes

- Scottish Government Deposit Return Scheme, which will include metal cans, PET plastic and glass, is planned to go live in **April 2021**
- Defra were "minded to introduce a DRS for drinks containers in England and Wales from **2023**"
- **How** the structure and operation of the scheme and financial and fiscal measures used will continue to be developed both in Scotland and the rest of the UK
- **44%** of Local Authorities have assessed the impacts of a DRS scheme – **41%** were broadly negative, **22%** were broadly positive and nearly **37%** were neutral – and **3%** have undertaken a trial to understand the practical implications
- **Case studies** of schemes in **Norway** and **Germany** are outlined in *RECOUP Household Plastics Collection Survey Case Studies*, and a more detailed report about the Norwegian scheme has been produced after RECOUP undertook a field trip to Norway – both are available for **FREE** download from the RECOUP website

Chemical Recycling – The Complementary Solution

- Chemical recycling is the broad term that describes a **suite of technologies** that change the chemical structure of post-use waste plastics
- The technologies themselves do not produce a secondary product, but change the chemical structure by taking the material back to a shorter molecular chain length to: (1) make **fuels**; or (2) be **converted back to the original monomer** to then use as feedstock to produce new 'virgin-like' raw materials
- The technologies are different in terms of the feedstock they use and the outputs they produce – these are **Pyrolysis**, **Gasification**, **Solvolysis** and **Chemical Depolymerisation**
- Chemical recycling on a commercial scale should be used as a **complementary solution to mechanical recycling** - mechanical recycling should still be the **optimum** route for recycling plastics
- Legislation needs to keep up to date with technology developments – if chemically recycled polymer is not certified as **recycled content** it will not contribute to recycling targets
- There is currently **no commercially operating infrastructure** for chemical recycling in the EU, but there are various companies and technologies developing capabilities
- Commercialisation of chemical recycling to produce fuels is **imminent**, but chemical recycling back to the original monomer to use as feedstock to produce 'virgin-like' raw materials on a commercial scale is generally reported to be **5-10 years away**

Recycled Plastics Markets

- Countries from Asian markets, particularly China, who previously took high quantities of recycling materials from EU countries, have **restricted or banned** the import of plastic waste
- REB News Intelligence article headlines, **"This year has been a story of volatility for recycled plastic packaging markets"**, with the driver being the Packaging Recovery Note (PRN) and Packaging Export Recovery Note (PERN) – with prices as high as **£430**
- Material **quality** remains central to selling material
- According to National Packaging Waste Database (NPWD) data, UK exports of plastic packaging have reduced by **5%** from **66%** in 2017 to **61%** in Q3 of 2019
- *RECOUP's Plastics Sorting & Reprocessing Infrastructure* report estimated if the export market was not available as an outlet for the household plastic packaging collected for recycling and the material needed to be reprocessed in the UK, the current UK reprocessing infrastructure would need to increase by **165%** to meet this demand
- **48%** of Local Authorities reported they were struggling to find end markets for plastic pots, tubs and trays, **28%** for plastic film, **19%** for plastic bottles, and **6%** for non-packaging plastics
- Average mixed plastic bottle price in 2018 was **£40** per tonne – this was **£110** in 2017
- In 2018, the average price per tonne of clear PET plastic bottles was **£237**, with natural HDPE plastic bottles **£443**
- Based on mixed plastic bottle prices the plastic bottles collected for recycling represented a potential total value in 2018 of **£18 million**
- The unrecycled plastic bottles not collected for recycling would have a potential value in 2018 of **£13m** and would cost over **£25m** to dispose of
- Costs for disposal of plastic pots, tubs and trays not collected for recycling is between **£33m** and **£48m**

Behaviour Change & Consumer Communications

- **55%** of Local Authorities reported they were **planning a communication to householders about plastics recycling** – this was **49%** in 2017, and **37%** in 2016
- Of those not planning a campaign about plastics planning, **50%** reported specifically planning communications focusing on all dry recyclables
- **84%** have communicated or currently communicating with residents on the importance of **reducing contamination** and how to present plastics for recycling
- The main focus of communication campaigns in 2018 were **reducing contamination** (**54%**) and **43%** increasing collection rates – in 2017, **17%** were mainly focusing on reducing contamination, and in 2016, **10%**
- **46%** of Local Authorities were targeting specific product types which would reduce contamination – these could include black or 'dark' plastic packaging, plastic film, and other non-target products
- Local Authorities were communicating the following instructions to their residents:
  - Plastic bottles – Lids on **74%** / **26%** Lids off; Empty & rinse bottles **93%**; Flatten & squash bottles **74%**
  - Plastic pots, tubs and trays – Empty / rinse pots, tubs and trays **94%**; Remove film lids from food packaging **65%**; Separate card / paper from plastic packaging **52%**
- Local Authorities cited reduced budget and resources, language barriers, misleading national media messages, difficulty in providing evidence-based campaigns that monitor and report changes in collection rates, and restrictions of using only social media communications as to **why** communication campaigns may not be more widely delivered or effective
- The **basic messages** are still not getting through – successful communications to residents should be planned as a long-term programme of campaigns
- Building **trust** that plastics placed for recycling are recycled should be a major theme
- RECOUP's national plastics recycling initiative, ***Pledge2Recycle Plastics***, works to reduce the confusion about plastics recycling and improve citizen knowledge of plastics as a resource
- A new **Resource Pack** aims to provide Local Authorities, businesses and educational establishments with information and content which can be utilised to equip citizens to be more confident when recycling – it can be downloaded for **FREE** alongside other resources from **www.pledge2recycle.co.uk**
- Several successful ***Pledge2Recyle Plastics* campaigns** have been delivered centred around 'cutting the confusion' of plastics recycling and educating the consumer about the recycling journey
- To understand where consumers are confused, RECOUP undertook an observational study with ***Watch Me Think*** whereby citizens recorded themselves and critiqued their recycling behaviour – the report can be downloaded from the ***Pledge2Recyle Plastics*** website
- **67%** of responses, **167** Local Authorities, expressed an interest in match funding from ***Pledge2Recycle Plastics*** to deliver a campaign to its residents – an increase from **91** in *2018 RECOUP Survey* and just 16 in the *2017* report

European Plastics Recycling Ambitions & Current Status

- The political and regulatory environment around plastics packaging is an area of continually heightened interest and the landscape could change rapidly both in the UK and Europe

UK

- In 2019, the UK Government began publicly addressing various environmental concerns and to support building solid, underpinning foundations for a **Circular Economy**
- Government launched **4 consultations** to transform the future governance, structure and funding of how it manages packaging waste and meet the commitments – **HM Treasury Plastic Packaging Tax**; **Reforming the UK Packaging Producer Responsibility System**; **Consistency in Household and Business Recycling Collections** in England; and, **Introducing a Deposit Return Scheme** in England, Wales and Northern Ireland – **responses** to these were published by the Government in July 2019, with more consultations expected in 2020
- All four policies will have a **direct impact** on the levels of recycling of plastics packaging
- Key principle of the UK Packaging Producer Responsibility System and use of Extended Producer Responsibility (EPR) is to fund the **full net cost** of managing the collection, transport, sorting, reprocessing and disposal of used packaging – whilst also funding consumer communication campaigns and the clean-up costs of littered and fly-tipped packaging
- **Order in which they are introduced** is important to their long-term success – a careful balance will be needed between doing this quickly to meet immediate needs and optimising the systems to meet the UK's long-term goals

EUROPE

- The vision, commitments and measures to implement Europe's 'New Plastics Economy' are outlined at in the European Commission's ***European Circular Economy Package***
- The regulations are focused around the **new *EU Strategy for Plastics in the Circular Economy***, the associated ***Action Plan*** and a ***Single Use Plastics Directive***
- Single Use Plastics Directive includes aims to tackle marine litter coming from the **10 single-use plastic products most often found on European beaches** and targets **77%** of plastic bottles to be collected for recycling by **2025**, and **90%** by **2029**
- The EU directive for waste management is the ***Waste Framework Directive***, which is an overarching legislative structure for the management of waste in EU countries
- The Directive includes targets to reuse or recycle **50%** of **household (municipal)** waste by 2020, not just plastics
- **Plastics packaging recycling target** rate for the EU member states of **22.5%**, which has been exceeded by many EU countries
- A revised waste legislative framework entered into force in July 2018 including an EU target for recycling **60% of municipal waste**, **70% of packaging waste** and **55% of plastics packaging by 2030**
- The municipal and plastics packaging recycling rates for the UK are around **45%**
- With the **UK due to leave the EU**, it is still to be decided whether it will be bound by, or adopt the requirements of these European measures that would set ambitious resource and recycling aims to 2025 and beyond, or develop alternative legislation and ambitions for the UK

RECOUP CEO - OPINION

'It cannot be right to allow plastics to leak into the environment, neither is it acceptable to lose the opportunity to utilise plastic as a cost-effective and technically sound material for so many applications.'

I have used this statement so many times in 2019 and the answer appears to be simple. Control all plastic waste, recycle as much as possible, and stop using it when it is genuinely not necessary or there are better alternative options. But delivering on this ambition still seems to be just out of reach, despite what can only be described as unparalleled levels of development and collaboration from the plastic value chain stakeholders. Anticipation remains that the new approaches to Extended Producer Responsibility and associated Resource Strategy developments will underpin this evolution and set a clearer direction in an area where opinions are very diverse.

Collections are a fundamental part of a successful recycling system, and we are always very proud of this report which has been published annually since 1994, and remains one of the most referenced from the UK resources and plastic sector. Against the backdrop of consistency, there is an expectancy that Local Authority collection systems and related consumer communications will become more aligned over time. I expect all kerbside systems to collect pots, tubs and trays alongside bottles by 2023 at the latest, with all plastic packaging entering households by that time meeting recognised recyclability criteria, and viable sustainable markets being available. This does not seem unreasonable given the various producer commitments already in place, and the ongoing announcements for more UK plastic reprocessing capacity.

The bigger questions around plastic collection appear to sit with the compatibility of plastic films with kerbside services and how to extend non-packaging plastic collections. If this is not through kerbside, then what alternative collection or take back models might work best?

UK Infrastructure & Export Markets

The UK has core capacity for plastic reprocessing and RECOUP have recently completed the ***Household Plastic Packaging Sorting and Reprocessing Capacity*** report for our members based on best available data. But the UK infrastructure would need to be drastically increased and improved if we are to reprocess the additional tonnage from further restricting exports and increasing targets. Some announcements in 2019 suggest we are moving in this direction; the question remains are we moving quickly enough. This will also be needed to service the ever-increasing commitments on use of recycled content and ambitious commitments by brand leaders to circular manufacturing.

Despite the well reported issues and restrictions, the export market continued to play a key role in meeting UK plastic packaging recycling targets in 2019. Creating the right balance of legislative drivers and positive long-term business conditions should allow for a resilient system to meet future increased plastic recycling targets and maximise best use of plastic resources. Extended Producer Responsibility is seen by many as one of the key drivers to achieving these aims.

Markets need to be supported and stimulated. Green procurement initiatives need to ensure much wider use of recycled plastics in the manufacturing of new products. This will also involve a mandate for recycling systems to provide the ongoing quantity and quality of plastics needed to meet manufacturing sector requirements, within sensible and justifiable business arrangements.

Citizen Engagement & *Pledge2Recycle Plastics*

The messages given to householders around plastics recycling need to be aligned and based on facts. Despite the recognised role of citizen engagement in a successful recycling scheme, there has been very little financial support available for these activities in recent years.

RECOUP continues to meet this challenge through the ***Pledge2Recycle Plastics*** campaigns which are often run in partnership with Local Authorities and corporate partners to help cut the confusion around plastic recycling messages. We are seeing an increased consumer recognition and use of the On-Pack Recycling Label. Yet I would still like to see more recognition of the role of consumer responsibility and potential consumer apathy that still exists. Despite the media attention, I often look at the statistics available and question whether citizen behaviours around recycling and littering have really changed.

UK Leadership for a Global Circular Economy

We cannot do this alone. Ultimately, to make a real difference and prevent plastic from leaking into the environment, international intervention is also needed, as recognised within Defra's ***25 Year Environment Plan***. There is a fantastic opportunity to really grow and improve UK plastic resource management and efficiency and there is a growing confidence that this will happen. Through stimulating innovation to create new and better markets, delivering collection and handling systems that are as efficient as possible, specifying use of recycled plastics in manufactured products and removing plastics where genuinely unnecessary, the UK can become world leaders in plastic resource management.

RECOUP – OUR ROLE

RECOUP is a charity and leading authority providing expertise and guidance across the plastics recycling value chain. Built on a network of valued members, collaboration is central to our activities, and we are committed to securing sustainable, circular and practical solutions for plastic resources both in the UK and world-wide.

Our vision is to lead and inform the continued development of plastics recycling that is sustainable and protects resources.

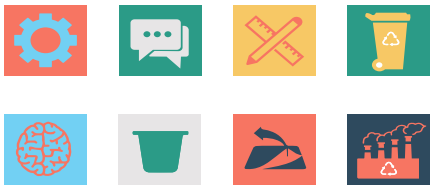
Working Towards a Circular Economy

With increased recycling targets and future Circular Economy ambitions, plastics value chain collaboration is even more crucial. RECOUP and their unique work across all areas of collection, sorting and reprocessing of plastics is more important than ever. There is a fundamental shift towards long-term use of resources, a move away from linier lifestyles and use of materials and development of Circular Economy models.

Membership of RECOUP can give Local Authorities access to a wealth of technical information on plastics to enable a greater understanding of the complex issues at each point of the value chain, thus assisting Local Authorities looking to future proof service provisions. It is important that the practical business case for maintaining and increasing plastics recycling is robust, and it is evident from RECOUPs membership more companies recognise and support the valuable work of RECOUP in achieving these aims.

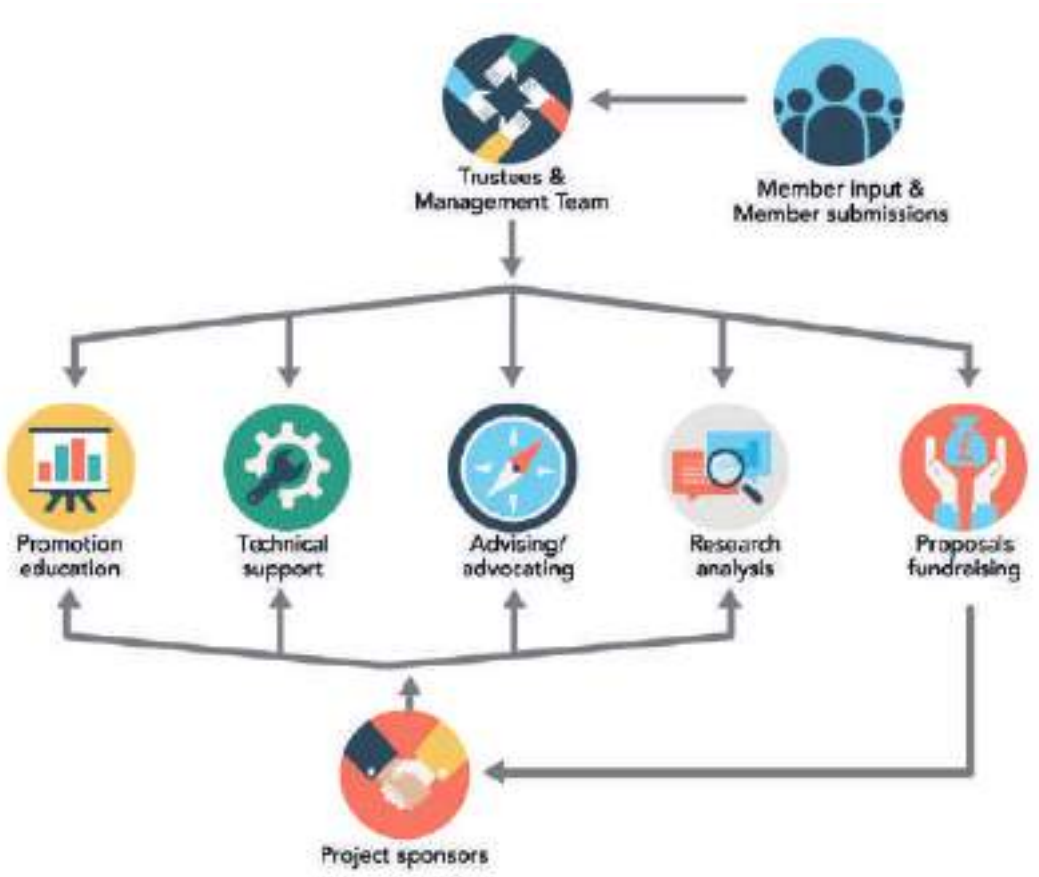
RECOUP aim to assist their Local Authority and waste management company members in:

- **Stakeholder engagement including the RECOUP Conference.** RECOUP hold an annual conference which in 2019 was attended by over 500 delegates and with considerable content for Local Authorities and waste management companies it is FREE to attend for Local Authorities to attend.
- **Understanding the supply chain.** For example, to maximise recycled material value and increase knowledge of end markets. It is increasingly important for citizens to be reassured that what is claimed as being placed for recycling is being recycled.
- **Pack recyclability testing.** Providing plastics packaging design guidance and assessing the recyclability credentials of plastic packaging ensuring synergy in collection, sorting and recycling, which can all inform accurate communications instructions to residents.
- **Cross-sector collaborative initiatives.** To work across the supply chain to collect and recycle post-consumer plastics bringing together brand owners, reprocessors and Local Authorities to deliver practical initiatives that benefit the supply chain.
- **Bespoke research and innovation projects.** Focusing on specific areas of the supply chain such as DIY and gardening products, small toys and chemical recycling.
- **Communicating the message.** Using the Pledge2Recycle Plastics resources to ensure plastics messaging reduces citizen confusion on what and how to recycle kerbside thus inspiring positive behaviour change.
- **Pot, tub and tray, and plastic films and flexibles.** RECOUP have specific areas that research and deliver activities to develop collections and recycling of these plastic formats.



Through the work of RECOUP, its members, the Board, and through RECOUP's communication channels collectively we can influence policy and strategic development, and change.

RECOUP would also like to acknowledge the support from all its valued members which has allowed us to cover the costs of completing the *2019 RECOUP Survey*.



Governance

RECOUP is underpinned by the strength of its team and its trustees. The RECOUP board meets on a regular basis to represent their sector and develop RECOUP's strategy and direction. Trustees are all Senior Managers and Directors, and the expertise and knowledge of their sector ensures that the financial and operational activities of RECOUP serve the best interests of the plastics value chain.

RECOUP continue to have a strong Local Authority and waste management presence in its membership, with LARAC, NAWDO and some of the largest waste management companies in the UK represented on the RECOUP Board.

RECOUP

Plastics Recycling and Resources Conference

24 SEPTEMBER 2020

www.recoup.org

Thank you to the following Waste Management Companies and Local Authorities for their continued support of RECOUP through membership.

SUEZ

Viridor

FCC Environment

Biffa Polymers

SAICA NATUR

VEOLIA

GMCA Greater Manchester Combined Authority

recycle for Norfolk

Derbyshire County Council

City of Bradford

Dorset County Council

West Sussex County Council

Milton Keynes Council

Staffordshire Moorlands District Council – Achieving Excellence

Surrey Waste Partnership

Cambridge City Council

High Peak Borough Council – working for our community

Surrey

Greater Cambridge Shared Waste

Kent Resource Partnership

Cyngor Gwynedd Council

METHODOLOGY & REPORTING

The approach to the collection data and how it is calculated is important in understanding what can be reported and how these figures are generated and used.

Plastic Packaging Placed on the Market

The quantity of plastics packaging that is Placed on the Market (POM) is an essential figure in measuring the UK's plastic packaging collection rates. RECOUP always use the most robust data available, which in the ***2019 Survey*** is from ***PlasticFlow 2025***(3), the report that estimates the quantity of plastic packaging Placed on the Market (POM) and recycled from 2017 to 2025 and the probability of compliance with national and European recycling targets.

Calculating Estimated Collection Quantities

The increasing challenge of estimating the composition of reported household plastic collection data into plastic formats needs to be highlighted. This is due to several factors including the co-mingling of materials and variations in collection methods and supply into onward recycling streams.

Collection quantities cannot be calculated by adding up sequentially reported tonnages as there are many variables that can affect the reported collection quantities. Accurate and audited estimated collection data is reliant on the necessary resources and processes in place, and these vary by Authority.

The reported collection data, and collection service provision data provided by Local Authorities is always checked, and where necessary followed up. Alternatively, varied methods are used to ensure that the final dataset is as accurate and representative as possible.

Dry Mixed Recycling (DMR)

Plastics packaging fractions are increasingly being reported as part of co-mingled totals for all Dry Mixed Recycling (DMR). When totals for all DMR are reported the plastic packaging fraction is calculated by using percentage averages of the plastics formats collected in that individual scheme.

Plastics Packaging Only

Any plastic packaging only data is reported by: (a) Local Authorities operating source separated collection schemes; (b) a percentage estimate based on compositional analysis by the Local Authority or waste management provider; or, (c) the specific percentage composition recommended to be used by WasteDataFlow. It is often not possible for Local Authorities to provide plastics collection quantities broken down by plastic format, and percentage averages are used to estimate these.

Multiple Collection Schemes

Local Authorities can report collection quantities from all collection services they provide, including from kerbside and bring collections, recycling 'On the Go' schemes and Household Waste Recycling Centres (HWRC). Many bring and recycle 'On the Go' units are serviced as part of the kerbside collection route, and this is accounted for when calculating collection quantities.

Composition of 'Mixed Plastics'

Plastics packaging is often reported as 'mixed plastics', and clarification is often needed on the different interpretations and composition of the fraction. This composition can vary considerably between Local Authorities depending on the target outputs and the speed and efficiency of the Material Recovery Facility (MRF). Some facilities only segregate certain plastic bottles like clear PET and natural HDPE bottles, and leave others in the plastic pot, tub and trays (PTT) or 'mixed plastics' mix for further sorting or even export, whereas other facilities can leave all plastics packaging together to try to ensure a positive value for all outputs. It should be noted that where there are large quantities of material to process, or for the faster sorting facilities, more bottles can end up in a PTT or 'mixed plastics' fraction.

In the ***2019 Survey***, RECOUP has worked closely with its waste management company members in order to estimate the composition of collected plastic to provide the best possible and most realistic representation of the data.

Limited or No Collection Data Reported

If there is no collection data or partial data is reported, the estimated dataset is completed based on the service provision and then applying reasonable collection quantities based on those services. This is completed in one of two ways – either by using one of the previous two years' Survey responses, or average performance data using the number of households in that Local Authority area against the average that can be expected to be collected for these households (kg per household, per year).

Collection Service Provision

The criteria for Local Authorities providing a service is if they communicate to their residents that they collect certain plastic formats or products as target items. There are plastic formats or products that can be accepted in a scheme but are not target items, and in these instances the Local Authority is categorised as not providing a collection scheme. This research is based on two methods: (1) the actual responses from the Survey questions by Local Authorities; and, (2) cross checking of each Local Authority's website to see what collection service provision is communicated as being provided. Conflicting information is a regular occurrence, and in these instances the Local Authority is contacted for clarity.

Confidence Interval

Although a high proportion of the data and analysis in the ***RECOUP Survey*** is based on actual responses only, analysing and measuring performance indicators is not a straightforward process.

There are a well-established number of performance indicators provided for plastic collections, but there are many factors that can influence a scheme's collection performance, operational efficiency and cost, including types and quantity of other materials collected, types of locations (urban or rural), housing types, socio-demographics and how the scheme is communicated to residents.

All data has been analysed to provide a high probability confidence interval i.e. data considered to be incorrectly reported has been omitted or re-estimated using appropriate available data and averages.

Response Rate

Responses from around **75%** of collection Authorities in the UK were received, with some Local Authorities responding to more questions than others. The collection quantities are based on data and information in the 2018 calendar, or 2018/19 financial year. Data for those who have not responded is calculated through previous Survey responses and average performance data.

PLASTICS COLLECTION SERVICES

*Collection is the essential foundation to recycle plastics and ensure it is kept within Circular Economy models and is not littered or ends up in our natural environment. The **RECOUP Survey** provides a comprehensive review of the service provision by Local Authorities to collect household plastics from kerbside, bring, recycling 'On the Go' and Household Waste Recycling Centres.*

As required by the *Household Waste Recycling Act 2003*, all Local Authorities in the UK provide at least two types of kerbside collection. This prevalence and maturity of kerbside collections means that there are limited changes to the number of new services being introduced in the UK. One possible key change regarding collection provision is the proposed introduction of Deposit Return Schemes (DRS), due to be launched in Scotland in April 2021, and currently planned to be implemented across the rest of the UK in 2023.

Consistency of material collections is a major strategic theme to improve recycling levels and improve collected material quality. There is a great deal of focus on the opportunities to standardise materials in terms of the collection systems used, the materials collected for recycling, and how they are presented for recycling.

Within the UK, individual nations have their own guidance. The Scottish Government and the Convention of Scottish Local Authorities (CoSLA) have a *Household Recycling Charter*. Wales has its established *Collections Blueprint*, and Defra has consulted on delivering consistency in household and business recycling collections in England.

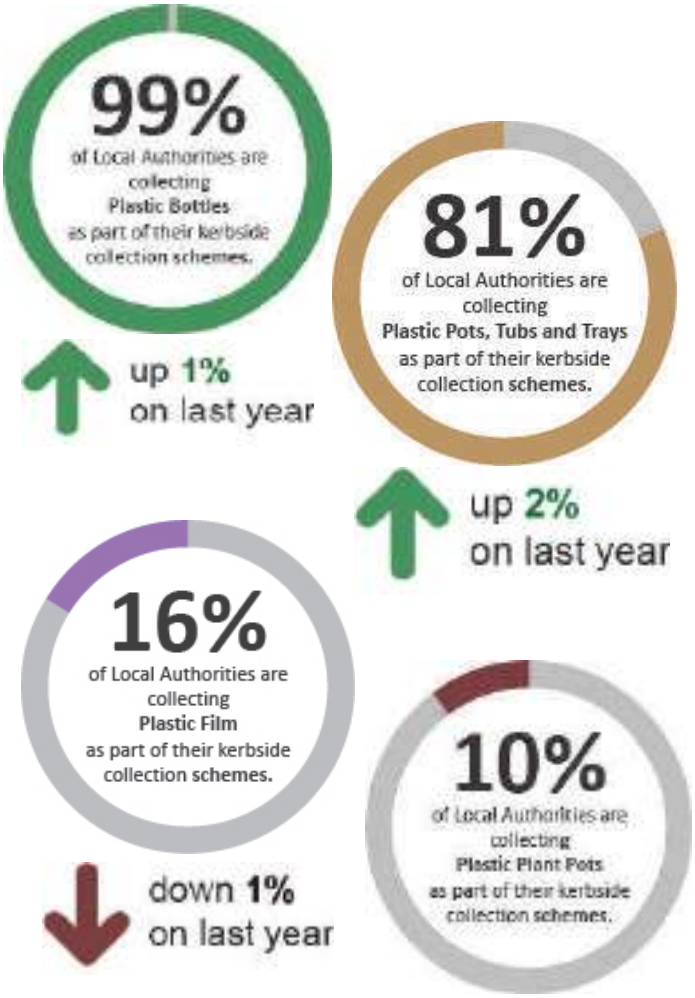
Local Authorities in the UK

There are **391** Local Authorities in the UK with:

- **326** in England;
- **32** in Scotland;
- **22** in Wales; and,
- **11** in Northern Ireland.

Kerbside Collection Schemes

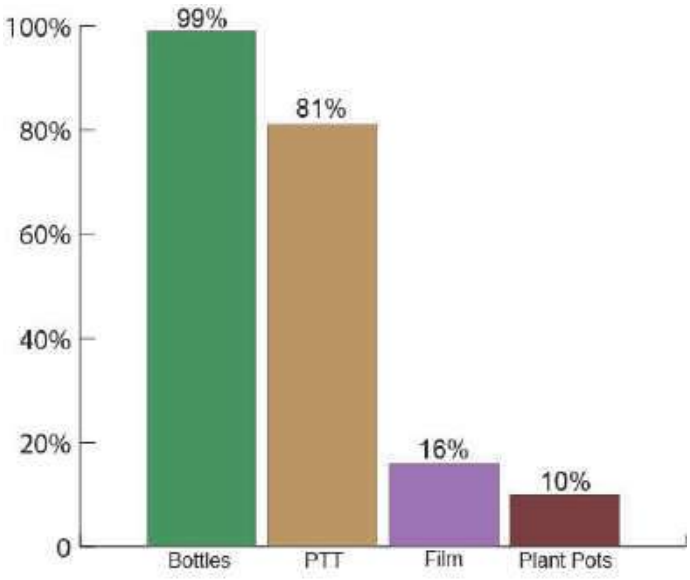
In the UK, the majority of the plastic quantities collected for recycling are from kerbside collections. The breakdown of these resources, by plastic types, currently show the following provisions for collections across the UK:



Plastic Bottles

At the end of the reporting period for the *2019 Survey* (March 2019), only one Local Authority in the UK did not collect plastic bottles as part of their kerbside collection scheme, resulting in a collection rate of **99.7%** among Local Authorities.

The *2018 Survey* reported **4** Local Authorities that didn't included plastic bottles as part of their collection provision – Copeland Borough Council, Council of Isles of Scilly, Rotherham Metropolitan Borough Council and Tonbridge and Malling Borough Council. As of September 2019, the UK met the **100%** milestone of Local Authorities in the UK collecting plastic bottles from kerbside collections, with the final Local Authority, Tonbridge and Malling, adding plastic bottles to their kerbside collections.



Plastic Pots, Tubs & Trays (PTT)

All **4** of the Local Authorities adding plastics bottles to their kerbside collections also added plastic pots, tubs and trays.

Since the *2018 Survey*, an additional **7** Local Authorities began kerbside collection of plastic pots, tubs and trays (PTT), marking a ninth consecutive annual increase in collection provision and takes the total to **81%** of Local Authorities now accepting them. This leaves **74** local authorities not collecting PTT as part of their kerbside schemes.

This annual increase can be attributed to both strategic and consumer pressure to drive towards consistent material collections. PTT can typically be added to a collection scheme when waste management contracts are renewed, and a collective approach is taken as part of a Local Authority Waste Partnership.

Although the only polymer in the plastic pot, tub and tray fraction that has sustainable end markets is Polypropylene, gaining the critical mass of all PTTs is essential to put in place the building blocks to develop recycling solutions and end markets for this material stream.

Plastic Film

The number of Local Authorities collecting plastic film as part of their kerbside collection service has shown a continued decline, with **6** fewer Local Authorities collecting plastic film reported in the *2018 Survey* and 15 less than the *2017 Survey*. There are now **61** Local Authorities **(16%)** that accept plastic carrier bags and other types of film such as bread bags, breakfast cereal lining, cellophane, cling film, bubble wrap, magazine wrappings and shrink wrap (to package multi-pack bottles), with **23** Local Authorities accepting only plastic carrier bags, just **6%** of Local Authorities in the UK.

Criteria for including Plastic Film as Target Material

RECOUP has found information is not always clear when Local Authorities report film collections. When dry recyclables are collected in bags it can be interpreted they accept plastic film, but this is not for wider collections of plastic film such as carrier bags, bread bags, shrink wrap, etc. In addition, whilst film is reported as an accepted plastic format as an input material at the MRF, the waste management provider may not want additional plastic film in the recycling material stream they would receive if the Local Authority communicated to their residents plastic film is accepted.

In the *2019 RECOUP Survey*, only Local Authorities that provide instructions to their residents stating: (1) to include plastic film in the kerbside collection service; (2) categorise film as carrier bags or packaging and not film used as a collection container, are included.

The Plastic Film Dilemma

The decline in the number of Local Authorities collecting plastic film in the *2017 and 2018 RECOUP Surveys* can be attributed to multiple factors, including:

- Local Authority removing plastic film from their kerbside collection service to be in line with the recommended consistent collections of materials;
- The inherent complex decision-making process needed by the consumer whether to place the various types of plastic film for recycling means they make incorrect decisions and increase contamination levels;
- The practical barriers which prevent film being compatible with many existing UK collection and MRF systems, contaminating established plastic bottle bales and paper lines, and clog sorting equipment; and,
- Availability of end markets, although it should be noted a small quantity of this material is finding its way to recycling facilities(4).

The majority of the collected household film is baled and exported for recycling or used as feedstock in Energy from Waste (EfW) facilities. If a Local Authority is considering the collection of film through their kerbside collections, it requires thorough communications throughout the recycling chain for anyone handling, selling or disposing of the material.

The collection of plastic film remains a significant opportunity to increase plastics packaging collections in the UK, but more collections will not be added without significant financial investment or incentivisation. To provide a foundation for this to happen, RECOUP continues to support activities and research for its members in this area.

Plastic Plant Pots

As part of the *2019 RECOUP Survey*, RECOUP has begun collecting data regarding the collection of plastic plant pots, commonly referred to as flowerpots in consumer communications to residents.

It has been reported **40 (10%)** Local Authorities have explicitly reported they collect plant pots, with the remaining **90%** either reporting that they do not collect them, or they are omitted from their communications to residents.

Plant pots are mainly manufactured from Polypropylene, and if this fits in with the feedstock requirements of the MRF and reprocessor, they can be added to existing plastic pot, tub and tray collections. This is covered in more detail in the *RECOUP Household Plastics Collection Survey Case Studies* report. This highlights the challenge to the consumer and the interpretable nature of the language whether to include plant pots as part of the PTT collection services, meaning that consumers must make an uninformed decision when it comes to their disposal.

Challenges to Local Authorities and waste management providers if plant pots are included in kerbside collections are around contamination, through residual soil, garden waste and other garden products such as seed trays and terracotta pots being included in the recycling stream.

Non-Packaging Plastics

Non-packaging plastics could include small Waste Electronic and Electronic Equipment (WEEE), such as unwanted or broken toasters, kettles, irons, hairdryers, telephones, power tools, shavers, clocks, alarms and wifi routers. Other small plastic items such as toys can also be collected. These are often asked to be placed in a clear bag next to the recycling containers to separate them from other items.

A total of **7 (3%)** Local Authorities confirmed they collect non-packaging plastics as part of their kerbside collection service.

Due to the variations in the wide scale of products that are categorised under ‘non-packaging plastics’, including WEEE, further research is required in order to acquire a robust total for how many Local Authorities collect which product types.

Kerbside Collection Schemes

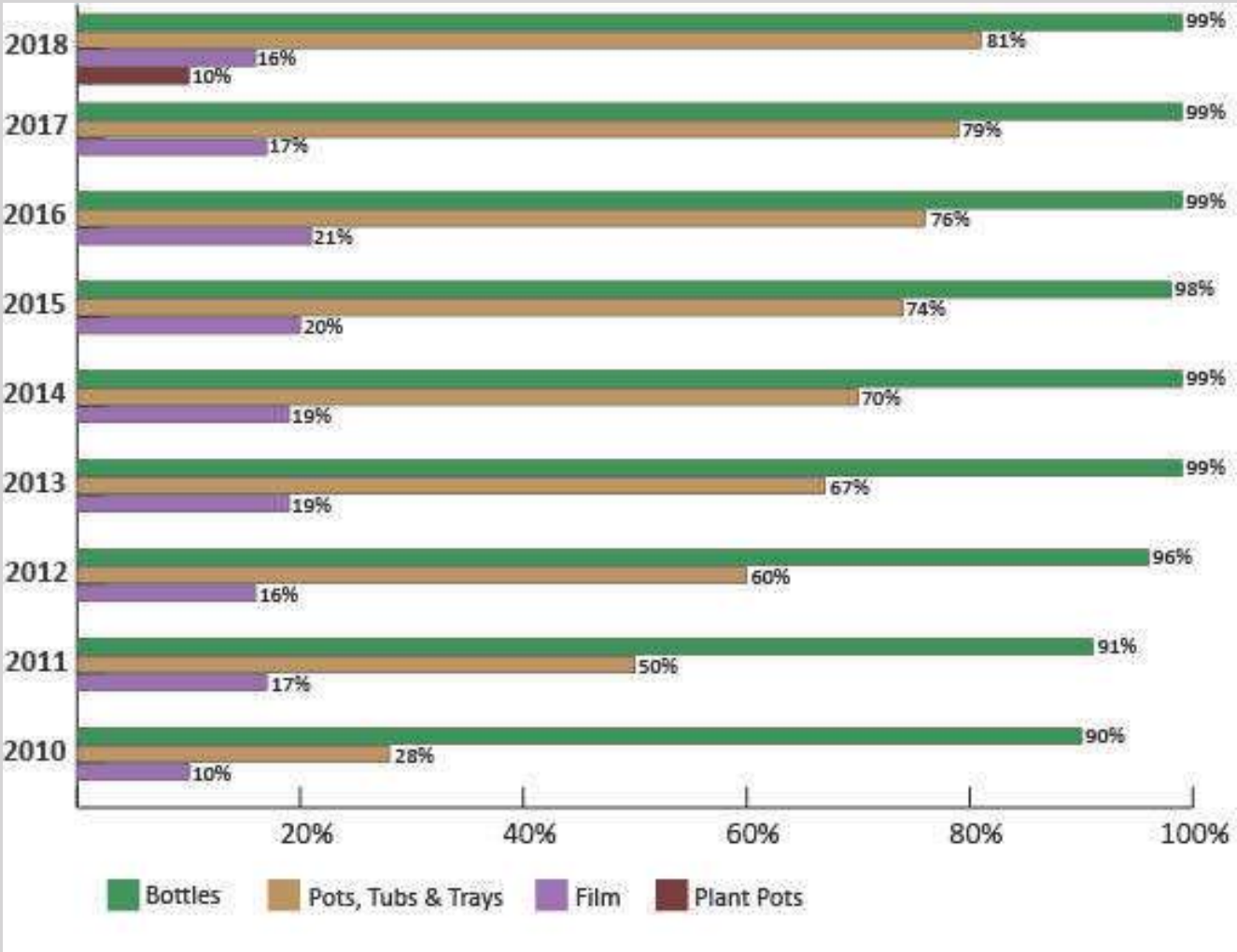
In the past decade there has been a steady increase in the plastic packaging kerbside collection infrastructure despite the reduction in the overall number of Local Authorities in the UK in this time. With increased consistency of materials being collected during this time, there has inevitably been a slowing down of new collection services being introduced in recent years.

For the first time, as of September 2019, the UK can boast a 100% kerbside collection provision for plastic bottles. The impact of pressure on Local Authorities to increase their recycling services has influenced this, as well as technological advancements at sorting and reprocessing facilities.

Collections of PTT have also seen a sharp increase over time, from just **28% (114)** of Local Authorities in 2010 to **81% (317)** in 2018.

Plastic film collections have reduced in the past two years, and there are now only 21 more Local Authorities that are collecting plastic film since the **10% (40)** of Local Authorities collecting film in 2010.

Authorities collect which product types



Service Changes

Introducing a Service

In response to the *2019 RECOUP Survey*, **23 (6.5%)** of Local Authorities stated that they are considering introducing or trialling a new collection service. This includes kerbside services, but is predominantly for 'On the Go', HWRC (Household Waste Recycling Centre) collections, and even Deposit Return Schemes.

Since the end of the reporting period for the *2019 RECOUP Survey* (March 2019), the following changes to kerbside collection services have been announced:

- **1** Local Authority added plastic bottles;
- **6** added plastic pots, tubs and trays; and,
- **No** new schemes for plastic film.

Removing A Service

8 Local Authorities reported that they had no plans on withdrawing a collection service, largely citing contamination issues, particularly with recycling 'On the Go' services.

Changes to services mentioned included introducing more bins for kerbside sorting to reduce contamination, or by staggering general waste and recycling collections to save money. Since the end of the reporting period for the *2019 RECOUP Survey* it can be reported 1 Local Authority has removed its kerbside collection service for plastic film and there is no evidence to suggest this trend will not continue.

Kerbside Service Summary by UK Nation

Collection infrastructure across the nations in the UK varies, with a summary by UK nation shown in the table below. Whilst consistency is often cited as a challenge for achieving a positive recycling rate for the UK, this is further complicated across the different countries.

There are 27.8 million households in the UK(5), but the exact number of households that receive a service can vary substantially, even if 100% of Local Authorities provide a service.

Whilst a Local Authority may offer a kerbside collection to households, there may be reasons that this may not be a complete coverage of that area, such as:

- The type of property (i.e. flats, apartments);
- The location of the property (i.e. rural, inaccessible locations);
- Properties which are not occupied for long periods of time, including those used as holiday or second homes; or
- A collection scheme that is in a trial period and is gradually being rolled out over a wide area.

	TOTAL	Bottles		PTT		Film		*Carrier Bags*		Plant Pots	
England	**326**	**325**	**99.7%**	**258**	**79%**	**54**	**17%**	*20*	*37%*	**34**	**10%**
Scotland	**32**	**32**	**100%**	**27**	**84%**	**2**	**6%**	*1*	*50%*	**2**	**6%**
Wales	**22**	**22**	**100%**	**21**	**95%**	**5**	**23%**	*2*	*40%*	**1**	**5%**
N. Ireland	**11**	**11**	**100%**	**11**	**100%**	**0**	**0%**	*0*	*0%*	**3**	**27%**

Other Collection Services

Other collection services provided by Local Authorities to collect plastics are focussed on 'Away from Home' collections. This can be used effectively at specific sites where people make dedicated trips to bring their waste and recycling material to bring and HWRC services, or at convenient points or in areas of high footfall when consumers are out and about (recycling 'On the Go').

Bring Schemes

Bring schemes are often operated in public spaces, including car parks and at supermarkets, where the public can place their recyclables in large containers or other receptacles (i.e. bottle banks).

They are generally used by Local Authorities alongside kerbside schemes to supplement their recyclables collection provision. Due to the almost complete coverage of kerbside collections in the UK, the popularity of bring schemes has stagnated over time, with a gradual decline in use, and limited new schemes introduced. They are often removed due to maintenance costs and contamination levels, with Local Authorities focussing resources on kerbside and HWRC collection services.

Where funding allows, a bring service can be a useful service provision to provide. This is particularly true where a plastic format is not collected as part of the kerbside collection service, or where the kerbside service is not available to all residents, such as in rural communities or high-rise property areas.

If Local Authorities are thinking about the decision to introduce, retain or withdraw bring schemes that includes plastics, there are many considerations to factor in any cost-benefit analysis of the overall plastics collection schemes operated including the service being used as an overflow for households who have limited kerbside collection container capacity.

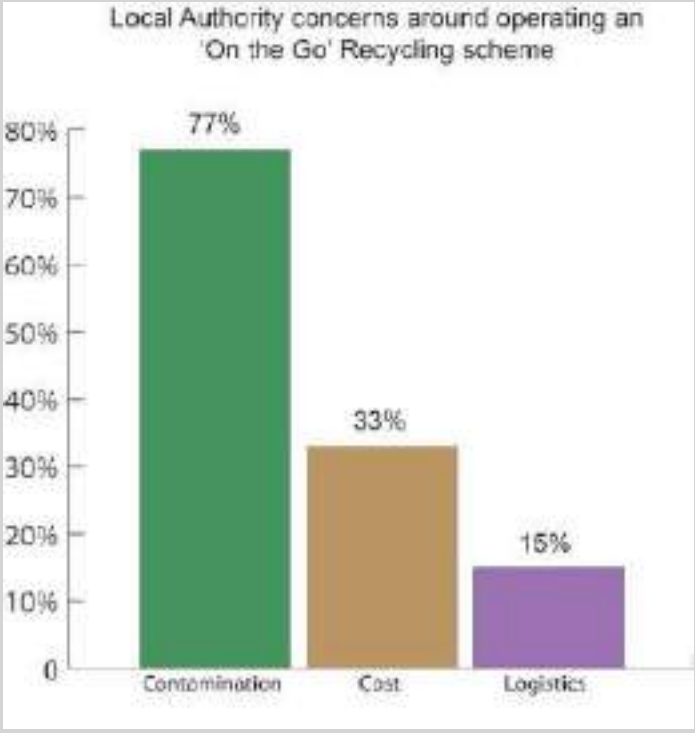
Recycling 'On the Go'

Recycling 'On the Go' schemes involve the placement of bins, often being twinned with general waste bins, in public places for the collection of used packaging from members of the public.

The *2018 RECOUP Survey* delivered a complete review of all 391 UK Local Authorities recycling 'On the Go' service provision. Adding the reported changes from Local Authorities in the *2019 RECOUP Survey* **51%** provide a recycling 'On the Go' collection service, a **2%** increase.

A well designed and maintained recycling 'On the Go' scheme can potentially generate good quality material and also reduce litter. There are also clear benefits for encouraging and reinforcing positive recycling behaviours, both 'On the Go' and by consumers taking those positive behaviours home.

The 2019 RECOUP Survey received nearly 100 responses why Local Authorities are not providing a recycling 'On the Go' service, **77%** citing contamination as the primary issue, **33%** cost and **16%** logistics, with some Local Authorities including all three.



The often heavily contaminated material can be resolved in many cases with clear and strong bin signage, regular collections and communicating with residents and visitors alike through all available channels such as street signage, digital channels or communications direct to households. The messages and approaches may differ but engaging the public to have pride in their local community and using emotive anti-litter messages can help to provide an effective service.

Local Authorities reported the majority **(68%)** of 'On the Go' recycling waste goes to recycling facilities, **15%** to Refuse Derived Fuel (RDF) and Mechanical Biological Treatment (MBT), **13%** Energy Recovery, with **4%** reported going to landfill. The reason **68%** of recycling 'On the Go' material is reported as going to a recycled end destination could be that contamination is not always obvious and can be hidden, for logistical and cost purposes some 'On the Go' material is co-mingled with kerbside collections. This has the potential to intentionally, or unintentionally, disguise the often more contaminated materials' with the cleaner, kerbside source.

Household Waste Recycling Centres (HWRCs)

Household Waste Recycling Centres (HWRCs) are available to the public for the disposal, recycling or reuse of a wide range of household materials and items, including plastics. These public sites are often under the responsibility of the Waste Disposal Authority, which tends to be managed by the County Council and not the individual collection Local Authority. The *2019 RECOUP Survey* can report nearly **150** Local Authorities stated they collect plastics from their HWRC scheme, which suggests collection authorities are aware of this service even if they don't operate the facility.

HWRCs provide supplementary collection points for plastics which are collected at kerbside and are the primary point for those plastic items not compatible with kerbside services, such as non-packaging plastics, including small and large WEEE items and bulky goods such as plastic furniture.

There appears to be little consistency in how what is and what is not recyclable is communicated to the public. As a service can be managed by the Waste Disposal or the Waste Collection Authority, there are issues in building UK-wide service provision data, and this is something RECOUP could deliver if funding was made available.

impact recycling

With limited recycling options for plastics collected from HWRCs innovation is needed to unlock the untapped potential of these materials. One bespoke facility, located in the north of England, is Impact Recycling near Newcastle, which uses a water oscillation method known as a 'Baffled Oscillation Separation System' (BOSS) in order to provide recycling solutions for plastic waste that would be deemed unrecyclable or too contaminated by other mechanical recycling methods.

The plant, which is not reliant on optical sorting equipment and therefore not restricted by the limitations of NIR (Near Infrared), takes waste in from various sources, including HWRCs in the north of England and Scotland, and shreds and processes these plastics. Materials that BOSS can process are wide ranging, including children's toys, broken wheel bins and plastic packaging, turning them into end market recyclate without relying on export. The plant itself boasts an output purity of over 95% with yield losses of less than 20% from the input stages.

At present, the plant has a limited capacity of around 1,500 tonnes per year, but upcoming investments and proposed expansions aim to not only increase the input capacity of the Newcastle plant, but to create similar recycling solutions across the UK to offer Local Authorities and HWRCs a solution for their difficult to recycle and highly contaminated plastics.

Deposit Return Scheme (DRS)

Trials of Reverse Vending Machines (RVMs) have taken place across the UK, including many retailers using them in a small number of their stores.

Scotland intend to implement a Deposit Return Scheme (DRS) independent of the rest of the UK, and this is planned to be launched on 1st April 2021, with Scottish ministers due to agree details at the start of 2020.

For England, Wales and Northern Ireland, a scheme has been tentatively proposed to be instigated in 2023, and further information and data are now being developed to agree the structure and operational details with another consultation expected in 2020.

More information about Deposit Return Schemes can be found on pages 50-52.

Kerbside Collection Variables

Each Local Authority has a different approach to how it collects materials from the kerbside, with different housing types, urban or rural geographical areas and demographics all providing variables to logistics and challenges that waste and recycling teams face.

Consistency of collections is a major theme, both in terms of materials and the way in which they are collected. Not all Local Authorities collect the same plastics as part of their kerbside collection schemes, which is further skewed by information around how to present the products (e.g. tops on or tops off bottles) and lesser promoted collected materials such as film. For residents, this often means that they can be in one district and cross the council border to another Local Authority area and be subject to different recycling guidelines.

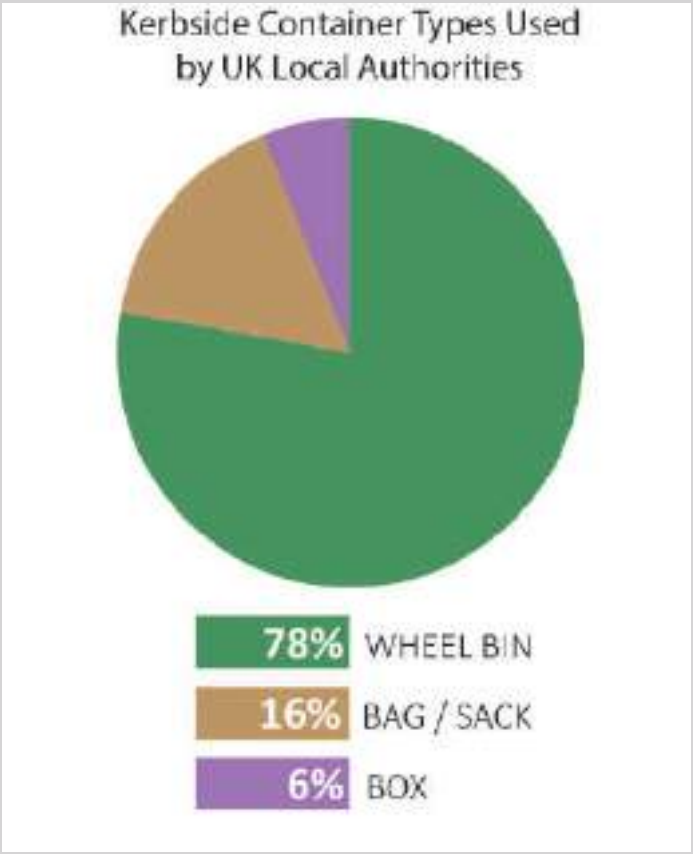
The *2019 RECOUP Survey* looks at a number of variables that both highlights these differences and the different approaches Local Authorities use:

- Container types;
- Container colours;
- Co-mingled vs kerbside sorting;
- Frequency of collections; and,
- Local Authorities who have reported particular success in improving their overall performance of their collection services.

Kerbside Collection Container Types

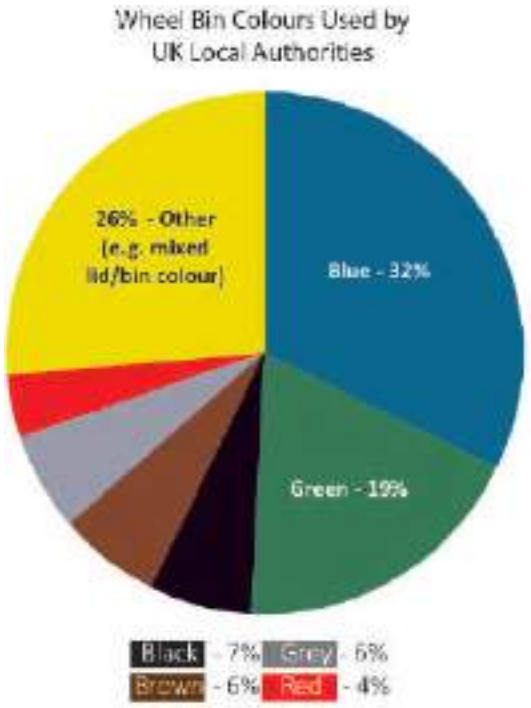
There are three main types of kerbside collection container for dry recyclables – wheel bin, box and bags (disposable and reusable). The most popular kerbside recyclables collection container is a wheel bin, due to the high proportion of co-mingled collections, and the wider adoption of bi-, tri- or four-weekly collections, and therefore a need for larger capacity recycling units.

It was observed 'Two Stream' or 'Multi-Stream' collections, which use more than one collection container, are being used to allow for separate collections of specific materials. This could be particularly important where glass is collected, for example, to meet input and contractual requirements from MRFs and reprocessors, or to satisfy kerbside conditions where wheel bins cannot be utilised.



Kerbside Collection Container Colours

The *2019 RECOUP Survey* has researched UK wide on the variety of colours of collection containers that are used by Local Authorities. Focussing just on 70% of Local Authorities that use wheel bins the colour range is:



Blue and green dominated with a combined **51%** with the main other colours – black, brown, grey and red – making up **23%**. A total of **26%** were in an 'Other' category, which was made up of mixed colour (bins with different coloured lids to the main bin) or other colours e.g. purple, silver and white.

As part of a consistent approach to material collections ideally there would be a universal approach to use the same colours bins to collect the same materials. RECOUP believe bin colours should not be the priority and funding should be directed to other areas first, but and therefore regulatory or voluntary guidance on bin colours should be implemented to instigate a gradual move to use similar colour bins regardless of where you live.

Co-mingled vs Kerbside Sorting

In the *2019 RECOUP Survey*, from just under 200 responses, **80%** of Local Authorities reported that they collect materials co-mingled, with the remaining **20%** using source separated collections. This reflects overall industry observations and provides a baseline which RECOUP will use to track collection schemes chosen by Local Authorities.

With continued pressure to increase the quality of material collected for recycling, cost benefit analysis needs to be carefully utilised when comparing the additional costs of kerbside sorting versus the costs to sort co-mingled material at MRFs.

Frequency of Recycling & Residual Waste Collections

The frequency of the recyclables collections is an important factor in the effectiveness of a kerbside recycling scheme. This can range from weekly and alternate weekly recycling collections (with the residual collection), to fortnightly, three or four weekly collections. In the *2018 RECOUP Survey*, fortnightly recyclables collections were most popular, covering **74%** of Local Authority areas with a kerbside plastic bottle collection, with **23%** using weekly collections, and **3%** reported they collect recycling either three weekly or monthly.

There has been a marked increase in alternating weekly recycling services with the residual collection, with **64%** now reporting this combination. Moving from weekly to fortnightly recycling collections has had many reported benefits, reaping rewards financially through logistical efficiencies and route optimisation.

Despite the increase in focus on waste management, particularly recycling, and the reported successes of Local Authorities in saving money by operating different schemes, in the *2019 RECOUP Survey*, from over 250 responses, only **17%** of Local Authorities stated they are investigating or planning to change collection service frequency - following on from the **14%** reporting to have made changes in the prior three years. None-the-less, only 4% of these changes had generally been reported as being negative:

- **Broadly positive – 56%**
- **Neutral – 40%**
- **Broadly negative – 4%**

In the *2018 RECOUP Survey*, similar numbers of Local Authorities reported that changes to the frequency of collections had generally delivered positive results, with **64%** increasing collection quantities and **92%** citing reduced costs.

Improving Overall Performance

In response to a more general question, from over 180 responses, **29%** of Local Authorities reported that they had particular success in improving the overall performance of their collection services in 2018. These included recycling from flats, collection logistics and reducing collection frequency. RECOUP will be following up with these Local Authorities and, where possible, report where the success had been and how they had been achieved.

Treatment of Residual Waste

Largely due to the continual improvements in technologies and approaches in retrieving recyclate from streams ultimately heading to landfill or incineration, Residual Waste treatment continues to be a key subject, particularly in discussions around improving recycling rates.

Whilst accurate data around how much plastics are in residual waste streams is hard to quantify, it is widely acknowledged that significant amounts are lost each year.

From 2020, the EU recycling target for member states will increase to a minimum of **50%**(6). With the UK's rate in 2017 being **45.7%**(7), there are not only concerns that the 2020 target won't be met, but that the UK will also fail to meet future municipal recycling targets. Furthermore, with increasing landfill and incineration gate fee costs, Local Authorities are increasingly looking at a variety of treatment options to recover plastics packaging from all available sources, creating alternative methods for increasing recycling rates. The ***2019 RECOUP Survey*** asked Local Authorities of their understanding of the treatment of residual waste, destinations of where the material goes and any future trends. In total, **275** Local Authorities responded to these questions.

Treatment Options for Residual Waste

Local Authority knowledge about how residual waste is treated is good, with **86%** understanding the treatment process.

To understand the residual waste, a selection of the main options were provided to Local Authorities, who were asked to choose as many options that were applicable for them.

What is the Treatment of your Residual Waste Collected in your Local Authority	
Energy from Waste (EfW)	**65%**
Landfill	**34%**
Refuse Derived Fuel (RDF)	**25%**
Mechanical Biological Treatment (MBT)	**19%**
Recycling	**16%**
Anaerobic Digestion (AD)	**8%**

Landfill

These results can provide a positive message to the industry and consumers alike about what happens to material that is seen by many to end up in landfill. However, with residual treatment options in their infancy, landfill **(34%)** is the only viable option for some Authorities.

Energy from Waste (EfW)

These responses show a considerable rise in the use of EfW, up **15%** since the previous Survey. EfW generates energy (heat and/or electricity) from the treatment process and can provide sustainable and cost-effective energy supplies. With restrictions in the export of material ongoing and with Energy Recovery infrastructure increasing, it is unsurprising that the percentage of residual waste being sent to EfW in the UK is continuing to increase each year – **36%** in 2016, **50%** in 2017 and just over **65%** in 2018 – and this increase is expected to continue.

Refuse Derived Fuel (RDF) and Mechanical Biological Treatment (MBT)

RDF is produced by some MBT processes and can be used as a fuel. MBT is where waste is stabilised through biological treatment using mechanical separation of the recyclable and/or readily combustible material from the remaining organic or lower grade material. **25%** of Local Authorities use RDF as a destination for residual waste, with a further **19%** reporting MBT separately.

Recycling

Recycling as an end destination has increased to **16%** in 2018, up from the **9%** reported in 2017, and **13%** in 2016. As with previous years, the definition of 'recycling' raises questions as to whether they are being included in household recycling quantities and rates, or are they classified as a landfill fraction but in real terms still finding their way into the recycling stream and included in Packaging Recovery Notes (PRNs). Also, if they are part of the overall quantity of plastics packaging that is classed as recycled each year. Some Local Authorities report the material quantities are included in the collection data, but there is not enough information available to be able to assume how this data is categorised.

Recovery of Plastics from Residual Waste

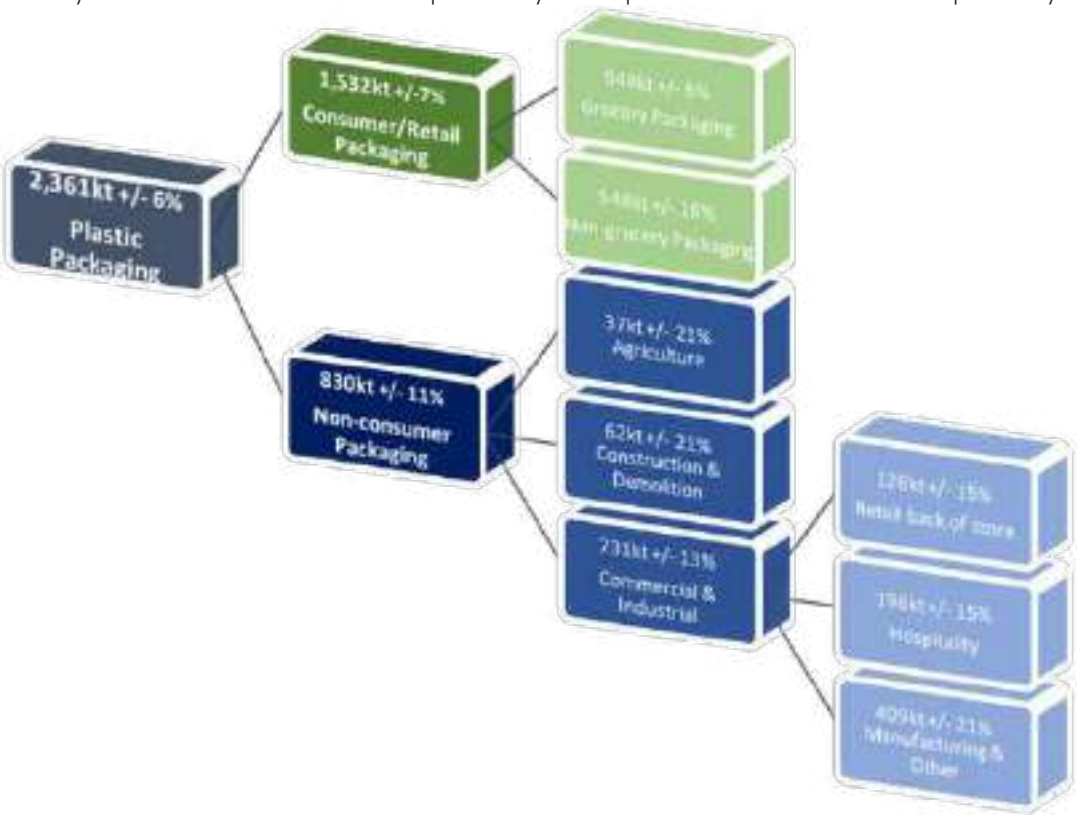
To achieve an understanding of the overall approach to recovery of plastics from all treatment processes, in a separate question, it was reported almost a quarter, **24%,** of Local Authorities stated that they currently recover plastics for recycling from residual waste that might otherwise go to landfill or EfW facilities. With 16% of Local Authorities reporting recycling as an end destination (see above) it is considered that a range, **16%-24%** could recover plastics from the general waste stream.

Financial, technology and political barriers can be the main sticking points with regards to making progress in this area. In the ***2018 Survey***, only **11%** of Local Authorities reported an intention to actively investigate or implement treatment of their residual waste that might otherwise go to landfill or EfW facilities, and in 2019 this has increased by a nominal amount, with **12%** considering or investigating such treatment options. There was a general frustration that investigation of different treatment options couldn't be taken further.

PLASTICS PLACED ON THE MARKET

Packaging is the main source of plastic consumed in the UK and the data around how much we use is central, not only calculate recycling collection rates, but to how much future funding flows into the UK's waste management system.

With the spotlight on how the UK manages its waste and recycling, Defra and WRAP (Waste and Resources Action Programme) commissioned RECOUP, Valpak and Verde Recycling and Consulting to estimate the quantity of plastic packaging Placed on the Market (POM) and recycled from 2017 to 2025 and the probability of compliance with National and European recycling targets.



This report estimated **2,361,000 tonnes** of plastics packaging were POM in the UK(8) with over **1,532,000 tonnes (65%)** of this consumer (household) plastic packaging and **830,000 tonnes (35%)** non-consumer (non-household) packaging. This split is defined as:

- **Consumer sources**. Plastics packaging used in food, drink, groceries, body care, clothing and DIY products sold by supermarkets and retailers.
- **Non-consumer sources**. Mostly commercial and industrial material, nearly half from 'Manufacturing and Other' which is made of: food, drink & tobacco; textiles/wood/paper/ publishing; power and utilities; chemicals/non-metallic minerals manufacturing; metals manufacturing; machinery & equipment (other manufacturing); transport & storage; and other services. Around a quarter is food and drink from the hospitality sector, with the remainder made up of plastics packaging discarded by retailers back of store, and used by the construction and demolition and agricultural sectors.

The composition of this data has also been estimated by plastic format and polymer:

CONSUMER (Grocery & Non-grocery Combined)										
	HDPE	LDPE	PE	PET	PP	PS	PVC	Other	Grand Total	
Film	89kt	119kt	21kt	28kt	110kt	2kt	9kt	17kt	395kt	26%
Carrier Bags	*18kt*	*9kt*							*26kt*	
Bottles	268kt	0kt	1kt	347kt	17kt	0kt	0kt	0kt	634kt	41%
PTTs	9kt	1kt	4kt	155kt	85kt	32kt	13kt	2kt	301kt	20%
Other	55kt	23kt	1kt	40kt	76kt	3kt	2kt	0kt	202kt	13%
Grand Total	421kt	143kt	28kt	570kt	288kt	38kt	24kt	20kt	1532kt	
	27%	*9%*	*2%*	*37%*	*19%*	*2%*	*2%*	*1%*		

The household fraction broadly consists of:

- **634,000 tonnes** of plastic bottles – 332,000 (52%) drinks bottles and 302,000 (48%) non-drinks bottles;
- **301,000 tonnes** of plastic pots, tubs and trays;
- **395,000 tonnes** of plastic film; and,
- **202,000 tonnes** of other plastics packaging such as caps, lids, toothpaste tubes, chocolate/sweet wrappers, egg boxes, blister packs, etc.

This represented changes to the previous POM data used in the *2018 RECOUP Survey* by: **7%** increase for plastic bottles; **43%** reduction for plastic pots, tubs and trays; and a **5%** reduction in plastic film. The previous data did not include the **202,000 tonnes** of other plastics packaging, and with this being predominantly rigid packaging, to calculate collection rates it has been combined with the plastic pot, tubs and tray total to give a total of **503,000 tonnes** of plastic pots, tubs and trays, an overall **4%** reduction from the previous data.

Although brands and retailers are announcing reductions in use of plastics packaging there is no evidence at the time of writing this report that this is impacting on the current estimated POM figures.

Calculating Collection Rates

The quantity of household plastics packaging POM is essential in providing clarity on how recycling collections are performing and the opportunities that exist to collect more material.

Collection rates – the percentage of used plastics packaging that is collected for recycling – are calculated when the collection tonnage is compared against the best available estimate of plastics packaging POM.

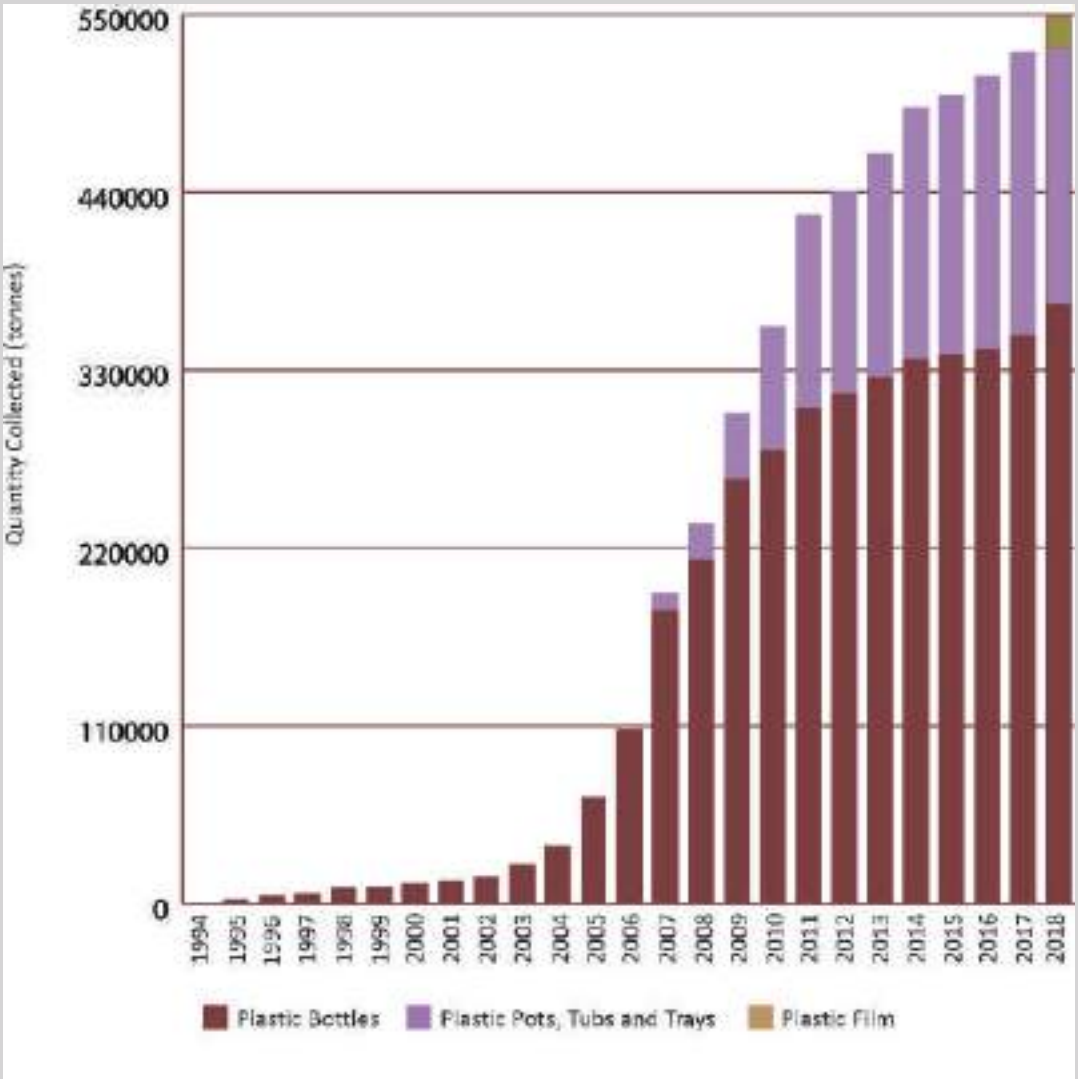
Plastics packaging POM trends are estimates and are subject to changes. Consequently, depending on the POM data the percentage collection rates will change over and above the actual changes in reported collection quantities, and can go up or down even if the collection quantities have consistently increased.

HOUSEHOLD PLASTICS COLLECTION PERFORMANCE

*The **RECOUP Survey** has reported the plastics packaging quantities collected from UK households for 25 years and has provided measurement indicators to assess performance of household collection schemes.*

Household Plastics Packaging Recycling – The Story

Since 1994, each ***RECOUP Survey*** has reported growth in plastics collected for recycling, and the Survey graph is used extensively to represent both past successes and challenges for the future.



Plastic Bottles

Only **425 tonnes** of plastics were collected when data was reported in the first *RECOUP Survey* in 1994 – the equivalent of **9.3 million plastic bottles** – which was mostly collected from bring schemes. As collection schemes widened, by 2003, it was reported that **24,000 tonnes of plastic bottles** were collected for recycling – over **500 million bottles**. At this time, the collection of commingled dry recyclables from households was becoming more common and **18,000 tonnes** were from kerbside schemes, which were now collecting over three times more than bring schemes.

The infrastructure for collecting plastic bottles from kerbside collection schemes started to see significant increases in the mid-2000s, which was mainly attributed to many new services being launched and existing schemes being expanded and becoming more efficient.

In total there has been nearly **87 billion plastic bottles** collected since 1994 – that's nearly **4 million tonnes**.

87 BILLION PLASTIC BOTTLES HAVE BEEN COLLECTED FOR RECYCLING IN THE UK - THAT'S NEARLY 4 MILLION TONNES.

Pots, Tubs & Trays

Since kerbside collection data for plastic pots, tubs and trays started to be reported in 2007, there has generally been a steady increase in collection quantities. There were just over **9,000 tonnes** being collected annually in 2007, and this is over **157,000 tonnes** in 2018. In total it is estimated that the maximum total quantity of plastic pots, tubs and trays collected for recycling since 2007 is over **1.3 million tonnes**.

With around **19%** of Local Authorities not collecting plastic pots, tubs and trays, this is where the biggest opportunity lies to increase collection levels. With a drive towards consistent collections, every Local Authority in the UK should be collecting pots, tubs and trays by 2023, but with end markets only proven for the Polypropylene fraction, this is where sorting and reprocessing funding and innovation needs to be directed to develop the recycling infrastructure for this plastic format.

Plastic Film

Plastic film has been present in the household plastic packaging recycling stream even before co-mingled collections were introduced. Until now, there has not been enough evidence of collection quantities that can be considered robust enough to provide a representative sample to estimate a UK-wide collection level. With the support of Local Authority and waste management company data and insight, the *2019 RECOUP Survey* has been able to estimate approximately **21,000 tonnes** were collected for recycling in 2018.

Composition of Plastics Collected for Recycling

There are more complex data considerations in the *2019 RECOUP Survey* and the data represents a shift in composition from the data reported in the *2018 Survey* report:

- Using **NEW** Placed on the Market (POM) data;
- **BETTER UNDERSTANDING** the composition of data reported as 'mixed plastics'; and,
- **ESTIMATING** plastic film collections for the first time.

These are all 'big ticket' variables to integrate into collection data calculations, the latter two important when estimating the composition of plastics packaging collected for recycling.

The 'Mixed Plastics' Data Challenge

Collections of plastics from Local Authorities in the UK can be categorised into four formats – plastic bottles; plastic pots, tubs and trays; plastic film and non-packaging plastics. Until this ***Survey***, the data was only robust enough to include estimated collections of plastic bottles and plastic pots, tubs and trays.

Estimating household plastics packaging collected for recycling relies on a number of measurement indicators as outlined in the 'Methodology & Reporting' section. Every Local Authority, waste management provider and Material Recovery Facility (MRF) or Plastic Recycling Facility (PRF) can have a different approach to this depending on operational decisions and the end markets status at that time.

The 'data challenge' is mainly due to plastics packaging fractions increasingly being reported as 'mixed plastics', a co-mingled total for all Dry Mixed Recycling (DMR). This mixed fraction can vary considerably between Local Authorities depending on a number of factors:

- The target outputs;
- The speed and efficiency of the MRF – for example, it is more likely that where the material quantities are bigger than average and / or the sorting facilities are faster, more bottles end up in a plastic pot, tubs and tray or 'mixed plastics' fraction;
- Some facilities only segregate certain plastic bottles like clear PET and natural HDPE bottles, and leave others in the plastic pot, tub and tray or 'mixed plastics' mix for further sorting or export; whereas,
- Other facilities can leave all plastics packaging together to try to ensure a positive value for all outputs.

Therefore, the splits of the different plastic formats are never precise and there is not a uniform composition – all total quantities of plastic bottles and plastic pots, tubs and trays contain other plastic formats.

There was evidence from both the reported collection data and confidential material composition analysis of kerbside schemes shared with RECOUP that quantities of plastic bottles and plastic film in particular were going into the plastic pot, tub and tray stream.

To validate the composition of reported collection data from Local Authorities, RECOUP has worked closely with waste management company members in order to provide the best possible and most realistic representation of the data.

Plastics Packaging Collected for Recycling from UK Households

After analysis of the reported quantities collected for recycling, it can be confirmed there were **548,663 tonnes** of plastics packaging collected for recycling from UK households in 2018. This is an overall increase of **4.1%** in collection quantities, a marked rise in the approximate **2%-3%** increases in the past two RECOUP Surveys.

	2018 (Tonnes)	% Split
Plastic Bottles	**370,890**	**67%**
Plastic Pots, Tubs & Trays	**157,135**	**29%**
Plastic Film	**20,638**	**4%**
TOTAL	**548,663**	**100%**

The composition shows an estimated increase in plastic bottles collected for recycling, a reduction in plastic pots, tubs and trays, and for the first time an estimated collection quantity for plastic film. However, it needs to be noted these reductions do not represent real life changes, but a granular and more precise estimate of the collection data. As such the estimated total quantities collected represented:

- An additional **19,000 tonnes** of plastic bottles collected for recycling than the previous year;
- A reduction of **18,000 tonnes** of plastic pots, tubs and trays; and,
- An estimated **21,000 tonnes** of plastic film.

RECOUP will continue to engage with Local Authorities and waste management companies to further understand and reflect the composition of household plastics packaging. With consistent collections and an anticipated launch of a Deposit Return Scheme, intelligence in this area is needed to help inform the development of well-designed collection schemes.

Household Plastics Packaging Collection Rates

Collection rates are the percentage of plastics packaging 'Placed on the Market' (POM) that is collected for recycling and is an effective way of assessing overall performance.

To ensure these collection rates are as accurate as possible, RECOUP use the best available data of plastics packaging POM and packaging trends (percentage changes per year) to compare against the reported collection quantities.

All the complex data considerations in the *2019 RECOUP Survey* of using new POM data, understanding the composition of data reported as 'mixed plastics', and estimating plastic film collections, all impact on the collection rates.

Plastic Bottles

With relatively small 'stepped' increases in collection quantities for plastic bottles and variations in the POM data, the collection rates have stayed just **under 60%** since 2013. In the *2019 RECOUP Survey* (2018 data), the rate has stayed the same as 2017 at **59%**, despite: (1) an increase of plastic bottles POM from **594,000 tonnes** to **634,000 tonnes** and; (2) after analysis of the composition of 'mixed plastics', which estimated an additional **19,000 tonnes** were collected for recycling.

Plastic Pots, Tubs and Trays

Despite variations in the POM data, collection rates for plastic pots, tubs and trays have kept increasing, from approximately **20% in 2013**, to **30% in 2014 and 2015** and **33% in 2016 and 2017**. The estimated collection quantity of plastic pots, tubs and trays in 2017 was **175,000 tonnes**, but after analysis of the composition of 'mixed plastics' this was rescaled to **157,000 tonnes**. When the reduction in estimated plastic pots, tubs and trays POM from **525,000 tonnes** to **503,000 tonnes** is used, this gives a collection rate of **31%**.

Plastic Film

This is the first *RECOUP Survey* to estimate a collection quantity for plastic film, which is **20,638 tonnes**. When compared to the estimated **395,000 tonnes** POM, this gives a collection rate of **5%**.

All Household Plastic Packaging

These combined figures mean the estimated overall collection rate for all household plastics packaging is **36%**, or **46%** for rigid plastic packaging only.

Plastic Bottles	
Consumption Quantity	**634,000**
Collection Quantity	**370,890**
Collection Rate	**59%**

Pots, Tubs & Trays	
Consumption Quantity	**503,000**
Collection Quantity	**157,135**
Collection Rate	**31%**

Plastic Film	
Consumption Quantity	**395,000**
Collection Quantity	**20,638**
Collection Rate	**5%**

All Plastics Packaging	
Consumption Quantity	**1,532,000**
Collection Quantity	**548,663**
Collection Rate	**36%**

Plastic Bottle Use & Recycling

Based on **634,000 tonnes** of plastic bottles placed on the market, with an estimated average of **22,000 plastic bottles per tonne** and over **27.2 million households in the UK**(9), the collection quantities (tonnes) and the collection rates (%) in 2018, the number of plastic bottles collected and not collected can be calculated.

Although not a true reflection of future collections because of the anticipated use of a Deposit Return Scheme, consistent collection of materials and significantly increased funding into waste and recycling from reforming the Packaging Producer Responsibility System, it does give a scale of the challenge and performance needed from collection schemes in the UK.

Plastic Bottles Used

- Nearly **14 BILLION** plastic bottles are used each year in the UK- that's over **38 MILLION** plastic bottles every day – **1.4 bottles per household**

Plastic Bottles Collected for Recycling

- Over **8 BILLION** plastic bottles were collected for recycling in 2018 – that's over **22 MILLION** bottles every day

Plastic Bottles Not Collected for Recycling

- Over **5.5 BILLION** household plastic bottles were not collected to be recycled from UK households – that's nearly **16 MILLION** plastic bottles every day

Average UK Household

- Average UK household uses **510 plastic bottles a year**, but only **recycles around 300 of them** – around **210 bottles are not collected for recycling**

WHEN LOOKING TOWARDS MEETING FUTURE RECYCLING TARGETS AS INDICATIVE ESTIMATES ONLY, THIS MEANS ...

- Based on the current estimated number of plastic bottles Placed on the Market, there would be **167 BILLION** placed on the market by 2030
- Based on the current collection rate of 59%, that's nearly **98 BILLION** plastic bottles collected for recycling or **69 BILLION** plastic bottles not collected for recycling by 2030

There is currently no robust estimate of the average number of bottles per tonne of plastic pots, tubs and trays, but based on the same assumptions as plastic bottles:

- There would be **6 BILLION** tonnes of plastic pots, tubs and trays Placed on the Market with nearly **2 BILLION** tonnes collected for recycling and **4 BILLION** tonnes not collected

Reported Quantities from Non-Kerbside Collection Services

The majority of household plastic packaging collected for recycling is from kerbside schemes with other schemes focused on 'Away from Home' collections. These are used where people make dedicated trips to bring their waste and recycling material to 'bring' and Household Waste Recycling Centre (HWRC) services, or at convenient points in areas of heavy footfall when people are out and about (recycling 'On the Go') which can be serviced as part of the kerbside collection route. This generally means specific weights for materials collected by Local Authorities from these services are not recorded separately.

Up until the *2014 RECOUP Survey*, plastics collected via kerbside and bring schemes were estimated separately, with an allocation from recycling 'On the Go' schemes as part of the total collected from bring schemes. To reflect the reporting trends and the relatively stable collection quantities from these non-kerbside schemes, an estimated **40,000 tonnes** has been allocated which has been estimated by plastic format:

- Plastic bottles – **75% (30,000 tonnes)**
- Plastic pots, tubs and trays – **20% (8,000 tonnes)**
- Plastic film – **5% (2,000 tonnes)**

Recycling & Carbon Use

To put some context around the benefits of recycling, there are a number of ways to translate the quantity of plastics packaging collected for recycling into the wider carbon and energy benefits.

One example is recycling 1 tonne of plastic bottles saves three quarters of a tonne of carbon, which is the equivalent of travelling nearly 2,500 miles by car(10). If the 370,890 tonnes of plastic bottles collected for recycling in 2018 is applied to this, then it is the equivalent of travelling around the world over **32,000 times**.

Plastic Packaging Collections by Nation

Collections of household plastics packaging can be reported by UK nation.

There is no robust collection data from non-kerbside schemes and as such the calculations use the total reported data from kerbside schemes, with the quantities from non-kerbside schemes split by the proportion (%) of households in each nation against the total in the UK.

Plastic Bottles

After analysis of the composition of 'mixed plastics' as part of the *2019 RECOUP Survey*, there is an estimated **370,890 tonnes** of plastic bottles collected for recycling. With 99% of Local Authorities including plastic bottles as part of their kerbside collection service over the last 5 years, only an occasional new scheme has been introduced. The estimated collection levels continue to grow year-on-year, but it is unremarkable growth. In that time there has only been a **10%** increase in collection quantities, rising from **338,000 tonnes** in 2013 to the current estimate in 2018.

The 2018 estimate consisted of **340,890 tonnes** from kerbside collections and **30,000 tonnes** from bring, HWRC and recycling 'On the Go' schemes.

The collection data by scheme and nation is shown below:

Nation	Quantity of Plastic Bottles Collected 2018 (Tonnes)
UK	**370,890**
England	**310,101**
Scotland	**28,538**
Wales	**22,211**
Northern Ireland	**10,040**

When split by UK nation, the data indicates that England accounts for over **83%** of plastic bottle collections in the UK, with Scotland, Wales and Northern Ireland representing **8%**, **6%** and **3%** respectively.

Plastic Pots, Tubs & Trays

There has been a steady increase in collection quantities of plastic pots, tubs and trays in recent years. There was evidence that plastic bottles and film were going into the plastic pot, tubs and tray stream, and this has impacted on the collection figure in the *2019 RECOUP Survey* (2018 data).

In 2017, the estimated collection quantity of plastic pots, tubs and trays was **175,000 tonnes**, but after analysis of the composition of 'mixed plastics' this was rescaled to **157,000 tonnes**. This total comprised of an estimated **149,135 tonnes** from kerbside schemes and an estimated **8,000 tonnes** from bring, HWRC and recycling 'On the Go' schemes. However, it needs to be emphasised these reductions do not represent real life changes, but rather a more precise estimate of the collection data.

With **81%** of Local Authorities now providing a kerbside collection scheme that includes plastic pots, tubs and trays and new collection schemes being introduced as the UK moves towards consistent material collections, collection quantities should continue to increase. However, RECOUP will continue to monitor the composition of the household plastic packaging stream, which will have direct implications for estimated collection quantities of plastic pots, tubs and trays.

Nation	Quantity of Plastic Pots, Tubs & Trays Collected 2018 (Tonnes)
UK	**157,135**
England	**130,750**
Scotland	**11,574**
Wales	**10,550**
Northern Ireland	**4,261**

Across the UK nations, England accounts for **83%** of pots, tubs and trays collections, with Scotland and Wales each representing **7%**, and Northern Ireland **3%**.

Plastic Film

The *2019 RECOUP Survey* is the first to estimate a collection quantity for plastic film, which is currently at **20,638 tonnes**. This is estimated to be made up of **18,638 tonnes** from kerbside schemes and **2,000 tonnes** from retail front of store, bring and HWRC schemes.

With just **61** Local Authorities reporting they collect plastic film as part of their kerbside recycling collection service (6 less services than 2017) and with limited end markets available, there is no short-term drive to include plastic film as part of consistent material collections, and collections levels are expected to remain low.

Nation	Quantity of Plastic Film Collected 2018 (Tonnes)
UK	**20,638**
England	**17,897**
Scotland	**1,159**
Wales	**1,217**
Northern Ireland	**364**

For plastic film collected in the UK, England accounts for broadly **86%** of the total, with Scotland and Wales **6%**, and Northern Ireland **2%**.

What Plastic Film can be Recycled?

It has been established that the majority of film collection schemes only accept carrier bags or Polyethylene (PE) plastic film, such as:

- Bread bags;
- Bags around newspapers and magazines;
- Toilet paper and kitchen roll packaging;
- Fruit and vegetable bags; and,
- Multi-pack packaging.

Plastic film needs to be presented for recycling by the consumer as clean as possible. For many collection schemes, plastic film is not target material e.g. heavily contaminated film lids used in ready meals, cling film and biodegradable bags.

Plant Pots

Plant pots have not traditionally fit in the main categories of rigid items of plastic collected from kerbside schemes, although with many plant pots being made from Polypropylene they could be accepted by MRFs that handle plastic pots, tubs and trays from kerbside collections. Of all the polymers in the pot, tub and tray fraction, Polypropylene is the most recyclable and has the strongest values. However, if plant pots are included in kerbside collections, there are concerns around contamination through residual soil, garden waste and other garden products such as seed trays and terracotta pots that could also be placed for recycling.

In the *2019 RECOUP Survey* **40 (10%)** Local Authorities report they collect plant pots, but there is no indication of the quantities collected as they would be mixed with the plastic pot, tub and tray stream. There are contamination issues to be addressed, but the collection of plant pots remains an opportunity to collect a plastic fraction which is often sent to Energy Recovery or landfill. To build the foundations for this, RECOUP worked with the Horticulture Trade Association (HTA) and LARAC to provide a **Plant Pot Recycling Roadmap**, which included producers using lighter colours and detectable Polypropylene in their pots.

There is a distinction to be made about whether plant pots are classified as **packaging or non-packaging** depending on what the pot's function is. The current ruling(11) is that plant pots are classified as packaging except for when they are sold containing a plant intended to stay in the pot (for example, a house or patio plant). Pots sold separately with no plants included are always classified as a product and not packaging. So, using current classifications, they could be either packaging or non-packaging when collected from households plastics packaging collection schemes.

Non-Packaging Plastics

Non-packaging plastics could include small Waste Electronic and Electronic Equipment (WEEE), such as unwanted or broken toasters, kettles and wi-fi routers, as well as other small plastic items such as toys. In the *2019 RECOUP Survey*, a total of **26 (7%)** Local Authorities confirmed they collect non-packaging plastics as part of their kerbside collection service.

Although more suited to HWRC collection services, there are opportunities to collect this material from kerbside schemes with the right financial incentive and investment. Due to the variable composition of these items, it is not possible to report on the plastic quantities that could be recovered and is something that could be researched if funding were made available.

Plastic Packaging Performance by Nation

It has always been productive to contrast and compare the different approaches and associated recycling performance across the different UK nations, and the *2019 RECOUP Survey* has estimated the relative performance of each nation by two measurements:

- Number of households; and,
- Collection rates.

Relative Performance – Number of Households

The relative performance of each nation by number of households is based on the number of households in each nation(12) and the proportion (%) for each against the total in the UK. This is then compared against the proportion (%) of the quantities of each plastic packaging format collected in each nation.

Nation	Households		Plastic Bottles		Plastic Pots, Tubs & Trays		Plastic Film	
	Number of Households	% of UK Population	% of UK Collections - Plastic Bottles	Difference Compared to Number of Households - Bottles	% of UK Collections - Plastic Pots, Tubs & Trays	Difference Compared to Number of Households - Plastic Pots, Tubs & Trays	% of UK Collections - Plastic Film	Difference Compared to Number of Households - Plastic Film
England	22,694,600	83.4%	83.6%	0.2%	83.2%	-0.2%	87.1%	3.7%
Scotland	2,416,000	8.9%	7.6%	-1.3%	7.3%	-1.6%	5.3%	-3.6%
Wales	1,327,100	4.9%	6.1%	1.2%	6.8%	1.9%	6.0%	1.1%
Northern Ireland	790,100	2.9%	2.7%	-0.2%	2.7%	-0.2%	1.6%	-1.3%

The proportions by UK nations from kerbside collections are broadly in line with the split of the number of households. The nations outperforming the averages are highlighted, with estimates for Wales shown to be collecting significantly above the other nations per household, whilst England are collecting a large proportion of plastic film.

Relative Performance – Collection Rates

The relative performance of each nation by their collection rates is based on the plastics packaging Placed on the Market(13) which is then split between each nation based by the proportion (%) of number of households. This is then compared against the estimated collection quantities for each nation.

England	
Plastic Bottles	**59%**
Plastic Pots, Tubs & Trays	**31%**
Plastic Film	**5%**
Overall Collection Rate	**36%**

Wales	
Plastic Bottles	**72%**
Plastic Pots, Tubs & Trays	**43%**
Plastic Film	**6%**
Overall Collection Rate	**45%**

Scotland	
Plastic Bottles	**51%**
Plastic Pots, Tubs & Trays	**26%**
Plastic Film	**3%**
Overall Collection Rate	**30%**

Northern Ireland	
Plastic Bottles	**55%**
Plastic Pots, Tubs & Trays	**29%**
Plastic Film	**3%**
Overall Collection Rate	**33%**

Again, the estimated collection rates in Wales is higher than the other UK nations.

Collection Rates Per Household (kg)

When combining the number of households in the UK with the estimated collection quantities from kerbside collections, it is possible to calculate the average collection rates per household per year from kerbside collection services.

Plastic Bottles

The estimated kerbside collection rate of plastic bottles per household in 2018 was **12.65 kg**. This is an increase from the 11.92 kg reported in 2017, mainly due to the analysis of the composition of 'mixed plastics' in the *2019 RECOUP Survey* report.

To provide some context around potential collections per household, if all the plastic bottles placed on the market were collected, the kerbside plastic bottle collection rate per household would be **23.29 kg**.

Plastic Pots, Tubs & Trays

The average kerbside collection rate for plastic pots, tubs and trays in 2018 was **6.91 kg**. This is a decrease from the 7.69 kg reported in 2017, which is again mainly due to the analysis of the composition of 'mixed plastics'.

If all plastic pots, tubs and trays consumed in UK households were collected, the collection rate would be **18.47 kg** per household.

Plastic Film

The *2019 RECOUP Survey* is the first-time plastic film collections have been estimated. The average kerbside collection rate for plastic film in 2018 was **0.86 kg**.

If all plastic film consumed in UK households was collected, the collection rate would be **14.51 kg** per household.

Total Plastic Packaging Collected per Household

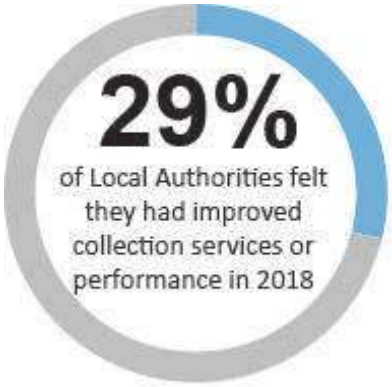
The 12.65 kg for plastic bottles, 6.91 kg for PTT and 0.86 kg for film, makes a total average of **20.42 kg** of plastics packaging collected for recycling per household from kerbside schemes.

Factors & Barriers to Building Successful Collection Schemes

There are a number of factors that affect the performance of collection schemes.

A number of variables including different housing types, urban or rural geographical areas and demographics all provide logistical and practical challenges to waste and recycling teams collecting from households. For example, heavily populated areas, particularly those in major cities which have a higher proportion of flats and apartments, make kerbside collections more challenging, and therefore often show a poorer recycling rate to less built-up locations.

Local Authorities across the UK report they are making marked improvements. As stated in the *Plastics Collection Services* section, from over 180 responses, in 2018, **29%** of Local Authorities reported that they had particular success in improving the overall performance of their collection services, including recycling from flats, collection logistics and reducing collection frequency.



RECOUP wanted to gauge where the root causes lie in not delivering an effective collection service, and in the *2019 RECOUP Survey* Local Authorities were asked what the biggest collection challenges facing them are and to rank these in order of priority.

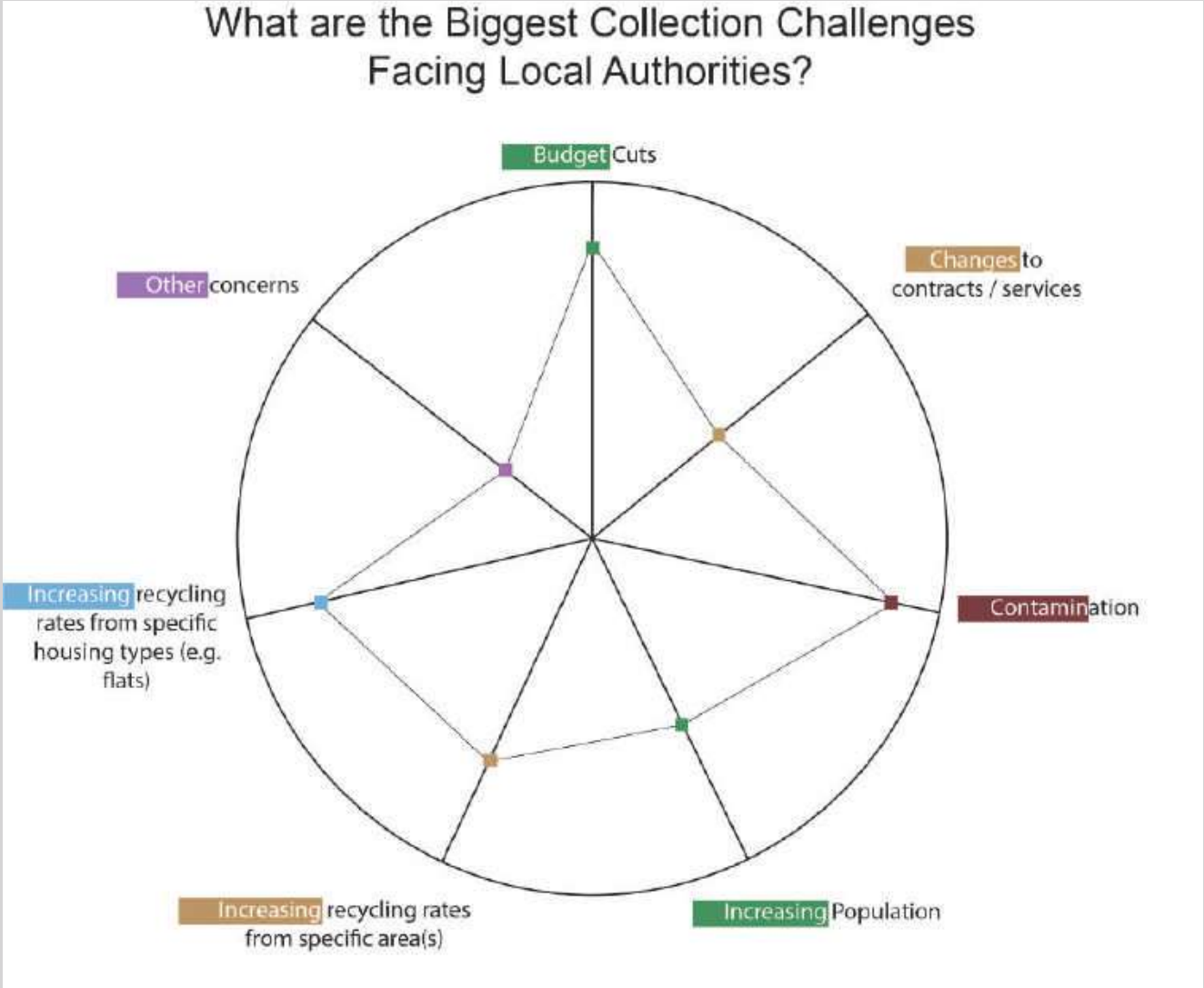
A range of options were presented and although the responses varied a pattern emerged that **(1) contamination of material was the single biggest challenge,** which appeared to underpin the range of other challenges Local Authorities face.

The next biggest challenge **(2) budget cuts** was close behind – not having the resources to improve the service, and the next three remaining challenges were more about the root causes within the Local Authority geographical and demographic make-up:

- **(3) Increasing recycling rates from specific housing types (e.g. flats);**
- **(4) Increasing recycling rates from specific areas;** and,
- **(5) Increased population.**

(6) Changes to contracts / bringing services inhouse was affecting far less Local Authorities although it was still a consideration, and there were some **(7) Other** considerations that were not considered a priority.

The strong message is that many of the challenges are known and performance can be transformed if collections schemes are well designed with the right levels of funding. If that funding is managed well and used effectively, the challenges can be tackled head on.



Material Reject Rates

Looking into the contamination challenge, the *2019 RECOUP Survey* asked Local Authorities what their reject rate / residual waste output was from material collected for recycling. Nearly 100 Local Authorities responded to this question and there was an average of **12%** contamination reported. The range was between **1%** and **45%**, although these are extremes and not considered to be commonplace, typically the reject rate was between around **6%** to **15%**.

Certainly the challenge to reduce this is clear. Significant investment in a range of mechanisms in kerbside collections from delivering consistent collections of materials and how they are presented, consumer communications and behaviour change programmes and also effective 'Away from Home' collections are needed to reduce contamination and provide a firm footing to base the plastics recycling value chain on.

Actual Recycling Rate

It is important to state that collection data does not reflect the actual material that is recycled.

The figures estimated in this *Survey* report relate to Local Authorities reporting collection levels i.e. before recycling takes place, and not what is actually recycled, and sorting and reprocessing yield losses need to be factored in. MRF feedstock input quantities are typically anywhere between **15%** to **50%** higher than the reprocessing output quantity depending on the quality of the feedstock collected for recycling and presented to the facilities.

There are a number of theoretical studies and research to estimate the true recycling rate of household plastics packaging, and this is something RECOUP will seek to understand and report on in the *2020 Survey*.

LITTER & DISPOSAL 'AWAY-FROM-HOME'

*In the **2018 RECOUP Survey**, RECOUP began studying the issue of litter, fly tipping and Local Authority perceptions and approaches to dealing with public litter and collection concerns in their areas. Identification of the problem and whether it can be tackled in an effective way has been a key part of this **Survey**. There was a particularly high level of responses from Local Authorities to these questions, showing the impact it has on services and the emotion it generates.*

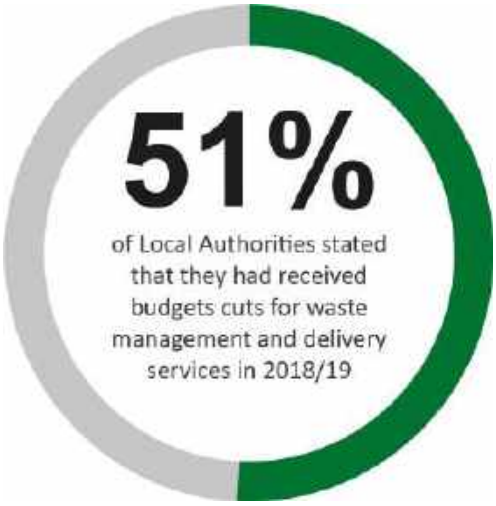
Convenience is key

Looking at packaging, today people consume a wider range of snacks and fully prepared convenience meals either at home, away from home, and when travelling. Conventional patterns of mealtimes, locations whereby people consume food and drink and the prevalence of convenience to fit in with lifestyles mean that public places have become an everyday normality for the consumption of such goods. Therefore, consumers need points by which to dispose of their used packaging and clear signage to make the materials are placed in the right bin. The number and location of Household Waste Recycling Centres to make convenient disposal of generally larger items is also essential.

Failure to put the collection infrastructure in place has a direct impact on amounts of litter and fly-tipping, with disposal of packaging and larger items being a significant problem that both blight our natural environment and impacts heavily on Local Authority budgets.

Coupling these creates a highly demanding and complex operational delivery for litter clean up, collection of litter and recycling 'On the Go' bins. These challenges cannot be met until the necessary '*binfrastructure*', human resources and systems are in place to meet this demand.

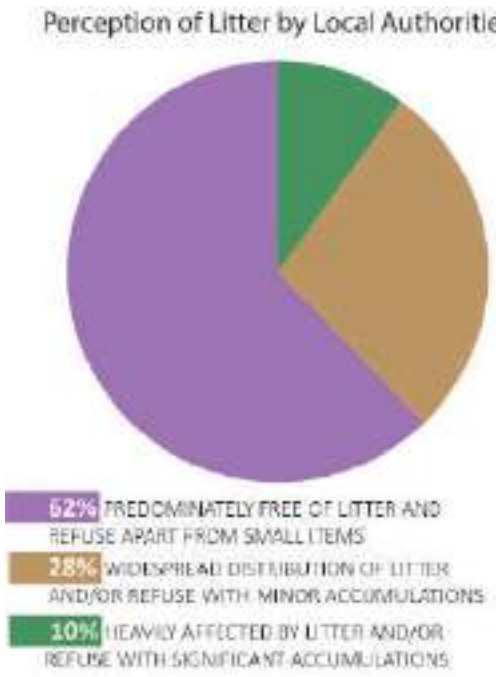
The *2019 RECOUP Survey* can report from over 250 responses, **51%** of Local Authorities stated they received budget cuts for providing waste and recycling collections, or delivery of communications to householders about waste and recycling in 2018/19. This directly risks widening the gap from the current situation to achieving what might be considered a relatively litter free society.



Litter & Refuse

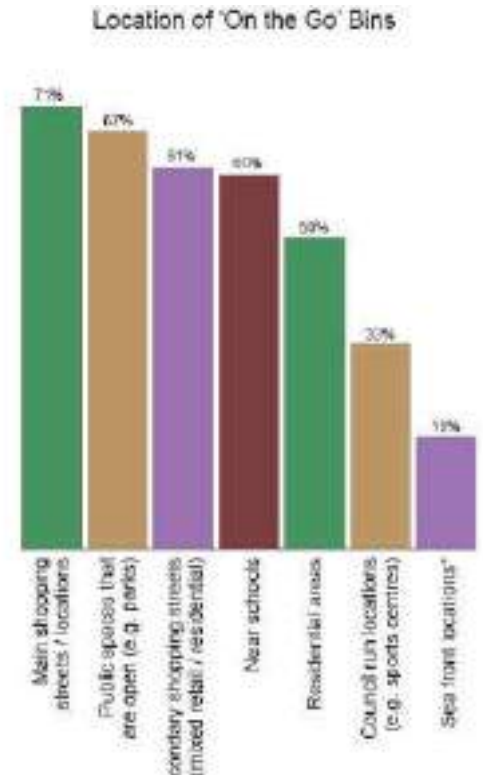
Currently, Local Authority views on litter in their local areas are heavily mixed dependent on their priorities and geographical characteristics – for example, population densities and rurality.

Based on the *Defra Code of Practice on Litter and Refuse*(15) Local Authorities were asked to confirm the level of litter in their area and **62%** of felt they were "predominately free of litter and refuse apart from small items", although **38%** reported either "widespread distribution of litter and/or refuse with minor accumulations" or "heavily affected by litter and/or refuse with significant accumulations".



Local Authorities are the main providers of 'On the Go' litter bins in public spaces. They are located across a wide range of locations, depending on the geographical make up and footfall of areas accessible to the public.

The Local Authorities that responded to the ***2019 RECOUP Survey*** stated the location of their public litter bins, which provides an idea of the scale of their litter collection operations:



**this figure represents 52 Local Authorities who responded to this question in the survey. There are a total of 75 Local Authorities with coastlines in the UK(16), meaning 69% of these Local Authorities reported providing a litter bin at seaside locations.*

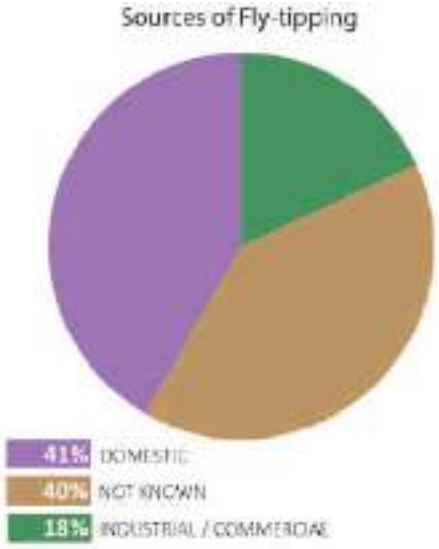
Fly-Tipping

The national trend for fly-tipping is increasing, which undoubtedly puts more pressure on resources and takes considerable time and funding away from managing the clean-up of litter alone. Fly-tipping is also a concern for residents and businesses, and it can affect both urban and rural areas.

Litter and fly-tipping both require significant budgets to manage. In England alone, keeping the country's streets clean cost Local Authorities almost £700 million last year(17) and the cost of fly-tipping to Local Authorities is nearly £60 million per year(18).

Large-scale fly-tipping is seen as relatively rare, but smaller fly-tips are much more frequent and amount to several hundred tonnes of material each month for some Local Authorities, generating significant costs to collect and dispose of the material from multiple locations.

With a significant composition of these waste materials from fly-tipping the source of the material is an important consideration. However, **40%** of Local Authorities do not know the source of the tipping.



The 'Industrial and Commercial' category is unregulated waste from businesses. This can be waste illegally disposed of by businesses and offices in street and parking areas, placing their waste in black sacks without a waste contract. Or it can be small operators such as a builder illegally disposing of waste materials.

Recycling

Levels of Recycling

Packaging that is disposed of 'Away from Home' is made up of a myriad of materials and formats, including drinks bottles, sandwich packs, plastic pots, tubs and trays, crisp packets and disposable hot and cold drinks cups. When recycled, it is often mixed with waste food or liquid, and finding a recycling solution for such a wide variety of materials with high levels of contamination is technologically challenging, and comes with a high cost.

The terms 'Away from Home' and 'On the Go' are defined as(14):

- **'Away from Home' (AfH) - "the disposal recycling of material by the public anywhere, except at home. This includes OTG, but also disposal/recycling of material at work, school, events, cafes, etc."**
- **'On the Go' (OTG) – "the disposal/ recycling of material in a public place such as a street, train station, shopping centre, etc."**

Only a small number of Local Authorities were able to provide estimated collection quantities from recycling 'On-the-Go' units – **95%** of Local Authorities stated they couldn't report the quantities of material collected from recycling 'On the Go' units. There is also limited data available for litter and / or street sweeping. Local Authorities stated a number of reasons, including:

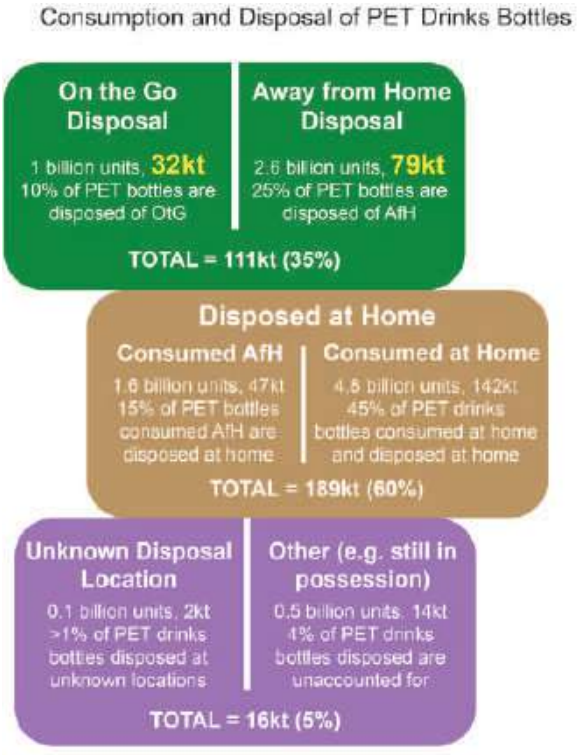
They key point here is that collections are co-mingled with kerbside collections due to a number of reasons, for logistical and cost saving purposes. This can also be due to more contaminated materials in 'On the Go' bins being included in the kerbside material so the contamination is spread amongst a larger quantity of material, although conversely this approach would also reduce the overall quality of kerbside sourced collections.

Data is important. Enabling effective reporting of material disposed 'On the Go', either through collection bins or street sweepings, should be a priority for any additional future financial investment.

Very little is known about what quantities are collected as general waste, littered and recycled for a large portion of packaging disposed of 'Away from Home', but Valpak and RECOUP have produced a report on behalf of WRAP(19) which estimated the consumption, recycling and disposal of 'On the Go' drinks containers. As of September 2019, PET plastic drinks bottles were collected in every Local Authority as part of their kerbside collection service, and it is assumed are largely recycled at home.

In the 'On the Go' report(20), it estimated that of the 781kt of all drinks containers disposed of 'Away from Home' and 'On the Go', 111kt are PET plastic bottles, and only a maximum of 9% are collected for recycling, leaving over 100kt of potentially high-quality, recyclable PET bottles not going into the recycling stream. This is on par with other containers, with 9% of drinks cans, 8% of glass drinks bottles and 5% of takeaway hot drinks cups estimated to be collected for recycling.

Zero Waste Scotland estimated that in Scotland alone there is £1.2 million worth of waste disposed of(21) that could be collected through 'Away from Home' and 'On the Go' schemes.



TOTAL DISPOSED = 10.6 billion units, 317kt

Despite this relatively poor collection rate, from a large consumer insight research used in this project the perceived recycling rates were much higher, at between **34%** and **65%**. This suggests a public willingness to engage with responsible 'On the Go' and 'Away from Home' recycling if, and when, the infrastructure and their knowledge allows.

Recycling 'On the Go'

There is an estimated 32kt of PET drinka bottles disposed of 'On the Go'. Local Authorities are the main providers of 'On the Go' litter bins in public spaces to collect this material. They are often placed across a wide range of locations, depending on the geographical make-up and footfall of areas accessible to the public. They are either stand-alone bins or one bin collecting recycling and general waste separately.

The *2019 RECOUP Survey* can report **51%** of Local Authorities provide a recycling 'On the Go' collection service.

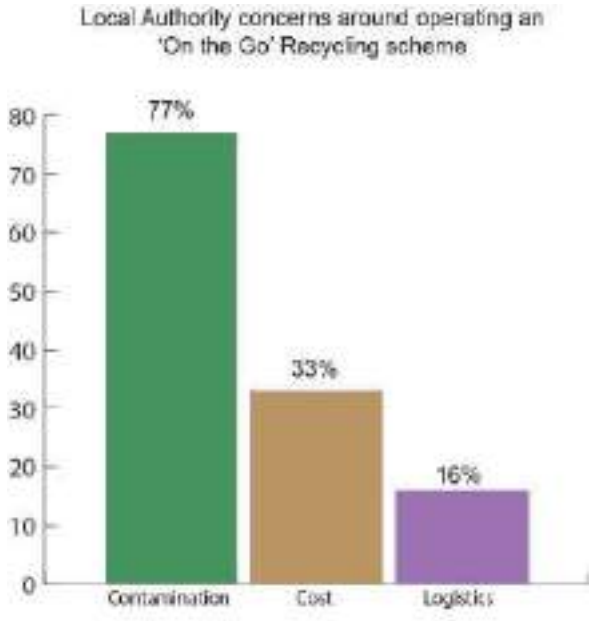
Local Authorities report significant challenges around operating a successful 'On the Go' scheme. These include the cost of logistics and collections, inadequate budget for consumer communications and education, the need for bespoke units depending on specifics of locations and collection vehicle demands. However, it is contamination of these units that is the primary challenge in operating a collection scheme.

Use of recycling bins for items contaminated with food waste, non-recyclable items and general waste, mean that levels of contamination in 'On the Go' bins are high. Research suggests the reasoning behind this comes down to lack of general waste bins, public misunderstanding or confusion around bin signage and packaging labelling, and a general lack of effort or caring on part of the consumer. Common contaminates are identified in the Drinks Recycling On-the-Go report(22) ranging from residual liquid from hot and cold drink cups (coffee cups, etc), fast food waste, sweet and crisp wrappers, to deliberate disposal of non-recyclable items. Bagged dog waste, being cited as a particular problem.

This has led to a different, but effective approach by some Local Authorities to recover food and drink packaging disposed of 'On the Go'. Where litter and recycling bins are in place, the material is collected as general waste and recyclable materials are recovered through a Mechanical Biological Treatment facility before the material goes to incineration or landfill.

RECOUP have been supporting the **#LeedsByExample** initiative(23), which instaled 124 'On the Go' recycling points in Leeds city centre, focusing on collection of plastic bottles, metal cans and coffee cups. During a six-month period, over 600,000 coffee cups, 65,000 cans and 55,000 recyclable plastic bottles were collected. As part of the scheme, considerable levels of contamination were identified, despite the bespoke set-up to collect recyclable materials and the level of communications.

When reviewing the overall waste and recycling collection provision and management for Local Authorities against that of 'On-the-Go' collection, the cost vs benefit does not add up. Local Authorities who do not provide recycling 'On-the-Go' collection bins in public spaces were asked why they do not provide a scheme. From over 80 Local Authorities responses, **77%** cited an expectation of high contamination levels (up from 54% in the *2018 RECOUP Survey*), **33%** the cost of installation and maintenance, and **16%** the logistics to deliver the scheme.



Many Local Authorities report that they are looking into introducing more recycling provision in busy town centre locations but have held back largely due to the expected contamination issues associated with the recycling bins, which remains a key barrier.

With Local Government budgets pressured, many Local Authorities think their budget is more effectively spent on increasing quantities and reducing contamination in kerbside dry recycling and organic waste collections. This makes sense in terms of the targeting recovery of materials from the biggest collection stream and increasing overall recycling rates.

Recycling 'On the Go' Collection – Learnings from Local Authorities

Local Authorities have communicated key areas to consider when delivering 'On the Go' collection services.

Increasing Population

Increasing population levels puts a strain on services and this is particularly true when managing litter and disposal 'On the Go'. Although this additional population can create revenue for Local Authorities (such as through Council tax), it is not necessarily proportionally channelled into front-line services such as waste management and collections.

Consumer Behaviour, Communications & Bin Design

Consumer engagement and communications to increase positive disposal behaviour should be a central part of any scheme. Effective and noticeable bin signage and visuals in public places, such as using advertising space and bus stops, and use of social media platforms should all be used alongside conventional media channels such as TV and radio. The latter is more realistic if systems can be harmonised at a national level. Many communication campaigns focus on reducing litter, which include encouraging people to use the litter or recycling bins; not dropping litter; and, taking litter home.

Littering has yet to become an anti-social issue on a national scale, with consumers acting differently in different environments. For example, at large scale events individuals may litter in a way that is contrary to their normal behaviour patterns.

There are obvious restrictions about how to present materials for recycling when 'Away from Home'. Guidance for recycling in the home is often about emptying and giving packaging a quick rinse, and this is not normally possible when you're not at home. As such, materials can be expected to have a higher level of food contamination.

Personal psychology and social pressures also come into play. Public bins are simply not just one household looking after their own bin and giving individuals a sense of ownership and responsibility. Scheme operators can try to engender positive personal disposal behaviour through a sense of consumers' responsibility to the local community, or visitors treating that community as that of their own.

Bin design is also a key area, with dual bins having a particularly high risk of contamination. Also, the use of different types and colour of bins for collecting material in individual collection schemes e.g. a workplace or a road services station. Consistent and effective bin design and signage all help consumers' understanding of what materials should be placed in what bin. For example, the use of instructions such as 'mixed recyclables' is not appropriate for 'On the Go' schemes.

To reduce contamination in the recycling stream, good example of best practice is the use of clear sacks, which provides a solution to identifying bags with any obvious high levels of non-target materials.

Introducing a Recycling 'On the Go' Scheme

The Benefits

If funding is available and there is a political will and the necessary operational resources, there are significant benefits to having a harmonised comprehensive 'On the Go' collection provision, for both litter and recycling:

- It reduces litter, and in many cases, substantially;
- Placement of bins in areas of high footfall, or areas with a littering issue, has been shown to be successful with the right investment; and,
- It provides a positive recycling message to compliment kerbside recycling collection schemes and a reminder not to litter, using the 'nudge factor' and keeping consistent messages both 'On-the-Go' and at home. This is particularly true if there are effective communications and signage for the scheme.

Operational Demands & Needs

Operational resourcing and costs can outweigh any potential benefits to 'On-the-Go' collections. To make recycling 'On the Go' a viable proposition, the following should be considered:

- Staff to empty collection units, drive collection vehicles, placement of bags to line the units, and resource waste transfer station facilities;
- Budget to procure and install durable bins;
- Bins need to be maintained for practical and visual appeal - vandalism, stubbing out of cigarettes and wear and tear are cited as key issues - with city and town centre bins used in night-life locations are particularly challenging;
- Fit for purpose sorting facilities to recover recyclable materials from contaminated 'On the Go' loads; and,
- A means of segregating recycling from other materials in street cleaning vehicles, which are often used to take materials to general waste end destinations such as the incineration facilities.

Regular emptying of bins has been highlighted as a key activity. Bins that are not emptied when they are full can attract more materials to be littered around them and the bins can end up being removed as a result. A full bin is seen as almost as detrimental as having no bin in place.

A CALL TO ACTION

Three litter challenges are commonly mentioned when looking to tackle the 'On the Go' litter and recycling challenge, and they require very specific action.

Beach Life

With a focus on ocean plastics and litter, sea front locations including beaches should be a major target area to reduce litter and increase recycling. With high numbers of visitors, many eating 'On the Go' food and drink, Local Authorities put significant efforts into keeping beaches of high footfall clean. With many miles of sea front locations to cover, collection infrastructure is generally poor and lacking in engaging communications to provide the 'nudge factor' to dispose of litter responsibly.

Night Life

A vibrant town or city centre life can cause significant amounts of litter for Local Authorities to deal with, especially during the summer months. This is particularly true at night, when contamination of recycling bins often increases significantly with negative littering behaviour more common among late night revellers.

Our Roads

Road side litter is reported as being a significant issue, both for major and rural roads. Drivers throwing litter from vehicles and littering at lay-bys and road junctions is common place. Cleaning roadsides of litter is also disproportionally costly due to the time, health and safety risks associated with it. Roadside litter is costly to collect as it has to be undertaken manually along significant lengths of road, and also incurs additional costs due to the need for traffic management to ensure the health and safety of staff and road users.

Recycling 'Away from Home'

'Away from Home' recycling often provides unique infrastructure and collection challenges, but it is the largest quantity of material to target to increase packaging collection rates. There is an estimated **79kt** of PET drinks bottles disposed of 'Away from Home' each year compared to **32kt** 'On the Go'. Closed-loop environments such as office-spaces, public transport networks and other locations where purchase and disposal of items often take place in close proximity, and collection logistics require bespoke solutions.

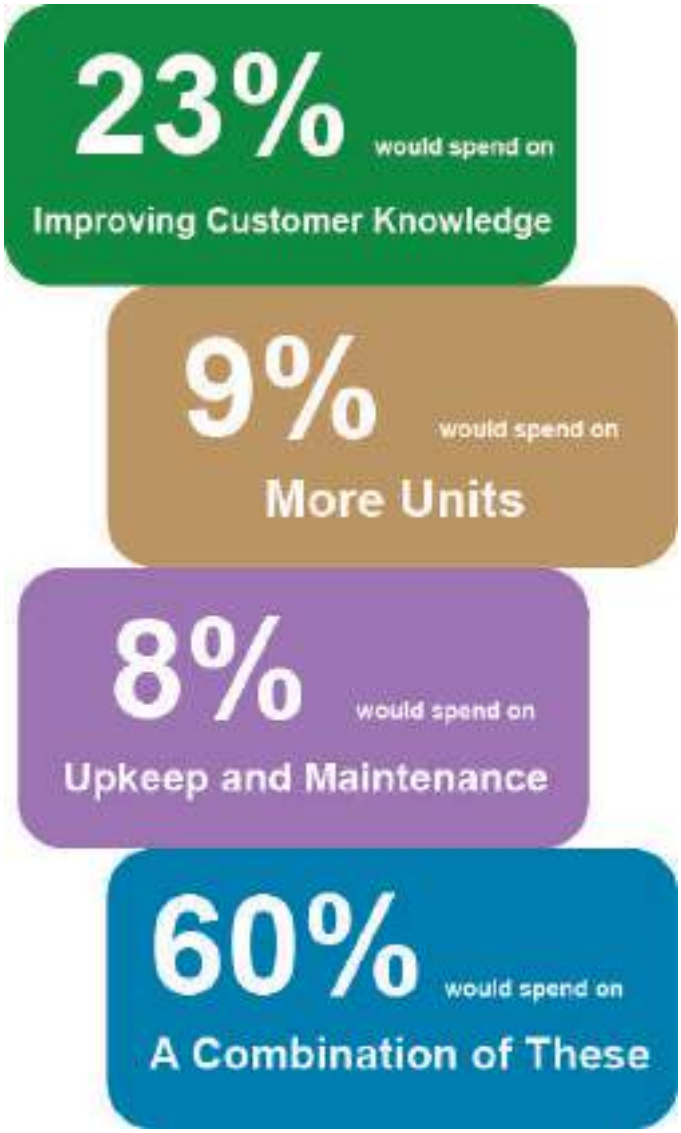
Consumer behaviours also differ between location. For example, high footfall areas such as transport hubs mean that consumer priorities are around ease and speed of disposal, requiring sufficient numbers of units in place to allow for consumers to achieve any priority they have of responsible disposal, without requiring too much time or effort on their part. Also, contaminants vary depending on proximity to sources of the materials. For example, a disposal unit near to a coffee shop is likely to have a higher rate of contamination from disposal coffee cups and residual liquids.

The *Drinks Recycling On the Go* report(24) identified a general insufficiency in the infrastructure and inconsistent material collections and units in place for collection of recyclables at transport hubs and places of work across the UK.

Where Funding Would Be Spent?

Local Authorities were asked if funding were to be made available to increase existing 'On-the-Go' collection provision, for both litter and recycling bins, how would it be used. In response to this question, Local Authorities have generally shown a high level of interest in recycling 'On the Go'. From nearly 200 responses, only **8%** would focus funding on litter, **24%** on recycling 'On the Go' and **68%** focussing on both.

In terms of how it would be spent **60%** stated they would use funding across a range of areas needed to deliver the service, but communications and consumer education **(23%)** was high on the agenda.



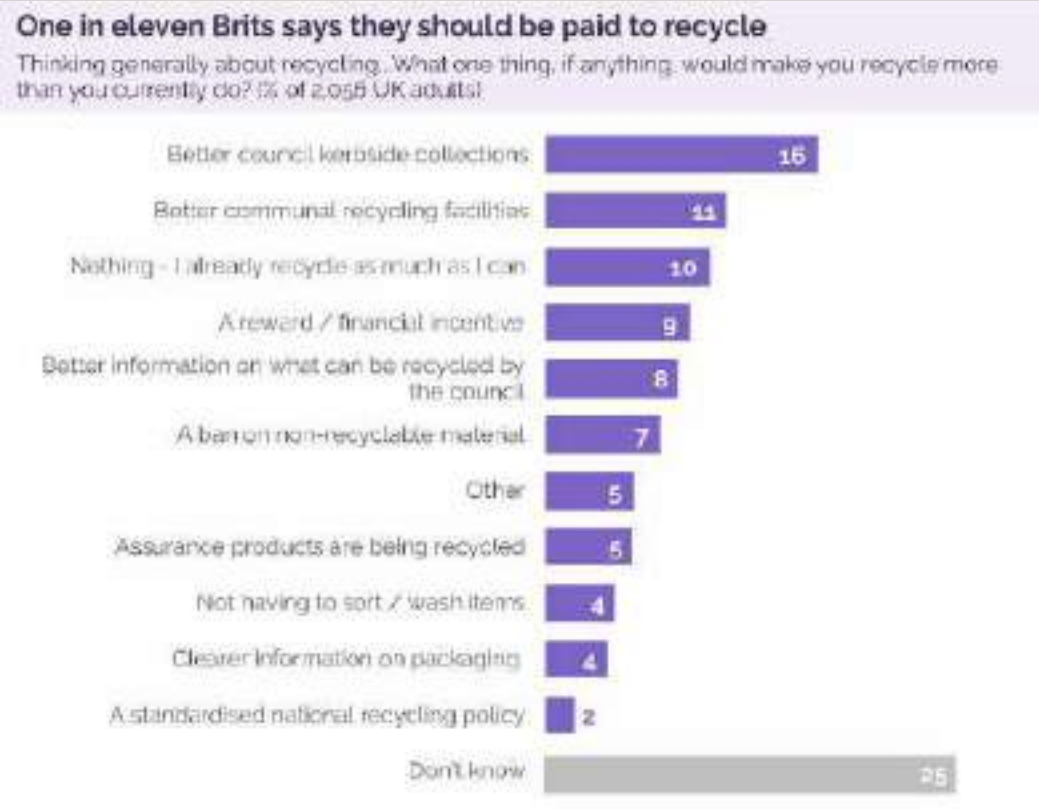
In terms of adding a new recycling 'On the Go' scheme, it was reported by a number of Authorities that unless full external funding for both bins and ongoing servicing costs are met at no cost to the Authority, they wouldn't consider introducing a scheme.

Recycling 'On the Go' Material from an Unnamed Source

Future Impacts & Comment

It has been documented that the benefits of successfully addressing the issues relating to 'On the Go' and 'Away from Home' recycling are significant. Not only does a successful approach result in a reduction in litter, particularly in areas of high footfall, but it provides the 'nudge factor' though a continual and consistent message to the public that can complement kerbside recycling.

Also, public support would appear to be there. A survey of over 2,000 UK adults was conducted by YouGov in September 2019(25), citing better communal recycling facilities (11%) second in the list only to better kerbside collections (16%) as the one thing that would make UK adults recycle more.



Packaging makes up an unknown, but sizeable proportion of all materials that are littered or fly-tipped, and this is where legislative change, technological solutions and the funding to deliver this to create a step change in recovering these highly recyclable materials and reduce littering of these items.

The key funding principle of the reform of the UK Packaging Producer Responsibility System and use of Extended Producer Responsibility (EPR) is to fund the **full net cost** of managing the collection, transport, sorting, reprocessing and disposal of used packaging, and therefore 'Away from Home' and 'On the Go' collection systems, littering and fly-tipping schemes should benefit from this.

To increase collection rates, the UK needs to tap into non-kerbside and open-loop sources. For drinks containers this could mean the use of a Deposit Return Scheme (DRS), where ease of disposal will be essential. Any future introduction of a DRS on the other hand will have a conflicting impact on current collection schemes. The impact of removing high-quality PET plastic bottles, aluminium cans and possibly glass containers, mean the remainder of materials that makes its way into 'Away from Home' and 'On the Go' units will be of a proportionately poorer quality and therefore of less value as a material. This may ultimately discourage Local Authorities from investing in such schemes. Conversely, material from a DRS will produce a stream of high-quality material with little or no contamination, and therefore should be a significant tool as part of future 'Away from Home' recycling strategies.

However, a DRS won't collect non-drinks packaging, and it cannot be seen as a single plastic waste solution, instead to be used as a complementary solution alongside other collection schemes. To maximise potential, an ambitious strategy around 'Away from Home' recycling should be prioritised alongside consistency in kerbside collections, so the same materials are collected in the same way using the same signage and communications to the public, so they can get *'bin right'* – knowing exactly what packaging they should place in recycling and litter bins, wherever they are. Alongside installing the necessary *'binfrastructure'*, human resources and systems to meet this demand, the UK can break into the untapped potential of packaging consumed and disposed of 'Away from Home'.

THE BALANCING ACT - DEPOSIT RETURN SCHEMES

On a European and global level 2019 has seen an increased focus on the use of deposit return systems. Scotland have been leading the way in the UK, but other countries including France, Italy and Turkey have also followed in considering, trialling or introducing a scheme.

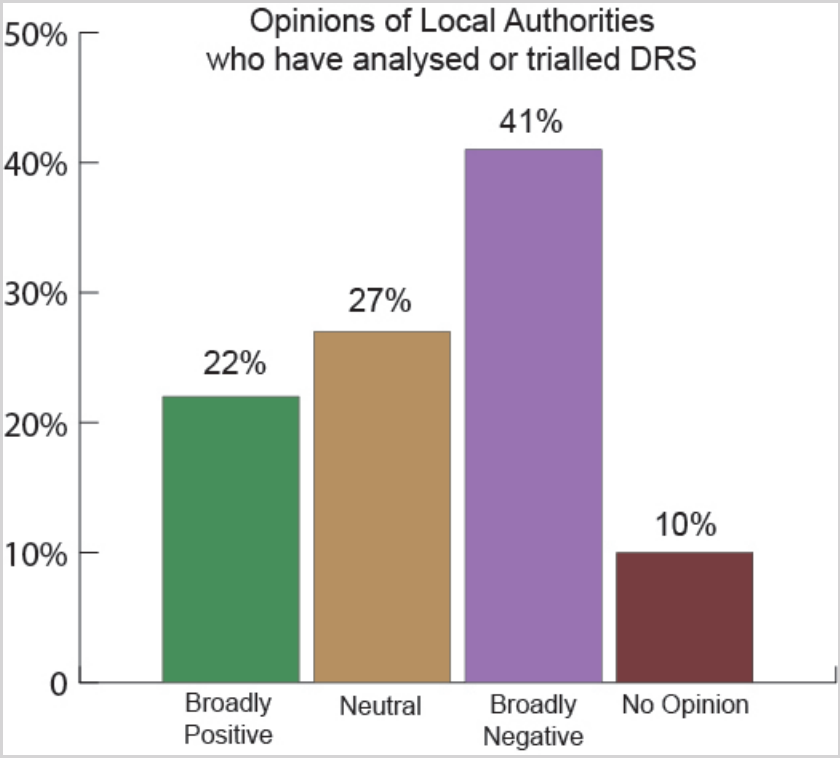
The Deposit Return Scheme in Scotland is planned to go live in April 2021, and there is movement from the rest of the UK. One of the four UK Government consultations in 2019 about transforming the future governance, structure, funding and management of waste management and recycling was the UK and Welsh Governments and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland consulting jointly on a Deposit Return Scheme (DRS) for drinks containers. A summary of responses(26) was delivered in July 2019 and Defra were "minded to introduce a DRS for drinks containers in England and Wales from 2023".

In December 2019, Scotland closed a further consultation about their DRS, and for the rest of the UK further information and data are now being collated and developed to shape and structure how a DRS would work, with a further consultation expected in 2020.

The challenge for the consumer in the UK in adapting to using a DRS is different to the starting point in other countries, where established kerbside collection systems were typically not in place when the DRS was introduced. However, a well-designed and funded DRS provides an effective way to get collection levels of drinks containers past 90% when it is used in tandem with existing collection schemes, alongside producing a clean, high-value stream of food grade material.

How the system operation and structure of the scheme and financial and fiscal measures used will work, will continue to be researched and developed, both in Scotland and the rest of the UK. This includes:

- Initial outlay of costs to set up the systems and infrastructure;
- Number and location of collection points;
- Equipment and system procurement, including Reverse Vending Machine (RVM) purchase or lease model;
- Levels and cost of maintenance;
- Product deposit fee;
- Local Authority funding dynamic;
- Space requirements for RVMs and material storage at collection points;
- Interaction on the DRS implementation dates between Scotland and the rest of the UK;
- Transport interactions with existing waste and recycling collection schemes; and,
- Governance and structure of the scheme including remit, composition, set-up and funding of the Deposit Management Organisation (DMO).

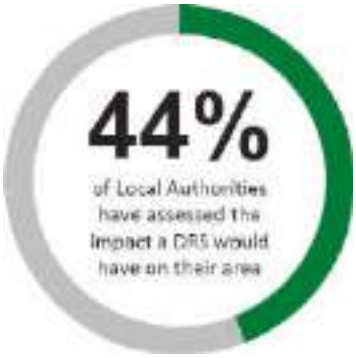


Impact of Local Authorities

There is evidence for and against the potential benefits of DRS to Local Authorities in relation to both the practical and economic implications for litter management and revenues from recycling collections. The expectation is consumers would use the DRS, and therefore there is a strong potential significant quantities of plastic drinks bottles will be removed from kerbside collection schemes.

Some reports state the loss of revenue for Local Authorities and waste management providers from this stream would be offset against reduced litter and street cleaning costs. In addition, there would be savings in collection costs because of the reduced quantities needing to be processed through kerbside services. Others state street cleaning and collection costs would not be affected, and compensation should be given to Local Authorities to reimburse them for this loss of revenue.

In the *2019 Survey*, Local Authorities were asked if they have assessed the impacts of a DRS on their Local Authority. From over 200 responses, **44%** have assessed the impact, but from this **3%** have undertaken a trial to directly understand the practical implications for their Authority.



For those Local Authorities that have assessed the impact of a DRS on their area, **41%** were broadly negative about a scheme, around **22%** were broadly positive and **37%** were neutral or had no opinion. Much of the negativity could be actual or perceived, but until the tangible changes start to come through from Producer Responsibility reform and how this affects the kerbside collections systems and the funding to deliver it, it is unclear for Local Authorities and waste management companies alike how a DRS will impact on them.

What is a Deposit Return Scheme?

Consumers of drinks in 'single use' containers (mainly PET plastic bottles, aluminium cans and glass) pay a deposit on each drink when the container is purchased. This is then claimed back by returning it to a collection point. Much of the material from deposit schemes is collected through Reverse Vending Machines (RVM), normally placed in retail stores, but 'manual' collection points are also used.

The collected material then goes to distribution centres and then on to facilities to be sorted as needed, baled and sold to a reprocessor for recycling. For PET bottles this means sorting, washing and then turning them into PET flakes and pellets to manufacture new products.

The Deposit Return Scheme in Scotland

In September 2019, the Scottish Government announced proposals for a Deposit Return Scheme to include metal cans, PET plastic and glass bottles will go live on 1st April 2021. Collection targets for the scheme in Scotland will begin at 70% in the first year, 80% in the second year, before reaching 90% from the third year onwards.

At the time of publication of this report in December 2019 a Deposit Management Organisation (DMO) hasn't been appointed and there would need to be very focused action to enable the start date to include a comprehensive infrastructure for consumers to use the scheme.

RECOUP's position is that the UK should implement a DRS at the same time across all nations, which will deliver a number of benefits that wouldn't fragment the drinks supply chain, avoid cross-border fraud and start with a consistent message and scheme for the drinks industry, waste management companies, Local Authorities and consumers alike.

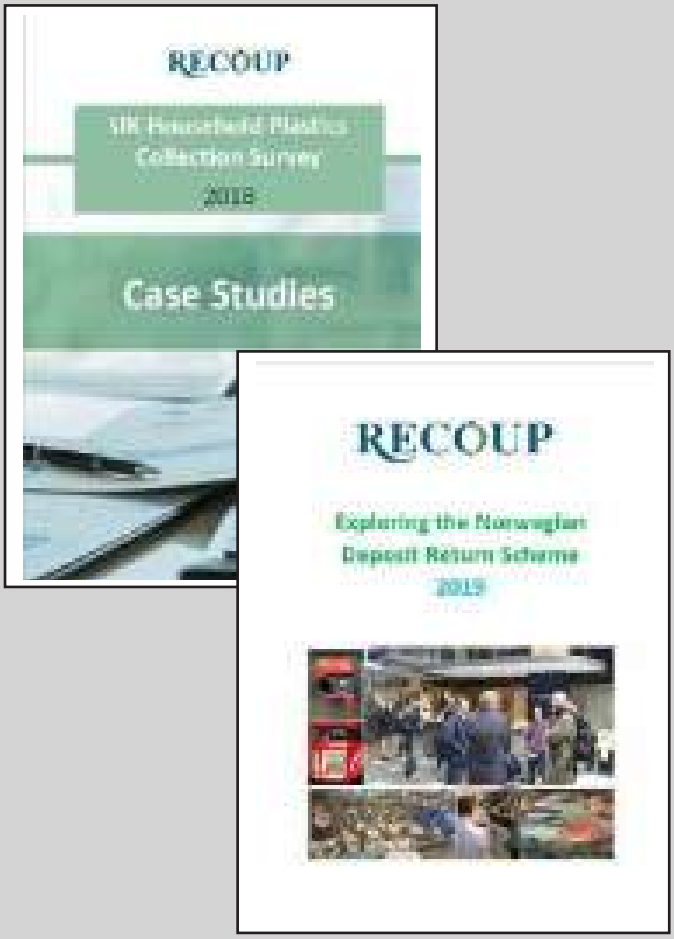
Deposit Return Case Studies

Learnings from other countries using a DRS scheme can be used, but with different waste management and recycling structures and financial and 'Green Dot' systems in place, exact replication of other systems is unlikely to work in the UK, and as such the use of other systems in data modelling to estimate collection levels and costs need to be carefully considered.

To get an overall picture of what a DRS could mean for the UK, the structure and the operations behind the headlines of two of the widely known Deposit Schemes were investigated in the ***RECOUP Household Plastics Collection Survey Case Studies,*** which can be downloaded for **FREE** from the RECOUP website(27). The materials collected, rate of collection, the values paid back to consumers, and the infrastructure in place have all been explored to show the differences that exist between these schemes.

More detailed research into the Norwegian DRS is also available for **FREE** download(28) after RECOUP undertook a field trip to visit in Norway(29) to discover first-hand how the DRS has been structured and managed. Despite the large latitudinal range of the country, a varied topography and climate, Norwegians can access the deposit return points across the country in what is seen as one of the best examples of a DRS in the world.

One of the biggest learnings from the visit is that when an item of packaging is littered, it's not considered to be the fault of packaging producer or retailer, but the individual. With a comprehensive infrastructure to recycle drinks containers through the DRS and the inherent value of those materials, it is seen that there is no excuse to litter the natural environment.



CHEMICAL RECYCLING - THE COMPLEMENTARY SOLUTION

Chemical recycling, also known as feedstock recycling, is the broad term that describes a suite of technologies that change the chemical structure of used plastics. It has been communicated by many to provide the solution for finding a recycling outlet for low grade or mixed material and represent a key missing link in the Circular Economy technology solutions. RECOUP explores what chemical recycling is and the potential it could deliver.

Mechanical recycling is the primary process by which the reprocessing of plastic is melting, shredding or granulation without significantly changing the chemical structure. However, there are limitations in mechanical recycling, particularly when processing low grade mixed plastic materials:

- Difficulties in handling multi-layered products;
- Colouration of plastics;
- Recycled Polypropylene (RP) and Polyethylene (PE) that can go into food contact packaging for PP and PE products;
- Deodorisation of recycled plastics; and,
- Removal of contaminants.

These can potentially be overcome by changing the chemical structure of post-use waste plastics by taking the material back to a shorter molecular chain length to: (1) make fuels; or (2) be converted back to the original monomer to then use as feedstock to produce new 'virgin-like' raw materials. ***These processes exclude energy recovery and incineration.***

The current technologies in chemical recycling are different in terms of the feedstock they use, the outputs they produce and the technologies to deliver it:

- ***Pyrolysis***- the creation of syngas and liquid fuels through the chemical and thermal decomposition of a material at high temperatures and in the absence of oxygen;
- ***Gasification*** - the creation of syngas from the leftover char from Pyrolysis using high temperatures and minimal oxygen;
- ***Solvolysis*** – also known as 'solvent dissolution', this breaks down certain plastics into monomers with the aid of solvents; and,
- ***Chemical Depolymerisation*** – turns mono plastic back into monomers, which can be re-polymerised into new products.

The technologies themselves do not produce a secondary product, but raw materials that can be used as fuels or feedstock to produce new products. If the material is not used as a fuel this means there should be no limit to the number of times plastic materials can be chemically recycled.

Contaminants to Chemical Recycling Feedstock

One of the main considerations in assessing the potential around chemical recycling is the material it can process. To meet quality standards purification of the feedstock material is always necessary. In theory, chemical recycling should not be competing with good quality feedstock for mechanical recycling, which currently primarily targets PET bottles, natural HDPE and PP packaging.

Different technologies have different potential contaminates. There are various plastic and waste types that can contaminate the chemical recycling feedstock, including, but not limited to: non-plastic materials; individual polymers; PVC and PVDC; plasticisers; fillers; colourants; and flame retardants.

Although there are many claims chemical recycling is the solution to recycle plastics which are not currently recycled due to limitations in mechanical recycling techniques, similar to mechanical recycling quality feedstock is a consideration, and therefore material sorting and purification of target versus non-target contamination. The higher proportion of the non-target feedstock the less effective and efficient the process, which comes with associated higher costs.

Economics have a direct impact on what recycling end destination is used. The more purely sorted the fraction, the more attractive it is to mechanical recyclers, which then means it is a straight economic decision where the material goes to. Mechanical recycling should be prioritised and not lose out to sourcing quality feedstock to chemical recycling processes.

In the same way as the waste hierarchy of 'reduce, reuse, recycle' is used to prioritise the approach to using and managing materials, a recycling hierarchy should be used to inform what plastics should be used in each process. Life Cycle Analysis of the environmental benefits of chemical recycling against mechanical recycling can also be considered to establish a baseline to inform this, and developments in this area is something RECOUP are monitoring.

Legislation – Is it Recycled Material?

Another consideration in assessing the potential around chemical recycling is legislation. When creating raw materials that can be used as feedstock to produce new products, they need to be categorised and certified as recycled content otherwise material that is processed in this way will not contribute to recycling targets. Legislation needs to be proactive and keep up-to-date with technology developments to direct the investment across the supply chain in the right areas and have confidence the solutions are delivering.

Technology Providers & Collaborations

There is currently no commercially operating infrastructure for chemical recycling in the EU, but there are various companies and technologies in development with either demonstration facilities, laboratory scale facilities or investment plans to test and develop the viability of the process and work towards developing chemical recycling capabilities.

There are a number of companies and initiatives that RECOUP are aware of, including: Sabic, Recycling Technologies, Cassandra Oil, Renew ELP and Project Beacon (also known as Project Lodestar). Even so, the commercialisation of chemical recycling to produce fuels is imminent, but chemical recycling back to polymers to use as feedstock to produce new products on a commercial scale is generally reported to be 5-10 years away.

Summary and Next Steps

Chemical recycling on a commercial scale is not a one-size-fits-all model for plastics recycling and should be used as a complementary solution to mechanical recycling, not to replace it. It is clear that one technology will not be the solution – it can't be oversimplified and it's a complex area that will require multiple approaches.

Although it is starting to happen an increase in widescale investment and collaborative partnerships spanning the whole plastics value chain – from post-use waste collection, to material sorting and the 'conversion' facility, and an end market using the product to go back into polymer blends and new packaging – are needed in order to make chemical recycling a successful and realistic option for recycling plastics.

Due to environmental and feedstock challenges there is a view from some in the industry that chemical recycling should be the last resort for recycling solutions. Aside from the practical elements relating to the construction and operation of chemical recycling facilities, environmental impacts, economic viability and legislative considerations all need to be assessed and agreed. Economics in particular are seen to be holding it back, but the reform of the Producer Responsibility system in the UK and the associated availability of funding, and recycled content targets could change this.

Mechanical recycling is still seen as the optimum route for recycling plastics and chemical recycling should be viewed as a potential solution for difficult to recycle plastics. Design for recyclability and high-quality material from collection schemes and sorting operations should still be the aim to maximise material quality, whatever the recycling solution that is used.

BEHAVIOUR CHANGE & CONSUMER COMMUNICATIONS

Effective and continuous communications to residents are an essential foundation in driving higher performance in recycling collection schemes and in litter reduction efforts, with a communications and behaviour change fund being cited on a strategic level in the reform of the UK Packaging Producer Responsibility System there is hope adequately funded communications programmes could be considered a reality.

The *2019 RECOUP Survey* explores many of the considerations and challenges in Local Authorities communicating and engaging their residents to both recycle more plastics and present it in the right way. There were up to 250 responses from Local Authorities to these questions, with a high level of interest throughout.

The UK Can Do More

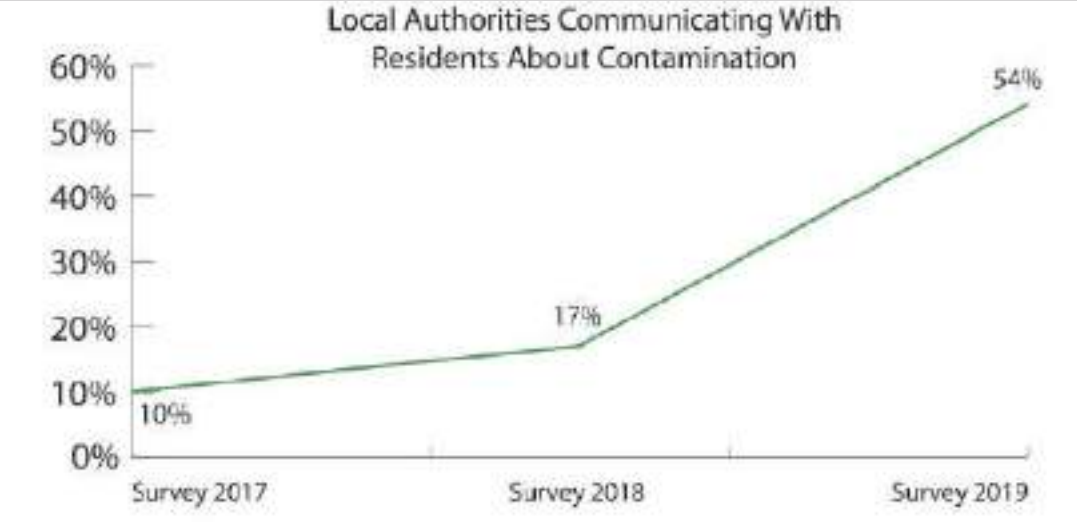
A survey of over 2,000 UK adults was conducted by YouGov in September 2019(30), the majority **(83%)** think that more needs to be done to encourage recycling in the UK, and only **12%** said that they think they get all the help they need. Better Local Authority collection services was the top mentioned item with better information on what can be recycled also high on the list.

Focus for Communication Campaigns – Reduce Contamination

With the political drive and operational challenges of exporting plastics packaging collected for recycling, and ultimately a higher demand for the use of recycled plastics, the need to reduce contamination in the first stage of the recycling process – how the consumer performs – being the important first building block to producing a high performing recycling sector in the UK.

This was backed up in the responses from Local Authorities in the *2019 RECOUP Survey* when asked what the main focus is for communications to residents:

Main Focus for Communications to Residents	
Increasing collection rates	**43%**
Reducing contamination	**54%**
Introducing new plastics types to collections	**3%**



Local Authorities focussing on reducing contamination has increased considerably in recent years. In the *2017 RECOUP Survey* it was **10%** of Local Authorities, in 2018 it was **17%** and now it's **54%**.

This focus on reducing contamination has translated itself into the delivery of communications in 2018/19 with **84%** of Local Authorities communicating with residents in 2018 or currently communicating on the importance of reducing contamination and how to present plastics for recycling.

Local Authorities Communicating with Residents in 2018 or Currently Communicating on the Importance of Reducing Contamination and how to Present Plastics for Recycling	
Yes	**84%**
No	**16%**

In an attempt to reduce contamination, **46%** of Local Authorities are targeting specific product types that cause contamination, which could include black or 'dark' plastic packaging, plastic film and other non-target products.

Local Authorities Communicating with Residents Targeting or Planning to Target Individual Product Types which would Reduce Contamination?	
Yes	**46%**
No	**54%**

As part of the RECOUP *Pledge2Recycle Plastics* roadshows, it was reported that the common items that cause confusion were as follows, which may help inform any product-based communications.

Increasing material quality is a central area of interest for RECOUP and it is the primary strategic *Pledge2Recycle Plastics* communication message. The reason for running a plastics recycling campaign could include increasing capture of target plastic material, reducing contamination or introducing or changing a service. As plastic is in the public's conscious, more so now than ever before, Local Authorities are showing an increased interest in running communication campaigns to their residents.

55% of Local Authorities are now reporting planning a communication to residents about plastics recycling, either as an individual Authority or part of a wider County or Partnership campaign – this is an increase on **49%** in the *2018 RECOUP Survey*, and **37%** the year before.

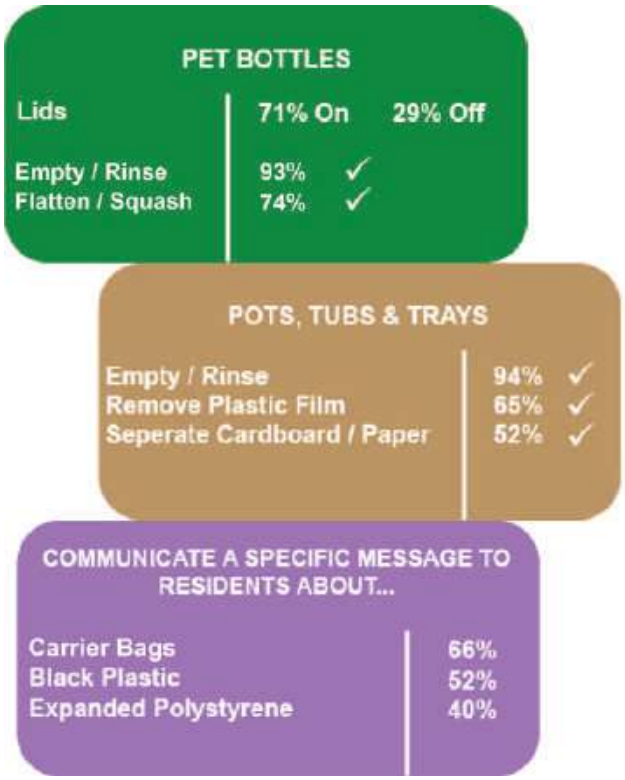
Local Authorities who are Planning a Communication to Residents about Plastics Recycling	
Yes	**55%**
Yes, as part of wider communications for all dry recyclables	**22%**
No	**23%**

Of those not planning a campaign about plastics, 50% of these reported specifically planning communications focussing on all dry recyclables. This means:

- **77%** of Local Authorities are planning plastics recycling communications, either a dedicated plastics campaign or as part of wider communications for all dry recyclables
- **23%** are not planning any communications about plastics recycling

Local Authority Instructions to Residents

Consistent collections are not only about the range of materials collected from households and businesses, but how they are presented for recycling. In the ***2019 RECOUP Survey***, a number of questions were asked about the instructions Local Authorities communicate to their residents. These were centered specific instructions for PET bottles, plastic pots, tubs and trays, and specific messages about carrier bags, black plastic and Expanded Polystyrene.



This demonstrates the variation in messages to residents across the UK. This is particularly evident when looking at instructions whether to leave lids on plastic bottles, or remove them. If something so fundamental as keeping lids on or off is so diverse then the challenge for common ground and guidelines for other areas will take time to unpick.

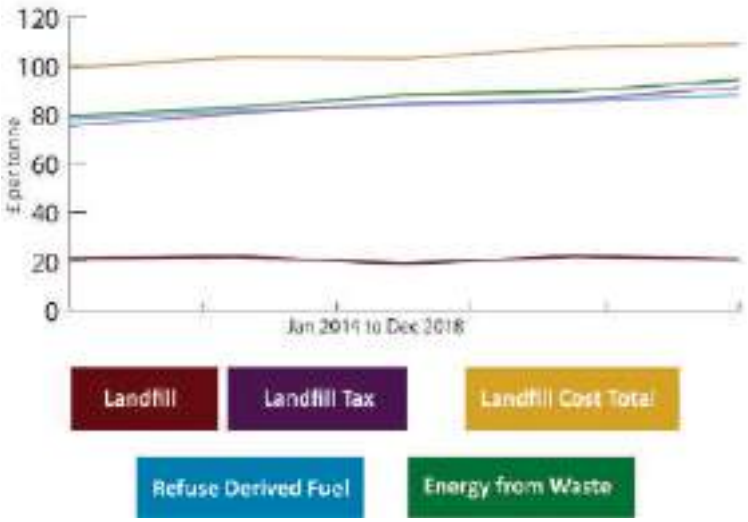
The benefits of consistent messages of how to present plastic packaging for recycling would directly reduce the confusion the consumer faces. Although there are positives here – a near universal approach to empty and rinse plastic bottles and plastic pots, tubs and trays – a range of other instructions needs consensus and consistency. What to do with film lids on plastic pots and trays and separating different materials used in individual products being two good examples.

Budget Considerations

Without financial investment in consumer communications, recycling rates and material quality will stagnate or decrease, at a time in which demand, public perception and rising recycling targets begin to apply more pressure on Local Authorities to recycle more.

Consumer communications to householders can save Local Authorities money by reducing the landfill and gate fee charges from target recycling material ending up in the residual collections, or reducing contamination levels in the material that is placed for recycling.

Material disposal costs below provide a firm reminder of the economic reality Local Authorities face when utilizing landfill or Energy Recovery. It's easy to see why budget spent on communications typically provides value for money and reduces overall spend, rather than increasing it.



Despite this, the ***2019 RECOUP Survey*** can report from over 250 responses **51%** of Local Authorities stated they received budget cuts for providing waste and recycling collections or delivery of communications to householders about waste and recycling in 2018/19. Although it is not clear whether budget cuts specifically apply to collections, communications or both, from this reported data it is clear there is decreasing budgets available to Local Authorities.

RECOUP have been made aware that communications continue to be scaled back and even stopped altogether. Funding from the reforming the UK Packaging Producer Responsibility System and use of Extended Producer Responsibility (EPR) is desperately needed to be channelled into the proposed dedicated consumer communication fund to deliver consumers communications and behaviour change campaigns.

BARRIERS TO EFFECTIVE PLASTIC RECYCLING

Although the focus of this report is plastics recycling, one material cannot be looked at in isolation and there are common challenges across all material types. Successful communications to residents need to be a planned into long-term programmes to continually promote recycling through the variety of different communication channels available.

There are a number of reasons as to why communication campaigns may not be more widely delivered or be effective. This includes:

- Lack of budget and resources;
- Language barriers;
- National media issues and their conflicting messages;
- Social media use only reaching those residents who use social media and any specific platform; and,
- Difficulty in providing evidence-based campaigns that monitor and report changes in collection rates.

Some solutions are being delivered and one example is around black plastic packaging. Retailers and producers either reducing their use of black packaging or using a 'detectable pigment' to allow for their compatibility with material sorting facilities.

Building the Trust

A major component of increasing performance of collection schemes is building trust with the public. The long-running national media coverage around plastics primarily undermines why plastics packaging is needed but also the core plastics recycling message, citing a range of topical issues such as high recycling contamination levels, the export of material and its impact, and littering of packaging in the natural environment.

This *'plastiphobia'*, as mentioned in the 2019 RECOUP Conference by *Countryfile* presenter Tom Heap, often promotes the use of alternative materials which may have unforeseen consequences around their carbon output, degradation and compatibility with current recycling systems, potentially making their use more harmful to waste management systems and the natural environment in the longer term.

Certainly 'plastics', 'recycling' and 'packaging' are often an easy target, and poorly informed articles can have a negative effect and disengage the consumer to make the effort to recycle effectively. ***Building the trust that plastics residents place for recycling are recycled should be a major theme***. This can be achieved through educating about the recycling process and communicating material is recycled (ideally in the UK).

This is where, with the right funding, a *Pledge2Recycle Plastics* campaign can support Local Authorities and waste management providers.

Pledge2Recycle Plastics

RECOUP's national plastics recycling communications and behaviour change initiative, ***Pledge2Recycle Plastics,*** works to reduce the confusion about plastics recycling and improve citizen knowledge of plastics as a resource. The RECOUP team work across the value chain and utilise their technical understandings of plastics, sorting, and reprocessing to educate on the practical aspects of plastics sorting and recycling.

New Communications Resources Pack

Knowledge gained throughout years of consumer activations, surveys and observational study underpin the development of education and communication resources in a new *Pledge2Recycle Plastics* Resource Pack, which can be downloaded for **FREE** from **www.pledge2recycle.co.uk**.

The Resource Pack aims to provide Local Authorities, businesses and educational establishments with information and content which can be utilised to equip citizens to be more confident when recycling. The pack includes graphics and information aimed at giving the detail about plastics recycling, where and how the material is recycled and the possible end markets. The pack is also aligned to *Recycle Now* and examples in the pack demonstrate how this can best be utilised to run alongside the WRAP social norming communication messages.

Watch Me Think – Behaviour Research Study

With any *Pledge2Recycle Plastics* campaign the aims are to explain the facts behind the recycling process and raise awareness of the wide range of everyday products made from recycled plastics. Demonstrating to citizens the positive end destinations of recycling is crucial to rebuilding trust which is a key element of any buy-in by householders to recycle.

Although RECOUP have gained an understanding of household recycling behaviour via their many community events, in April 2019, an observational study was undertaken whereby citizens recorded themselves and critiqued those videos of their recycling behaviour. This important work was supported by M&S and PlasticsEurope and was undertaken by the global consumer empathy agency, ***Watch Me Think***. The difference with this study, as opposed to many others, was that citizens were commenting on their actual behaviour thereby giving real insight into consumer actions.

The individuals felt that the plastic packaging which they purchase should be recyclable and the brand owner who put the pack on the market and the Local Authority who provided the recycling service should take the responsibility for making this possible. However, although the results showed that although people talk a lot about recycling, there was little ownership or understanding of how important the small changes they make in their recycling behaviour can have on recycling rates.

Labelling is key to assisting the recycling process. The survey showed that there was a lot of confusion, particularly between the Green Dot and the Mobius loop symbols. On Pack Recycling Labels (OPRL) instructions seemed to work better. In general instructions on the front of the pack or with a colour code and written descriptions and large bold messages worked best. The labelling needs to avoid any contradictions.

Issues with cleaning and understanding how clean an item needed to be before recycling was a barrier. Contamination and smell were also a concern to some of the participants, which was mainly a concern in the summer months. Products which needed to be broken down into component parts were also much less likely to be recycled. Generally, if there was any doubt items could be recycled, placing them in the general waste bin was the fallback position. More information on this project and other work we have carried out can be found at **www.recoup.org**.

Citizen Engagement Projects

All RECOUP citizen engagement projects are ***Pledge2Recyle Plastics*** branded and this includes special projects which have been supported by brand owners such as:

- Swansea Air Show;
- Buxton Spring Fair;
- Norwich Science Fair;
- Keep Scotland Beautiful's Upstream Battle initiative;
- Perkins Great Eastern Run;
- Nestlé R-Generation Programme consisting of school education and Buxton On-the-Go recycling provisions; and,
- Valpak's #SortItOut Schools Programme.

All of this work has been made possible thanks to support from RECOUP members, particularly Nestlé, Plastipak, CleanTech, Plastics Europe, Valpak, M&S and Berry-BPI.

Interest in Match Funded *Pledge2Recycle Plastics* Campaign

RECOUP is working to bring together the plastics recycling value chain to develop exciting ***Pledge2Recycle Plastics*** campaigns in 2020 and beyond and continues to look at funding streams to partner with Local Authorities, waste management companies and businesses alike.

In the ***2019 RECOUP Survey*** Local Authorities were asked if they would be interested in a match funded arrangement with ***Pledge2Recycle Plastics*** to deliver a plastics education and communication campaign to residents in 2020 and from nearly 250 responses, **67%** responded positively to this question. This represents a huge increase on previous years, with **166** Local Authorities saying they would be interested, up from **91** in the ***2018 Survey*** and just **16** in the ***2017*** report.

Thanks to continued industry support we hope to be able to make this happen.

RECYCLED PLASTICS MARKETS

In recent years, global attitudes and regulation towards waste and plastics have changed considerably, with end markets and values of plastics collected for recycling being displaced and transformed as a result.

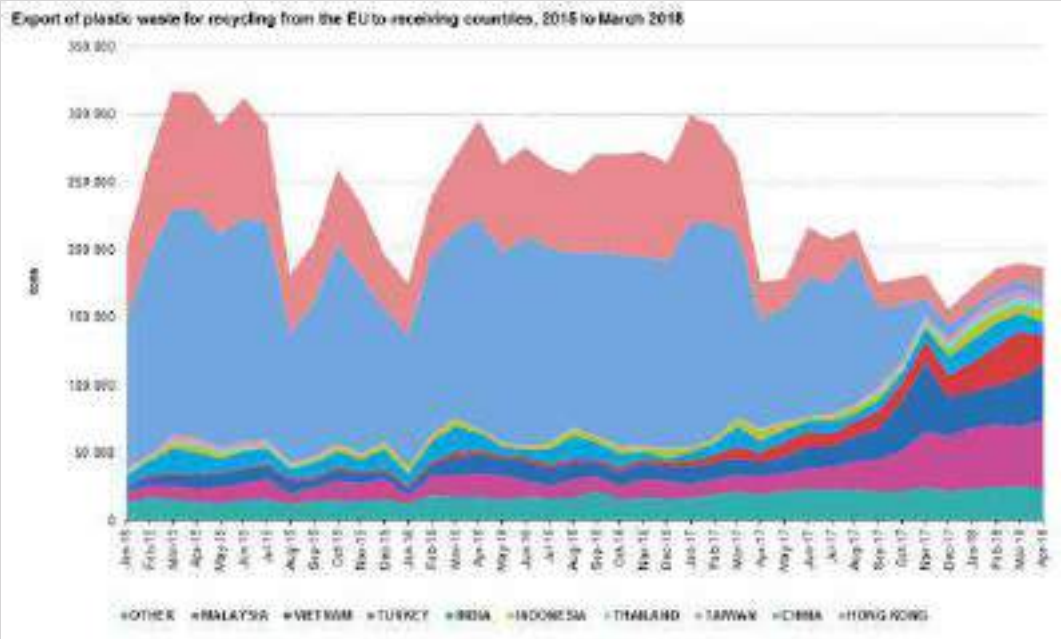
Export Markets & the UK Recycling Rate

In 2018, the British Plastics Federation (BPF) described the changes to market conditions for export of plastics as "the perfect storm". Although politically in the UK there is a continuing shift to focus investment and capacity to sort, reprocess and recycle materials in the UK, there will need to be robust correction in the approach to export markets to bring this change about.

Countries from Asian markets, particularly China, who previously took high quantities of recycling materials from EU countries, have restricted or banned the import of plastic waste for recycling or changed the quality of materials they are willing to accept, with reports of household and other low-quality plastic waste stuck at ports, or returned to its country of origin.

These worldwide changes have created significant challenges to the waste export markets, with many countries in the EU not having the infrastructure to recycle their plastics within their own country. Whilst some more developed European countries have greater capacities for sorting and reprocessing plastics including use of Energy Recovery, the business incentive of not recycling materials in the country of origin has historically made export markets of Asian countries, and their cheaper labour to sort these materials, more attractive.

In the UK, there is still a heavy reliance on export markets, which is both from OECD (Organisation for Economic Co-operation and Development) and non-OECD countries. End markets are referring to where plastics are reprocessed into granules, pellets or flakes in preparation for use as a raw material in second life applications.



According to National Packaging Waste Database (NPWD) data, UK exports of plastic packaging have reduced by **5%**, from **66%** in 2017 to **61%** - up to Q3 in 2019. It is not possible to audit market flows and precise end destinations, especially where intermediate traders are used, and transparency about end destinations of exported materials should be high on the agenda as the UK shapes its strategy for the future.

UK Recycling Rate

To put this in context the NPWD reported **1,034,410 tonnes** of plastic packaging were declared as recycled from all sectors in 2018, with **63% (649,562 tonnes)** exported and **37% (384,848 tonnes)** recycled in the UK. Therefore the **548,663 tonnes** of rigid plastic packaging collected for recycling from UK households makes up just over **50%** of the total plastics packaging recycled.

The UK Plastics Packaging Reprocessing Infrastructure

Although the UK is set to drive change to support building foundations for a Circular Economy in the UK, including reforming the UK Packaging Producer Responsibility System, building the infrastructure cannot be viewed as a short-term solution.

At present, as identified in RECOUP's *Plastics Sorting and Reprocessing Infrastructure Report*(31), the UK has significant shortfalls in its reprocessing capacity of household plastics packaging. This is not only a risk to meeting the proposed target to include **30%** of recycled content in plastic packaging but also a considerable hinderance to the UK exporting less of its own recycling. It was found(32) that if the export market was not available as an outlet for the household plastic packaging collected for recycling and the material needed to be reprocessed in the UK, the current UK reprocessing infrastructure would need to increase by **165%**.

Market Intelligence

Plastics packaging recycling continues to provide income generation, employment and business opportunities for Local Authorities and Waste Management providers, but they operate in tough commercial conditions with fine, or no profit margins. As such, all elements of the recycling chain must be financially viable for recycling to take place.

As with all material commodities, the value of plastic collected for recycling changes due to market conditions. With Landfill and Energy from Waste tax and gate fee costs in the UK, the business case to recycle plastics can be viable with the right drivers financial and fiscal support, with the role of Packaging Recovery Notes (PRNs) featuring strongly.

PRNs (Packaging Recovery Notes) or ePRNs (Packaging Export Recovery Notes) are the mechanisms used in the UK to implement the requirements of the European Directive on Packaging and Packaging Waste to show evidence a packaging producer has met its obligations to fund the recovery and recycling of packaging waste.

The system is seen to disadvantage UK recyclers when the ePRN can be claimed against the total weight of the material including contamination and non-target material, whereas if it is recycled in the UK contaminated and non-target material has to be removed with a PRN only issued when plastics are reprocessed into granules, pellets or flakes for use as a raw material in new products.

Complexities around PRNs and their favourability towards exporting materials mean that foreign markets are often more financially viable, all-be-it often not seen as the ethical or environmentally favourable solution. The disruption in the export markets and higher recycling targets have meant that PRN prices have seen significant rises. As such, up until recently, the UK has not had to financially justify investment in infrastructure to process recycling on a self-sustaining scale.

REB Market Intelligence

PAUL SANDERSON, REB MARKET INTELLIGENCE

This year has been a story of volatility for recycled plastic packaging markets.

The clear driver of this has been the Packaging Recovery Note (PRN) and Packaging Export Recovery Note (ePRN).

With tough targets to meet and less markets to send material to after the closure of China, PRN/ePRN prices started 2019 in the region of £130 per tonne. After falling a bit to just above £100 per tonne, by late March the price was beyond £150 per tonne and heading towards £200 and that was when the volatility really kicked off.

After breaching £200 in late May, the PRN/ePRN price more than doubled to £410 by the third week of August. Since then the price has been up and down, although never dropping below £290 seen in late October and never higher than £430. This has had a big impact on the price of physical plastic packaging grades, with PET and HDPE bottles plus LDPE film, all surging in price on the back of the PRN/ePRN rise.

In a sense, it could be argued that the high price of the PRN/ePRN has done its job with strong demand created for recycled plastics. Many UK companies have taken the opportunity from the extra revenue to invest in new recycling lines, and so more recycling capacity has been created.

But it has also meant that the cost of compliance has rocketed, meaning much larger unexpected bills for plastics producers.

Many who have been trading internationally have been happy to pass on the price of the ePRN and so we have seen very high prices for material going to Europe and Turkey. With the current government of Malaysia ridding the nation of illegal operators and putting in place a standardised licensing scheme, this has also once again become a consistent place to send material. UK recyclers have attempted to keep a lid on prices with them not wanting to get too involved in bidding wars and volatility. While they have had some success in this, particularly when relying on existing relationships, they have often had no choice but to be sucked into playing the game too.

For those trading packaging grades, each week has brought lots of decisions about that week's trading strategy.

Another consideration has been Brexit with the now gone March and October leaving deadlines causing uncertainty on freight/shipping availability, and potential introduction of a tariff too putting off European buyers. This uncertainty remains due to the January 2020 deadline.

Otherwise, underlying conditions for all plastic grades have been relatively benign this year and once you take out the PRN/ePRN for packaging grades, prices have generally been pretty stable. There have been opportunities for plastic recyclers, but they have had to be constantly on top of their job to ensure they have maximised those.

As we head into 2020, it looks certain that conditions will remain the same in the short- to medium-term. Beyond that, nobody really knows.

*If you would like a free four week trial to REB Market Intelligence (**www.rebnews.com**), please email paul.sanderson@harosa.com to request it.*

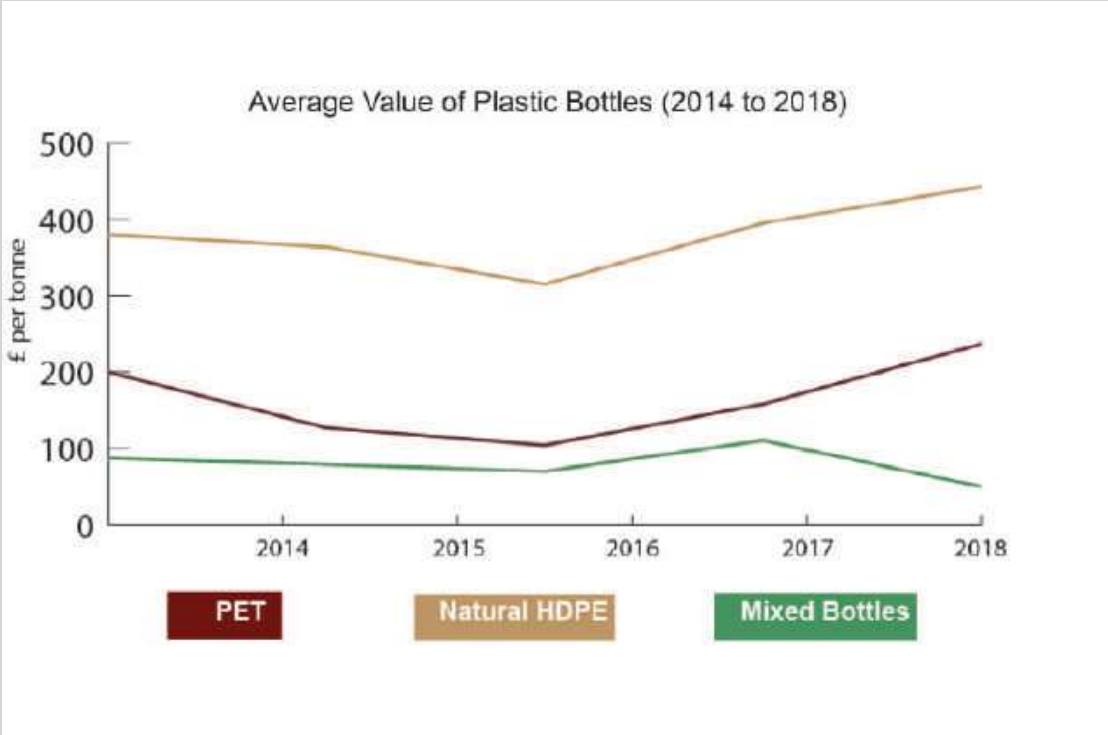
Value of Plastic Bottles Collected for Recycling

Plastic Bottles

Plastic bottles mainly consist of PET drinks bottles and HDPE milk bottles, but there is an increasing amount of other bottle types such as DIY, bathroom and cosmetic products, which can be made from PP, coloured HDPE and PET, and also PVC.

The highest values for collected plastics are when plastic bottles are sorted into their main fractions – mainly clear and light blue PET and natural HDPE. Coloured PET and mixed bottles are barely attracting positive values.

Using estimates and assumptions, the following analysis provides a clear demonstration of the additional value of sorting plastic bottles to refined fractions.



Mixed Plastic Bottles

Using the *REB Market Intelligence* material price index (**www.rebnews.com**), in 2018 1 tonne of mixed plastic bottles typically attracted an average price of **£40 per tonne** – this was **£110 per tonne** in 2017. This uses a combination of 'A Grade Mixed Plastic Bottles' (includes more clear PET and natural HDPE) at an average of £80 per tonne and 'Grade B Mixed Plastic Bottles' (includes more Jazz PET and HDPE) at £20 per tonne.

MIXED PLASTIC BOTTLES

- **370,890 tonnes of plastic bottles collected for recycling represented a potential value in 2018 of around £18 million – this was £38 million in 2017**
- **Real prices in 2018 ranged from £0-£150 per tonne – these were £15-£215 in 2017**

Sorted Plastic Bottles

To give a comparison of mixed plastic bottles to a tonne of clear and light blue PET and natural HDPE bottles, according to R*EB New Intelligence*, average prices ranged from:

CLEAR & LIGHT BLUE PET

- **Clear and light blue PET – £160-£300 per tonne with an average of £237 (this was £158 in 2017)**

NATURAL HDPE

- **Natural HDPE - £360-£575 per tonne with an average of £443 - this was £395 in 2017**

Value of Plastic Bottles Not Collected for Recycling

The estimated **263,110 tonnes** of plastic bottles not collected for recycling from UK households provides an indication of the potential value and disposal costs for these bottles.

- **Using the average £50 per tonne mixed bottle value, the UK's unrecycled bottles would have a potential value of over £13m in 2018**
- **Based on a number of assumptions about Energy from Waste (EfW) versus landfill end destinations, £89 per tonne median EfW gate fee(33) and £107 per tonne median Landfill tax and gate fee(34) for non-hazardous waste (landfill tax £88.95 per tonne and median MRF gate fee of £25 per tonne) these bottles would cost over £25m to dispose of**

Although it would be an impossible view of the financial implications, an indication of the differentiation of recovery versus non-recovery of plastic bottles can be calculated.

Based on combining the potential value of plastic bottles not collected for recycling, the landfill and incineration costs and removing the average median MRF gate fee of £25, 12% of Local Authorities that do not pay a MRF gate fee(35) and the extra material is integrated into existing collection services at no additional cost, if there was a 100% bottle collection rate there would be an additional £38m benefit to disposal Authorities in the UK versus the current situation today

Value of Plastic Pots, Tubs & Trays Collected for Recycling

Although over **80% of Local Authorities** are now collecting plastic pots, tubs and trays, the mixed content of polymers, products and increased food contamination in comparison with plastic bottles, their inherent recyclability and end market options mean that they are not attracting positive values.

The value of pots, tubs and trays depends primarily on the level of Polyolefin content (PP and PE plastics) and contamination, but may still be favourable compared to EfW or Landfill options. Any positive prices reported are likely to refer to material that also includes plastic bottle content, which inflates the value, or are subjected to several appropriate sorting processes to extract the valued Polyolefins.

It is not realistic to put a potential figure on the benefit of collecting the estimated **503,000 tonnes** entering the household waste and recycling systems, or the estimated **157,135 tonnes** that is collected for recycling, but an indication of the scale of costs to dispose of plastic pots, tubs and trays can be estimated.

- If all of the estimated **503,000 tonnes** of plastic pots, tubs and trays consumed were disposed of in 2018, based on a number of assumptions about EfW versus Landfill end destinations, **£89 per tonne** median EfW gate fee(35) and **£107 per tonne** median Landfill tax and gate fee(36) for non-hazardous waste (landfill tax **£88.95 per tonne** and median MRF gate fee of **£25 per tonne**), the disposal costs would be nearly **£48 million per annum**
- Based on the same assumptions, the **349,897 tonnes** of plastic pots, tubs and trays not collected for recycling in 2018 would incur disposal costs of over **£33 million per annum**
- Therefore, the actual cost of disposal is somewhere between **£33m** and **£48m**

End Markets - UK or Export

The *2019 RECOUP Survey* continues to receive comments about the volatility of the markets. Local Authorities were asked if they or their contractor were struggling to find a market for plastics. Although there is strong demand for high-quality sorted plastic packaging the responses covered all plastic formats, with a particular concern around the plastic pots, tubs and trays fraction with **48%** reporting they were struggling to find end markets, **28%** for plastic film, **19%** for plastic bottles and **6%** for non-packaging plastics.

POLITICAL & REGULATORY ENVIRONMENT

The political and regulatory environment around plastics packaging is an area of continually heightened interest and the landscape could change rapidly both in the UK and Europe. The central legislation, targets and political position at the time of writing this report(37) is outlined in this section.

European Circular Economy Package

The vision, main commitments for action and measures to implement them for Europe's 'New Plastics Economy' are outlined at EU level in the European Commission's European Circular Economy Package. The Package brings with it a range of ambitious waste and resource measures as well as recycling targets aimed at stimulating Europe's transition towards a circular economy whilst boosting global competitiveness, delivering sustainable economic growth and generating new jobs.

The regulations surrounding these being focused around legislative amendments and the new *EU Strategy for Plastics in the Circular Economy*, the associated Action Plan and a *Single Use Plastics Directive*.

In 2015, the European Commission put forward an ambitious *Circular Economy Action Plan* and in 2018, the first set of measures was complemented by the second Circular Economy Package(38), including *An EU Strategy for Plastics in the Circular Economy*(39) and annexes to transform and measure the way plastics products are designed, produced, used and recycled.

On 4th March 2019, the European Commission adopted a report(40) on the implementation of the *Circular Economy Action Plan,* which presented the main achievements under the *Action Plan* and outlined future challenges whilst working towards a climate-neutral, circular economy where pressure on ecosystems is minimised.

The *Action Plan* was communicated as being completed, its 54 actions have been 'delivered or are being implemented', (41) i.e. included or being actioned in legislation, strategy, methodology development, stakeholder platforms and reports, even if the work on some of them continues beyond 2019.

With the UK due to leave the EU, it is still to be decided whether it will be bound by, or adopt the requirements of these European measures that would set ambitious aims around resources and recycling to 2025 and beyond, or develop alternative resource and recycling legislation and ambitions for the UK.

A European Strategy for Plastics in a Circular Economy

The European Commission's ***A European Strategy for Plastics in a Circular Economy*** (January 2018)(42) is part of the EU's Circular Economy Package and addressed three interrelated issues:

- A current high dependency on virgin fossil feedstock;
- A low rate of recycling and reuse of plastics; and,
- A significant leakage of plastics into the environment.

It outlined a vision for Europe's new plastics economy to develop "a smart, innovative and sustainable plastics industry", including:

- Reducing the leakage of plastic into the environment by transforming the way products are designed, manufactured, used and recycled;
- Making better use of taxation and other economic instruments to reward the uptake of secondary plastics; and,
- Putting in place well-designed EPR schemes, support recovery and recycling schemes including introducing deposit return incentives, particularly for beverage containers.

The relevant aims and targets in the vision include, by 2030, all plastics packaging placed on the EU market is to be either reusable or can be recycled in a cost-effective manner.

Waste Framework Directive

The EU directive for waste management is the Waste Framework Directive(43), which is an overarching legislative structure for the management of waste in EU countries, monitoring and setting targets relating to the recycling rate of household and municipal waste, plastics and packaging and landfill use for the EU member states.

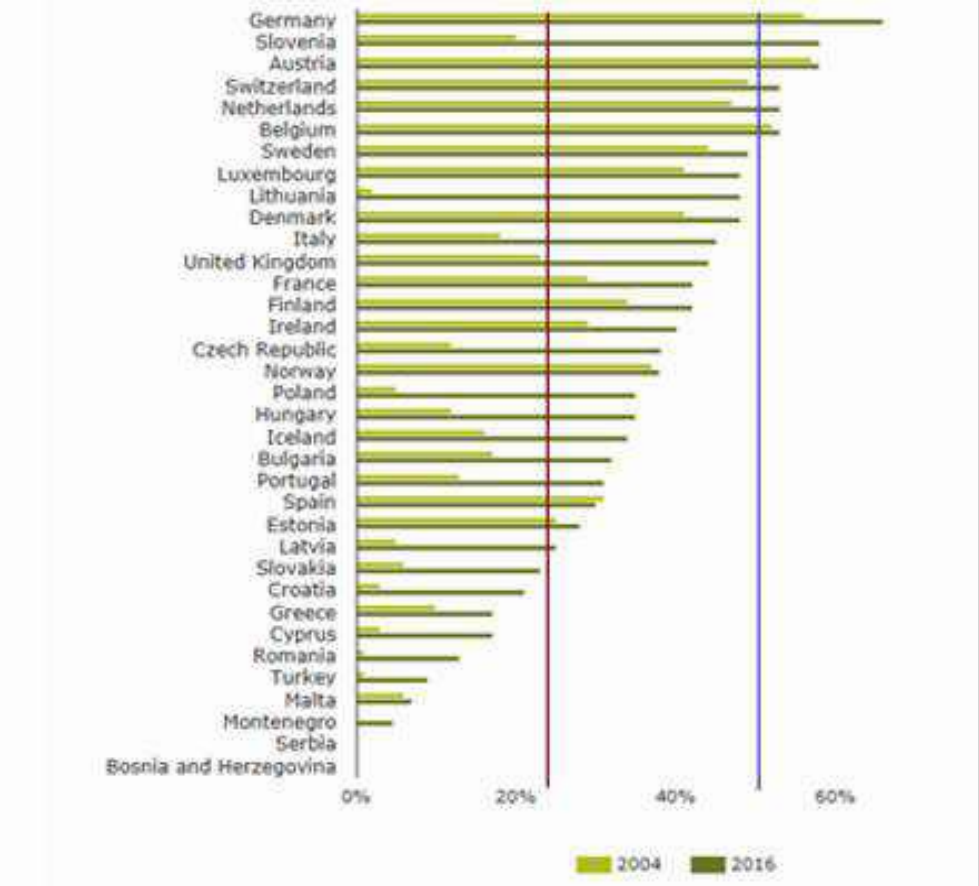
It includes the current:

- Plastics packaging recycling target rate for the EU member states of **22.5%**, which has been exceeded by many EU countries; and,
- Target for all member states to prepare for reuse or recycle **50%** of their household waste by 2020, not just plastics.

A revised waste legislative framework entered into force in July 2018 outlining "ambitious yet realistic recycling rates"(44):

- Recycling **55%** of municipal waste by **2025**, **60%** by **2030** and **65%** by **2035**;
- Recycling **65%** of all packaging by **2025** and **70%** by **2030**;
- Recycling **50%** of plastic packaging by **2025**, and **55%** by **2030**; and,
- Reduce landfill to maximum of **10%** of municipal waste by **2030**.

The municipal and plastics packaging recycling rates for the UK are around **45%**. Examples of the challenge is shown by the municipal recycling rate by country(45) against the **22.5%** plastics packaging and **50%** 2020 municipal recycling rate targets:



Red line = Current EU plastics packaging recycling target

Blue line = EU 2020 municipal, reuse and recycling target

Single Use Plastic Directive

The Single Use Plastics Directive, finalised and published on 5th June 2019(46), is part of the ***EU Plastics Strategy and Circular Economy Action Plan*** and is primarily targeted at reducing marine litter.

On 21st May 2019 the EU adopted the measures proposed by the Commission to:

> **'Tackle marine litter coming from the 10 single-use plastic products most often found on European beaches, as well as abandoned fishing gear and oxo-degradable plastics.'**

Specific targets as part of this directive include:

- **77%** of plastic bottles to be collected for recycling by **2025**, and **90%** by **2029**;
- **25%** recycled content from **2025** for PET bottles and **30%** from **2030** for all beverage bottles (note the HMT Plastic Packaging Tax states **30%** recycled content for plastics packaging); and,
- **Ban on selected single-use products made of plastic** for which alternatives exist on the market.

The UK

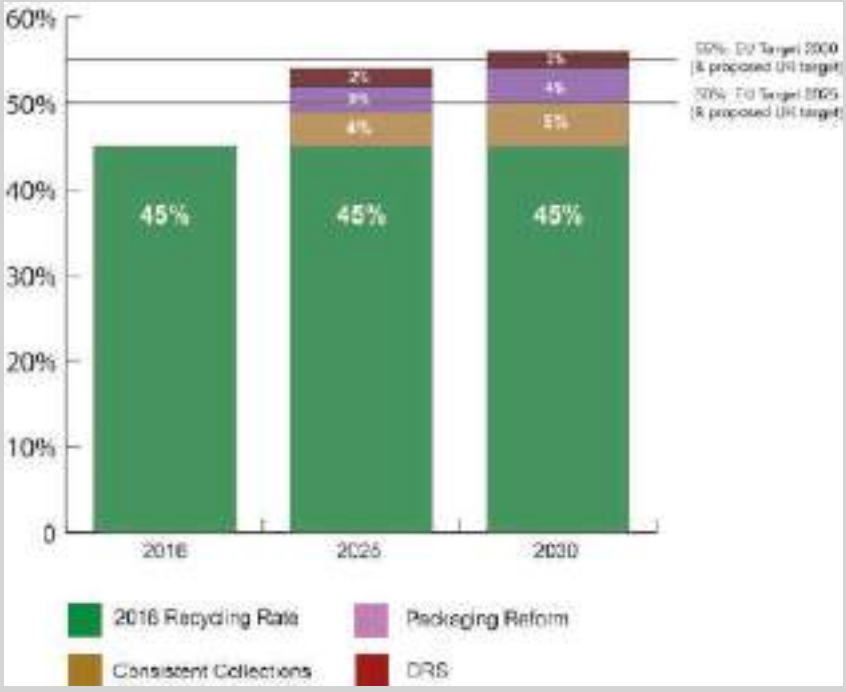
In 2019, the UK Government began publicly addressing various environmental concerns and to support building solid, underpinning foundations for a Circular Economy in the UK. The Government launched four consultations to transform the future governance, structure and funding of how it manages packaging waste in the UK and meet the commitments in the ***25 Year Environment Plan*** (47) and ***Resources and Waste Strategy***(48).

The consultations that took place earlier in 2019 were:

- HM Treasury Plastic Packaging Tax;
- Reforming the UK Packaging Producer Responsibility System;
- Consistency in Household and Business Recycling Collections in England; and,
- Introducing a Deposit Return Scheme in England, Wales and Northern Ireland.

Responses to the consultations were published by the Government in July 2019, with more consultations expected in 2020.

All four of these policies will have a direct impact on the levels of recycling of plastic packaging(49).



The Full Net Cost

The key principle of the UK Packaging Producer Responsibility System and use of Extended Producer Responsibility (EPR) is to fund the **full net cost** of managing the collection, transport, sorting, reprocessing and disposal of used packaging, whilst also funding consumer communication campaigns and the clean-up costs of littered and fly-tipped packaging.

Underpinning all of this is reforming the UK Packaging Producer Responsibility System including EPR that should be designed to increase investment in recycling systems and incentivise packaging to be recyclable and recycled.

Consistency & Devolved Governments

The Government consultation on consistency in household and business recycling collections would also increase the quantity and quality of the material collected for recycling. This is to be achieved by having a core set of materials and products that should be presented in the same way for recycling regardless of where you live or travel to. This is specifically in relation to England.

Devolved Governments have strategies and targets which are reflected in different policy objectives and support for increasing recycling. The Scottish Government and the Convention of Scottish Local Authorities (CoSLA) have a ***Household Recycling Charter.*** Wales has an overarching waste strategy document, ***Towards Zero Waste***, and has its established ***Collections Blueprint***, and Northern Ireland has a Waste Management Strategy, ***Delivering Resource Efficiency***. The UK Government and devolved administrations may choose to continue with their own regulations and policies in order to achieve their own ambitions.

Optimising Legislative Interventions

New funding and infrastructure systems should increase and focus investment to transform consumer collections, material sorting and recycling of post-consumer packaging, and the order in which they are introduced is important to their long-term success. A careful balance will be needed between doing this quickly to meet immediate needs and optimising the systems to meet the UK's long-term goals.

The proposed packaging tax, to enforce a minimum of 30% recycling content in plastic packaging could be the first policy to be implemented, and whilst the other polices are designed to be complimentary when they are subsequently introduced, a Deposit Return Scheme in particular will impact on the sorting and capacity infrastructure required as it is likely to remove the majority of the drinks containers from existing collections schemes. This in turn will leave the more challenging plastic packaging products to be sorted from the existing household recycling stream, and this is where a well-designed Producer Responsibility system could direct funding and investment into the right areas.

Household Plastic Recycling Targets – The Plastic Factor

There are no specific household plastic or plastic packaging recycling targets placed on Local Authorities in the UK. However, there is an EU target for the UK to recycle at least **50%** of household waste by 2020(50). The UK recycling rate for waste from households in the UK in 2018 was **45.7%**(51), and there are concerns that the 2020 targets will not be met. As these targets use a weight-based metric, plastic may not be prioritised in favour of recycling heavier materials in order to help achieve these requirements.

UK Plastics Pact

The UK Plastic Pact is a scheme led by WRAP (Waste and Resources Action Programme), made up of retailers, packaging companies and producers, as well government organisations and Non-Government Organisations (NGOs), seeking plastic solutions in order to generate a circular economy(52).

A Roadmap to 2025(53) outlined the ambitions and targets, challenges and solutions, and actions required to meet them.

The UK Plastic Pact aims, by 2025, are:

- Eliminate problematic or unnecessary single-use packaging;
- **100%** of plastic packaging to be reusable, recyclable or compostable;
- **70%** of plastic packaging effectively recycled or composted; and,
- **30%** average recycled content in plastic packaging.

Integrated into Government legislative changes, this provides a target and incentivisation structure to work towards. RECOUP is working alongside WRAP to provide strategic, practical and collaborative support to ensure the collective RECOUP and Pact members work in an intelligent and logical way. This will help to not only meet collective aims, but also avoid negative unintended consequences centred around moving away from plastic as a material of environmental choice, that could ultimately increase carbon emissions and an even more challenging recycling challenge for the UK.

ACRONYMS AND ABBREVIATIONS

- **AD -** *Anaerobic Digestion*
- **AfH –** *Away from Home*
- **BBC –** *British Broadcasting Corporation*
- **BOSS -** *Baffled Oscillation Separation System*
- **CoSLA –** *Convention of Scottish Local Authorities*
- **DMO -** *Deposit Management Organisation*
- **DMR –** *Dry Mixed Recycling*
- **DRS –** *Deposit Return Scheme*
- **EfW –** *Energy from Waste*
- **EPR -** *Extended Producer Responsibility*
- **ePRN -** *Packaging Export Recovery Note*
- **EU –** *European Union*
- **EU 28+No/Ch –** *EU Member States + Norway & Switzerland*
- **HDPE -** *High-Density Polyethylene*
- **HTA -** *Horticulture Trade Association*
- **HWRC –** *Household Waste Recycling Centres*
- **KT –** *Kilotonne*
- **LA –** *Local Authority*
- **LARAC -** *Local Authority Recycling Advisory Committee*
- **MBT -** *Mechanical Biological Treatment*
- **MRF –** *Material Recycling Facility*
- **NAWDO –** *National Association of Waste Disposal Officers*
- **NGO –** *Non-Government Organisation*
- **NIR –** *Near Infrared*
- **NPWD –** *National Packaging Waste Database*
- **OECD –** *Organisation for Economic Co-operation and Development*
- **OPRL -** *On-Pack Recycling Label*
- **OTG –** *On the Go*
- **PE -** *Polyethylene*
- **PET -** *Polyethylene terephthalate*
- **POM –** *Placed on the Market*
- **PP –** *Polypropylene*
- **PRF –** *Plastic Recycling Facility*
- **PRN –** *Packaging Recovery Note*
- **PTT –** *Pots, Tubs and Trays*
- **RDF -** *Refuse Derived Fuel*
- **RVM –** *Reverse Vending Machine*
- **UK –** *United Kingdom (England, Scotland, Wales and Northern Ireland)*
- **WEEE –** *Waste Electronic and Electronic Equipment*
- **WRAP –** *Waste and Resources Action Programme*

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UK HOUSEHOLD PLASTICS COLLECTION SURVEY

2019

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