2010

UK Household Plastics Packaging Collection Survey

RECOUP
RECycling Of Used Plastics Limited

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This work was commissioned by Recoup and sponsored by Nampak Plastics (www.eu.nampak.com) and PPS Recovery Systems Limited (www.pps-limited.com) using data gathered from UK local authorities and waste management companies. The content and analysis contained in this document is based on the information received.

Written by Marcel Arsand, Project Manager

RECOUP

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Recoup (Recycling of Used Plastics Limited) is a leading authority on plastics packaging waste management, providing expertise and guidance to a wide range of clients across the plastics supply, use and disposal chain. Set up in 1990, Recoup is now an independent charitable organisation, built on a network of members (including Nampak) and project activities.

Recoup works to maximise plastics packaging recycling through stimulating the development of sustainable plastics waste management, including the improvement of plastics collection and sorting activities across the UK, undertaking research and analysis to identify good practices and remove barriers to the adoption of efficient recycling systems.

Recoup also owns and operates a plastic recyclables trading business, Recoup Services Limited. This provides a marketing and collection service to suppliers of baled plastics.

Contents

Nampak is the leading supplier of UK plastic milk bottles, taking a leadership role in plastics recycling. Working with its partners, Nampak developed the world's first post-consumer recycled plastic milk bottle. This breakthrough in sustainable milk packaging reflects the company's commitment to the environment and the achievement was endorsed when Nampak received a high recommendation in the Business Commitment to the Environment Leadership Awards (BCE) 2010.

All the milk bottles Nampak manufactures in the UK and Ireland now contain up to 15% rHDPE. In the longer term, Nampak has set targets to increase the recycled content up to 50% by 2020 or before and the increase in availability of recycled material will support the supply of high-quality recycled content HDPE bottles to its customers. Replacing virgin material with recycled content in its milk bottles also makes a significant contribution to Nampak's continuing drive to further reduce its overall carbon footprint.

Nampak currently operates from eight sites including six in-plant ('through the wall') operations which are situated on customer sites in Glasgow, Oakthorpe, Severnside, Manchester and Chadwell Heath plus the recently opened in-plant at Dale Farm in Northern Ireland. The company also operates two considerable support sites in Newport Pagnell and Consett, providing customers with a robust network of back-up and overall supply.

Nampak Plastics welcomes Recoup's findings that 72% of HDPE milk bottles are recycled. This significant increase on the previous year's figure of 57% is excellent news for Nampak and the Dairy Industry as the HDPE collected can be recycled back into rHDPE (recycled-content) plastic milk bottles.

James Crick, Business Development Director at Nampak Plastics comments; "While we welcome the substantial increase in recycling rates, it is essential that all of those concerned continue the drive toward increased recycling levels well above this new level of 72%. The Dairy Industry is committed to the principles of recycling, but for it to reach its packaging targets it is of fundamental importance that Local Authorities and consumers remain committed to recycling too. Nampak is playing its part in educating the public through its educational based website www.bottle2bottle.com."

Nampak has been a Recoup member company since 2000 and in early 2010 James Crick was delighted to accept Recoup's invitation to join the organisation's board. He comments: "Recoup is an excellent source of guidance to its members and offers invaluable expertise and assistance to companies like Nampak."

PPS Recovery Systems Limited (PPS) has been providing independent consultancy within the recycling and waste management industry since it was founded in 1990. Our core activities focus on material recovery and recycling with a track record which demonstrates a proven ability to identify and deliver innovative solutions within the continually evolving waste management sector. These activities fall within three interlinking yet discernable areas.

Independent Consultants

Research - "Can it be done"

Consultancy - "How will it be done"

Project Management - "Making it happen"

With current and future requirements being driven by government targets and increasing public pressure there is an ever growing focus to increase materials recycling and reduce negative environmental impact.

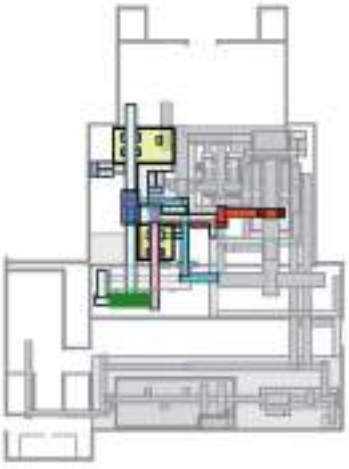
Our focussed team can assist by providing specialist services across a wide range of disciplines within the recycling and waste industry including all aspects of work associated with the collection, sorting and reprocessing of materials. This is achieved by PPS undertaking specific aspects of a project or by providing a complete project solution.

Our team are equally comfortable in leading a project or working as part of a larger team and regularly undertake this type of work for both client and contractor with regards to recovery facilities and have provided these services to waste management companies, local authorities and councils, and also private sector clients.

PPS provides the operational management services for RECOUP and also the operational management services for RECOUP Services Ltd (RSL) the trading arm of RECOUP. RSL undertakes consultancy work and also purchases baled plastics for recycling. PPS also provide to RECOUP and RSL experienced and qualified staff to manage projects and undertake research in addition to providing management services.

Ian Smith, Head of Project Management for PPS, said "PPS can provide 'flexible' support, extending your project team resources, to provide expert advice on recycling solutions, financial modelling and full-scale MRF designs and contract specifications."

Concept Schematic Design



Working 3D Model for Concept Design

Foreword

The 2010 edition of the Recoup survey was once again produced and delivered exclusively by the Recoup team with sponsorship from Nampak Plastics and PPS Recovery Systems Limited.

The report is used as a fundamental tool for understanding, interpreting and analysing household plastics packaging recycling in the UK. The published preliminary data has already generated a great deal of positive international coverage, reporting an encouraging plastic bottle recovery rate with over 263,000 tonnes collected in 2009. The vast majority of local authorities provide some form of plastic bottle collection, with an increasing number also collecting non-bottle plastics packaging. This fraction has seen a high increase in comparison with last year's data, with over 40,000 tonnes collected.

The levels of response and detail are rarely found in a survey of this kind and the comprehensive approach taken allows for a definitive overview of the continually developing household plastics packaging recycling activity in the UK. The 2010 report aims to maintain its position as one of the key reference documents and most complete source of information regarding plastic packaging collection in the UK, allowing stakeholders across the plastic supply and disposal chain to obtain valuable data about plastics recycling schemes, and compare their own performance data against other similar schemes.

The increasing plastic bottle recycling rate over the past few years is reassuring as significant additional UK bottle reprocessing infrastructure has been installed in this time period. It is good to see that the effort in implementing new kerbside and bring schemes, extending existing services as well as introducing 'recycle on the go' initiatives, is producing extremely positive results.

This year Recoup responded to government consultations regarding future packaging recycling targets, and a waste policies review. While research and development work for non-bottle plastic packaging is important and should continue, increasing plastic bottle recycling levels and improving collected material quality should take priority. Standardisation of collection and sorting systems may not be viable, but instructions to householders need to be more consistent, whether collecting plastic bottles or a wider range of plastics packaging.

With even more plastic bottle reprocessing infrastructure planned for implementation in 2011, the need for continued increases in bottle collections is clear. This can only be achieved through an infrastructure that gives every UK household the opportunity to recycle plastic bottles in convenient and easy to use systems. Alongside this is the prospect of other plastics packaging formats (non-bottles) being collected in greater amounts, and the need to ensure that the sorting infrastructure is capable of effectively handling the non-bottle plastics without detriment, either financially or operationally, to the existing recycling systems.

Household non-bottle plastics packaging is made up of a wide range of polymer types and colours and takes many different forms. As a result those authorities who are collecting non-bottle packaging generally accept all formats within the broad range of pots, tubs & trays (PTTs) together in some cases with the collection of plastic films. Some authorities also accept non-plastic packaging items.

Because of the lack of sorting infrastructure at most MRFs capable of handling and segregating the non-bottle plastic fraction a number of adverse impacts are occurring, including higher downtime and maintenance periods at MRFs to remove plastic film; PTTs not segregated and being baled with the plastic bottle fraction; plastics fraction sometimes being contaminated with paper and glass materials. As a result, risk assessments on potential cross contamination of material types should be undertaken before new material types are included for collection and the potential impacts both in terms of quality and material sale values are recognised and considered.

I would like to acknowledge the sponsorship from Nampak Plastics and PPS Recovery System Limited which has enabled us to deliver this report. We also would like to thank all the local authority recycling scheme managers who took the time to respond to our requests and have made this research so comprehensive and worthwhile.

John Simmons
Chief Executive Officer

Executive Summary

The information collected for the 2010 Survey was based on 2009 data and forms the basis of this document, which is the 16th local authority plastic collection report undertaken by Recoup. The purpose of this report is to inform stakeholders including local authorities, waste management companies and reprocessors on current plastic packaging collection methods and practices. The report also details collection rates and the future plans of local authorities in respect of plastic recycling.

In April 2010, Recoup distributed the online UK Household Plastics Packaging Collection Survey to all waste collection authorities and unitary authorities in the UK to establish the levels of plastics packaging collection in 2009. The reaction to the survey was once again extremely positive with a high number of responses from the 401 local authorities contacted. The information submitted and the associated analysis within this report will be of particular relevance to those associated with local and national government together with those in industry who have interests and responsibilities in developing sustainable plastics packaging recycling from the household waste stream.

Where only partial data or no data has been submitted Recoup has, as in previous years, completed an estimated dataset based on a number of factors including householders serviced by plastic bottle collection schemes, bring sites available and previous year's survey responses, or in some cases by applying reasonable assumptions and average performance data. This estimation was only used to calculate overall tonnage collected; all other analyses in this report were based on actual 2009 responses from local authorities.

As part of the report, Recoup would also like to emphasise terminologies that can enable best practices within the industry and avoid misunderstanding and confusion. For instance, the main types of plastics packaging in the household waste stream can be separated in to the following three main categories: plastic bottles; non-bottles rigids (commonly referred as "pots, tubs and trays" or PTTs) and plastic film, sometimes referred to as flexibles. This report will differentiate plastics packaging categories into plastic bottles and non-bottle plastics, the second including non-bottle rigids and flexibles, which are sometimes collected by local authorities.

2009 Household Plastic Packaging Recycling Rates

The analysis of the 2009 data indicates that a total of 303,412 tonnes of plastic packaging was collected from bring and kerbside schemes for recycling by the waste collection and disposal authorities. Of the 303,412 tonnes of plastic packaging collected, 263,049 tonnes was reported as plastic bottles. This figure represents an additional 46,902 tonnes of plastic bottles when compared to the 216,067 tonnes figure for 2008 or a 22% increase in year on year bottle collections.

The total UK plastic bottle consumption within the household waste streams for 2009 and used in this report is 568,000 tonnes[1], indicating a recycling rate of 46%. Despite adjustments made in consumption data, this still demonstrates an increase compared with the previous year.

Local authorities were asked to differentiate their collection of plastic bottles between 'bring', 'kerbside' and recycle 'on the go' schemes, with the latter becoming more prevalent since the DEFRA consultation document in 2007. This survey has also sought to split the levels of plastics collected between plastic bottles and other household plastics packaging, such as pots, tubs and trays (non-bottles rigids).

Breakdown of recycled tonnage by scheme and packaging type

	Plastic Bottles (tonnes)	Non-Bottle Plastic Packaging (tonnes)	TOTAL (tonnes)
Bring	47,473	4,921	52,394
Kerbside	215,576	35,442	251,018
TOTAL	263,049	40,363	303,412

Bring Scheme Performance

The 2010 report identified that the latest bring collection tonnage for plastic bottles was 47,473 tonnes including 5,800 tonnes[2] from household waste recycling centres operated by waste disposal authorities and an estimated 3,000 tonnes of bottles attributed to recycle 'on the go' activities.

The total number of bring sites actively collecting plastic bottles was reported as 6,876 from 248 local authorities. Last year's data indicated that approximately 44,181 tonnes of plastic bottles were collected through the bring schemes suggesting a moderate recovery increase for 2009.

[1] Using 2005 reported UK household bottle consumption data of 525,000 tonnes and assuming 2% year on year increase
[2] Data from Recoup – 2009 UK Household Plastics Packaging Collection Survey.

Kerbside Scheme Performance

In 2009, 215,576 tonnes of plastic bottles were collected through kerbside schemes. This shows an increase of 46,610 tonnes from the previous year – a growth in collection rates of approximately 27%. This has once again occurred due to increased number of local authorities introducing a kerbside collection service for the first time, the expansion of schemes and overall performance improvement of existing services. The total number of local authorities now offering a plastic bottle collection through kerbside is 360. These kerbside schemes now provide collections for approximately 23.3 million households representing an increase of approximately 29% in the last year, an additional 5 million households.

Collection of Non-Bottle Plastics for Recycling

The 2010 survey requested additional information on the types of materials collected by local authorities. Of the total responding local authorities, 84 indicated that they are now actively collecting non-bottle plastics through kerbside schemes in addition to plastic bottles. A further 36 local authorities indicated that they were collecting non-bottle plastics through their bring schemes .

The total reported tonnage for 'other plastic packaging', increasingly being referred to as 'non-bottle plastic' packaging or 'mixed plastics', and typically including pots, tubs, trays and plastic film (but not plastic bottles) was 40,363 tonnes. This includes 1,505 tonnes being collected by WDA's through household waste recycling centres (this data is related to 2009 survey). Whilst this reported figure is accepted and incorporated into the overall collection figures, for 2009 there is known to be some schemes still collecting non-bottle plastic which are then baled with plastic bottles. This would impact on the overall individual tonnages reported for plastic bottles and non-bottle plastics.

The information provided in the survey suggests an increase of non-bottle plastics on the 2008 data of 77%; however, there is still some inability to accurately identify, in some cases, what is the level of non-bottle plastics being collected. It is reasonable to believe that the 40,363 tonnes figure reported for 2009 is understated. In order to quantify the extent of non-bottle plastics in baled bottles, greater use of material assessment checks would be needed.

Perceptions of Running Plastic Bottle Collections

A total of 170 local authorities responded when asked how the plastic bottle collection scheme was working, with 140 authorities (82%) indicating that their schemes were running smoothly. A further 29 (17%) suggested that there were minor problems with the schemes, whilst only one local authority stated that there were major problems in running a plastics recycling scheme. This response suggests that the infrastructure and support required to launch and sustainably operate a plastics collection scheme is now available to most UK local authorities.

As part of the survey, local authorities were also asked to indicate the reasons and factors which prevented them from introducing plastic bottles into kerbside collection schemes. The most common reason given was the cost implications for changing existing schemes to accommodate the collection of plastic bottles. The second most common reason was the difficulties of adding plastics due to the lack of compartments available in the kerbside sorting vehicle.

A similar approach was taken to identify the reasons and factors preventing local authorities from collecting non-bottle plastic packaging. As a result, lack of end markets in the UK and market instability were the two main reasons presented by the respondents.

Sale of Material

The collection and recycling of plastics from the household waste stream remains primarily focused on plastic bottles. Local authorities tend to target the collection of all bottle formats e.g. PET and HDPE bottles both in clear / natural and in various colours. These are sometimes segregated by material type and colour before baling. In the last two years UK markets for non-segregated baled bottles have developed as new PRF's (Plastics Reclamation Facilities) have been commissioned. However, a high proportion of non-segregated baled bottles are still exported to the Far East. Demand for these products are strong with suppliers unable to meet commercial demands.

Of those schemes which are collecting 'other' plastic packaging in addition to plastic bottles, the over-riding majority indicated that whilst the material was collected in a mixed format, they were intended to be sold to market as a lower grade of bottles. The development of PRF's has allowed this approach to expand.

Planned Developments

Local authorities were able to provide information relating to future scheme developments. The responses received suggested that kerbside schemes could potentially recover 271,000 tonnes of bottles in 2012 representing a further 56,000 additional tonnes. Increased kerbside participation by householders was discussed with some local authorities who felt that a 10% improvement per annum over the next few years could be achieved based on promotion initiatives. As a comparison, last year's predictions for plastic bottles collected via bring and kerbside, in 2009, with a 10% increase, was approximately 261,000 tonnes, which was just under the actual 263,000 tonnes collected. Using the same principle, the expected collected tonnage for 2012 could reach up to 350,000 tonnes.

New Technologies

Local authorities also reported there were key areas for development of new technologies, over the forthcoming years. Energy from Waste (EfW), including gasification and pyrolysis, Mechanical Biological Treatment (MBT) and Anaerobic Digestion plants have been indicated by local authorities as the planned developments which are likely to be introduced, as a single or multi-technologies. The 143 local authorities that confirmed the implementation of new technologies also indicated that they are planning to implement it over a time period between 2010 and 2020.

Section 1
Overview of Plastic Bottle Collection Schemes

During 2009, recyclables collection schemes including plastic bottles experienced a significant increase. Such growth was only possible with the development of new collection contracts, more opportunities to transfer collected mixed recyclables to suitable sorting facilities and increasingly competitive end markets.

Kerbside collection schemes are the predominant method for the collection of plastic packaging in the UK. Bring schemes are also sometimes used instead of, or alongside kerbside, to form part of the recyclables collection infrastructure which local authorities offer. Bring schemes provide consumers with the opportunity to remove their recyclables from the household waste stream and deposit them at public collection points.

Kerbside and bring collections form the basis of recovering recyclables from householders in the UK. However, there are now other methods being adopted by local authorities to extend the recycling opportunity both for consumers and businesses, such as recycling on the go and trade recyclables collections.

Consumption Statistics

The key survey data, like previous years, is based on comparing reported recycling tonnage with consumption estimates. It is this data that needs to be corrected to reflect best estimated packaging trends and ensure that 2009 bottle recycling rates are not overstated.

A detailed review of plastics packaging consumption was completed indicating that 548,000 tonnes of plastic bottles were consumed in 2005. It was expected that up to 23,000 tonnes were consumed outside of the home, leaving 525,000 tonnes entering the household waste and recycling systems.

Packaging trends are frequently debated with between 0% and 5% per annum growth indicated. This report has assumed a 2% annual growth rate for plastic bottle packaging. This is inclusive of any weight reduction projects, light weighting activities, and substitution of other materials. Therefore the estimated UK consumption rate for plastic bottles in 2009 was 593,000 tonnes of which an estimated 568,000 tonnes entered the household stream.

It is much more difficult to quantify non-bottle plastics packaging consumption levels. It has been inferred from various stakeholders and plastic supply chain groups that 1.8 million tonnes[3] would be a reasonable estimate.

Plastic Bottle Collection Growth

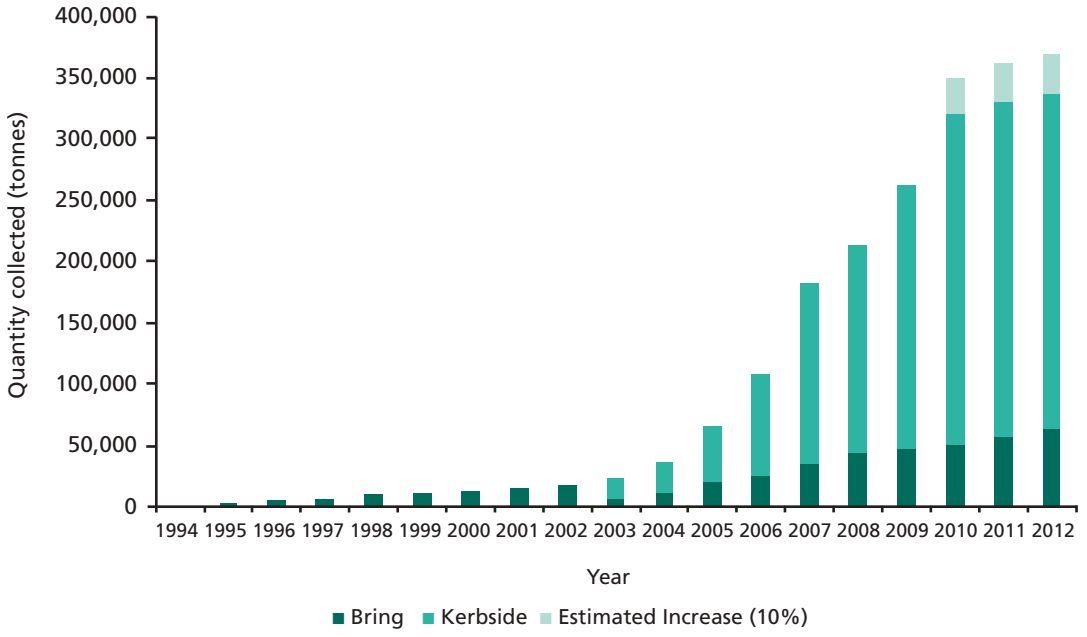
The total quantity of plastic bottles reported as collected by waste collection authorities for recycling in 2009 was 263,049 tonnes. Based upon last year's reported figure of 216,067 tonnes, this new figure represents an increase of 46,982 tonnes, or approximately 22% growth in the number of collected plastic bottles.

Approximately 568,000 tonnes of plastic bottles were consumed in the UK through the household stream during 2009. The collection of 263,049 tonnes represents a collection rate of 46% of all bottles consumed in the households. This is a 7% increase against the previous year's survey, which includes adjustments for changing consumption levels. In 2005, 2006, 2007 and 2008 the collection rates were 13%, 20%, 35%, 39% respectively. The 263,049 tonnes collected represents approximately 5,787 million plastic bottles[4] , which is 1,034 million plastic bottles more than the previous year.

The growth in plastic bottle collection quantities since 1995 is demonstrated in Figure 1. The collection quantities reported are split between kerbside and bring collection schemes from 2003 onwards, with future planned increases also shown as reported by local authorities.

[3] This number is supported by the Pack Flow data and is based on a 2.5 million tonnes of total plastic, which include household and commercial sources.
[4] Based on 22,000 bottles per tonne.

Figure 1 – Growth in plastic bottle collections, by bring and kerbside schemes



The total tonnage is divided up to show the amount of materials which are collected through the kerbside and bring collection schemes. The 2009 data indicates that 215,576 tonnes (82%) of collected plastic bottles were derived through the kerbside schemes and 47,473 tonnes (18%) were collected from bring schemes and recycle on the go systems.

Forecasting Future Plastic Collection Tonnage

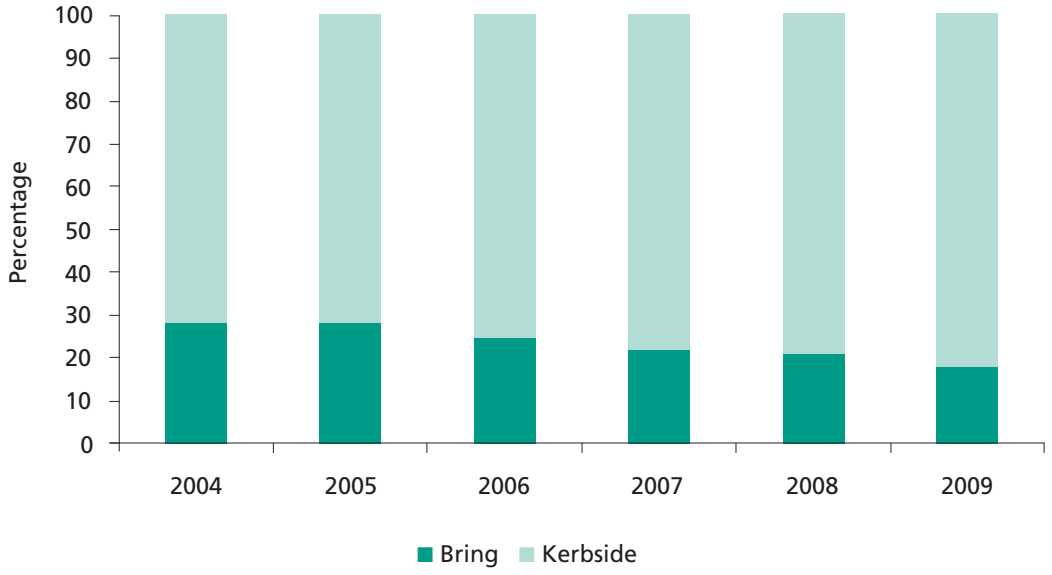
Last year's report forecasted a total collection of 261,000 tonnes of bottles for 2009, based upon the reported planned scheme developments and inferred additional growth. The new data suggests that the reported developments from the previous year were mostly implemented, and that further collection schemes, or improvements to existing schemes were also implemented. Additionally, it was reported that 39 new kerbside and 13 new bring schemes were also introduced.

The data suggests that the estimated 350,000 tonnes of predicted bottle collection for 2010 could be achievable, and would lead to a reported 60% bottle collection rate. However, the level of non-bottle plastic packaging within this fraction is unclear.

Types of Collection Scheme

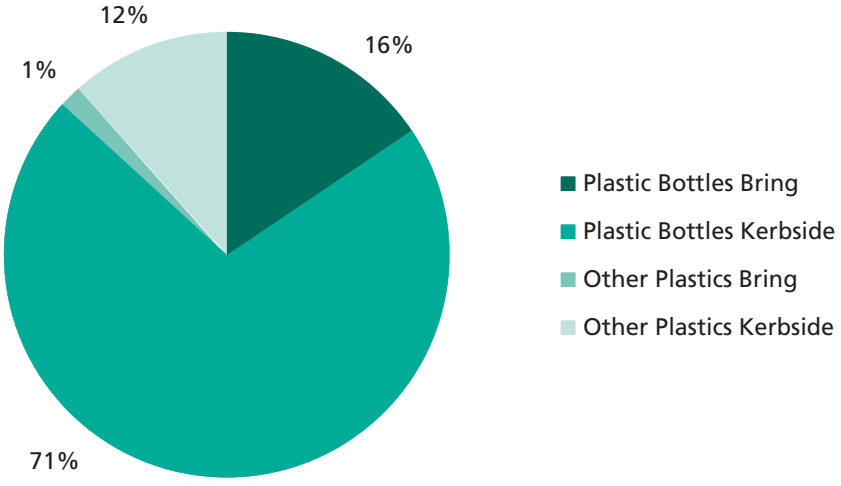
Figure 2 shows the trends of how plastic bottles have been collected over the past five years through kerbside and bring schemes. This figure clearly demonstrates that the kerbside schemes are increasingly the primary contributor to plastic bottle collection levels. The analysis indicates that at least 23 million households now have a plastic bottle collection scheme provided to them as part of the kerbside collection service.

Figure 2 – Percentage of plastic bottles collected through bring and kerbside schemes



The graph in Figure 3 shows the percentage split of how much plastic is being collected and through which collection method the material is derived. It is clear that the kerbside collection of plastic bottles is not only well established as the primary collection method, but continues to develop and grow. The tonnage of plastic bottles collected in 2009 through the bring schemes, whilst experiencing some growth on 2008, is beginning to reach a plateau. This is largely as a result of an increasing number of kerbside schemes which have been introduced over the past 12 months, enabling householders to recycle their plastic bottles more easily without the need to travel to a public recycling point.

Figure 3 – Percentage of plastics packaging collected by scheme type



Plastic Bottle Collection Infrastructure Summary

The table below (Fig. 4) shows the breakdown of plastic bottle collections by country and infrastructure. The two main collection schemes offered to householders by the local authorities are kerbside collection schemes and bring schemes.

Figure 4 – Breakdown of plastic bottles collections by country and infrastructure

Country	Households (millions)	Local Authorities	Bring Schemes		Kerbside Schemes	
			Number of LA's	Number of Sites	Number of LA's	Number of Households (millions)
England	21.8	322	205	5,128	286	19.5
Northern Ireland	0.8	26	10	80	26	0.8
Scotland	2.0	32	20	1376	28	1.8
Wales	1.1	21	14	255	20	1.1
Total	25.7	401	249	6,839	360	23.2

The regional bottle collection data is illustrated in Figure 5. A further breakdown of total plastics collected is shown in Figure 6 with the split data by collection scheme and also by country. The data indicates that England accounts for 82% of both plastic bottles collected through the bring schemes and kerbside schemes. The table also shows the comparison of plastic bottle collections between the 2008 and 2009 reported datasets.

The reported data indicates that there has been growth in the plastic tonnage collected by the local authorities in 2009. Whilst in the majority of areas there has been significant levels of growth, for England and Scotland, the amount of plastic bottles collected through the bring schemes has dropped slightly when compared against the 2008 data. This is almost certainly attributed to the increase in the amount of material now collected through the kerbside schemes, a factor which is likely to affect many bring schemes in future years.

Figure 5 – Total plastic bottles collected for recycling by region (tonnes)[5]

Region	Total Tonnage
East Midlands	21,838
Eastern	26,498
London	33,896
North East	6,811
North West	30,276
South East	38,617
South West	17,588
West Midlands	14,485
Yorkshire & Humberside	19,176
England[6]	214,985
Northern Ireland	9,921
Scotland	19,852
Wales	15,291

[5]Tonnage not including "recycle on the go" data from 2009 Survey (3,000 tonnes).
[6]Total tonnage for England include WDA data from 2009 Survey (5,800 tonnes)

Figure 6 – Breakdown of plastic bottle collections by country (in tonnes) in 2009 and respective improvement (in %) in comparison with 2008 data

UK	Total Quantity of Plastic Bottles Collected in 2008	207,346	
	Through Bring Schemes	38,380	
	Through Kerbside Schemes	168,966	
	Total Quantity of Plastic Bottles Collected in 2009	**254,249**	▲ 23%
	Through Bring Schemes	38,673	▲ 1%
	Through Kerbside Schemes	215,576	▲ 28%
England	Total Quantity of Plastic Bottles Collected in 2008	169,779	
	Through Bring Schemes	31,972	
	Through Kerbside Schemes	137,807	
	Total Quantity of Plastic Bottles Collected in 2009	**209,185**	▲ 23%
	Through Bring Schemes	31,878	▲▼ 0.3%
	Through Kerbside Schemes	177,307	▲ 29%
Northern Ireland	Total Quantity of Plastic Bottles Collected in 2008	9,014	
	Through Bring Schemes	218	
	Through Kerbside Schemes	8,796	
	Total Quantity of Plastic Bottles Collected in 2009	**9,921**	▲ 10%
	Through Bring Schemes	694	▲ 318%
	Through Kerbside Schemes	9,227	▲ 5%
Scotland	Total Quantity of Plastic Bottles Collected in 2008	14,785	
	Through Bring Schemes	4,020	
	Through Kerbside Schemes	10,765	
	Total Quantity of Plastic Bottles Collected in 2009	**19,852**	▲ 34%
	Through Bring Schemes	3,862	▲▼ 4%
	Through Kerbside Schemes	15,990	▲ 49%
Wales	Total Quantity of Plastic Bottles Collected in 2008	13,768	
	Through Bring Schemes	2,168	
	Through Kerbside Schemes	11,600	
	Total Quantity of Plastic Bottles Collected in 2009	**15,291**	▲ 11%
	Through Bring Schemes	2,239	▲ 3%
	Through Kerbside Schemes	13,052	▲ 13%
WDA	**Total Quantity of Plastic Bottles Collected in 2009**	**5,800**[7]	
On The Go	**Total Quantity of Plastic Bottles Collected in 2009**	**3,000**[8]	

[7] Data from 2009 Survey
[8] Data from 2009 Survey

Recoup have reported over the past 16 years the increases achieved in the level of household plastics packaging collected in the UK. This has been mainly driven by increased bottle collection levels and the expansion of kerbside collection systems. This section of the report compares this progress to the collection of household plastics in other countries.

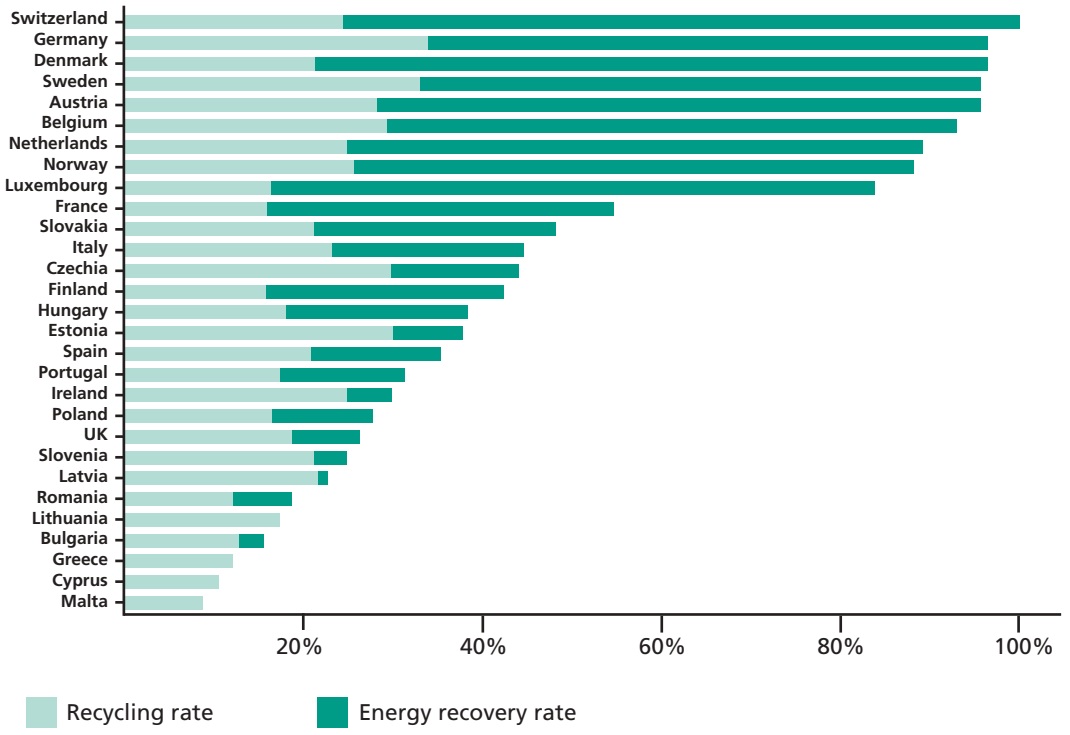
European Union

There is a strong growth trend in household plastic recycling and energy recovery in Europe as can be seen in the latest research comparing the rates across Europe (Fig. 7). The UK were behind average growth rates until 2004, at which time significant growth has been witnessed – above the European average. This has been driven to date by bottle collection, together with increasing collections of other household packaging plastic.

The UK were ranked 21 from 29 countries, based on plastic packaging tonnage recovered in Europe in 2009, although this combined both recycling and energy recovery. While the UK are recovering just over 25% of household plastics packaging, there are nine countries achieving above 80% recovery. When considering the recycling rate in isolation, approximately 18%, the UK achieved a marginally better rank of 17 from 29, whereas no country achieved more than 40% mechanical recycling rates.

This is a clear indication that the UK has scope to further develop plastic recycling activity, although it is accepted that the different financial support mechanisms for recycling activity will be a key influence on recycling levels. Individual recycling levels in countries with no deposit system of between 10% and 70% are reported, while those who do have a deposit based recovery system can reach over 90% recycling levels for particular components of the household plastics packaging stream such as PET bottles.

Figure 7 – Recycling and energy recovery rate per country in the EU[9]



[9] PlasticsEurope 2010 - Plastics: the facts 2010

USA[10]

In the USA, the continuing innovation in packaging design for beverage bottles resulted in lighter bottles. In addition, market trends shifted in demand for some beverage packaging and the worldwide financial downturn starting in the autumn 2008 resulted in falling prices for post consumer recycled plastic.

It was reported that bottle production for the year was down, reducing the supply of recyclable bottles; single stream collection of household recyclables continued to grow, generally resulting in higher overall household participation rates and more contaminated bales of bottles. Regarding HDPE, recycling operations used significant imports of material to meet the material demand.

In 2009, the US recycled approximately 1.1 million tonnes of plastic bottles, of which the majority was PET. This data represents a recovery rate of 28%.

Latin America[11 12 13]

PET is the dominant bottle type in both the Brazil and Argentina household waste streams.
Information from Brazil indicates a recycling level of 55% for post consumer PET bottles with 253,000 tonnes recycled from just under 462,000 tonnes put into the market. Overview data from Argentina suggests that 68,000 tonnes of PET bottles were recycled in 2008 from a consumption of 200,000 tonnes – a recycling rate of 34% for PET bottles. In Mexico, the recycling rate is lower, with 24% recycling rate, representing 109,000 tonnes of recycled PET.

South Africa[14 15]

In 2009, 1.2 million tonnes of plastic were consumed, of which 700,000 tonnes was for packaging applications. A total of 180,000 tonnes were recovered and used in the manufacture of new products including 30% of the packaging produced being recycled. None of the plastic collected for recycling was exported.

Post-consumer PET (mainly bottles) recycled in 2009 was 29,048 tonnes, equivalent to 32% of the beverage PET market in South Africa. The recycling target for South Africa in 2015 and 2020 is 50% and 70%, respectively. However, at the moment, only Cape Town City has a strong municipal post consumer collection project running and it is proving effective. It is hoped that this is the forerunner for all other major and medium sized towns and cities. The smaller municipalities mostly lack any resources or capacity to collect refuse and litter in some areas.

Australia[16]

Approximately 204,000 tonnes of plastics packaging was recycled in 2008 from the 564,297 tonnes arising – 36.2% recycling rate. More specifically 130,033 tonnes was attributed to household plastic packaging which represented a 5% increase from 2007.

Of the collected plastics, 58% were reprocessed in Australia with the remaining plastics exported for reprocessing. It was recognised that the Asian market, especially China, is the main recipient of the exported plastic and more brokerage companies were being set up to facilitate the export activity.

Japan[17]

In 2008, Japan recycled 445,500 tonnes of PET bottles, from 571,000 tonnes arising, a 78% PET bottle recovery rate. It represents an increase of 50,000 tonnes when compared to 2007 data.

[10] NAPCOR, 2010 – Report on Post Consumer PET Container Recycling Activity.
[11] ABIPET, 2009 – Brazilian PET Industry Association (www.abipet.org.br).
[12] ARPET, 2009 – Argentine PET Association (www.arpet.org).
[13] ECOCE, 2009 – Mexican Non-Profit Association (www.ecoce.org.mx)
[14] PETCO, 2009 – Annual Review
[15] PLASFED, Plastic Federation of South Africa
[16] PACIA, 2009 – National Plastics Recycling Survey (www.pacia.org.au).
[17] CPBR, 2010 – The Council for PET Bottle Recycling (www.petbottle-rec.gr.jp).

Section 3
Plastic Bottle Collection from Bring Sites

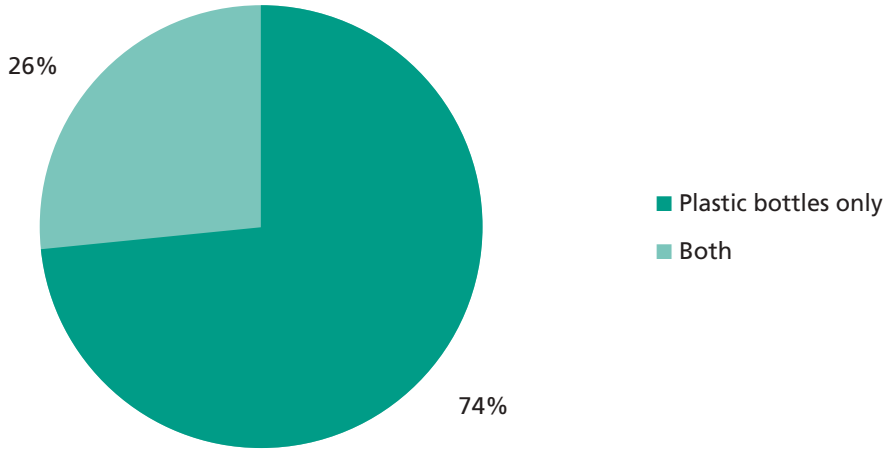
This section of the report looks at bring collection schemes and includes data on container type, recovery performance and expenditure. There are now 250 waste collection and unitary authorities with plastic bottle bring sites; this represents 6,876 reported sites, collecting plastic bottles and non-bottle plastic packaging (Fig. 8). The total estimated quantity of bottles collected through the bring sites in 2009 was 47,473 tonnes which also incorporates data related to waste disposal authorities and 'recycling on the go' initiatives.[18]

Despite bring schemes being the traditional method of plastic bottle collection, 80% of plastic bottle bring schemes were actually introduced after the year 2000; according to the reported data, one fifth of all bring schemes running today were set up in 2003. Nevertheless, there appears to be no correlation between the year of scheme introduction and the tonnages collected.

Figure 8 – Plastic bottles collected through bring schemes, by region (tonnes)

Region	Total Tonnage[19]
East Midlands	2,891
Eastern	1,845
London	6,146
North East	460
North West	4,667
South East	5,130
South West	4,687
West Midlands	1,565
Yorkshire & Humberside	4,487
England	**31,878**
Northern Ireland	**694**
Scotland	**3,862**
Wales	**2,239**

Figure 9 – Comparison of local authorities collecting plastic bottles only and both plastic bottles and non-bottle rigid plastic through their bring scheme.



[18] Waste Disposal Authorities (WDA) and "recycle on the go" data were not included in this year's survey; therefore the data used was actual data from last year's report, 5,800 and 3,000 tonnes respectively.
[19] Tonnage related to bring schemes only, therefore not including WDA and "Recycle on the go".

Container Types Used

Survey respondents indicated the type of bring containers used in their local authority area to collect plastic bottles. Seven main bring container types were specified (Fig. 10); the most common type of unit was the 1,100 litre wheel bin followed by the 10 cubic yard bank; this corresponds with previous year's results.

In addition, a further 18% of local authorities stated they use 'other' types of bring container. This represents the increasingly common 1,280 litre wheel bin, and also schemes which use more than one type of unit. This is particularly the case with unitary authorities that use skips at larger household waste recycling centres and smaller containers at additional bring sites. The choice for a specific unit type and size will be dependent upon specific needs, type of site, the collection vehicle and the frequency of use by consumers.

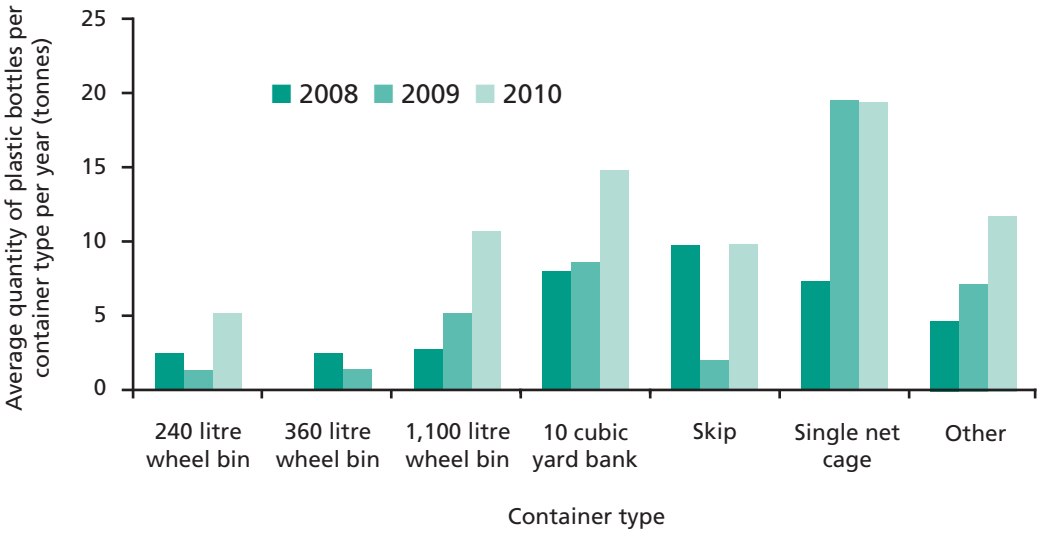
Figure 10 – Container types used by local authorities for bottle collection

Type of Container	Local Authorities (%)	Approximate Capacity (m^3)
10 cubic yard bank	15	7.65
8 cubic yard bank	11	6.12
1,100 litre wheel bin	41	1.10
360 litre wheel bin	1	0.36
240 litre wheel bin	1	0.24
Single net cage	4	3.54
Skip	9	9 - 36
Other	18	n/a

Figure 11 shows that the sites using larger capacity container types tend to collect higher quantities of plastic bottles. For instance, single net cage and 10 cubic yard bank systems have large capacity and also report high recovery rates. While these larger container types should require less frequent servicing, they are not suitable for all bring sites particularly where space or access is limited. However there are other benefits of using a net cage system such as avoiding the need for a bespoke collection vehicle.

The recovery tonnage per container will also be affected by the number of bring sites in a scheme and the ratio of households to sites. A comprehensive network of sites is likely to reduce the performance of individual sites, but recover a higher tonnage overall as it is easier for consumers to access the service. These comprehensive systems often use the smaller capacity units.

Figure 11 – Bring scheme recovery performance by container type



Expenditure

Approximately 60% of those local authorities with a bring scheme who responded to the survey also identified the costs associated with their plastic bottle bring systems. Of those positive responses the largest proportion stated expenditure was less than £10,000 per year (29%). A further 35% indicated that their budget was unknown (Fig. 12).

When considering the average yearly tonnage against the scheme expenditure, the reported data shows that expenditure of more than £40,000 per year on a plastic bottle bring scheme produces the highest average tonnage collected – approximately 400 tonnes (Fig. 13). Expenditure below £10,000 produces the lowest tonnage collected.

Figure 12 – Expenditure on bring schemes by % of local authorities

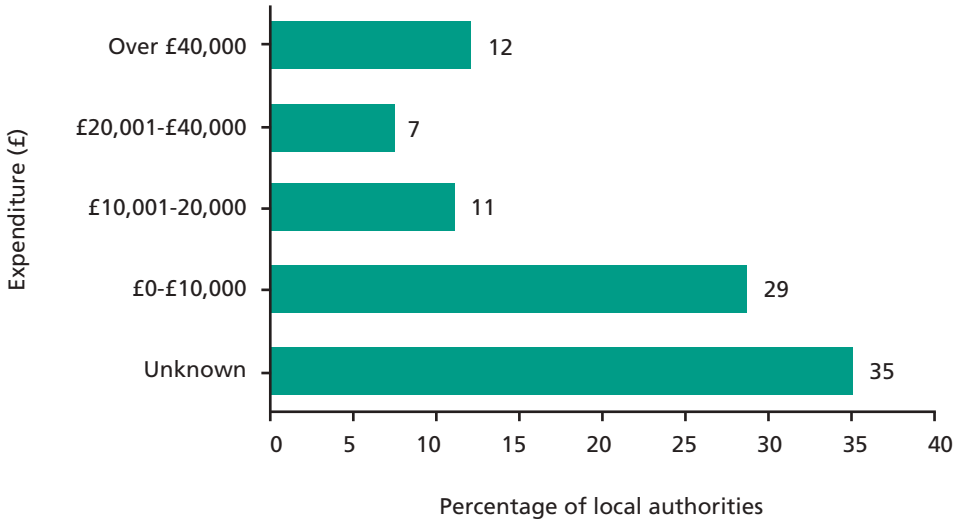
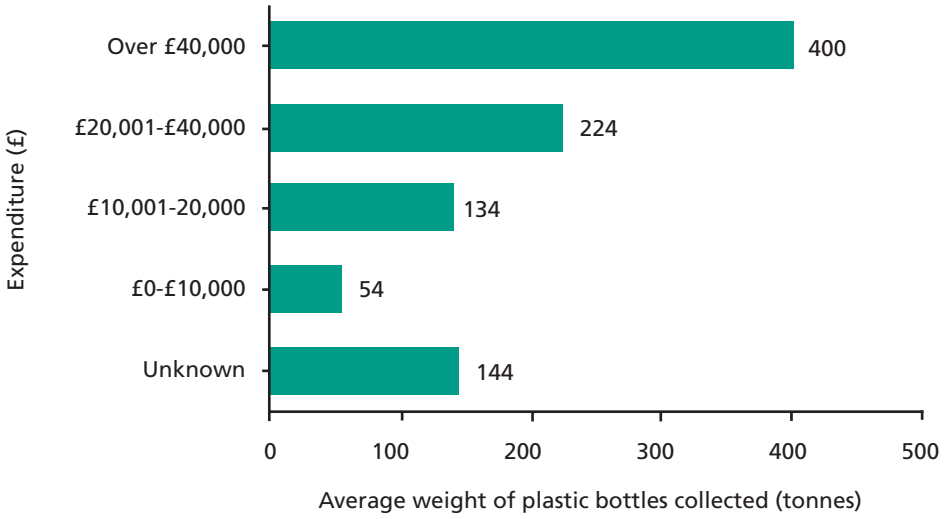


Figure 13 – Expenditure vs. quantities of plastic bottles collected



Recycle on the Go

It has been widely recognised that the public is increasingly seeking the opportunity to recycle post-consumer packaging whilst 'on the go'. Despite local authorities operating bring schemes for many years, these public sites are not always accessible to consumers as part of their daily routine. Recently, a growing number of local authorities have started collecting plastic bottles and other recyclables in areas of high public footfall, such as town centres and shopping centres. These schemes are often referred to as 'recycle on the go' or 'away from home recycling' and aim to expand the opportunity for consumers to recycle even when they are outside of the home environment.

Datasets provided in 2009 was deemed insufficient, but the reported tonnages from local authority schemes as extracted from the 2008 report (3,000 tonnes) is expected to increase as there are more recycle 'on the go' initiatives known to be introduced. It can be difficult to obtain accurate data as the schemes are often sharing collection routes with other kerbside or bring services.

Aside from local authority led initiatives, a number of well-known product manufacturers and retailers have developed and funded recycle 'on the go' projects to explore the opportunity and provide their consumers with an additional recycling option. Recoup have been involved in a number of these initiatives and more information on this subject can be obtained from the Recoup team.

Events Recycling – Sonisphere Festival 2010

Section 4
Plastic Bottle Collection from Kerbside Schemes

This section of the report presents analysis into local authority plastic bottle kerbside collection schemes. It is estimated that there are now 360 kerbside collection schemes including plastic bottles in the UK, representing 23.2 million households serviced and collecting over 215,000 tonnes of plastic bottles in 2009, an increase of 27% from 2008.

Understanding the factors that affect kerbside systems is fundamental if effective practices are to be identified and implemented. This is especially crucial for plastic bottle recycling, with a number of variables influencing a scheme's operational efficiency, plastic recovery performance and cost.

Figure 14 – Kerbside plastic bottle tonnage recovery in 2009 and average per household, by region (average kg/hh/year)

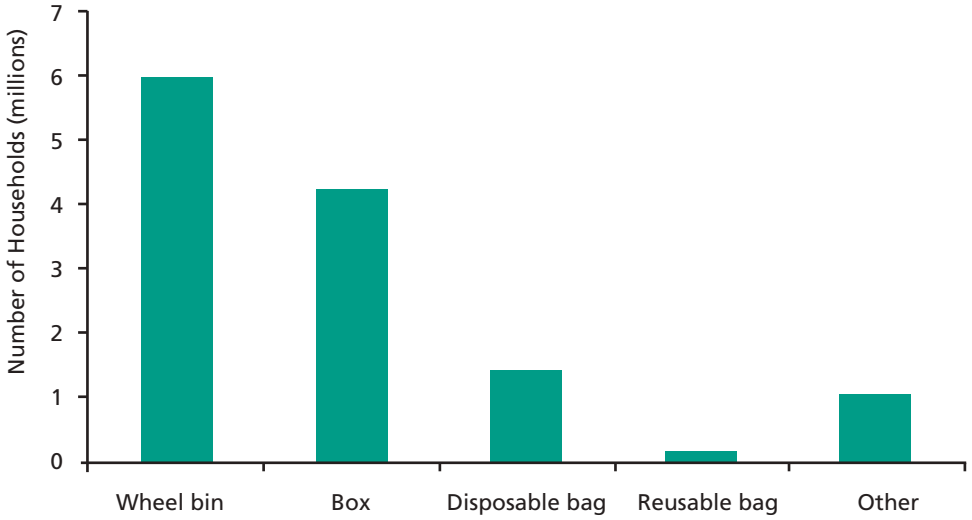
Region	Total Tonnage	Average (kg/hh/year)
East Midlands	18,947	10.9
Eastern	24,653	11.2
London	27,750	9.7
North East	6,351	8.7
North West	25,609	9.7
South East	33,487	10.2
South West	12,901	7.6
West Midlands	12,920	8.5
Yorkshire & Humberside	14,689	9.1
England	**177,307**	**9.5**
Northern Ireland	**9,227**	**13.9**
Scotland	**15,990**	**9.1**
Wales	**13,052**	**11.6**

Container Type

Historically, the most popular container type used for kerbside collections which include plastic bottles has been the box. This has changed over the past few years with a wheel bin now provided to 46% of the households in the UK with a kerbside bottle collection; boxes accounted for 33% of the households followed by disposable bags, 11% of the households (Fig. 15). Some local authorities are using different systems within their service area requiring a combination of container types.

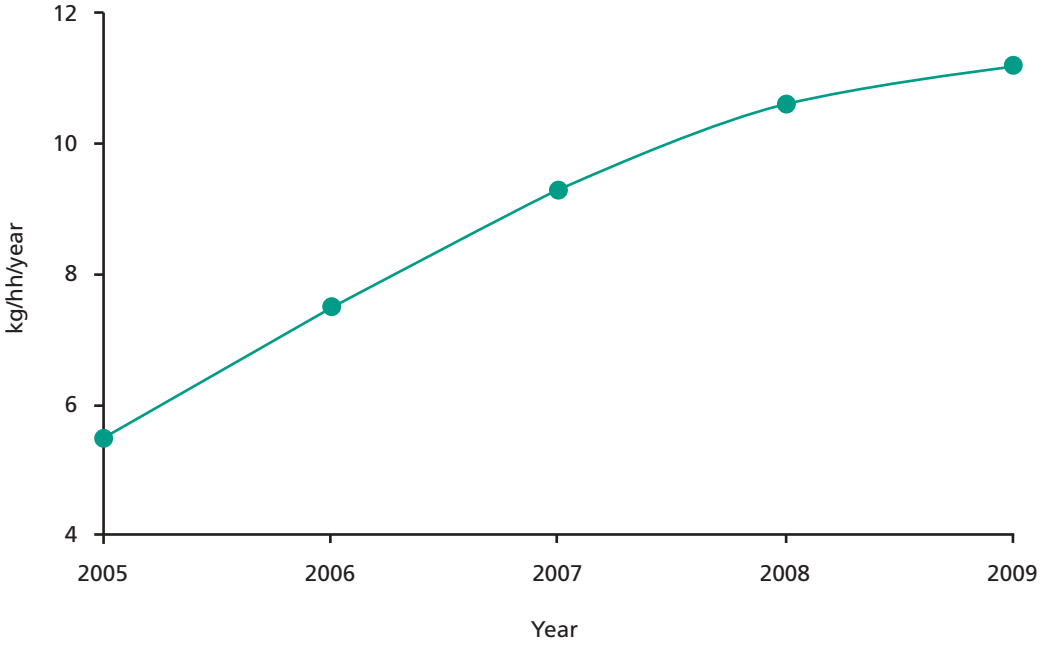
Boxes typically have a 55 litre capacity whilst wheel bins have either 120 or 240 litre capacity. It is also common practice to use different coloured containers to distinguish between waste, recyclables and organic material. Some also adopt a number of colours for different recycling containers where source separated, although, colour coding of kerbside containers is not standardised across the UK.

Figure 15 – Kerbside containers used for collection of recyclables including plastic bottles



The 2009 data also suggests that recovery rates of plastic bottles from kerbside collections in 2009 have improved when compared to previous years (Fig. 16). On average, local authorities collected approximately 11.2 kg of plastic bottles per household per year, an increase of 0.7 kg from 2008.

Figure 16 – Kerbside recovery rates of plastic bottles per household from 2005 to 2009



When considering the weight of plastic bottles collected per household per year (kg/hh/yr), the analysis indicated that wheel bins had a higher average performance rate when compared to disposable bags and boxes. The data has been analysed to give a 95% confidence interval and it is presented below.[20]

- Bin – 11.4 (+/- 1.0) kg/hh/yr
- Bag – 10.1 (+/- 1.9) kg/hh/yr
- Box – 10.1 (+/- 1.4) kg/hh/yr

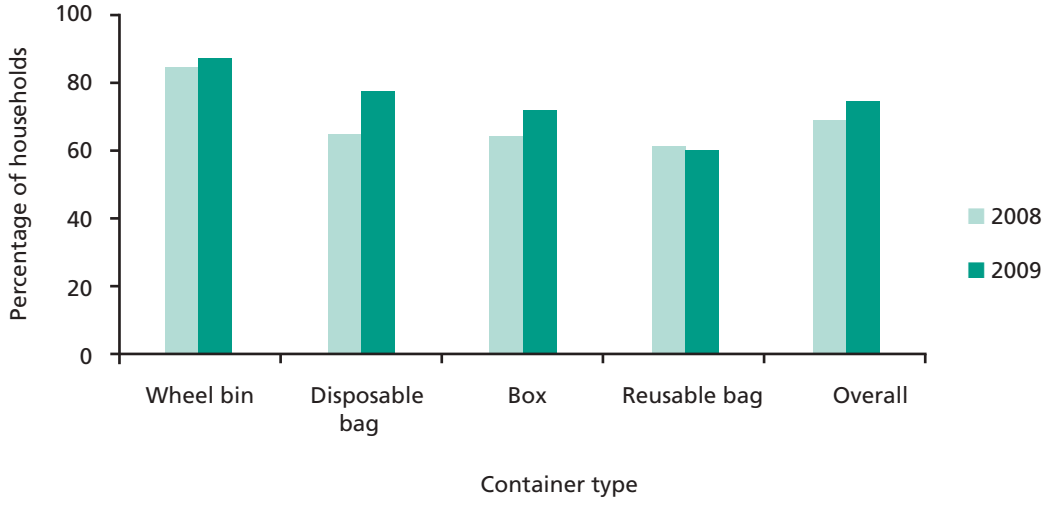
[20]Reusable bags were not included on this analysis due to the small amount of responses using this type of container.

This means, for example, that there is a 95% probability that a local authority's kg/hh/year recovery level for a wheel bin kerbside plastic bottle collection will be within +/- 1.0 kg of the 11.4 kg/hh/yr average performance reported. It is observed from this data that container type as a single factor does not significantly influence plastic bottle collection levels. A number of factors can influence the recovery rates, such as quantity of other materials collected, scheme promotion and frequency of collection. It is reasonable to expect that the higher capacity of wheel bins and bags can facilitate improved overall recycling rates, compared to single box systems which may limit the quantity of recyclables that an individual household can store.

Participation Rates

The 2010 survey also demonstrated that household participation rates by container type were higher for localities operating wheel bins, with an average of 87% participation reported. Average participation rate for disposable bags was 77%, whilst for boxes was 72% and reusable bags was 60%. Participation rates reported to Recoup always vary widely but whilst scheme participation is not compulsory, factors such as frequency of refuse collection and householder communication can significantly affect scheme participation levels. Figure 17 shows average kerbside participation rates by container type.

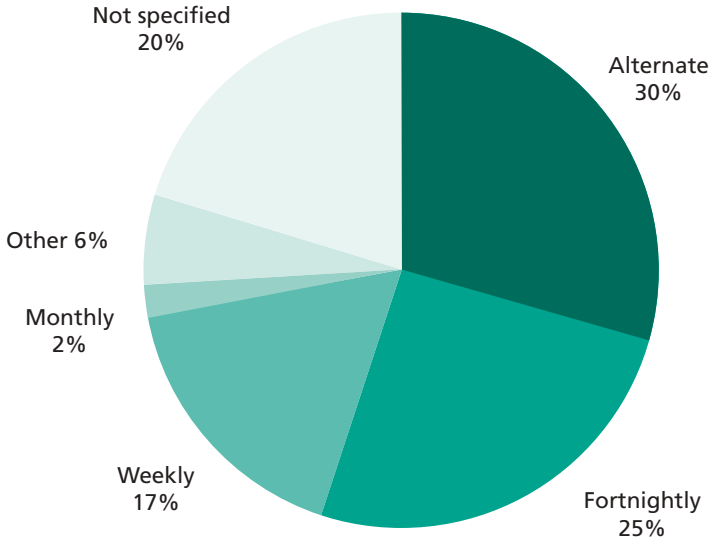
Figure 17 – Average kerbside participation rate by container type



Frequency of Recyclables Collection

An important aspect of the kerbside scheme is the frequency of recyclables collection. When considering the number of local authorities providing each type of service, the reported data (Fig. 18) was similar to last year's data showing alternate weekly collection schemes as the most popular, 30%, followed by fortnightly collection, 25%, and weekly collection, 17%. When considering the number of households receiving each service level, the two most popular schemes, fortnightly and alternate weekly recyclables collection are provided to 28% and 25% of households respectively. Weekly collection is provided to 18% of households.

Figure 18 – Frequency of kerbside recyclables collection service



Only 5 local authorities indicated a monthly kerbside collection service with the majority of these supplying wheel bins. Of the respondents that reported "other" service frequencies (14 local authorities), three were operating a combination of service frequencies, two were operating twice weekly collections, one was carrying out collections every four weeks and the remainder did not specify their collection frequencies. Compaction of the recycled material in the vehicle occurred in 67% of local authorities whilst 33% collected without compacting. This will be closely connected to the scheme type and collection vehicle with more opportunity for compaction of commingled recyclables.

An overview of the kerbside service data is provided in Figure 19. Wheel bins are most frequently collected alternate weekly whilst boxes are fortnightly; bags are most commonly collected weekly. This pattern is similar when compared to last year's data.

Figure 19 – Frequency of kerbside recyclables collection, by container type and number of households

Frequency	Container					
	Box	Wheel bin	Bag	Other	Not specified	Total[21]
Weekly	1,732,122	147,697	875,723	94,094	0	2,849,636
Fortnightly	1,777,919	1,818,911	446,082	497,751	0	4,540,663
Alternate weekly	603,377	3,040,042	238,208	120,000	0	4,001,627
Monthly	0	321,632	0	0	0	321,632
On request	0	0	0	0	0	0
Other	99,876	610,610	96,951	345,000	0	1,152,437
Not specified	0	0	0	0	3,124,334	4,683,763
Grand Total	4,213,294	5,938,892	1,656,964	1,056,845	3,124,334	17,549,758

Regarding the performance by frequency of recyclables collection, the analysis showed alternate weekly and weekly collections have higher average performance rates for the collection of plastic bottles, when compared to fortnightly collection. The data has been analysed to give a 95% confidence interval and it is presented below.[22]

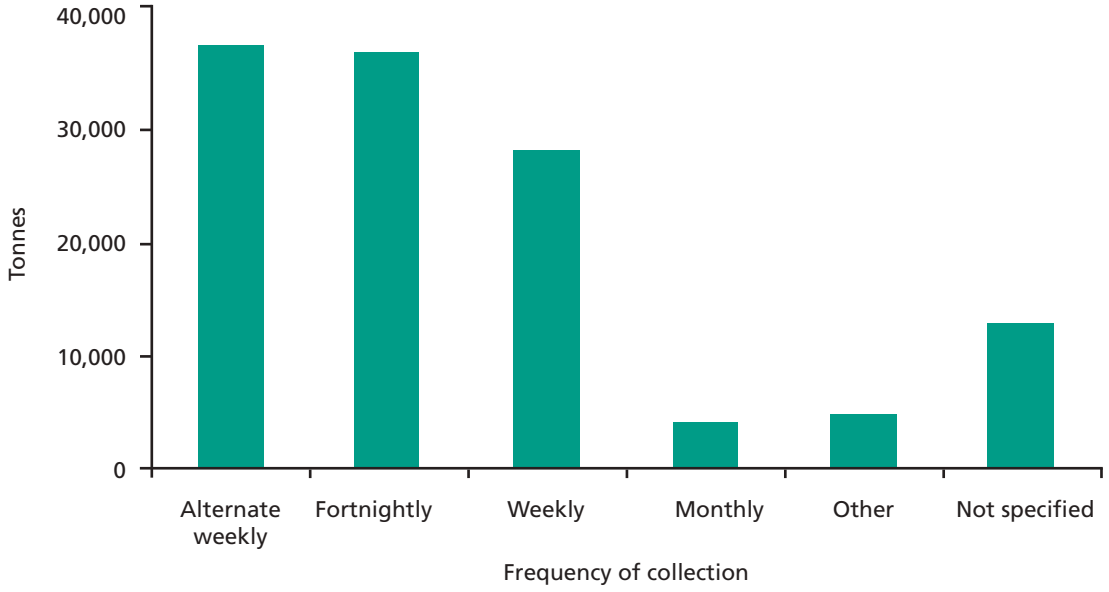
- Alternate Weekly – 12.2 (+/- 2.0) kg/hh/yr
- Fortnightly – 9.3 (+/- 1.0) kg/hh/yr
- Weekly – 11.5 (+/- 1.2) kg/hh/yr

[21] Total number of households based on actual data
[22] Number of datasets: alternate week, 74; fortnightly, 63; weekly, 42; monthly, 5.

This indicates for example, that there is a 95% probability that a local authority's average kg/hh/yr figure for an alternate weekly kerbside plastic bottle collection will sit within +/- 2.0 kg of the 12.2 kg/hh/yr average performance reported.

When taking into account the total weight of plastic bottles recovered through the different service types, alternate weekly systems collected over 37,000 tonnes, followed by fortnightly and weekly collection, with over 36,000 and 28,000 tonnes per year respectively (Fig. 20).

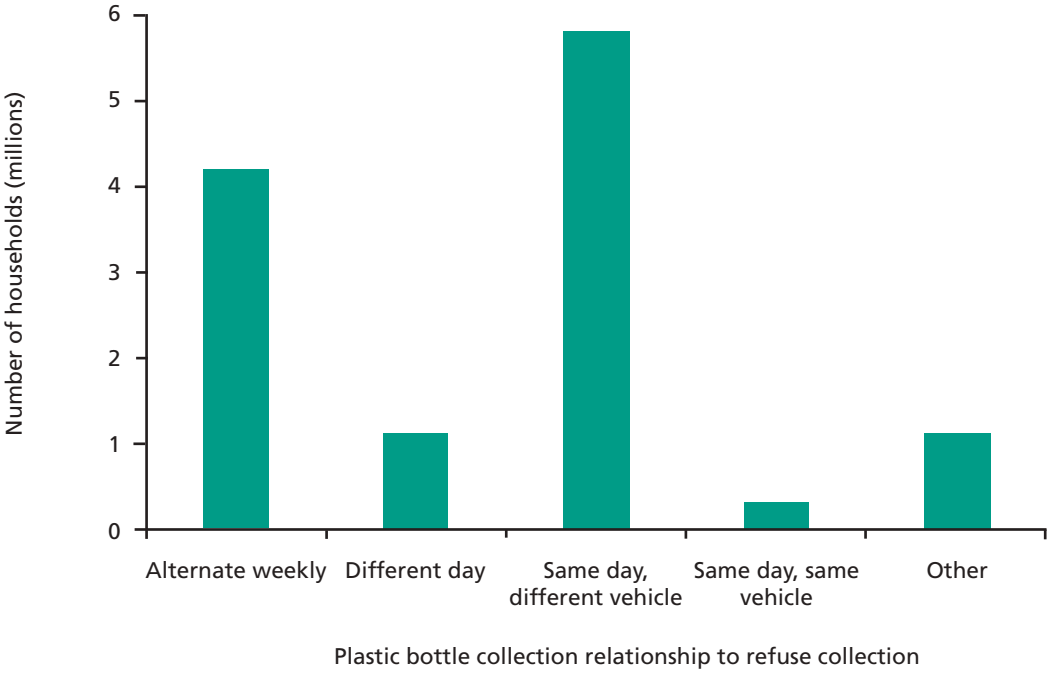
Figure 20 – Frequency of collection and tonnage of plastic bottles recovered



Recyclables and Residual Container Collection Relationships

The preferred choice with regard to a kerbside recyclables collection service in relation to refuse collection was a same day service using a separate vehicle, accounting for 35% of local authorities (5.8 million households). Alternate weekly collection was the second most popular option accounting for 32%, followed by different day collections, with 6% (Fig. 21).

Figure 21 – Relationship between kerbside recyclables and refuse collection services



When considering the kerbside performance by relationship with refuse collection, alternate weekly collections appeared to have the highest average performance level, with just over 11 kg/hh/yr.[23] The average reported performance of same day collections with a separate vehicle was 10 kg/hh/yr; different day and same day same vehicle collections were not included as the number of responses was lower than that required for the analysis.

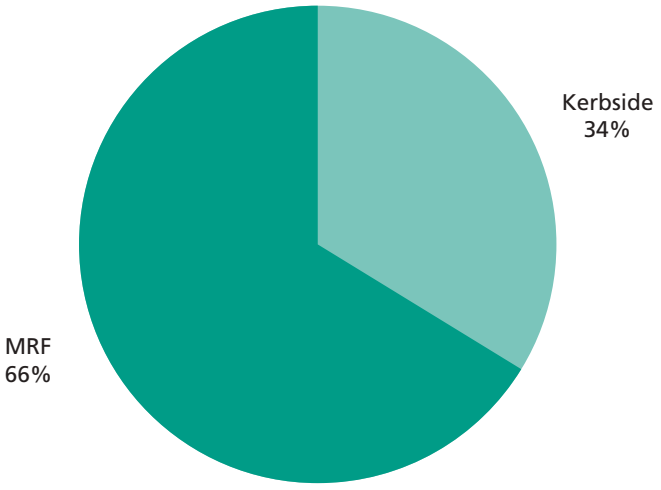
- Alternate weekly: 11.2 (+/- 1.1) kg/hh/yr
- Same day, separate vehicle: 10.0 (+/- 0.9) kg/hh/yr

When reviewing the relationship between recyclables and refuse collections, the data shows for example, that there is a 95% probability that a local authority's average kg/hh/year recovery level for an alternate weekly kerbside service will be within +/- 1.1 kg of the 11.2 kg/hh/yr average performance reported.

When considering the total weight of plastic collected against the refuse collection service, same day collections with separate vehicle accounted for just under 51,000 tonnes, followed by alternate weekly with just over 38,000 tonnes; different day accounted for just under 11,000 tonnes.

When considering the type of sorting system applied to the plastic bottles collected through kerbside, 66% of the local authorities responding informed that the sorting occurs at the MRF in comparison to 33% informing that it occurs at the kerbside. Recoup believes that the sorting referred to here is more associated with the sorting of separate boxes of recyclables rather than an actual sorting of bottles by polymer or colour.

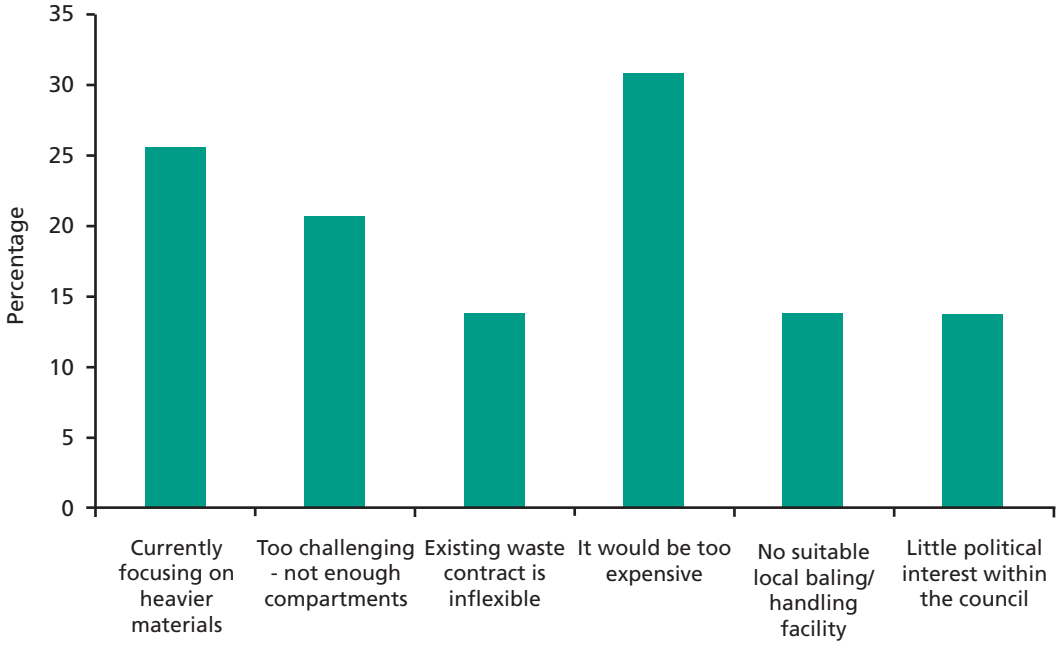
Figure 22 – Comparison between plastic bottles separated at the MRF and at the kerbside



Local authorities not collecting plastic bottles as part of the kerbside service were asked for the main reason why it had not been implemented. A number of key reasons were provided, and the most common issues highlighted were costs and lack of space available in the vehicle (Fig. 23).

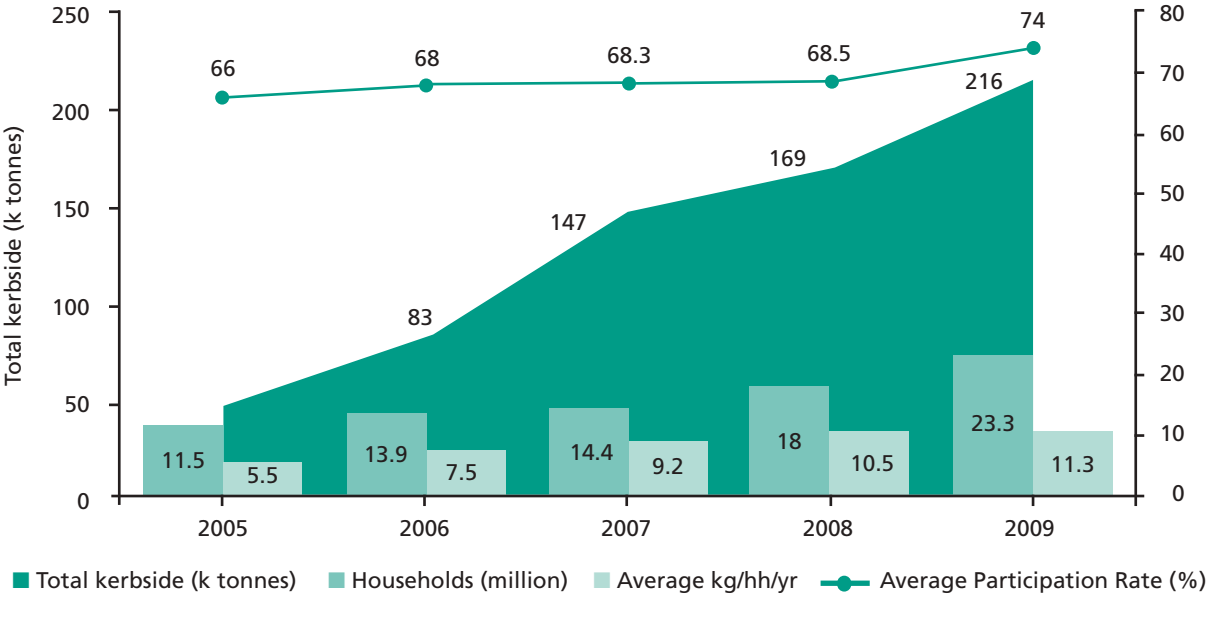
[23] In 2008 and 2007 alternate weekly collections were also the best performers with similar recovery rate.

Figure 23 – Factors preventing local authorities from collecting plastic bottles via kerbside



As an additional feature, the 2010 survey presents the combined key indicators for kerbside plastic bottle collections such as total tonnage, average weight per household, number of households serviced and average participation rate (Fig. 24). As can be seen there are upward trends in each category over the last five years, with participation rates showing the smallest year on year improvements. This is a useful reference point for mapping kerbside bottle collection development over time, but it does not provide direct comparisons as each dataset uses a different value scale. Note that the primary axis (left) refers to the total tonnage (in k tonnes) whilst the secondary axis (right) refers to total households serviced (in millions), average kg per household, and average participation rate (%).

Figure 24 – Comparison between parameters influencing kerbside plastic bottle recycling



Section 5
Non-Bottle Household Plastic Collections

The number of local authorities actively collecting non-bottle plastic packaging for recycling has increased. This fraction includes plastics packaging such as pots, tubs, trays (PTTs) and sometimes films typically found in household waste. A total of 98 local authorities indicated that they are now actively collecting non-bottle plastic packaging for recycling, in addition to the collection of plastic bottles. Of those, 84 local authorities are collecting through their kerbside service and 36 are collecting through their bring scheme.[24]

Previous year's surveys have shown the number of authorities collecting 'other' plastics packaging to be fluctuating. Additional time has been taken by Recoup to clarify different interpretations of 'mixed plastics packaging', and identify the difference between an active collection of non-bottle plastic packaging, compared to a passive collection within a material stream still defined as plastic bottles only.

Household non-bottle plastics packaging takes many different forms and as a result, it is very difficult for local authorities to communicate appropriate collection instructions effectively to householders. As a result, those authorities who are collecting non-bottle plastics will generally accept all formats of plastic packaging as this alleviates the need for complex consumer messages. This approach does not always observe Recoup's guidance on recyclable plastics packaging.[25] This is based on only collecting those items which can be sorted and reprocessed. The most common forms of other plastics are pots, tubs, trays, packaging films and other plastic wrappings which are used to package food. Figure 25 shows the breakdown of non-bottle plastic packaging collections by scheme type and country.

Figure 25 – Breakdown of non-bottle household plastic packaging collection tonnage by country (tonnes)

	Bring Scheme (tonnes)	Kerbside Scheme (tonnes)
England	4,089	29,745
Northern Ireland	200	75
Scotland	5	2,349
Wales	627	3,273
Total	4,921	35,442

Since the previous report, the overall collection rate percentage for non-bottle plastic packaging has significantly increased. The total material collected represents a 78% increase on last year's data. This can be attributed to not only an increase in the number of new schemes that are now operational, but perhaps more significantly, the total number of households that can participate in plastics collection schemes. There are now over 6.5 million householders who are able to recycle a wider range of plastics in their recyclables collection service. Of those, 1.5 million are serviced with both kerbside and bring systems; 4.2 million are serviced with kerbside collection only and 800,000 are serviced with bring schemes only.

Figure 26 – Non-bottle plastics packaging collection by region in 2009

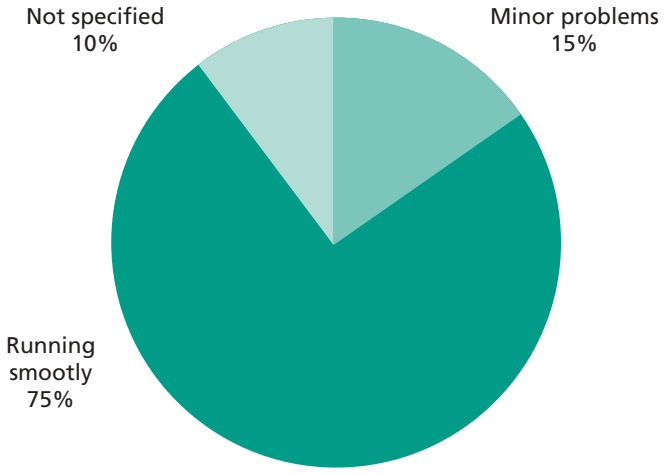
Area	Tonnage
East Midlands	5,546
Eastern	6,503
London	4,794
North East	1,053
North West	3,214
South East	2,913
South West	4,228
West Midlands	5,436
Yorkshire & Humberside	147
England	**33,834**
Northern Ireland	**275**
Scotland	**2,354**
Wales	**3,900**

[24]These numbers also indicate that 22 local authorities are collecting non-bottle plastic through both kerbside and bring schemes.

[25] Recoup - Domestic Mixed Plastics Packaging Recycling Guide http://www.recoupservicesltd.com/assets/20090311122511.pdf

The increase in local authorities collecting non-bottle plastics packaging suggests infrastructure developments which enable the authorities to collect and sort these material types. Of the 84 schemes which are actively collecting non-bottle plastics through kerbside schemes, 50 are directly compacting the materials within rear loading collection vehicles (RCV). The plastic bottles are expected to form part of this compaction process and are not segregated from the other plastics. When asked to outline how well the bring and kerbside collection schemes for non-bottle plastic packaging were running, the responses received from the 98 local authorities are outlined in Figure 27.

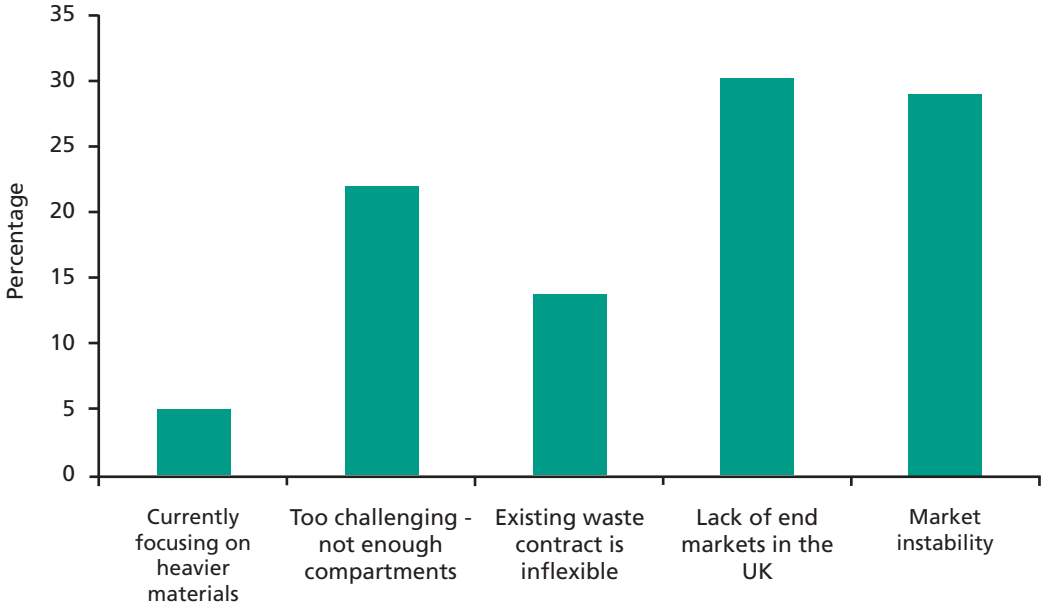
Figure 27 – Perception of active non-bottle plastic packaging collection



When compared to the 2008 and 2009 report, the responses received are similar with the majority of responses indicating that the scheme was running smoothly or identifying it had minor problems.

Local authorities not collecting non-bottle plastic packaging were asked for the main reason why they have currently not implemented such a scheme. A number of key reasons were available to choose from, and the most common issues related were lack of end markets in the UK, market instability and the lack of space available in the vehicle (Fig. 28).

Figure 28 – Factors preventing local authorities from collecting non-bottle household plastics



With the recyclability of a wider range of plastics packaging becoming an increasingly important issue for householders, the need exists for appropriate sorting facilities that can handle a wider mix of plastics packaging. Considering all 84 local authorities that are collecting non-bottle plastic through the kerbside, 28 are collecting carrier bags; 66 are collecting pots, tubs and trays and 4 are collecting dense non-packaging plastics. Of those 36 local authorities that declared collecting non-bottle plastic through bring sites, 16 are collecting carrier bags; 29 are collecting pots, tubs and trays and 10 are collecting other rigid plastics. It is clear that several local authorities collect more than one type of plastic via kerbside or bring sites.

Waste Disposal Authorities were not contacted in the 2010 survey, therefore, the data reported as non-bottle plastic from Household Recycling Centres for 2008 (1,505 tonnes) was adopted. However, there is a very strong likelihood that a proportion of this figure will actually be non-packaging plastics such as garden furniture, paint containers and plant pots.

Whilst the non-bottle plastic packaging reported figure is accepted and incorporated into the overall collection figures for 2009, there is known to be some schemes still collecting non-bottle plastic which are then baled with plastic bottles. This would impact on the overall individual tonnages reported for plastic bottles and non-bottle plastics.

The information provided in the survey suggests an increase of non-bottle plastics on the 2008 data of 77%; however, there is still some inability to accurately identify, in some cases, what is the level of non-bottle plastics being collected. It is reasonable to believe that the 40,363 tonnes figure reported for 2009 is understated. In order to quantify the extent of non-bottle plastics in baled bottles, greater use of material assessment checks would be needed.

In addition to the existing and planned plastic collection schemes, there are a number of waste treatment and processing technologies being investigated by local authorities. Survey respondents were asked to indicate any new waste management systems being considered or implemented in their area. While these developments will be driven by the need for landfill avoidance and pre-treatment of waste, they may also provide the opportunity to divert more plastic packaging away from landfill.

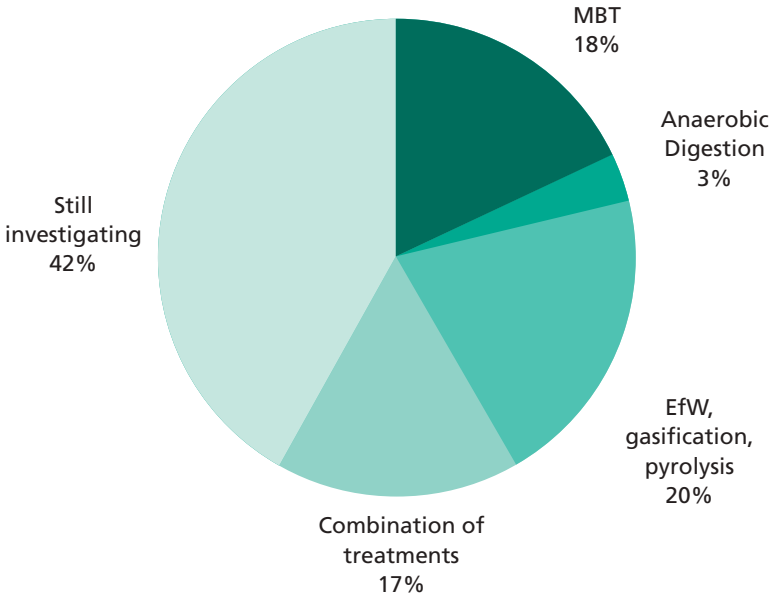
New Technologies

Of the local authorities who actively responded to the survey, 143 stated that they are planning to introduce some form of new technology to handle waste over the next 10 years. The primary new technologies being investigated or implemented are shown in Figure. 29, including:

- Energy from Waste plants (EfW), including pyrolysis and gasification
- Mechanical Biological Treatment plants (MBT)
- Anaerobic Digestion plants

Whilst the current economic climate is having wide reaching effects on industry, it is clear that the options which have been planned some time ago to change the ways in which household waste is handled are still very much at the forefront of local authority thinking. Future government waste policy will also influence the local government approach to waste management in the future. Figure 30 shows the timescale indicated by the local authorities for the planned implementation.

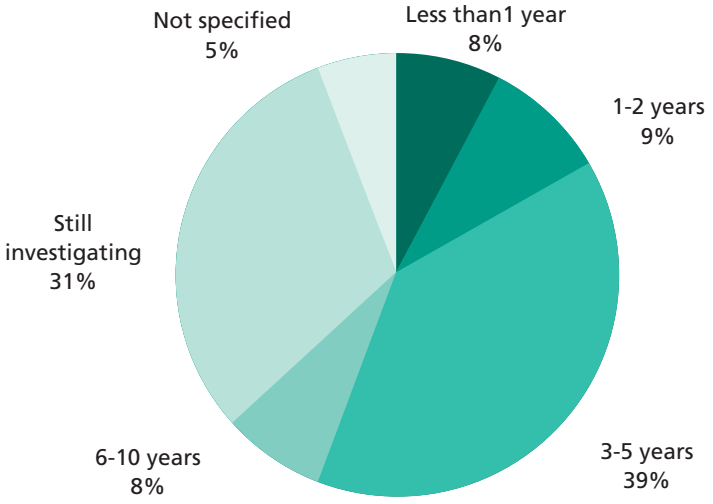
Figure 29 – Planned waste treatment technologies



Twenty one local authorities demonstrated their intentions to implement a combination of waste treatments and specified the following combination: MBT and EfW, MBT and In-Vessel Composting (IVC); MBT and AD; AD and IVC; AD and EfW or even a combination of three or more treatments.

When considering the timescale to implement the new technologies, 17% of the plants are likely to be commissioned within the next 2 years with a further 39% planned for implementation within the next 3 - 5 years. The 31% of authorities who were unable to commit to a timescale had done so as they are continuing to investigate which technology would be the most appropriate. The majority of the 143 local authorities who are intending to implement new technologies also indicated that whilst the plans are in development to introduce new methods of waste handling, very few of these plans will impact upon the existing collection schemes for recovering plastics packaging.

Figure 30 – Expected timescale for the implementation of the new technologies



Bring Schemes

In the past five years, the collection of plastic bottles through bring scheme sites has been experiencing a year on year growth. The 2009 data indicates a small increase in relation to 2008, with approximately 44,500 tonnes of plastic bottles collected through the bring schemes. It is noticed that bring schemes are increasingly regarded as an additional, rather than alternative service to kerbside collections.

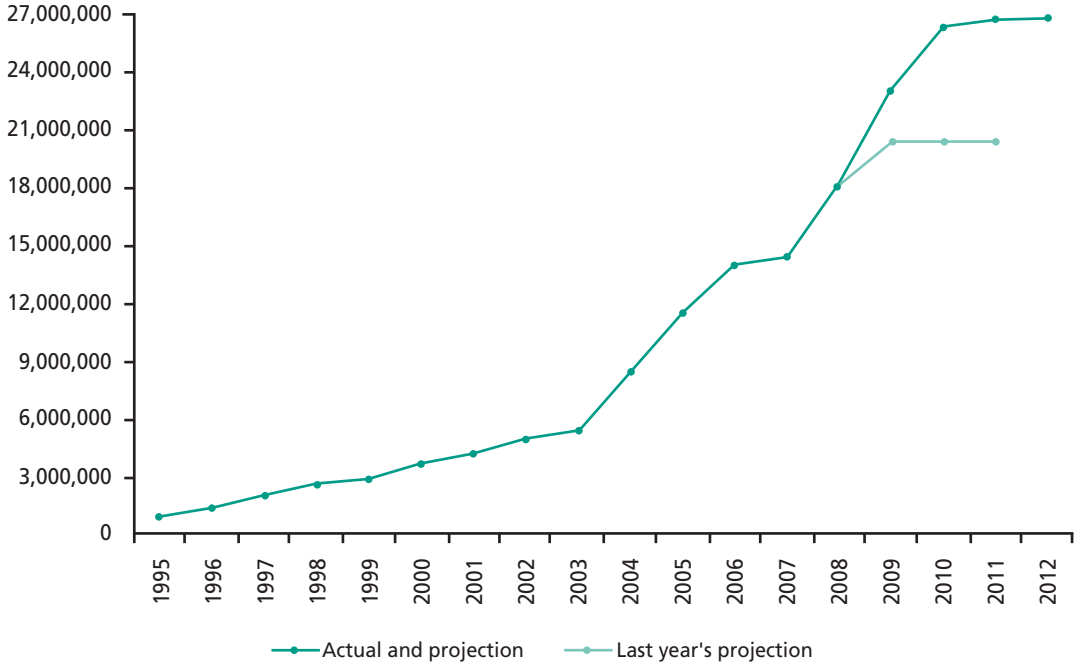
Over the next 3 years, 16 local authorities informed their intentions to introduce plastic bottle collection through bring sites for the first time, with an estimated 400 new sites by 2012. In addition, local authorities with existing bring sites also informed of their plans to extend the service, with approximately 120 new sites collecting plastic bottles and 15 sites collecting both plastic bottles and other plastic packaging. When considering the current recovery rate, these new sites are expected to increase the annual tonnage by approximately 3,600, 4,000 and 4,600 tonnes in 2010, 2011 and 2012, respectively.

Kerbside Schemes

Kerbside bottle collection schemes have seen dramatic growth levels since 2005, experiencing a growth of 27% to 215,576 tonnes. Several factors can be attributed to this increase in kerbside collection: new collections are being launched, existing schemes are being expanded, and local authorities are adopting good practices to maximise system efficiency and tonnage recovery.

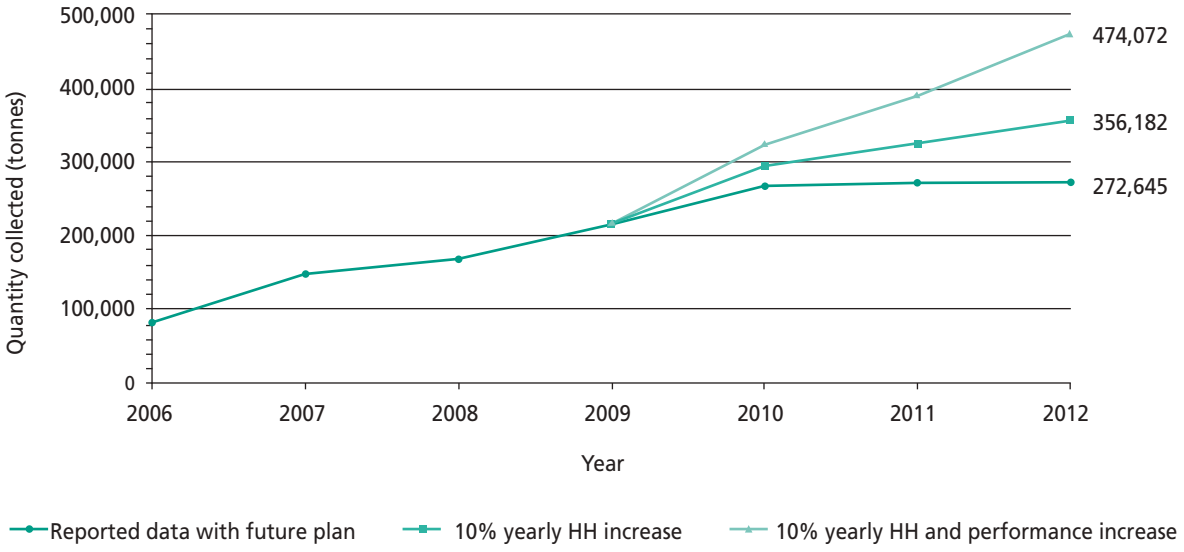
The growth of kerbside service infrastructure since 1995 and the estimated growth potential for 2010-2012 is shown in Figure 31. This estimation is based on reported plans from local authorities as well as an additional 10% increase for each year's estimation to account for local authorities that did not have plans confirmed at the time of the survey, and also population growth. It is noted that in the last 10 years, new plastic bottle kerbside collection services have been provided to approximately 20 million households.

Figure 31 – UK plastic bottle kerbside scheme coverage over time, including planned growth



The data regarding new kerbside collections suggests that an annual kerbside bottle collection rate of approximately 272,000 tonnes can be expected by 2012. This should be considered as indicative only as some local authorities were not able to provide details at the time of the survey. If the yearly growth in number of households receiving kerbside plastic bottle collections can be increased by a further 10% per year from 2010 onwards, the quantity of plastic bottles collected from kerbside in 2012 would increase to over 356,000 tonnes. If a yearly 10% increase in overall kg/hh/yr performance across all schemes was also realised, the estimated plastic bottle collection would be over 407,000 tonnes by 2012 (Fig. 32).

Figure 32 – Kerbside plastic bottle collection growth estimates based on actual data and inferred infrastructure and performance increases



Development of Non-Bottle Plastics Packaging Collections

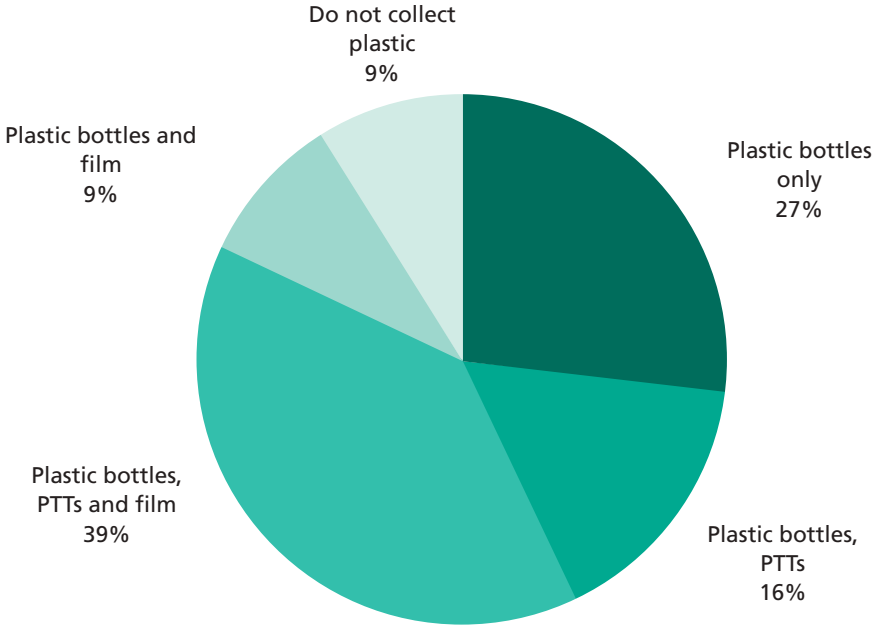
There is a trend from local authorities to include 'other' plastics packaging in the kerbside recycling collection schemes. However, it is difficult to measure the development of non-bottle plastics packaging recycling, and therefore future collection rates are also difficult to predict. While future increased tonnage of non-bottle plastic packaging is expected, the scale of this increase will be largely dependent on the ability to sort the materials locally, end market values, and the development in reprocessing opportunities.

The majority of household plastics packaging collected within the UK are processed by Materials Reclamation Facilities (MRFs). As part of the survey, waste management companies were approached to identify current operational capabilities of UK MRFs.

Operators were contacted from several waste management companies. The purpose of the survey was to understand basic activities within the plant, such as type of plastic packaging collected and level of sorting. A total of 91 MRFs from a database were contacted, and 72 positive responses were obtained. Out of those, 77% (56 sites) were operating as a MRF, the remaining were operating as a transfer station/bulky station or have ceased operations.

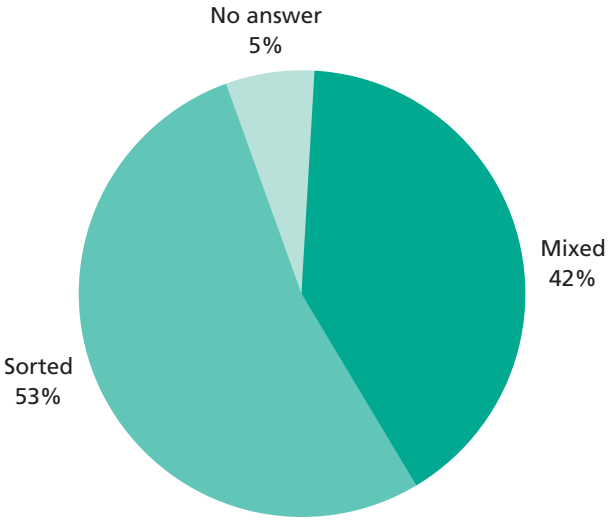
Regarding the type of plastic collected as shown in Figure 33, 27% handle plastic bottles only, 16% handle plastic bottles and pots, tubs and trays (PTTs), 39% handle plastic bottles, PTTs and film, 9% handle plastic bottles and film; an additional 9% did not handle any plastic.

Figure 33 – Breakdown of plastics packaging processed by MRF's



All MRF's will separate plastic from other recyclables where handled. Of those processing a wider range of plastics than just bottles, 53% separated the plastic bottles from the other plastics before baling, whilst 42% baled plastic bottles and other plastics together (5% did not specify).

Figure 34 – Proportion of MRFs baling plastic bottles sorted and mixed with other plastics



This survey is only intended to be a representative snapshot of UK MRFs activities and approaches to the handling of plastics through those facilities. From the data received, it is clear that plastic bottle processing capabilities are available at most MRF facilities; in addition, some can now handle other rigid plastic packaging such as pots, tubs and trays as well. It is not possible, however, to assess whether there are any significant regional differences throughout the UK, or variations between high and low populated density areas. Also note that this is based on sorting facilities so does not generally account for the material handled through source separate collections.

Because of the lack of sorting infrastructure at most MRFs capable of handling and segregating the non-bottle plastic fraction a number of adverse impacts are occurring, including:

- Higher downtime and maintenance periods at MRFs to remove plastic film 'plugging' (blocking) the apertures in trommel sorting equipment and the removal of film which has wrapped around the shafts of screen sorting systems. In both these cases the progressive build up of film in these areas results in less sorting and poorer quality of segregated materials.

- Plastic film and some larger flat plastic packaging items such as tray lids are being automatically segregated with the paper and cardboard fractions resulting in additional sorting requirements to maintain quality or as in the case generally a lower price is paid for the paper/cardboard material which contains higher plastics contamination levels.

- Because of the lack of equipment/personnel in most MRFs, PTTs are not segregated and are baled with the plastic bottle fraction. This is resulting in higher yield losses at plastic reprocessors and lower sales values paid, as a result, for such baled materials. A number of items such as plastic film and black PTTs cannot be cost effectively sorted and their inclusion is resulting in increased and avoidable costs to handle/remove this material.

- The plastics fraction is in some cases being contaminated with paper and glass materials also being handled at the MRF.

- In order to maintain a sustainable recycling programme care needs to be taken in specifying materials that are to be collected from the household. Adequate sorting infrastructure should exist to ensure that the requested materials can be cost effectively segregated into a format suitable for reprocessors; that the value of the material be maximized; and, importantly, that end markets for all materials collected exist.

- Risk assessments on potential cross contamination of material types should be undertaken before new material types are included for collection and the potential impacts both in terms of quality and material sale values are recognised and considered.

Working across the plastic supply chain to manage commercial and political pressures in line with realistic targets will help to steer the sustainable development of the non-bottle plastic packaging recycling opportunity.

In recognition of those local authorities operating the best performing UK household plastic collection schemes in 2009, Recoup have initiated the Household Plastics Packaging Recycling Awards to recognise their efforts and achievements.

Based on total tonnage collected via kerbside and average tonnage per household, the following local authorities have been recognised by their efforts and achievements. [26]

Figure 35 – Household Plastics Packaging Collection Awards Listing

	Based on Total Tonnage Collected	Based on Average kg/hh/yr
Best Performing Scheme in England	Mid Suffolk	Mid Suffolk
Best Performing Scheme in Wales	Caerphilly	Caerphilly
Best Performing Scheme in Scotland	North Lanarkshire	Midlothian
Best Performing Scheme in Northern Ireland	Belfast	Cookstown
Best New Scheme	North Lanarkshire	-

[26] Performance based on the actual data received by local authorities.

Table of Figures

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UK Household Plastics Packaging Collection Survey 2010

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