Wheelabrator TECHNOLOGIES

Deadline 4: Applicant's Response to Submissions at Deadline 3

Appendix 1 – Digest of Waste and Resources Statistics 2018, DEFRA

Wheelabrator Kemsley (K3 Generating Station) and Wheelabrator Kemsley North (WKN) Waste to Energy Facility Development Consent Order

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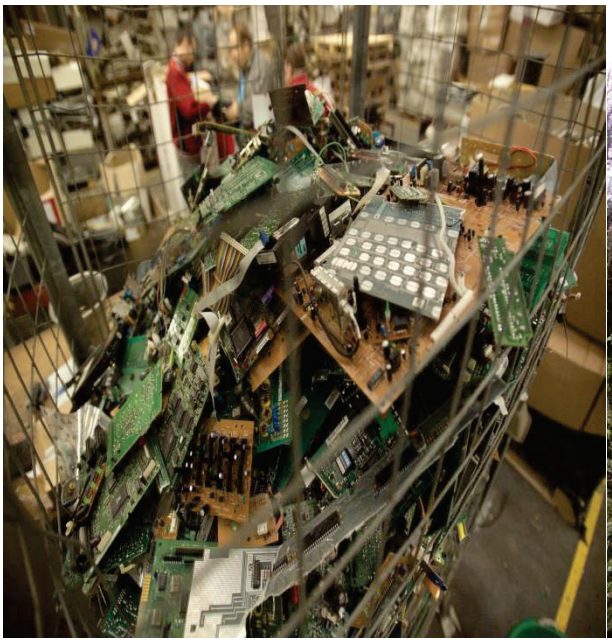
Department
for Environment
Food & Rural Affairs

Digest of Waste and Resource Statistics - 2018 Edition

May 2018



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www.gov.uk/government/collections/waste-and-recycling-statistics

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Foreword

This is the fourth edition of the Digest. The format and many of the subjects covered are the same as for previous editions, but there is also some new content.

Waste and resource are subjects for which there is a wealth of published data and it can be challenging to readily find the data you want and of interest. The aim of this Digest is to help by bringing together a wide range of key statistics on waste and resource into one publication.

The Digest is aimed at a wide audience, including policymakers, analysts and specialists in the Defra Network, Environment Agency, WRAP, other organisations, the waste sector, academia, other researchers and consultancies.

The authors are indebted to all those who helped develop this edition by suggesting and providing material and commenting on the drafts.

Introduction

The Digest of Waste and Resource Statistics is a compendium of statistics on a range of waste and resource areas, based on data published mainly by Defra, WRAP, the Environment Agency, Office for National Statistics, and Eurostat. They are collated in this Digest for ease of use.

The various sets of data are not all for the same time periods but the most recent available data has been used.

The Digest starts with resource use in the UK – this looks at the physical flow of available materials through the economy, followed by sections looking at waste.

Official Statistics

These statistics have been produced to the high professional standards set out in the Code of Practice for Official Statistics, which sets out eight principles including meeting user needs, impartiality and objectivity, integrity, sound methods and assured quality, frankness and accessibility.

More information on the Official Statistics Code of Practice can be found at www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html.

Waste Prevention Metrics

Included in the Digest are 7 data sets which have been chosen as being suitable indicators, taken collectively, for monitoring waste prevention. These are:

- Raw Material Consumption per unit of GDP. (Page 17)
- Waste arising per unit of gross value added for the commercial and industrial sector. (Page 19)
- Waste arisings by sector (construction and demolition, commerce, industry, household). (Page 30)
- Waste from households. (Page 33)
- Hazardous waste arisings by sector. (Page 36)
- Gross value added of the repair and reuse sector. (Page 61)
- GHG emissions from landfill. (Page 78)

These items have been individually labelled ‘waste prevention metric’ within the Digest.

Developing metrics to serve as indicators to monitor progress on waste prevention is a key part of the Waste Prevention Programme for England. More information is available through the link below:

www.gov.uk/government/publications/waste-prevention-programme-for-england

Summary

Resource Use: (Section 1)

- Domestic Material Consumption measures the amount of materials used in the economy.
- In 2015, Domestic Material Consumption was 576 million tonnes – a slight decrease from 591 million tonnes in 2014. This was driven by decreases in the extraction of biomass and fossil fuels.
- In 2015, Domestic Material Consumption (excluding fossil fuels) represented 8.9 tonnes per capita.

Waste from Households: (Section 2)

- Waste arising from households in the UK increased by 2 per cent between 2015 and 2016, to 27.3 million tonnes.
- Waste from households in England amounted to 22.8 million tonnes in 2016. This is equivalent to 412 kg per person and represents a 2.5 per cent increase on 2015.

Destination of Waste: (Section 3)

- Total local authority managed waste in 2016/17 was 26.1 million tonnes, up by 0.6 per cent on 2015/16.
- In 2016, 15.7 million tonnes of municipal waste was sent to landfill. Of this, 7.7 million tonnes was biodegradable municipal waste.
- The UK waste from households recycling rate (including IBA metal for the first time) was 45.2 per cent in 2016, increasing from 44.6 per cent in 2015. This increase was seen in all UK countries.

Waste Composition: (Section 4)

- Composition of waste from households in England has changed very little over time, with residual waste making up over half; dry recycling around a quarter; and other organics and separately collected food waste making up the rest.
- In 2016, approximately 6 million tonnes of dry recycling came from households in England. Paper and card made up 39 per cent of dry recycling, glass made up 20 per cent.

Food Waste: (Section 5)

- Around 10 million tonnes of food and drink was wasted in the food chain in 2015 This is equivalent to around one quarter of the 41 million tonnes of food bought. Around 60 per cent of this is avoidable.

Economic Characteristics: (Section 6)

- In 2016, the Gross Value Added (GVA) that the waste sector generated showed a slight increase, to 0.47 per cent of the economy's GVA.
- In 2017, 3.2 million tonnes of refuse-derived fuel were exported from England – the majority was sent to The Netherlands, Germany and Sweden.

Waste Infrastructure: (Section 7)

- In 2016 there were around two-thirds of permitted sited accepting waste.
- The waste industry in England holds over 11,000 Environmental Permitting Regulations (EPR) permits issued by the Environment Agency. The number of permitted waste facilities increased by 18 per cent between 2010 and 2016.

Environmental Issues Relating to Waste: (Section 8)

- In 2016/17 it cost local authorities in England £682 million to keep the streets clean from litter.
- In 2016/17, 2.1 billion single-use carrier bags were sold by large retailers in England.
- Emissions of methane (CH_4) from both landfill and the wider waste management sector increased slightly in 2016 compared to 2015, however these are similar to the emissions in 2014.

Behaviours regarding Waste: (Section 9)

- In a 2017 survey of UK households, almost two thirds of households (66%) express uncertainty over what can be put in the recycling bin.
- Over three quarters (76%) add one or more item to their recycling collection that is not accepted locally.
- Over half (53%) of UK households dispose of one or more items in the residual bin that are collected for recycling in their area.

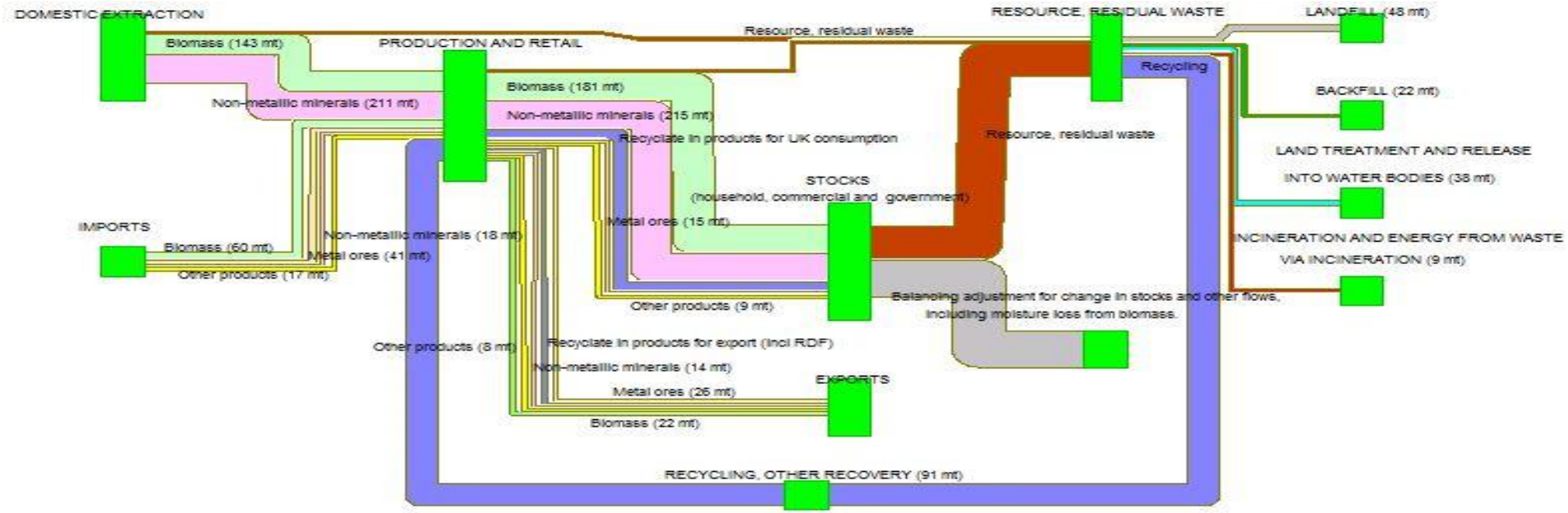
Fly tipping: (Section 10)

- For the 2016/17 year, local authorities dealt with over 1 million incidents of fly-tipping in England, ranging in size from single black bag to tipper lorry load.
- 67 per cent of all fly-tips in England in 2016/17, 675 thousand incidents, were household waste.
- The cost of clearance to local authorities of fly-tipping incidents in 2016/17 was £57.7 million.

Section 1: Resource flows, efficiency of resource use, electricity from bioenergy

Resource flows

Figure 1.1: Sankey diagram of flow of resource in the UK, 2014, (excluding fossil fuels and energy carriers).



- Figure 1.1 depicts the flow of material resource, including waste, in the UK in one year (2014)
- A Sankey diagram approach is helpful in depicting the 'circular economy' and can quickly illustrate the relative sizes of throughput of resource and the proportion recovered, including recycling. Broadly speaking, the flows are from left to right, apart from 'recycling, other recovery' which flows clockwise.
- Some processes, such as metal re-melt, allow recycling many times in a closed loop, whilst others, such as formation of glass aggregate, recycle materials once to a lower value.

Notes: Data on landfill, backfill, incineration, land treatment, recycling and other recovery are from Eurostat. Please note that the 'pipes' are not all to scale
The data for domestic extraction, imports and exports is drawn from the material flows within the Environmental Accounts published by ONS
Source: https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/ukenvironmentalaccounts/2017

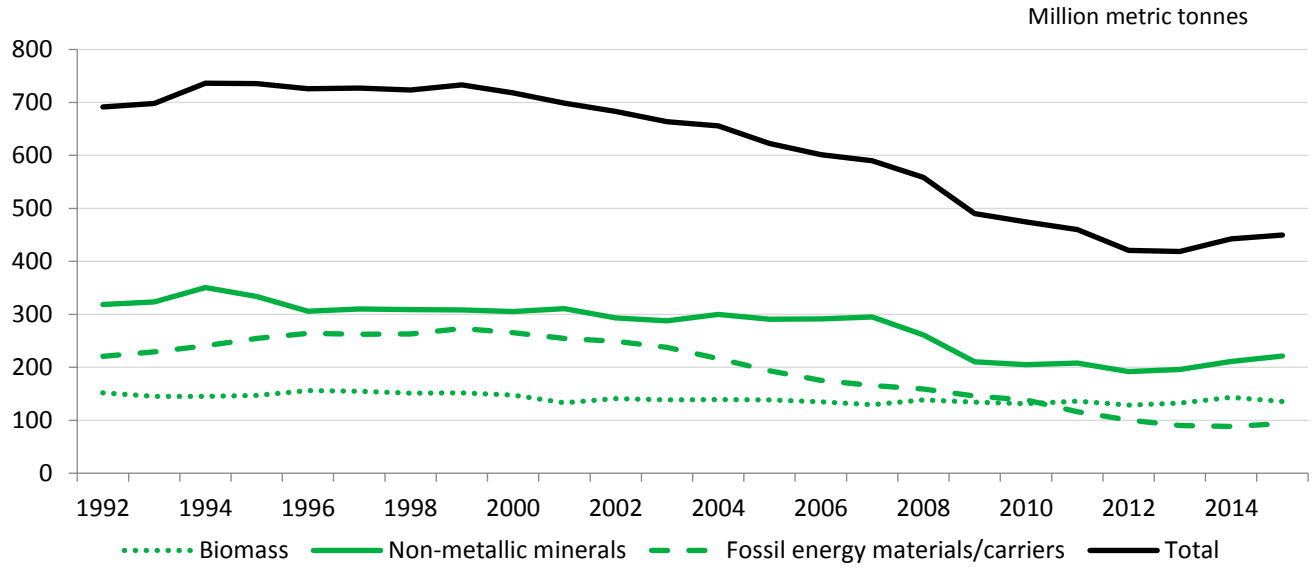
UK Domestic Extraction

Table 1.1: UK Domestic Extraction, 2005 to 2015

Million metric tonnes

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Biomass	138	134	130	138	134	131	136	129	132	143	135
Metal Ores	0	0	0	0	0	0	0	0	0	0	0
Non-metallic minerals	291	291	295	261	210	205	208	192	196	211	221
Fossil energy materials/carriers	193	175	165	159	146	139	116	100	90	88	94
Total	**622**	**601**	**591**	**559**	**490**	**475**	**460**	**421**	**419**	**443**	**450**

Figure 1.2: UK Domestic Extraction 1992 to 2015



- Domestic Extraction shows the amount of resources from the natural environment that are available for use in the economy.
- Total UK domestic extraction was 450 million metric tonnes in 2015, a 1.6 per cent increase from 2014 (443 million tonnes). This was the second year in a row there has been an increase in UK domestic extraction, and this was largely due to an increase in the extraction of non-metallic minerals such as limestone and gypsum.
- This represented 6.9 tonnes per capita (per person) in 2015.

Notes: Metal ores are not included on the chart as the quantity extracted is small
Since the publication of UK Environmental Accounts 2015, there have been revisions and updates, largely due to revisions in data sources and improvements to methodology

Source: Department for Environment, Food and Rural Affairs; Food and Agriculture Organization of the United Nations; Eurostat; European Forest Institute; Kentish Cobnuts Association; British Geological Survey, https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/ukenvironmentalaccounts/2017 - Figure 6.1

UK Imports and Exports

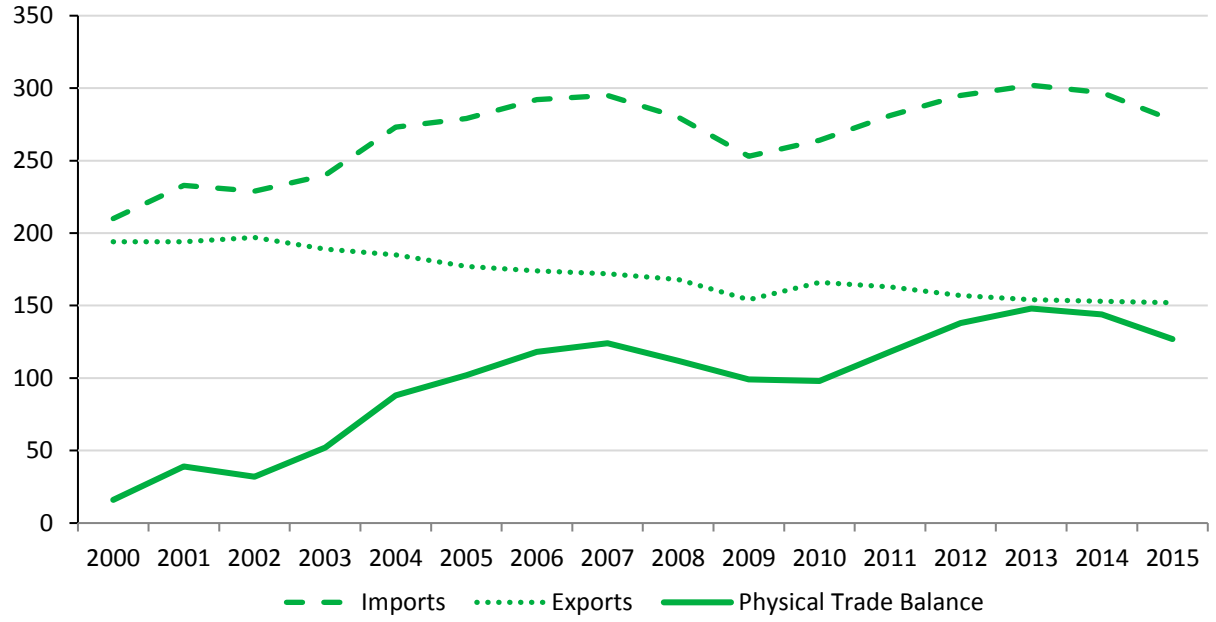
Table 1.2: UK Imports, Exports and Physical Trade Balance 2005 to 2015

Million metric tonnes

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Imports	**292**	**295**	**280**	**253**	**264**	**281**	**295**	**302**	**297**	**278**
Biomass	54	54	52	49	51	50	52	58	60	59
Metal ores	45	48	43	27	33	33	34	38	41	38
Non-metallic minerals	16	17	16	13	15	16	14	15	18	18
Fossil energy	159	159	152	149	148	165	188	175	162	148
Exports	**174**	**172**	**168**	**154**	**166**	**163**	**157**	**154**	**153**	**152**
Biomass	21	21	22	20	22	22	22	21	22	23
Metal ores	27	27	27	21	24	25	24	25	26	24
Non-metallic minerals	24	23	21	17	17	17	14	15	14	12
Fossil energy	94	90	89	88	96	92	89	85	82	85
Overall Physical Trade Balance	**118**	**124**	**112**	**99**	**98**	**118**	**138**	**148**	**144**	**127**

Figure 1.3: UK Imports, Exports and Physical Trade Balance 2000 to 2015.

Million metric tonnes



- Imports and exports show the amount of resources passing through the economy.
- The Physical Trade balance equals Imports minus Exports.
- In 2015, the Physical Trade balance was 127 million tonnes, a decrease from 144 million tonnes in 2014.
- The widening gap between physical imports and exports suggests that the UK is becoming more reliant on the production of materials in other countries

Notes: Since the publication of UK Environmental Accounts 2015, there have been revisions and updates, largely due to revisions in data sources and improvements to methodology

Source: HM Revenue and Customs, Office for National Statistics
https://www.ons.gov.uk/economy/environmentalaccounts/datasets/ukenvironmentalaccountsmaterialflowsaccountunitedkingdom - Imports/Exports tabs

UK Domestic Material Consumption

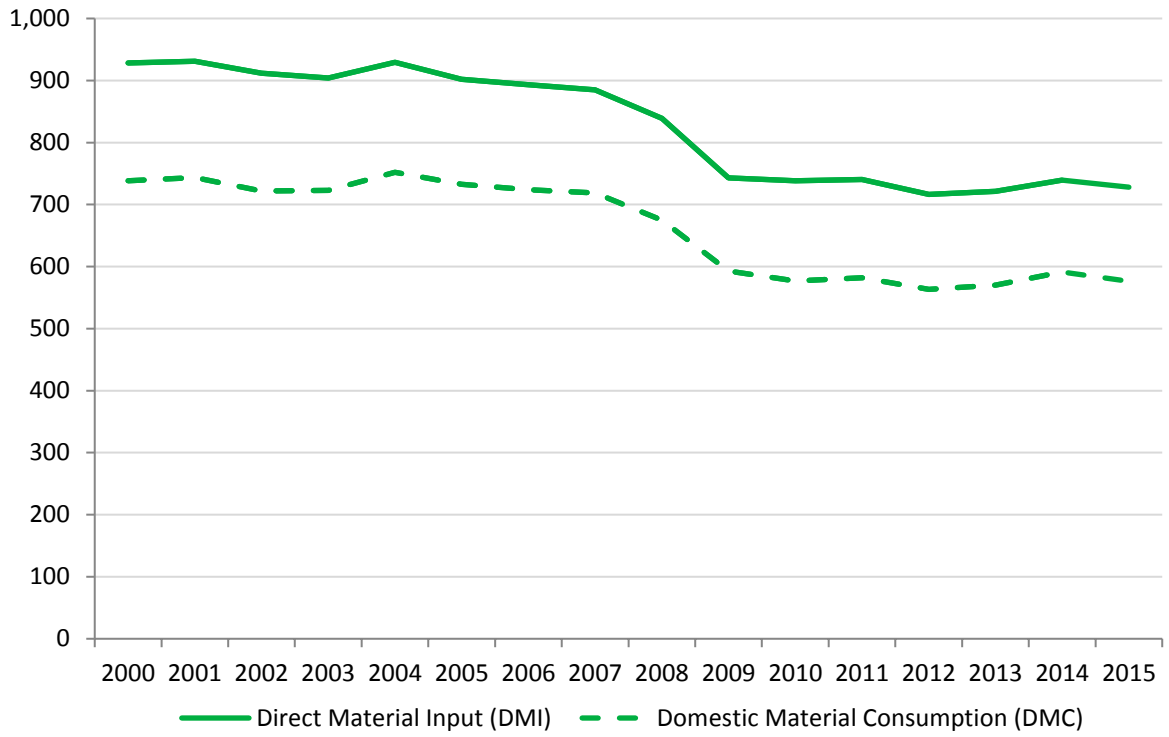
Table 1.3: UK Direct Material Input (DMI) and Domestic Material Consumption (DMC), 2005 to 2015.

Million metric tonnes

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Direct Material Input (DMI)	902	893	885	839	743	739	741	716	721	739	728
Domestic Material Consumption (DMC)	**733**	**724**	**719**	**675**	**593**	**577**	**582**	**563**	**570**	**591**	**576**
Biomass	174	170	164	171	166	163	167	161	172	183	173
Metal Ores	17	18	21	16	6	10	9	10	13	15	14
Non-metallic minerals	288	288	293	259	208	206	209	194	198	218	230
Fossil fuels	253	248	242	229	213	198	197	198	187	175	159

Figure 1.4: UK Direct Material Input and Domestic Material Consumption, 2000 to 2015.

Million metric tonnes



- In 2015, DMC was 576 million tonnes, and DMI was 728 million tonnes – a slight decrease from 2014. This was largely due to a decrease in extraction of fossil fuels.
- In 2015, DMI represented 11.2 tonnes per capita and DMC represented 8.9 tonnes per capita.

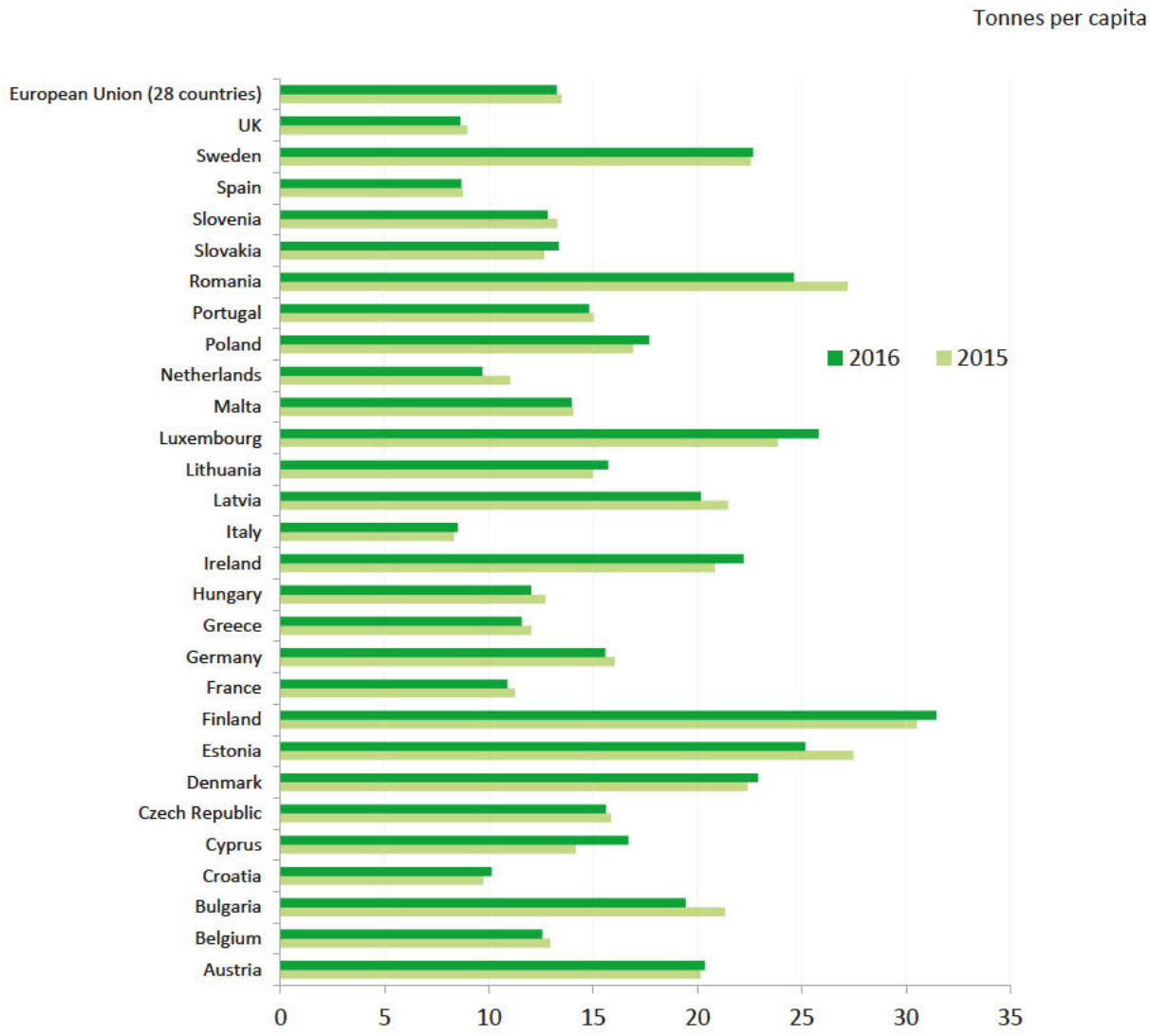
Notes: Direct Material Input (DMI) (Domestic extraction + Imports) measures the total amount of materials available for use in the economy, Domestic Material Consumption (DMC) (Domestic extraction + Imports – Exports) measures the amount of materials used in the economy, and is calculated by subtracting exports from DMI.

Since the publication of UK Environmental Accounts 2015, there have been revisions and updates, largely due to revisions in data sources and improvements to methodology

Source: Office for National Statistics
www.ons.gov.uk/economy/environmentalaccounts/datasets/ukenvironmentalaccountsmaterialflowsaccountunitedkingdom - Indicators tab

Domestic Material Consumption (DMC) per capita

Figure 1.5: Domestic Material Consumption per capita, for EU member states, 2015 and 2016[1].



- In 2016, DMC per capita was highest in Finland at 31.5 tonnes per capita
- In 2016, the UK figure of 8.6 tonnes per capita was the second lowest, and below the EU 28 figure of 13.3 tonnes per capita.
- Finland's high level of DMC per capita reflects a low population density and a high resource extraction from woodlands
- **Figures should be treated with some caution, particularly when making comparisons across Member States, as we have not robustly verified the quality of the data from other Member States.**

Notes: [1] **2016 data is provisional**

Source: ec.europa.eu/eurostat/tgm/table.do?tab=table&plugin=1&language=en&pcode=t2020_rl110

Raw Material Consumption (RMC) and Domestic Material Consumption (DMC), UK

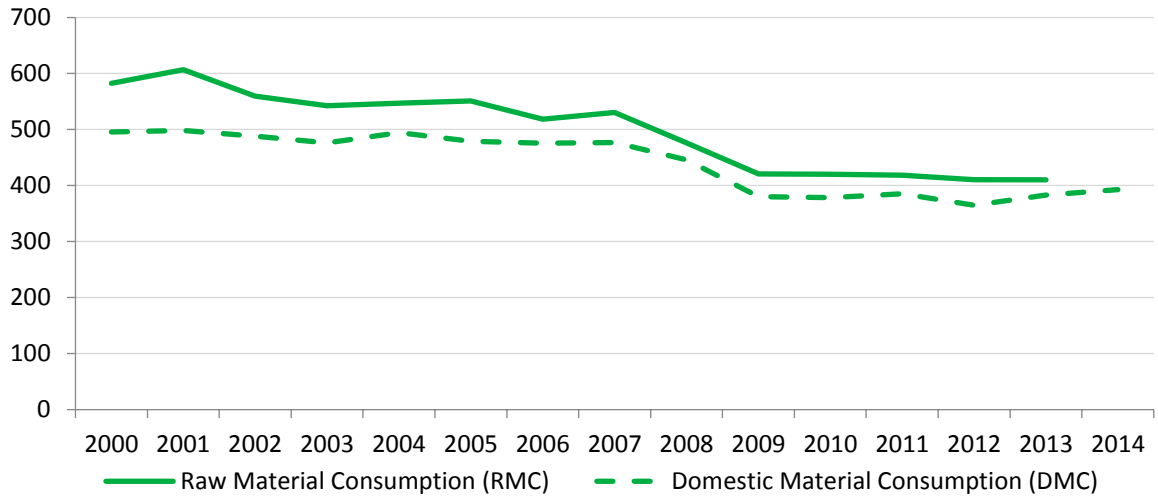
Table 1.4: Raw Material Consumption (excluding fossil fuels), UK, 2005 to 2013, and Domestic Material Consumption (excluding fossil fuels), UK, 2005 to 2015.

Million metric tonnes

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DMC	479	476	477	446	380	379	385	365	383	416	417
RMC	551	518	531	476	421	421	418	410	410		

Figure 1.6: UK Raw Material Consumption and Domestic Material Consumption (excluding fossil fuels), 2000 to 2015.

Million metric tonnes



- In 2013, RMC excluding fossil fuels was 410 million tonnes, which was 7 per cent higher than DMC at 383 million tonnes.
- Estimates of RMC peaked in 2001 at 607 million tonnes, which was almost 22 per cent higher than DMC at 498 million.

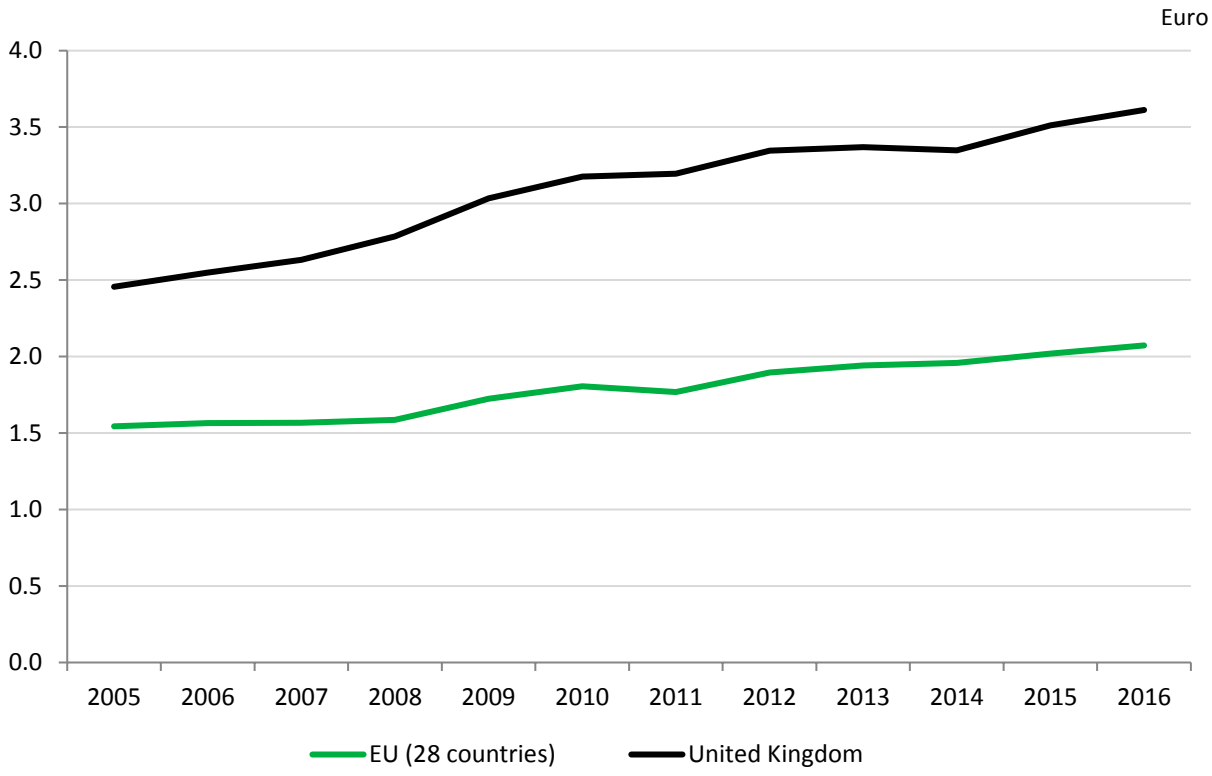
Notes: A limitation of the DMC indicator is its 'asymmetry': it measures the domestic extraction of material resources in tonnes of gross harvest and ore, whereas the imports are measured according to the weight of goods crossing the boundary independent of how far the imported products have been processed (Eurostat, 2012). The Raw Material Consumption (RMC) indicator is designed to overcome this asymmetry. In addition to domestic extraction, RMC includes imports expressed or converted into their Raw Material Equivalents (RME) (into equivalents of domestic extraction from the rest of the world to produce the respective goods

Since the publication of UK Environmental Accounts 2015, there have been revisions and updates, largely due to revisions in data sources and improvements to methodology

Source: ONS
www.ons.gov.uk/economy/environmentalaccounts/articles/ukenvironmentalaccountshowmuchmaterialistheukconsuming/ukenvironmentalaccountshowmuchmaterialistheukconsuming

Growth in the economy and efficiency of resource use

Figure 1.7: Gross Domestic Product per tonne of Domestic Material Consumption, EU_28 and UK, 2005 to 2016.



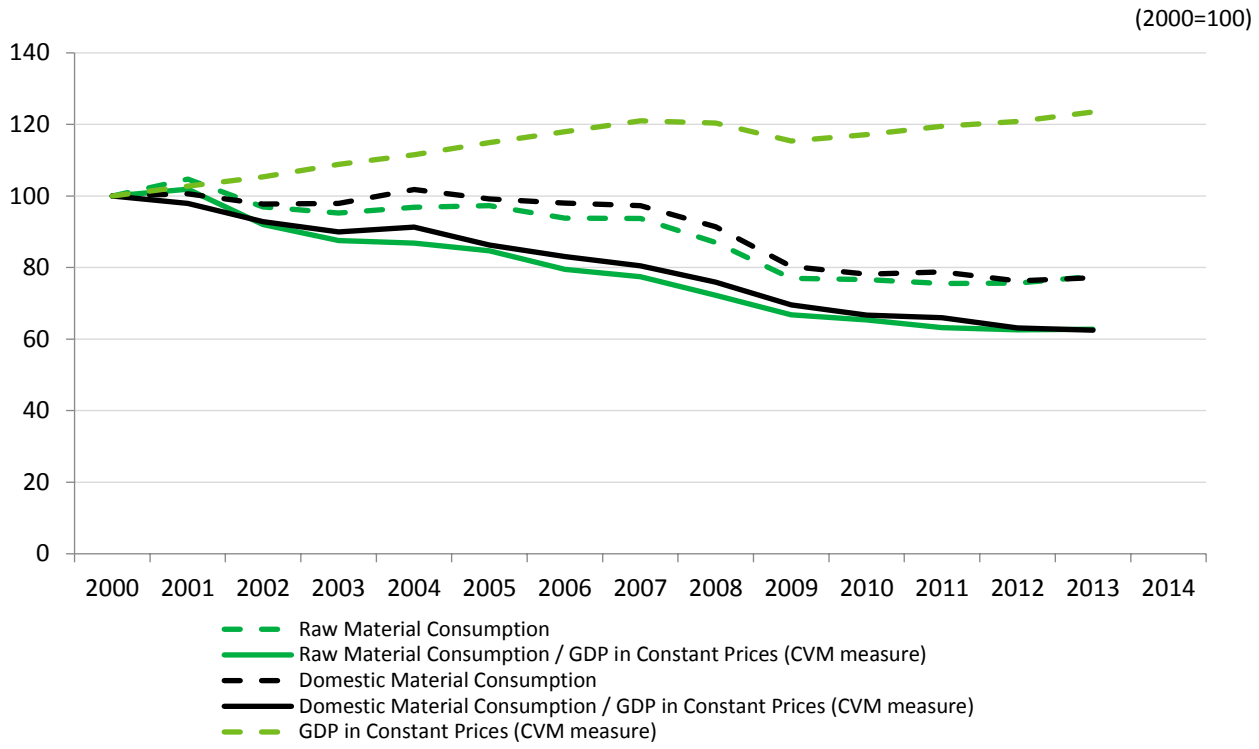
- GDP per tonne of Domestic Material Consumption has shown an increase since 2005 for both the UK and the EU_28. This possibly suggests some weakening in any link between economic growth and DMC.

Notes: Resource productivity is gross domestic product (GDP) divided by domestic material consumption (DMC).

For the calculation of resource productivity Eurostat uses the GDP in units of Euros in chain-linked volumes to the reference year 2010 at 2010 exchange rates

Source: http://ec.europa.eu/eurostat/statistics-explained/index.php/Resource_productivity_statistics#Resource_productivity

Figure 1.8: Index values of Raw Material Consumption and Domestic Material Consumption per unit of GDP in constant prices, UK, 2000 to 2014. *(Waste Prevention Metric)*.



- Since 2000, raw material resource consumption per unit of GDP has reduced; this suggests that there has been some decoupling of resource use and income generation across the economy.

Notes: GDP given in CVM (Reference Year 2012)

A limitation of the DMC indicator is its 'asymmetry': it measures the domestic extraction of material resources in tonnes of gross harvest and ore, whereas the imports are measured according to the weight of goods crossing the boundary independent of how far the imported products have been processed (Eurostat, 2012).

The Raw Material Consumption (RMC) indicator is designed to overcome this asymmetry. In addition to domestic extraction, RMC includes imports expressed or converted into their Raw Material Equivalents (RME) (into equivalents of domestic extraction from the rest of the world to produce the respective goods

Since the publication of UK Environmental Accounts 2015, there have been revisions and updates, largely due to revisions in data sources and improvements to methodology

Source: Office for National Statistics: www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/abmi
www.ons.gov.uk/economy/environmentalaccounts/articles/ukenvironmentalaccountshowmuchmaterialistheukconsuming/ukenvironmentalaccountshowmuchmaterialistheukconsuming
www.ons.gov.uk/economy/environmentalaccounts/bulletins/ukenvironmentalaccounts/2016 - Material Flows
www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/secondestimateofgdp

Figure 1.9: Raw Material Consumption, Domestic Material Consumption and Gross Domestic Product in constant prices, 2000 to 2014.

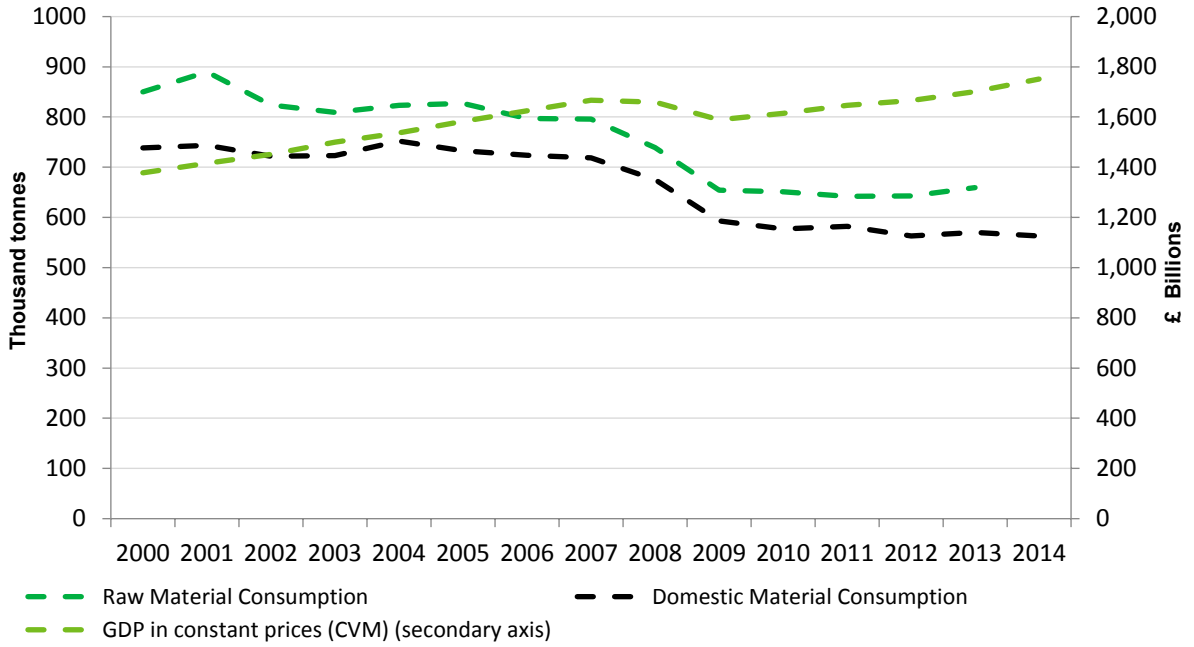
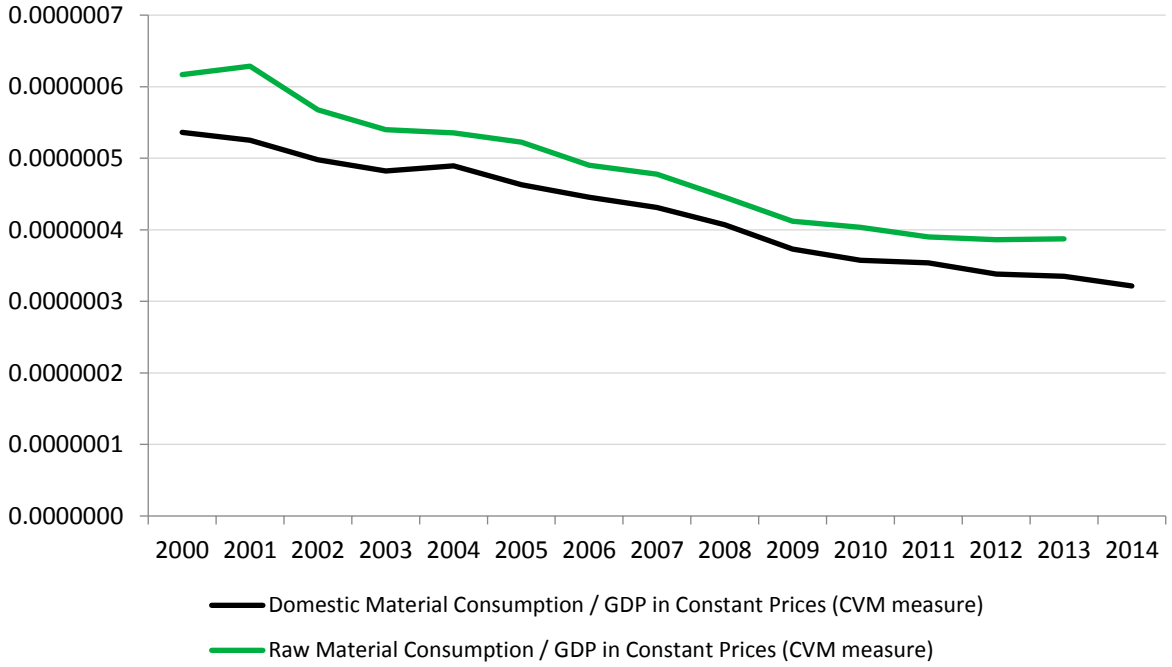


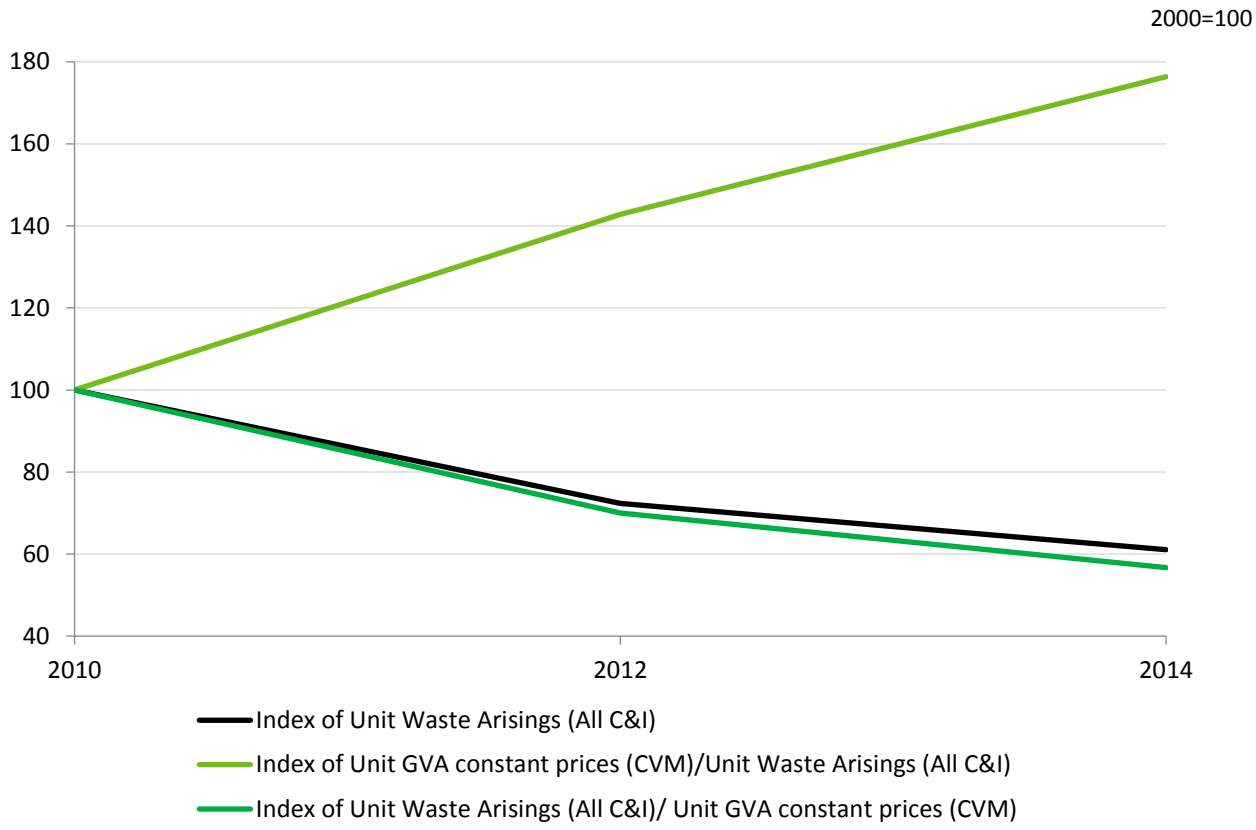
Figure 1.10: Raw Material Consumption and Domestic Material Consumption per unit of GDP in constant prices, 2000 to 2014



Source: As per Figure 1.8

Index of GVA and C&I waste

Figure 1.11: Graph comparing index trends in waste arisings, tonnes of waste per £ of GVA and £ of GVA per tonne of waste for the UK's commercial and industrial sectors, 2010 to 2014 (*Index of waste per unit of GVA is also a Waste Prevention Metric*).



- Figure 1.11 uses the chain volume measure of GVA. This measure already takes price fluctuations into account.
- Between 2010 and 2014, GVA per unit of waste arisings increased
- Between 2010 and 2014 waste arisings for commercial and industrial sectors has decreased.

Notes: The metric is based on Defra C&I data and UK National Statistics National Accounts. GVA given in CVM. Combining the two provides a measure of waste intensity per unit of output at a sectoral level.

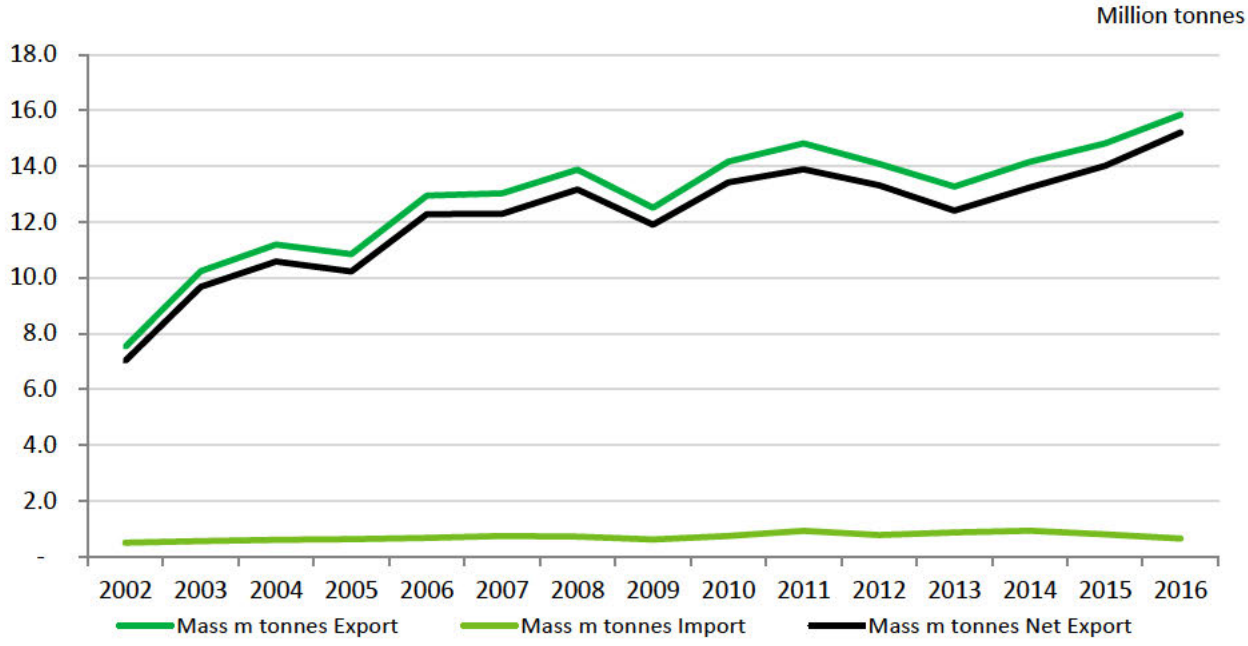
The C&I figures here have not been backdated to reflect significant updates to England C&I estimates for 2010-2014, made in February 2018. These will be updated after the generation of the 2016 Waste Statistics Regulation Return in June 2018. In the interim, caution should be exercised when using these figures.

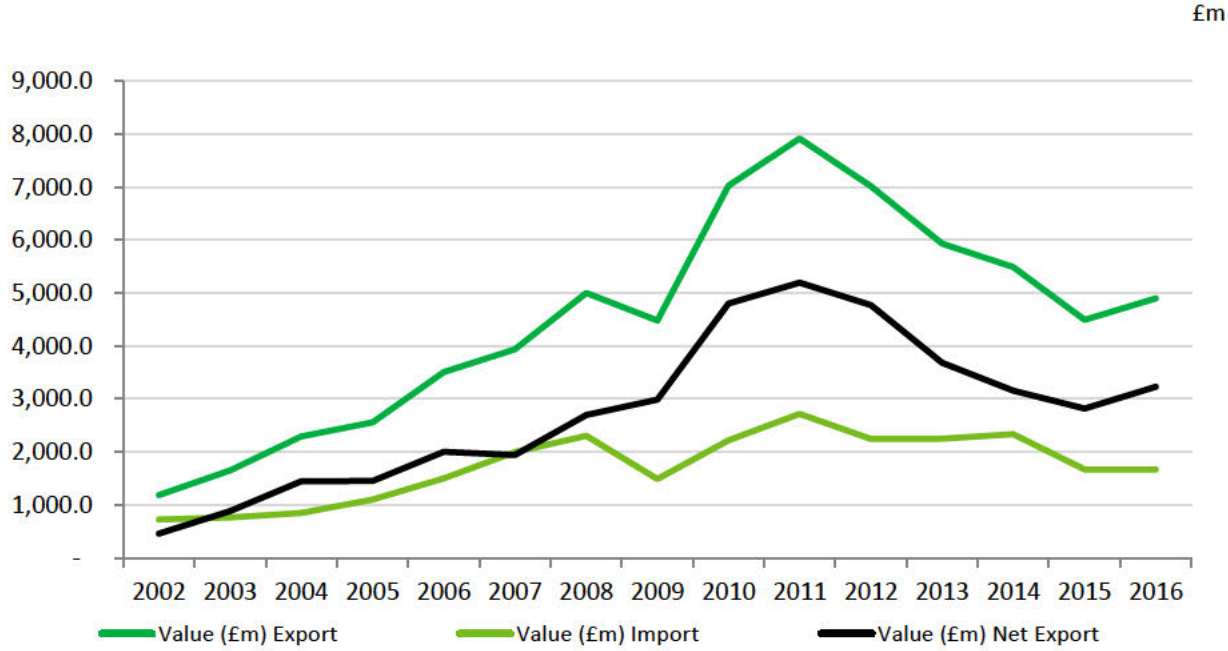
Source: appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_wasgen&lang=en

www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/ukgdpolowlevelaggregates

Exports of scrap materials

Figures 1.12 and 1.13: Exports, Imports and Net Exports of scrap materials in million tonnes and £m, UK, 2002 to 2016.





- As Figures 1.12 and 1.13 show the UK exports more scrap materials than it imports.
- In 2016 the UK exported almost 16 million tonnes of scrap materials, worth around £4.9 billion.
- Figures here will differ from previous editions of the Digest as the list of scrap materials has been updated to better reflect all types of scrap material exported and imported.

Notes: Scrap materials - recyclable materials left over from product manufacturing and consumption, which has a monetary value.
Included here are: municipal waste, clinical waste, textiles, rubber, plastic, paper, copper, aluminium, nickel, lead, zinc, tin, tungsten, gallium, hafnium, and ferrous metals

This data differs to previous editions of the digest, as the list of materials included in "scrap materials" has been updated and expanded to better reflect all types of scrap materials imported and exported.

Source: HMRC Trade database
https://www.uktradeinfo.com/Pages/Home.aspx

Electricity from Bioenergy

Table 1.5: Electricity generated from Bioenergy, UK, 2010 to 2016, Gigawatt hours.

GWh

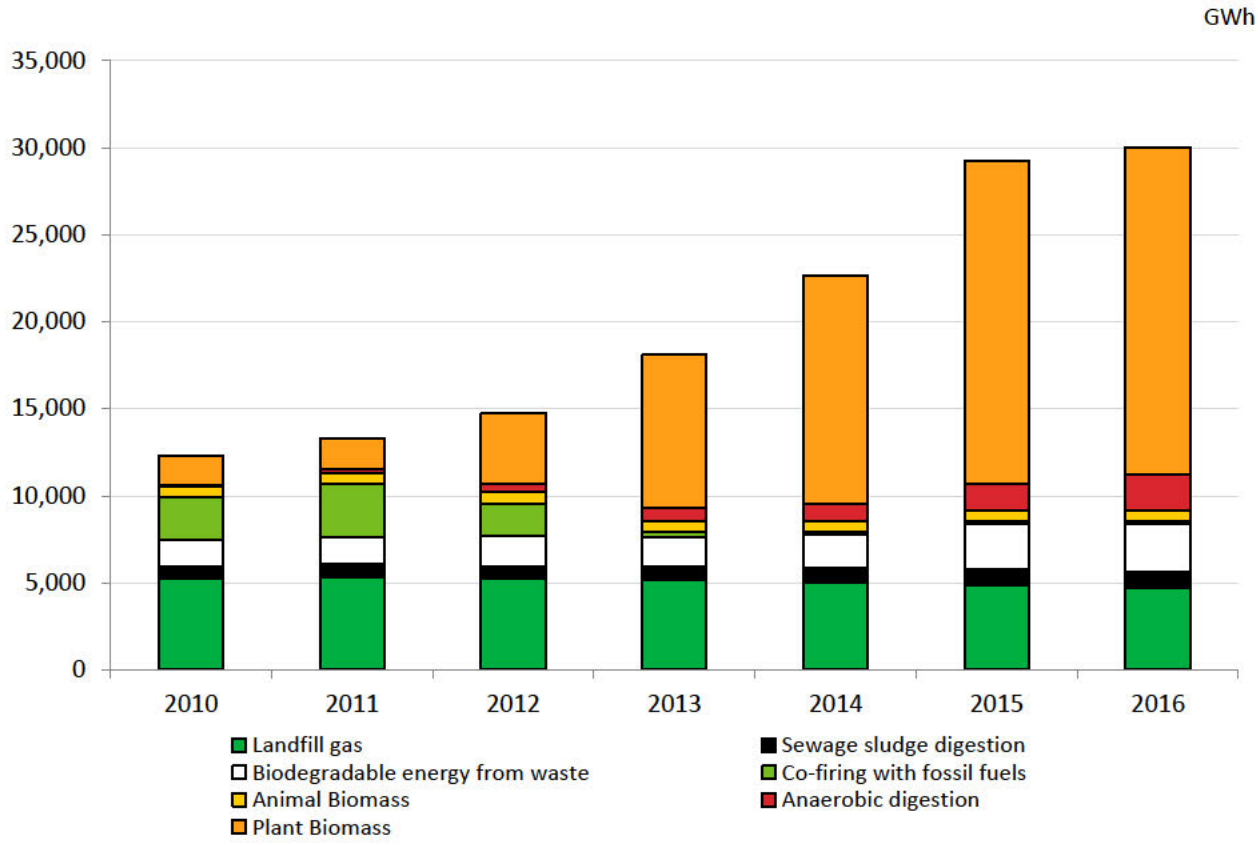
	2010	2011	2012	2013	2014	2015	2016
Landfill gas	5,217	5,318	5,208	5,175	5,033	4,872	4,703
Sewage sludge digestion	723	775	739	766	840	894	950
Energy from waste [1]	1,529	1,504	1,773	1,648	1,900	2,585	2,741
Co-firing with fossil fuels	2,432	3,093	1,829	337	124	183	117
Animal Biomass [2]	627	615	643	628	614	648	650
Anaerobic digestion	117	237	495	713	1,023	1,471	2,052
Plant Biomass [3]	1,615	1,771	4,048	8,832	13,086	18,587	18,829
Total electricity generated from Bioenergy	**12,260**	**13,313**	**14,735**	**18,099**	**22,620**	**29,240**	**30,042**
Total electricity generated from all sources	**347,896**	**332,461**	**341,912**	**336,504**	**317,732**	**318,552**	**320,110**

[1] - Biodegradable part only
[2] - Includes the use of poultry litter and meat and bone
[3] - Includes the use of straw combustion and short rotation coppice energy crops

Source: www.gov.uk/government/uploads/system/uploads/attachment_data/file/556266/Renewables.pdf

Table 6.1

Figure 1.14: Electricity generated from Bioenergy, UK, 2010 to 2016, Gigawatt hours.



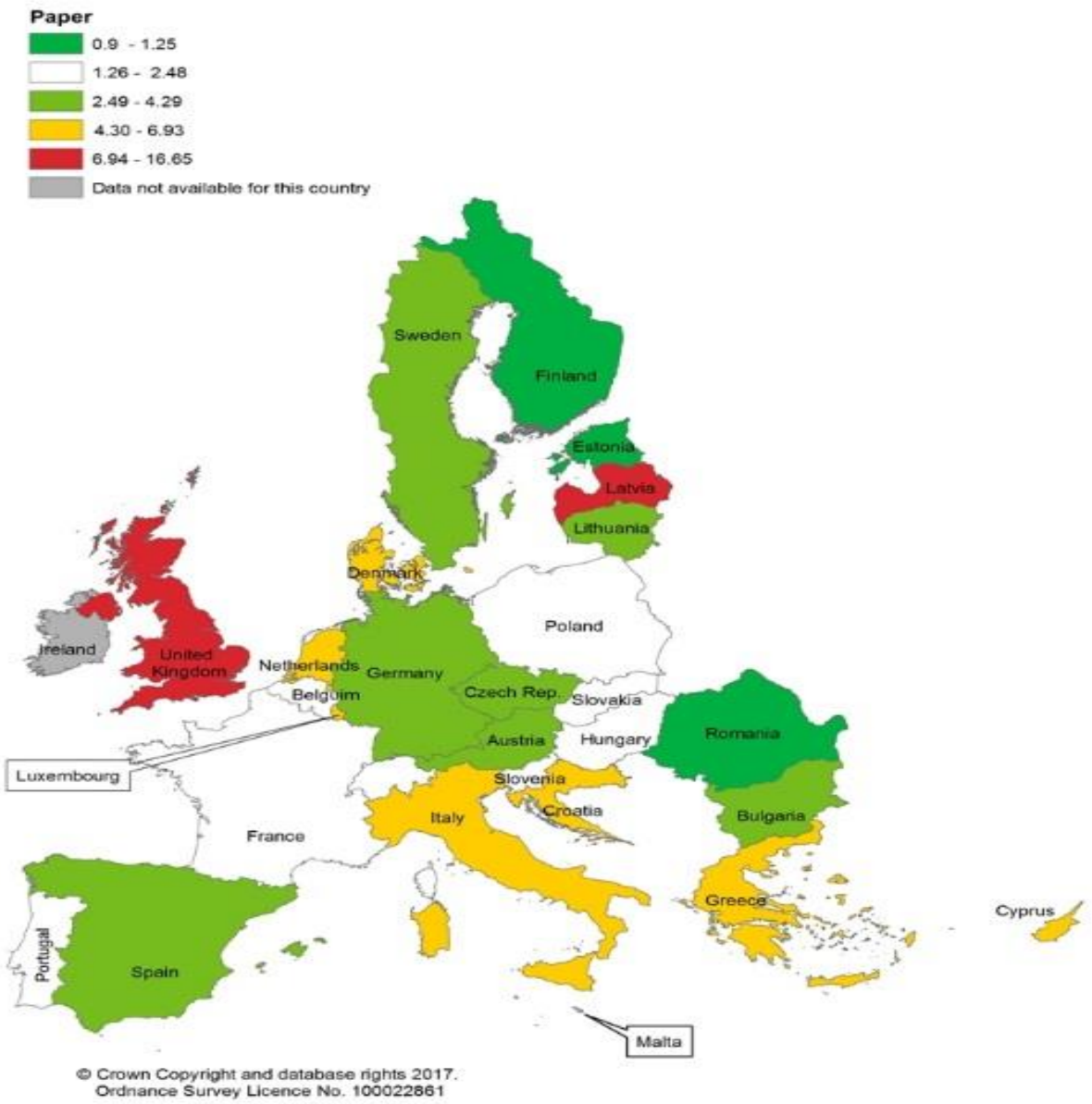
- The amount of electricity generated from Bioenergy in the UK has increased since 2010.
- In 2016, 9.4 per cent of electricity generated was from Bioenergy, an increase from 3.5 per cent in 2010.
- The slight increases in electricity generated from biodegradable energy from waste and anaerobic digestion in 2016 accounted for most of the increase in 2016.

Source: www.gov.uk/government/uploads/system/uploads/attachment_data/file/556266/Renewables.pdf

Table 6.1

Material Productivity

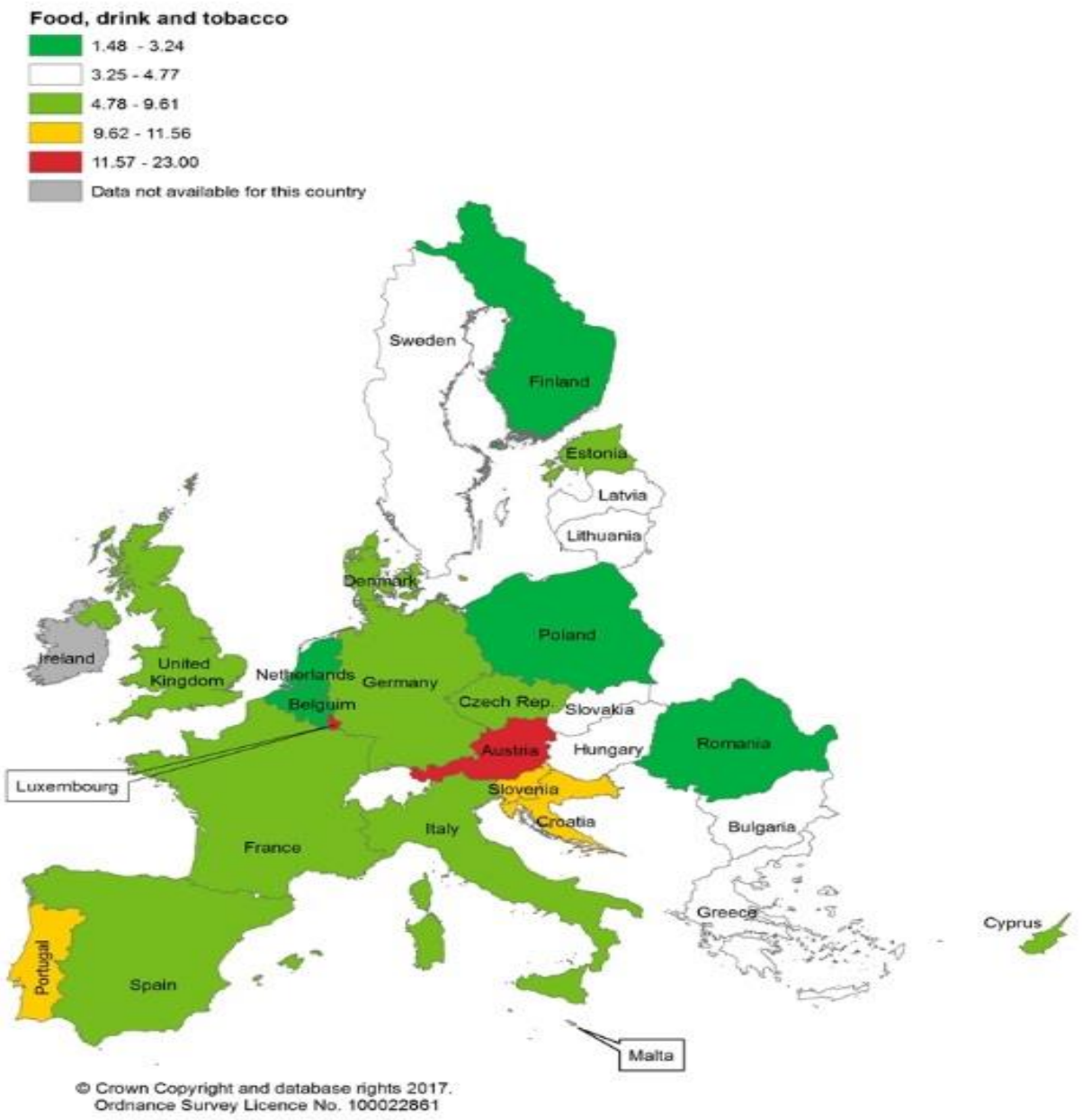
Figure 1.15: Value added by paper industry[1] per tonne of waste that paper industry produces, € per tonne, 2014.



- The UK rate of €16.65 per tonne of paper waste, is above the EU_28 average of €3.28 per tonne.

Notes: [1] paper and paper products, and printing and reproduction of recorded media
Source: appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_ind_r2&lang=en
appsso.eurostat.ec.europa.eu/nui/show.do?lang=en&dataset=env_wasgen

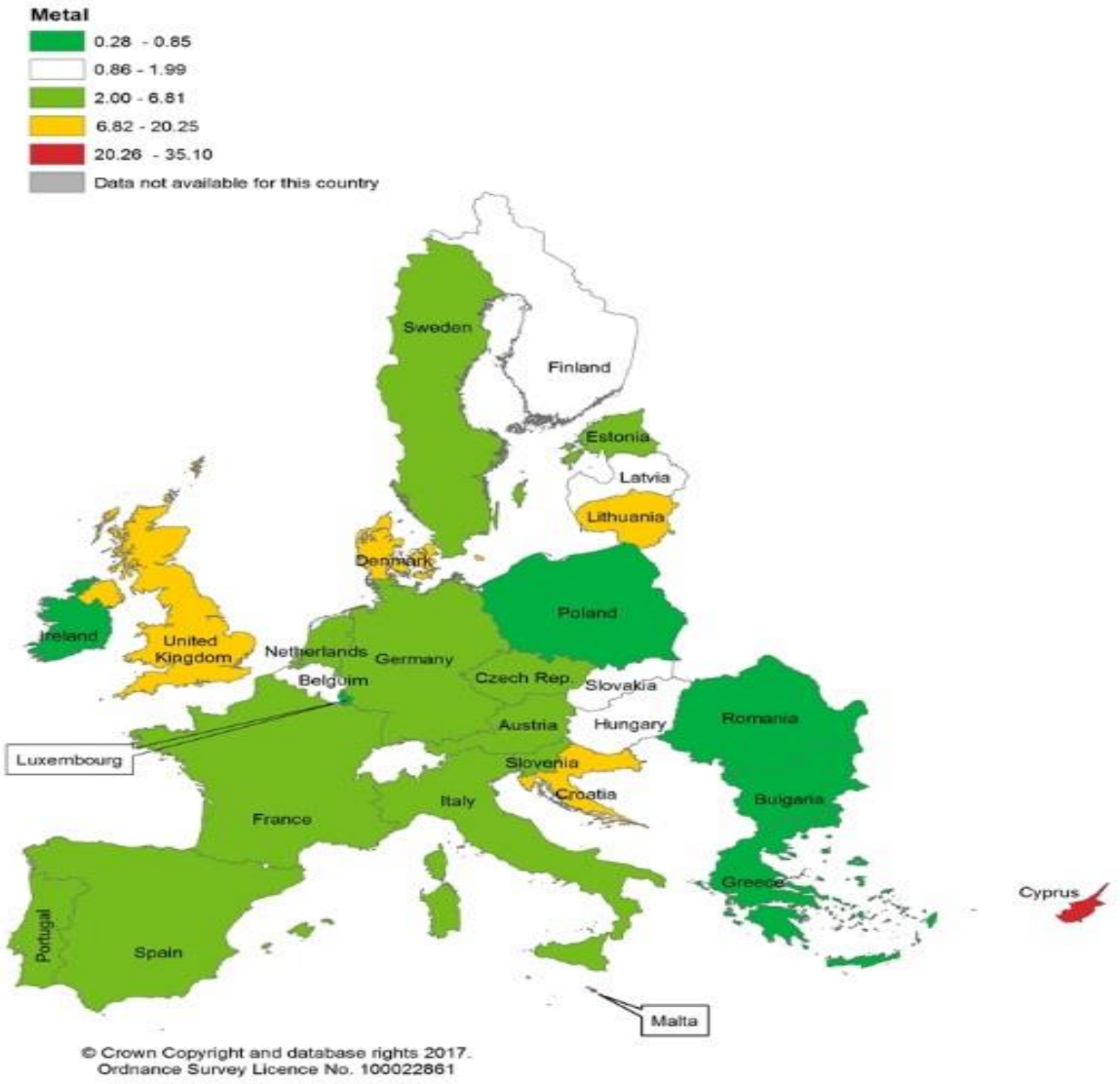
Figure 1.16: Value added by food, drink and tobacco industry[1] per tonne of waste that food, drink and tobacco industry produces, € per tonne, 2014.



- The UK rate of €8.53 per tonne of food, drink and tobacco waste is above the EU_28 average of €5.54 per tonne.
- Luxembourg has the highest rate at €23.00 per tonne of food, drink and tobacco waste, with Netherlands having the lowest rate at €1.48 per tonne.

Source: appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_ind_r2&lang=en
appsso.eurostat.ec.europa.eu/nui/show.do?lang=en&dataset=env_wasgen

Figure 1.17: Value added by metal industry[1] per tonne of waste that metal industry produces, € per tonne, 2014.

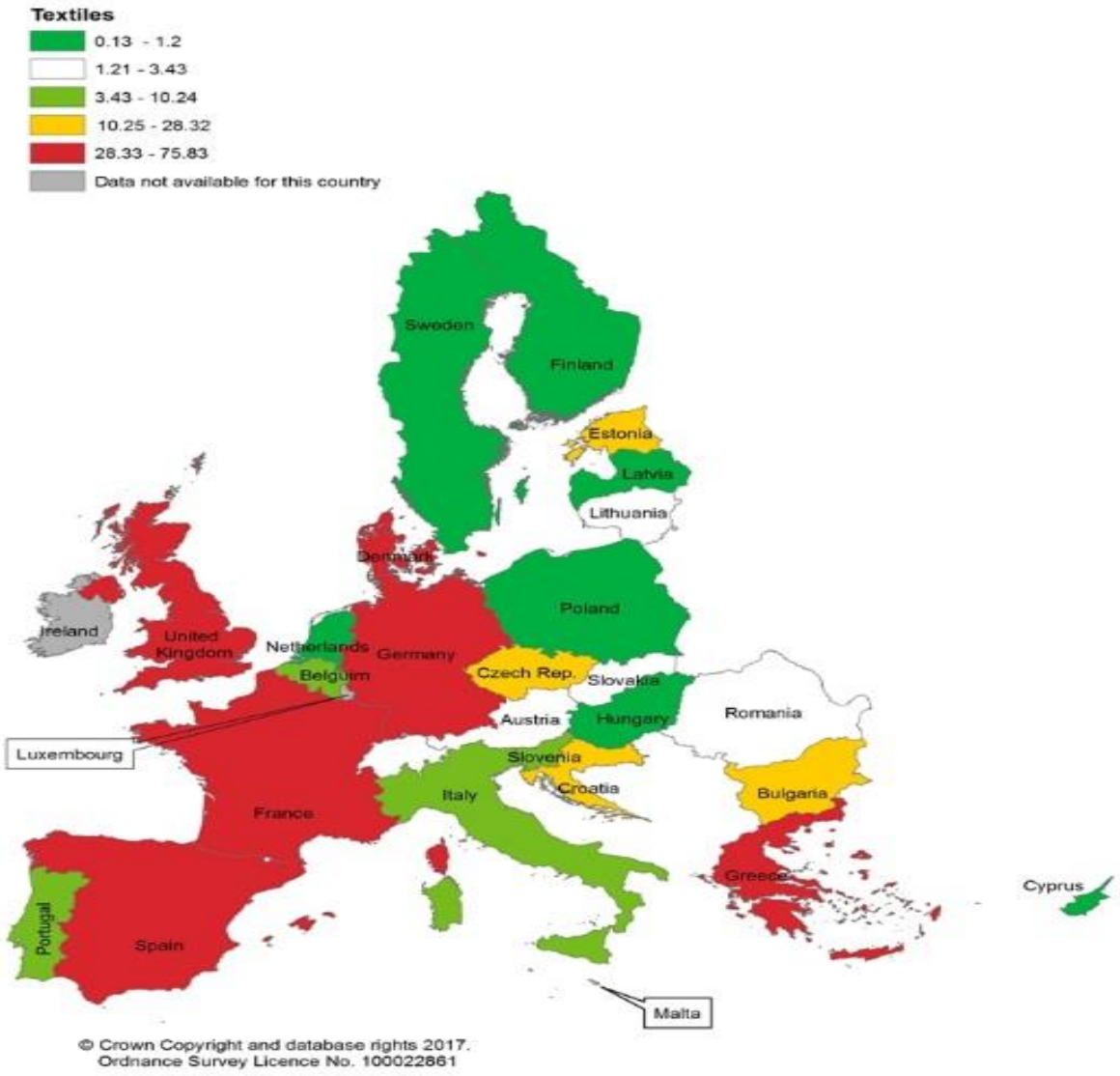


- The UK rate of €15.10 per tonne of metal waste, is above the EU_28 average of €3.26 per tonne.

Notes: [1] Manufacture of basic metals and manufacture of fabricated metal products except machinery and equipment

Source: appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_ind_r2&lang=en
appsso.eurostat.ec.europa.eu/nui/show.do?lang=en&dataset=env_wasgen

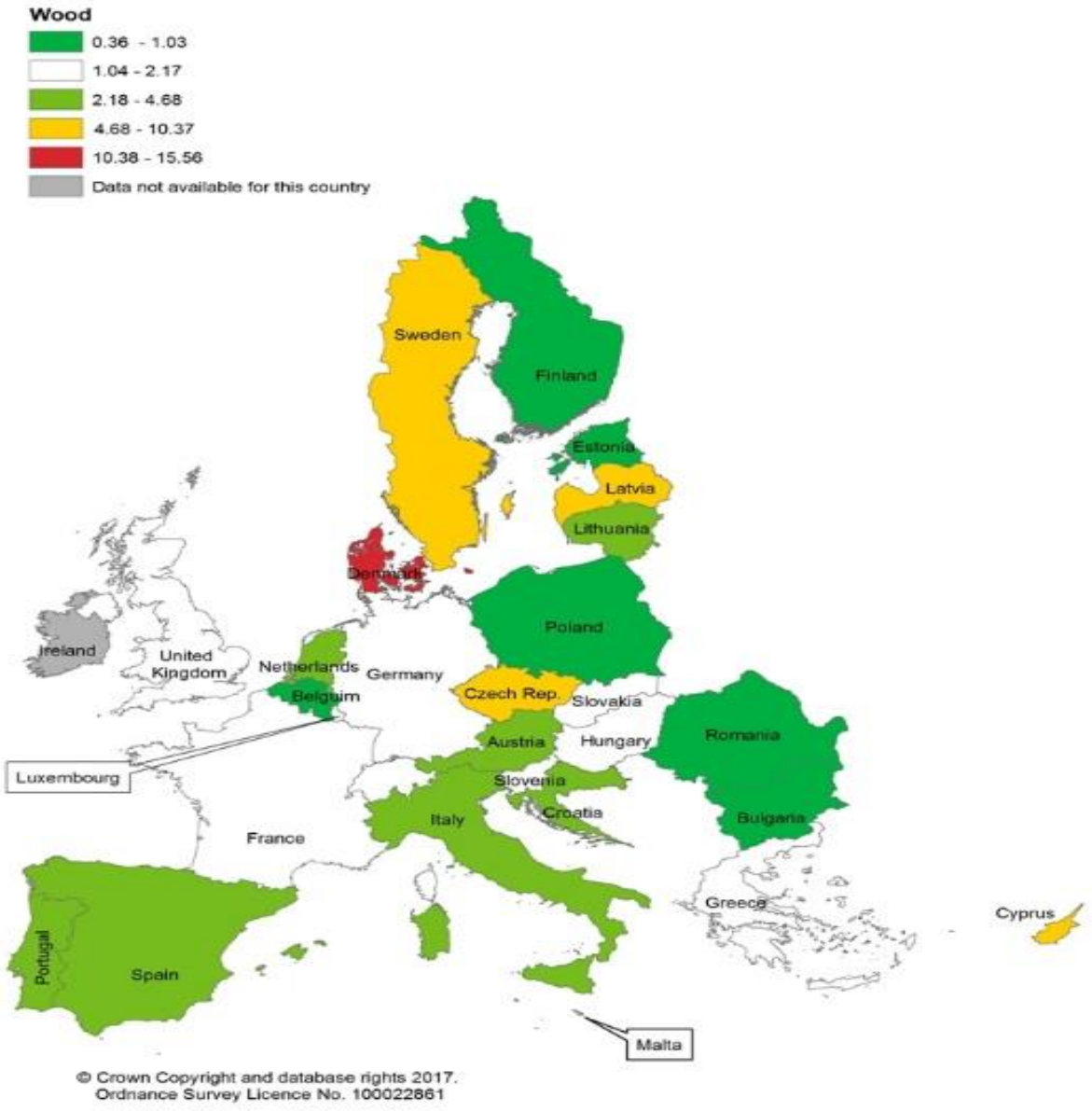
Figure 1.18: Value added by textile industry[1] per tonne of waste that textile industry produces, € per tonne, 2014.



- Germany has the highest rate at €75.83 per tonne of textile waste, with Netherlands having the lowest rate at €0.14 per tonne

Notes: [1] Manufacture of textiles, wearing apparel, leather and related products
Source: appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_ind_r2&lang=en
appsso.eurostat.ec.europa.eu/nui/show.do?lang=en&dataset=env_wasgen

Figure 1.19: Value added by wood industry[1] per tonne of waste that wood industry produces, € per tonne, 2014.

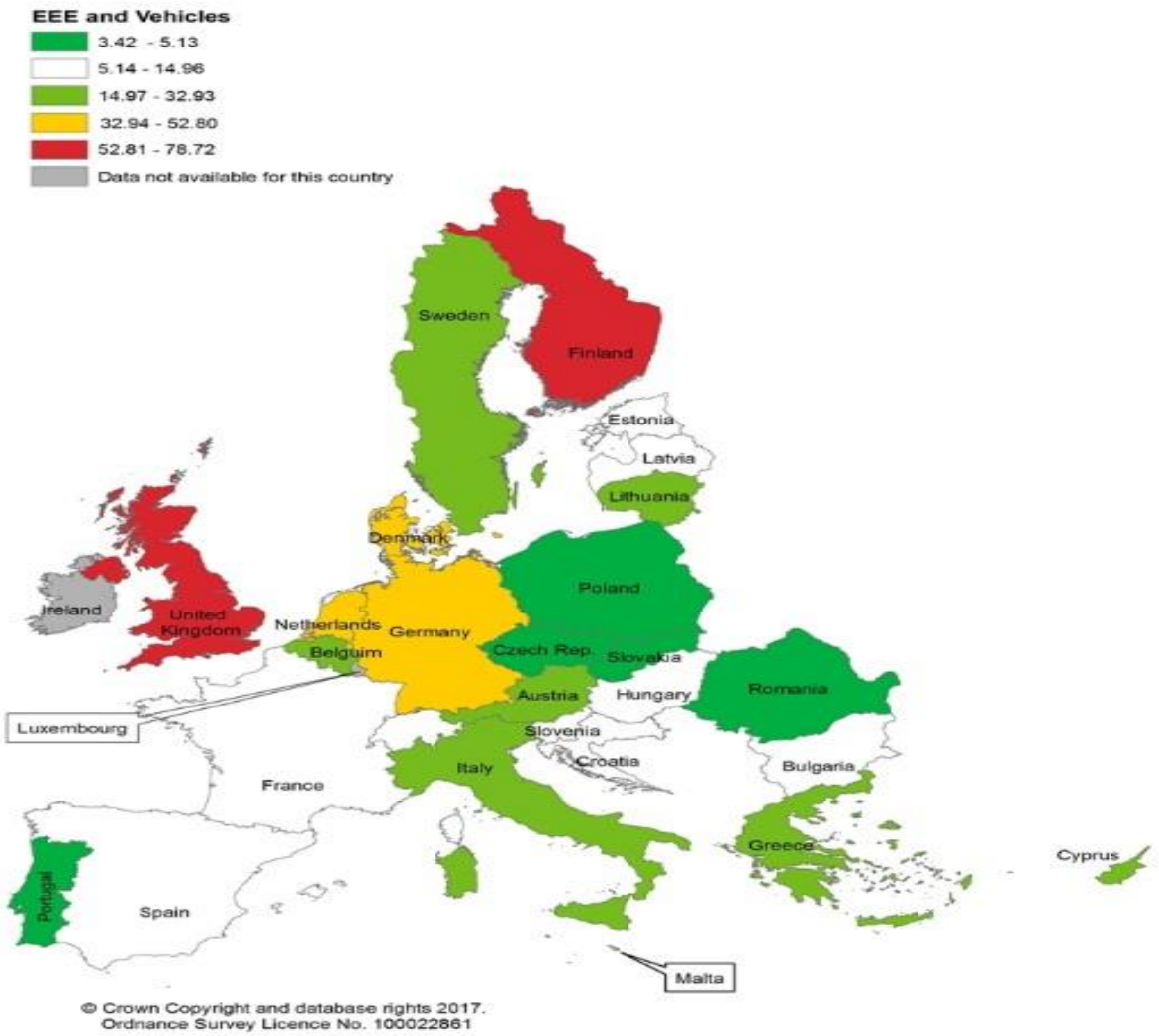


- The UK rate of €1.78 per tonne of wood waste, is below the EU_28 average of €1.97 per tonne.
- Denmark has the highest rate at €15.56 per tonne of wood waste, with Romania having the lowest rate at €0.36 per tonne.

Notes: [1] Manufacture of wood and of products of wood and cork, except furniture, manufacture of articles of straw and plaiting materials

Source: appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_ind_r2&lang=en
appsso.eurostat.ec.europa.eu/nui/show.do?lang=en&dataset=env_wasgen

Figure 1.20: Value added by EEE industry[1] per tonne of waste that EEE industry produces, € per tonne, 2014.



- The UK rate of €64.29 per tonne of EEE and vehicle waste, is above the EU_28 average of €22.5 per tonne.
- Finland has the highest rate at €78.726 per tonne of EEE and vehicle waste, with Romania having the lowest rate at €3.42 per tonne.

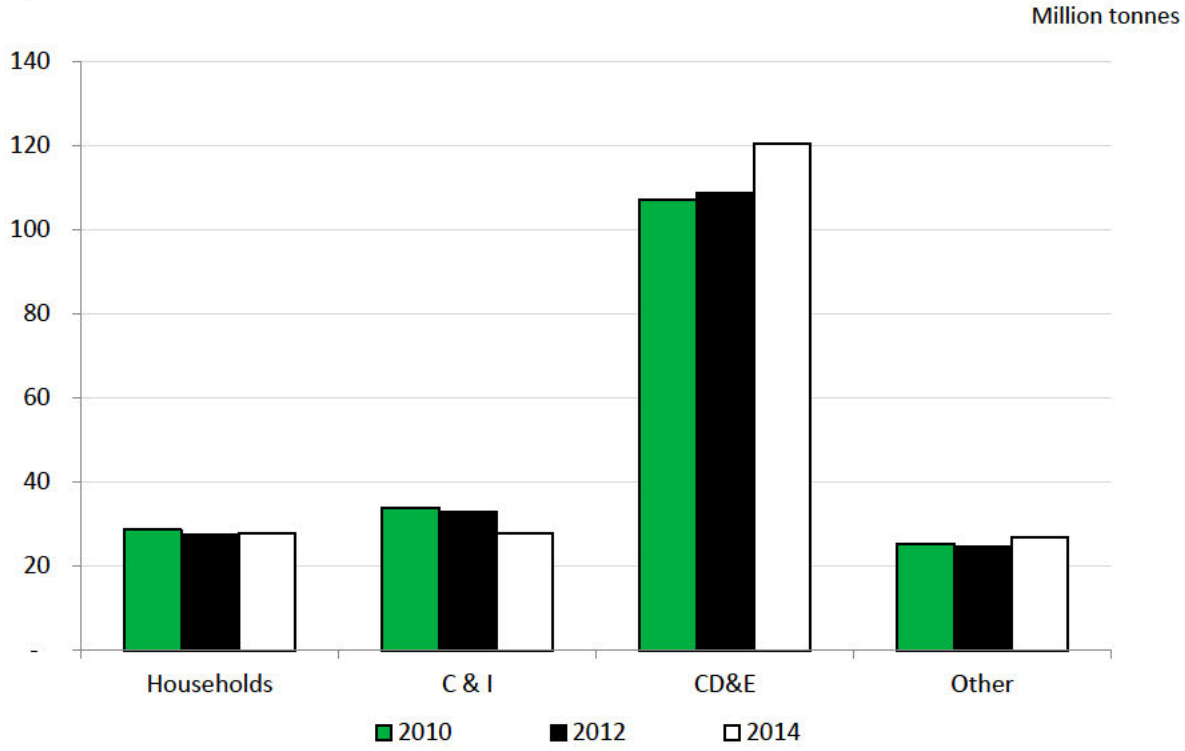
Notes: [1] Manufacture of computer, electronic and optical products, electrical equipment, motor vehicles and other transport equipment

Source: appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_ind_r2&lang=en
appsso.eurostat.ec.europa.eu/nui/show.do?lang=en&dataset=env_wasgen

Section 2: Waste Generation

Waste Arisings

Figure 2.1: Waste arisings by broad sector, UK, 2010 to 2014. (*Waste Prevention Metric)*



'Other' waste includes waste from the mining and quarrying, and agriculture, forestry and fishing sectors
C&I = Commercial & Industrial
CD&E = Construction, Demolition & Excavation. Includes dredging spoils.
Excludes secondary waste
Includes waste that may go for export
'Households' here is the 'Waste from Households' measure used elsewhere plus an estimate for End of Life Vehicles

- Figure 2.1 shows the amount of waste produced in the UK from 2010-14.
- The Construction, Demolition & Excavation (CD&E) sector produced the largest amount of waste in each year.

Notes: The C&I figures here have not been backdated to reflect the updates to England C&I estimates for 2010-2014, made in February 2018. These will be updated alongside the generation of the 2016 Waste Statistics Regulation Return in June 2018. In the interim, caution should be exercised when interpreting the proportions of waste generated by each sector.

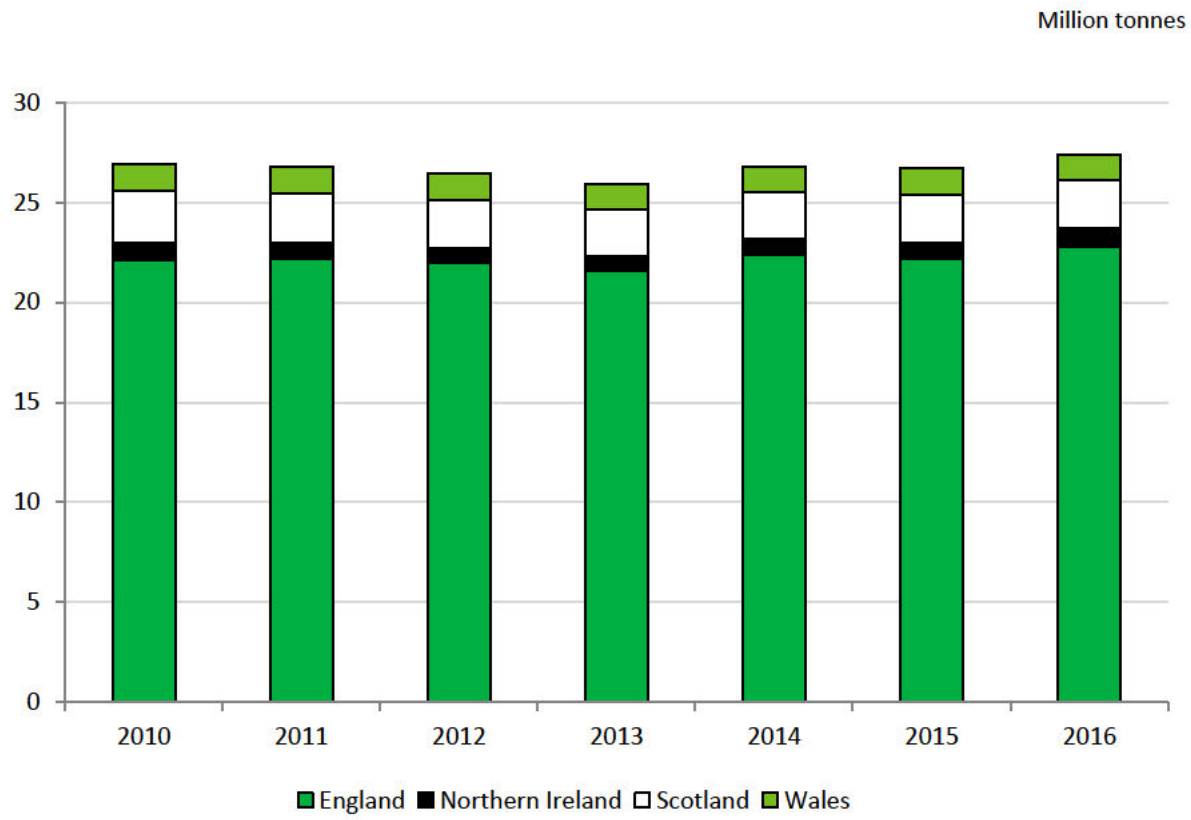
Source: UK Waste Statistics Regulation return. See section 5 and the Methodology section of UK Statistics on Waste.

Waste from Households

Table 2.1: Waste arisings from households (Million tonnes) 2010 to 2016.

Waste from household arisings (million tonnes)	2010	2011	2012	2013	2014	2015	2016
UK	27.0	26.8	26.4	25.9	26.8	26.7	27.3
England	22.1	22.2	22.0	21.6	22.4	22.2	22.8
Northern Ireland	0.8	0.8	0.8	0.8	0.8	0.8	0.9
Scotland	2.6	2.5	2.4	2.3	2.3	2.4	2.4
Wales	1.3	1.3	1.3	1.3	1.3	1.3	1.3

Figure 2.2: Waste arisings from households, UK, 2010 to 2016.



- The 'waste from households' calculation was first published by Defra in May 2014. It was introduced for statistical purposes to provide a harmonised UK indicator to be reported against the Waste Framework Directive (2008/98/EC). It is calculated on a calendar year basis by each of the four UK countries using almost identical methodologies.
- The waste from household measure is a narrower measure than the 'household waste' measure which was previously used in England. Waste from households excludes waste not considered to have come directly from households, such as recycling from street bins, parks and grounds.
- Waste arising from households in the UK increased by 2 per cent between 2015 and 2016 to 27.3 million tonnes.

Notes: Waste from households' includes waste from: Regular household collection, Civic amenity sites, 'Bulky waste' 'Other household waste'. It does not include street cleaning/sweeping, gully emptying, separately collected healthcare waste, asbestos waste. 'Waste from households' is a narrower measure than 'municipal waste' and 'council collected waste'.

Source: Defra, Feb 2018, www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management. Table 1_1

Table 2.2: Waste from households, England, 2011 to 2016 *(Waste Prevention Metric).*

	2011	2012	2013	2014	2015	2016
Total waste generated from households (Million tonnes)	22.2	22.0	21.6	22.4	22.2	22.8
Waste generated (kg per person)	421	412	402	413	406	412

- Total waste from households amounted to 22.8 million tonnes in 2016, an increase of 2.5 per cent on 2015.
- In 2016 the amount of 'other organics' sent for recycling has increased by 3.1 per cent to 3.8 million tonnes.
- Separate food waste collected for recycling increased by 15.0 per cent in 2016 to 353 thousand tonnes from 307 thousand tonnes in 2015
- This is equivalent to 412 kg per person, up from 406 kg per person in 2015, but similar to 2014 figure of 413 kg per person.
- A breakdown of the previous measure of household waste covering national, regional and local authorities can be downloaded on the gov.uk website.

Source: Defra, Dec 2016, www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables Calendar year data, Table 1 Row 2.

Household waste covering national, regional and local authority breakdown:
ENV18 - Local authority collected waste: annual results tables - GOV.UK

Commercial and Industrial Waste

Table 2.3: Total waste generation from the commercial and industrial sectors, UK and England, 2010 to 2016.

Million tonnes

	UK	England
2010	42.4	29.7
2011	:	32.4
2012	44.2	34.2
2013	:	32.9
2014	41.9	32.8
2015	:	32.1
2016	:	32.2

: = Not available

- The UK C&I sectors generated 41.9 million tonnes of waste in 2014, of which 32.8 million tonnes (around 80%) was produced in England. This is a reduction from 2012, when the UK C&I waste arisings figures was 44.2 million tonnes, of which 34.2 million tonnes was generated by England
- Provisional estimates for England only, indicate that waste generation has fallen further since 2014, to around 32.1 million tonnes in 2015 and 32.2 million tonnes in 2016.

Notes: 'Commercial and Industrial' as defined by NACE classification of economic activities.
All figures have been revised from those in previous publications following a thorough review of the England methodology. For details see:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/683007/England_CommercialandIndustrial_WasteArisings_Methodology_Revisions_Feb2018_FINAL.pdf
Figures are provisional and subject to change following review by Eurostat after submission of the 2016 Waste Statistics Regulation return in June 2018.
C&I Waste generation is extremely difficult to estimate owing to data limitations and gaps. Users should therefore exercise caution in application of the figures and interpreting trends over time.

Source: UK Waste Statistics. See section 5 of UK Statistics on Waste.

Packaging in UK

Table 2.4: Packaging waste, UK, 2015 to 2016.

	2015			2016 (provisional)			
	Total packaging waste arising (thousand tonnes)	**Total recovered/ recycled (thousand tonnes)**	**Recovery /recycling rate (%)**	**Total packaging waste arising (thousand tonnes)**	**Total recovered/ recycled (thousand tonnes)**	**Recovery /recycling rate (%)**	**2013 -14 EU Target (%)**
Aluminium	177	76	42.9	177	90	50.8	n/a
Steel	559	364	65.1	559	416	74.4	n/a
Total Metal	**736**	**440**	**59.8**	**736**	**506**	**68.7**	**50.0**
Paper	4,749	3,667	77.2	4,749	3,892	81.9	60.0
Glass	2,399	1,577	65.7	2,399	1,609	67.1	60.0
Plastic	2,260	891	39.4	2,260	1,015	44.9	22.5
Wood	1,310	375	28.6	1,310	405	30.9	15.0
Other	23			23	0	0.0	n/a
Total recycling	**11,476**	**6,950**	**60.6**	**11,476**	**7,427**	**64.7**	**55.0**
Energy from Waste		476	4.1		767	6.7	n/a
Total	**11,476**	**7,427**	**64.7**	**11,476**	**8,194**	**71.4**	**60.0**

- In 2016 in the UK, 71.4 per cent of packaging waste was either recycled or recovered. This was above the EU target of 60 per cent and higher than the 64.7 per cent achieved in 2015.
- Recycling accounted for 7.4 million tonnes of the 11.5 million tonnes of packaging waste arisings in 2016, which a further 0.8 million tonnes recovered by use in 'energy from waste' incineration. Paper and cardboard had the highest waste arisings, at 4.7 million tonnes.
- The highest recycling rate achieved in 2016 was 81.9 per cent for paper and cardboard, followed by 68.7 per cent for metal, and 67.1 per cent for glass.

Notes: 2016 figures are provisional and subject to change following review by Eurostat after the submission of the 2016 Waste Statistics Regulation return in June 2018.
Source: Defra,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/683051/UK_Statisticson_W

Battery Waste

Table 2.5: Recovery rate for batteries, UK, 2010 to 2016.

	Collection rate Target (%)	Collection rate (%)
2010	10.0	9.5
2011	18.0	18.0
2012	25.0	28.3
2013	30.0	32.4
2014	30.0	36.4
2015	40.0	40.1
2016	45.0	44.95

- The UK just missed meeting its collection target for batteries in 2016.

Source: Environment Agency npwd.environment-agency.gov.uk/public/batteries/publishedreports.aspx

Hazardous Waste

Table 2.6: Hazardous waste arisings by waste sector UK, 2010 to 2014 (*Waste Prevention Metric).*

Million tonnes

Sector	2010	2012	2014
Households	1.6	1.3	1.2
C & I	2.2	2.1	1.9
CD&E	0.7	0.9	0.7
Other	0.3	0.4	0.4
Total	4.8	4.7	4.3

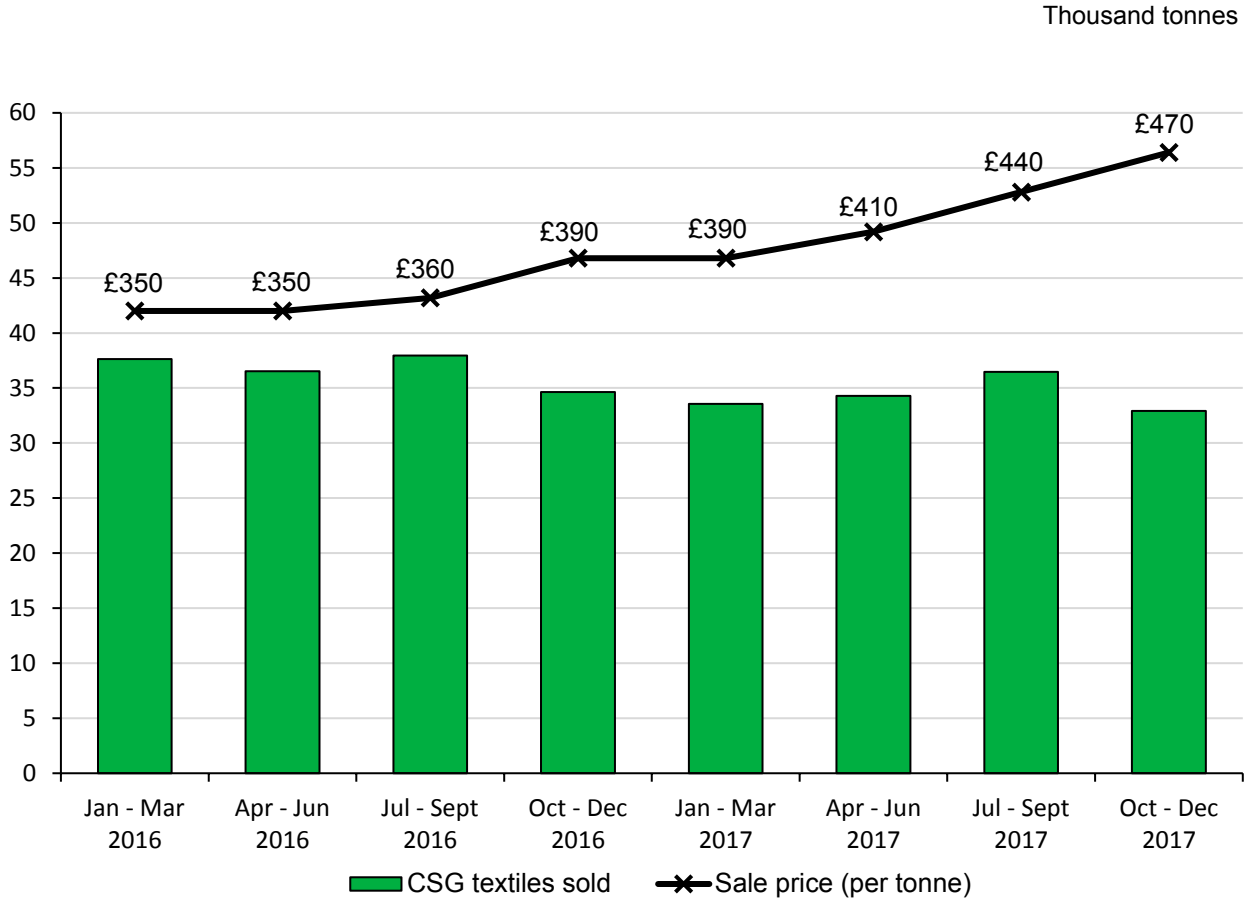
- Table 2.6 shows the amount of hazardous waste produced in the UK from 2010 to 2014
- Hazardous waste decreased from 4.7 million tonnes to 4.3 million tonnes between 2012 and 2014.

Notes: The C&I figures here have **not** been backdated to reflect the updates to England C&I estimates for 2010-2014, made in February 2018. These will be updated alongside the generation of the 2016 Waste Statistics Regulation Return in June 2018. In the interim, caution should be exercised when interpreting the proportions of waste generated by each sector.

Source: UK Waste Statistics Regulation return. See section 5 and Methodology section of UK Statistics on Waste.

Charity Shop Grade Textiles

Figure 2.3: Estimated Charity Shop Grade (CSG) textiles sold by charity shops each quarter for recycling or preparing for re-use, tonnages and average sale prices, UK, 2016 – 2017

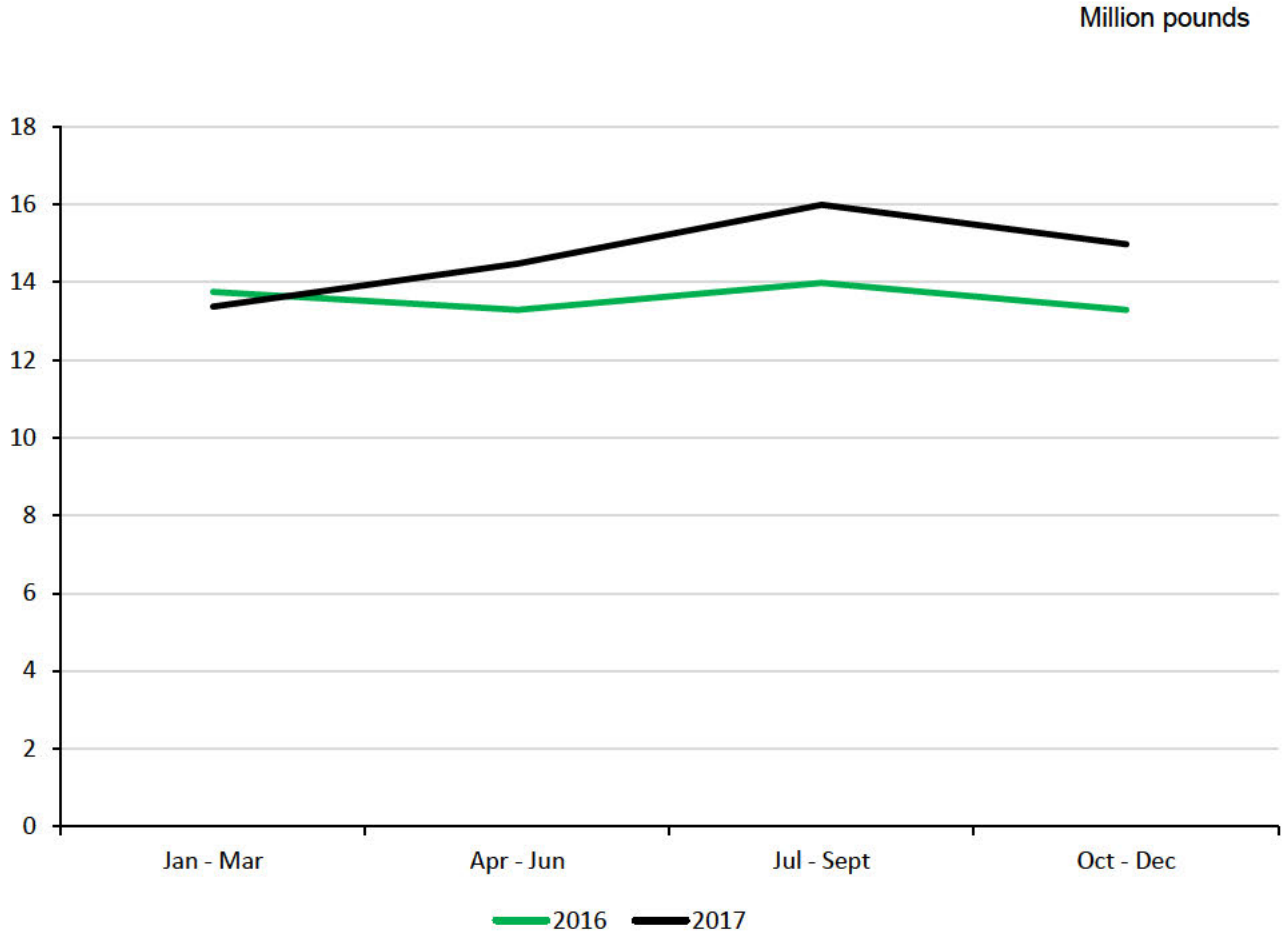


- Charity Shop Grade (sometimes referred to as 'rag') is that which usually gets sold on by charity retailers for recycling or preparation for reuse, rather than sold in their shops to paying customers for direct reuse.
- The amount of CSG textiles sold to textile merchants varies only slightly from quarter to quarter. In the latest quarter of October to December 2017, the amount of textiles sold to textile merchants for recycling or preparing for reuse was about 33,000 tonnes.
- The estimated median price of textiles per tonne had been fairly similar until the April to June quarter of 2017, when it appeared to rise to around £410 per tonne.
- For the calendar year 2017, an estimated amount of 137,000 tonnes of CSG textiles were sold to textile merchants

Notes: The data is based on a quarterly survey carried out by the Charity Retail Association (CRA) and extrapolated to get an estimated textile volume sold on by charity shops in the UK for recycling or preparation for reuse, and the income generated.
The number of charity shops involved in the survey varies from quarter to quarter and there is also the possibility of other factors impacting the data, such as seasonal effect. Due to this, figures are not directly comparable from quarter to quarter.

Source: https://www.charityretail.org.uk/charity-shop-grade-textiles-in-the-united-kingdom/

Figure 2.4: Estimated income from sales of CSG textiles by charity shops for recycling or preparing for re-use, UK, 2016 – 2017



- The estimated income generated by charity retailers from the sale of the textiles also varies from quarter to quarter. In the October to December quarter of 2017 it was estimated at around £15 million and in a rolling year from January 2017 to December 2017 the estimated income generated was around £59 million.
- Overall the estimated amount of CSG textiles sold to textile merchants in 2016 was 147k tonnes, which is larger than the 137k tonnes sold in 2017.
- However, the total estimated income generated from sales of CSG textiles increased from £54 million in 2016 to £59 million in 2017. This growth in income is due to the median average sale price per tonne of CSG textiles increasing from approximately £360 in 2016 to £420 in 2017.

Source: https://www.charityretail.org.uk/charity-shop-grade-textiles-in-the-united-kingdom/

Section 3: Waste Hierarchy and destination of waste

Depiction of Waste Hierarchy

Figure 3.1: Waste hierarchy.

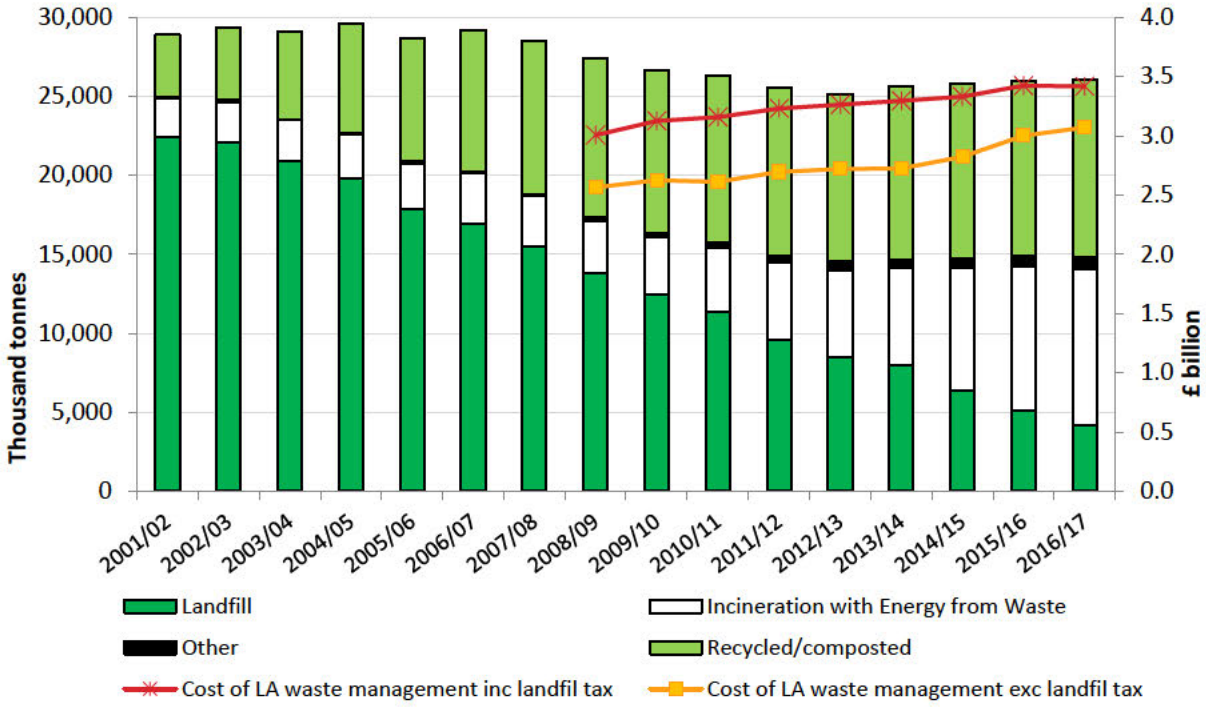
- Article 4 of the revised EU Waste Framework Directive (Directive 2008/98/EC) sets out five steps for dealing with waste, ranked according to environmental impact - the 'waste hierarchy'.
- The definitions of each of the stages can be found in Article 3 of the Directive.
- It gives top priority to preventing waste. When waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (e.g. landfill).
- A very key principle in the backdrop to the hierarchy is to pursue efficient use of resource.

Source: European Commission's Community Strategy for Waste Management
www.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf

Destination of waste

Local Authority Collected Waste

Figure 3.2: Local Authority collected waste management, England, 2001/02 to 2016/17.

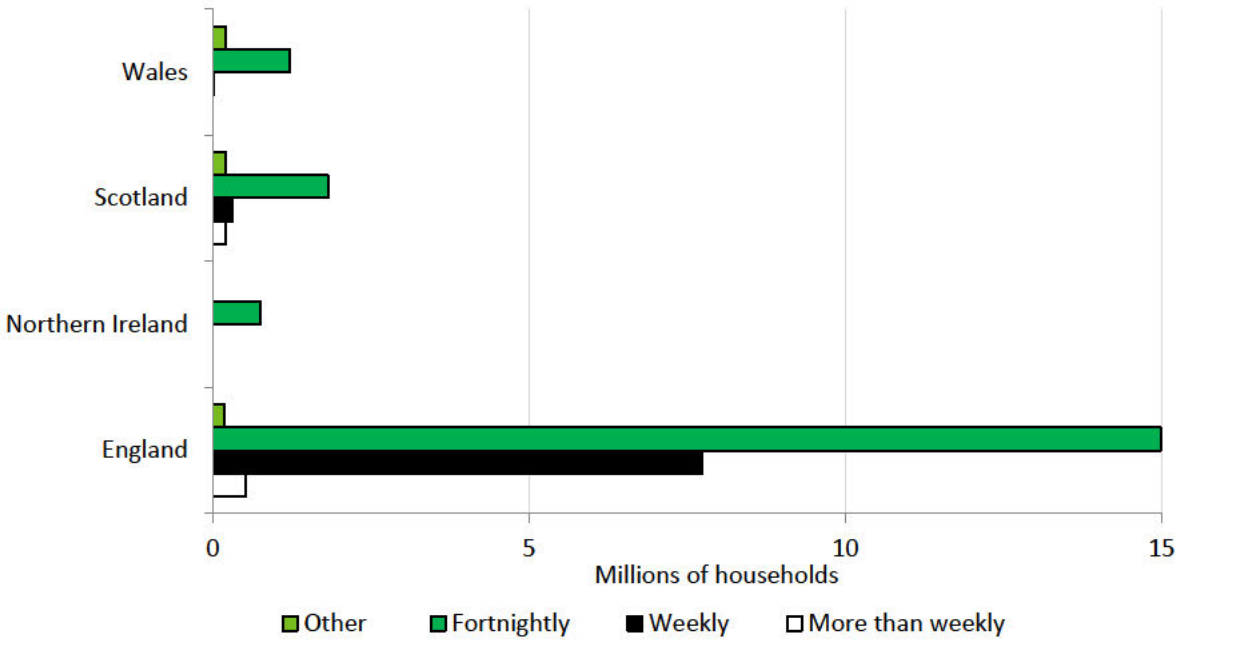


- As a result of extra granularity of data reported through a new question structure introduced in WasteDataFlow in 2015, it is not appropriate to compare data from the 2015/16 and 2016/17 financial years to any of the previous data.
- Total Local Authority managed waste in 2016/17 was 26.1 million tonnes, up by 0.6 per cent on 2015/16 when it was 25.9 million tonnes.
- Cost of local authority waste management covers net current expenditure on waste collection, recycling, waste minimisation, waste disposal (including landfill tax) and climate change costs.
- In 2016/17 the cost of local authority waste management was around £3.4 billion in England. The cost excluding landfill tax amounted to just over £3 billion.

Notes: Local authority collected waste is a combination of waste from households and waste from streets, parks and grounds and some business generated waste.
The definition of 'Incineration with Energy from Waste' is broader than that used for EC reporting.
Source: Defra, DCLG
Local authority waste management:
www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables
See Table 2a of the Local authority collected waste generation from April 2000 to March 2016 (England and regions) and local authority data April 2015 to March 2016.
Cost of local authority waste:
www.gov.uk/government/collections/local-authority-revenue-expenditure-and-financing. See Revenue outturn data (RO5) cultural, environmental, regulatory and planning services. The cost is based on net current expenditure. The cost of LA waste without landfill tax was derived by deducting the landfill tax from the waste disposal part of the cost.
Costs do not account for inflation.

Local authority household residual waste collection schemes from kerbside

Figure 3.3: Frequency of local authorities collecting residual waste from households by household numbers, UK countries, 2016/17



- Figure 3.3 represents WRAP's best understanding of the residual waste collection schemes offered by UK local authorities.
- Collections that are offered to a small proportion of households within a Local Authority (less than 5 per cent or fewer than 3,000 households, whichever is lowest) are not included in the analysis.
- In Northern Ireland residual waste is all collected fortnightly.
- In Wales it is mainly fortnightly but around 6,000 households have a weekly collection.
- Other includes 3-weekly collections.

Notes: In any authority a scheme may not be available to every household. Where an authority operates more than one scheme, each scheme has been included. If an authority provides a weekly and fortnightly collection, and both schemes are above the threshold, it will be counted under both frequencies so the percentages do not necessarily add up to 100 per cent.
Source: WRAP - laportal.wrap.org.uk/Statistics.aspx

Garden Waste

Table 3.1: Percentage of local authorities offering Household Kerbside garden waste collection, UK, 2015/16 and 2016/17

	Operate an organic scheme 2015/16	Operate an organic scheme 2016/17
England	97%	97%
Northern Ireland	100%	82%
Scotland	81%	81%
Wales	100%	100%
UK	**95%**	**96%**

Table 3.2: Percentage of local authorities charging for the Household Kerbside garden waste collection, UK, 2015/16 and 2016/17

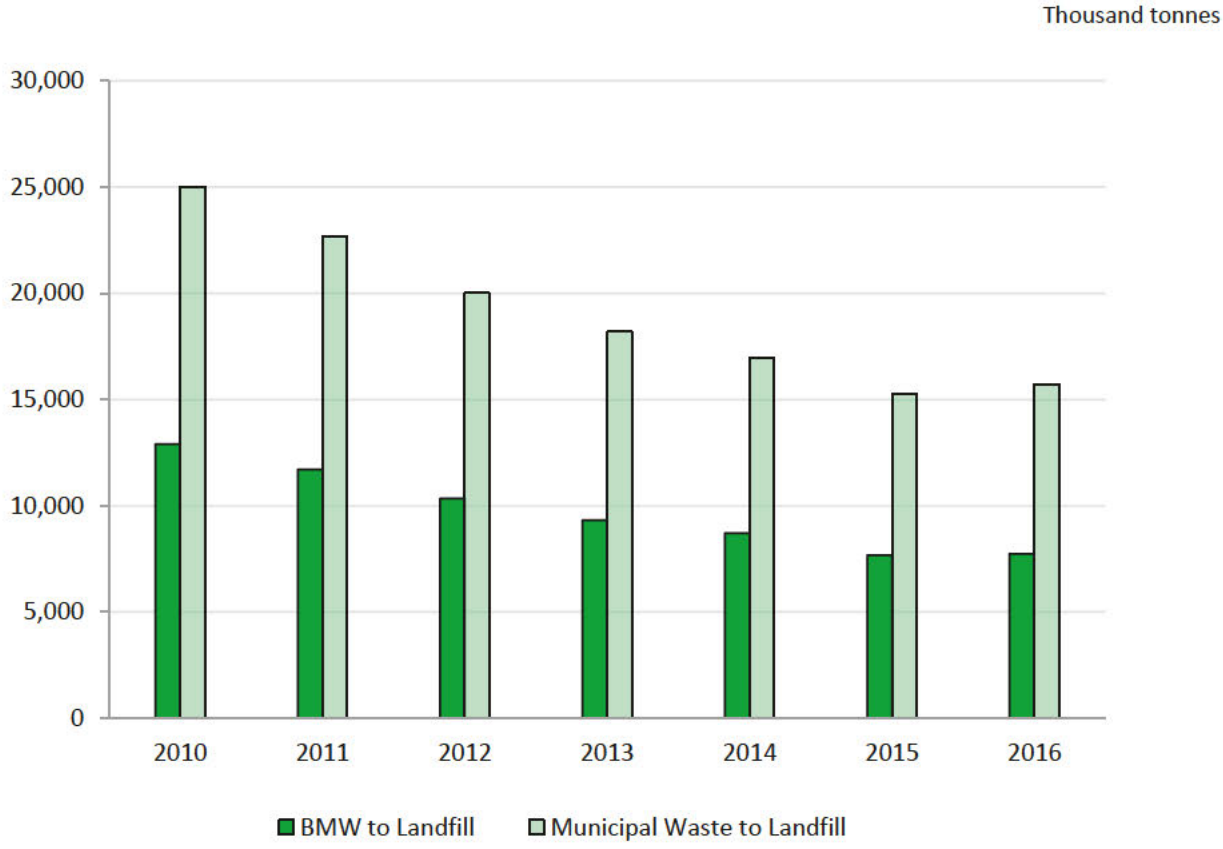
	Annual charge for organic scheme 2015/16	Annual charge for organic scheme 2016/17
England	42%	52%
Northern Ireland	0%	0%
Scotland	0%	3%
Wales	18%	45%
UK	**35%**	**47%**

- Tables 3.1 and 3.2 represents WRAP's best understanding of household kerbside garden waste collection scheme offered by UK local authorities.
- The percentage of local authorities operating the scheme in Scotland and England has remained the same over the last two years, but both countries have seen an increase in local authorities charging for the scheme.
- In Wales garden waste collection is provided by all local authorities, but with 52 per cent of them charging for the service in 2016/17, up from 18 per cent in 2015/16.
- Fewer local authorities in Northern Ireland operated an organic scheme in 2016/17 compared to 2015/16, but the collections are provided free of charge in all areas.

Notes: * Food and card waste may also be collected with garden waste
Source: WRAP, http://laportal.wrap.org.uk/Statistics.aspx

Municipal Waste to landfill including Biodegradable Municipal Waste (BMW)

Figure 3.4: Municipal waste to landfill, Biodegradable municipal waste to landfill, UK, 2010 to 2016



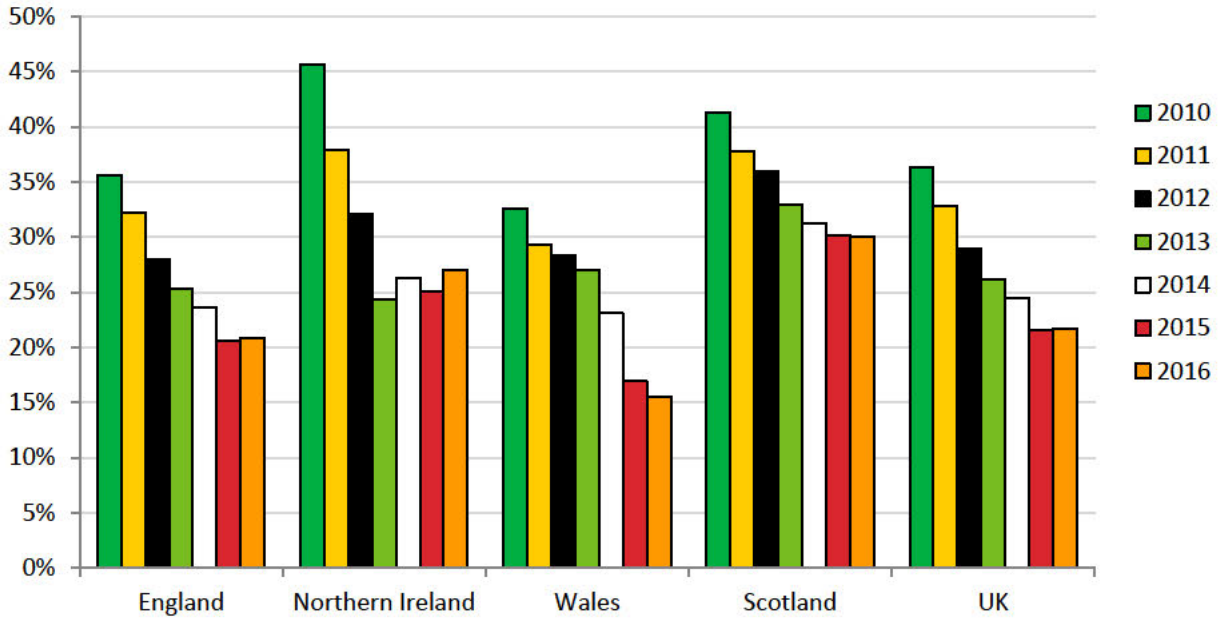
- The tonnage of municipal waste sent to landfill has decreased from 25 million tonnes in 2010 to 15.7 million tonnes in 2016, although there was a small increase between 2015 and 2016.
- Of this municipal waste sent to landfill, 7.7 million tonnes was Biodegradable Municipal Waste in 2016.

Notes: Municipal waste here comprises waste from households and other waste which, because of its nature or composition, is similar to waste from households.

Source: Waste Data Interrogator, Defra Statistics
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/683051/UK_Statisticson_Waste_statistical_notice_Feb_2018_FINAL.pdf - Table 2.1

Biodegradable Municipal Waste (BMW) to landfill in UK

Figure 3.5: BMW to landfill as a percentage of the 1995 baseline, 2010 to 2016



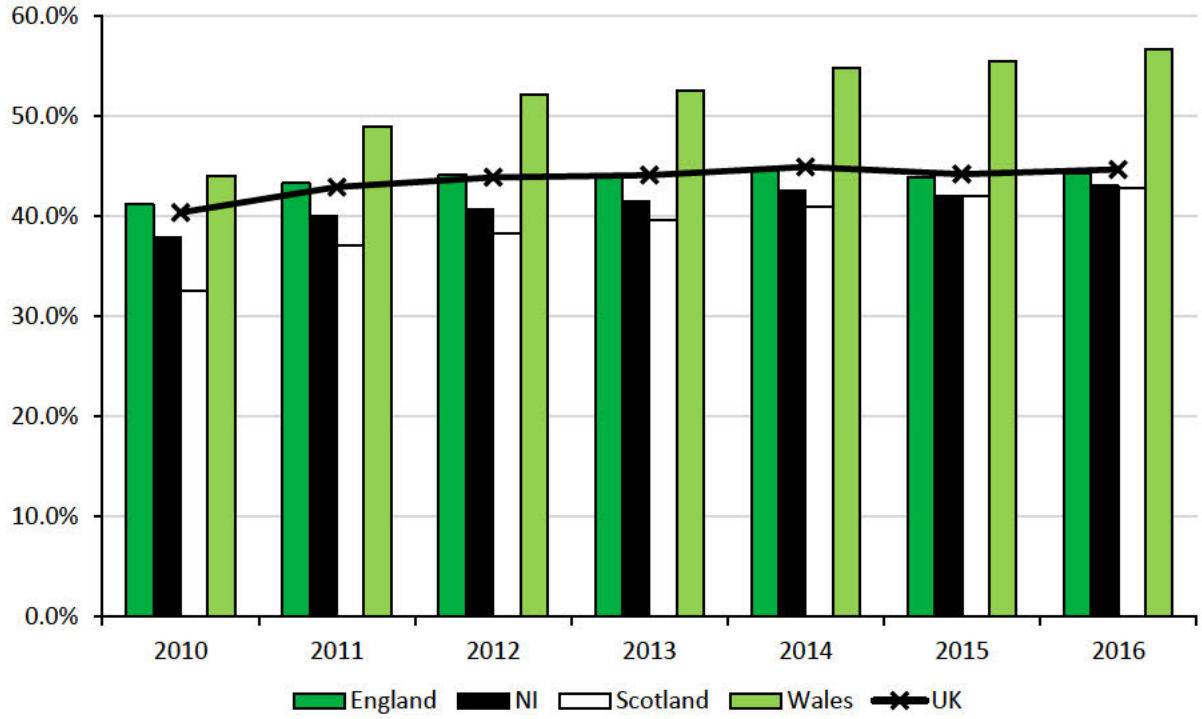
- The Landfill Directive (1999/31/EC) aims to prevent or reduce as far as possible negative effects of landfilling waste, in particular on surface water, groundwater, soil, air, and on human health by introducing stringent technical requirements for waste and landfills. Biodegradable waste decomposes in landfill to produce methane, a potent greenhouse gas. Within the Landfill Directive the UK has three targets to meet, measured as a percentage of the tonnage of BMW generated in 1995 ('the 1995 baseline'). These require the tonnage of BMW to landfill to be:
  - No greater than 75 per cent of the 1995 baseline by 2010
  - No greater than 50 per cent of the 1995 baseline by 2013
  - No greater than 35 per cent of the 1995 baseline by 2020
- The UK has met the interim targets for 2010 and 2013.
- BMW sent to landfill in the UK has fallen significantly the series began in 2010, and in 2016 represented 22 per cent of the 1995 baseline.

Notes: Biodegradable Municipal Waste is the fraction of municipal waste that will degrade within a landfill site. Amongst other materials it will include food waste, green waste, cardboard and paper. Tonnage data is collated from mandatory returns made for landfills to the Environment Agencies of each of the four UK countries. Tonnages are split by EWC (European Waste Classification) codes, as determined by landfill operators. For this reporting obligation, the UK countries have agreed a set of EWC codes to represent 'municipal waste'. Scotland applies a factor to EWC code 19 12 12 on the basis that only a proportion is 'municipal', however other countries do not do this. Scotland also includes one additional EWC code. Factors on the proportion of waste that is biodegradable are applied to each code. Countries use broadly similar, but non-identical sets of factors.

Source: UK Statistics on Waste section 2

Waste from households: recycling

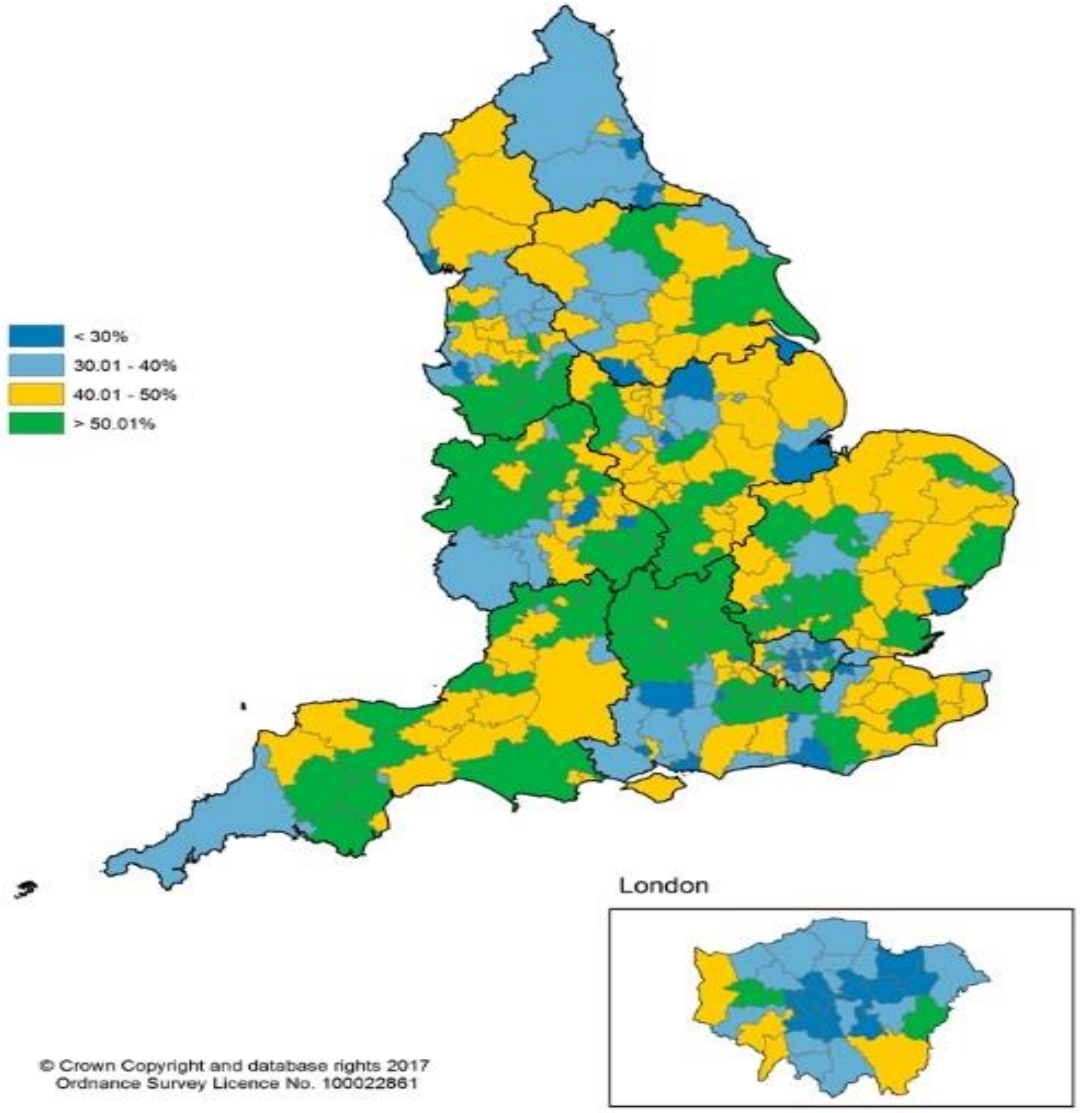
Figure 3.6: Recycling rate from Waste from households, UK and country split, 2010 to 2016.



- The waste from household measure was introduced in May 2014 and is based on a calendar year. It is a narrower version of the 'Household waste' measure which was previously used and excludes waste not considered to have come directly from households, such as recycling from street bins, parks and grounds. It is therefore not possible to link the two measures over time as their definitions are different and they do not measure exactly the same thing. It has been backdated to 2010.
- The 2016 rate includes for the first time the percentage of metal recovered and recycled from waste which has been through incineration. At an overall UK level this raised the recycling rate for 2016 by around 0.6 percentage points. For 2016 this raises the 'waste from households' recycling rate by around 0.7 percentage points.
- The UK waste from households recycling rate (including IBA metal) was 45.2 per cent in 2016, increasing from 44.6 per cent in 2015. This increase was seen in all UK countries.
- The recycling rate for England was 44.9%, compared with 43.0% in Northern Ireland, 42.8% in Scotland, and 57.3% in Wales.
- England is responsible for the vast proportion of UK waste from households, generating 22.8 million tonnes (83% of the UK total) in 2016.

Source: Defra, Dec 2017
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/683051/UK_Statisticson_Waste_statistical_notice_Feb_2018_FINAL.pdf – Figure 1

Figure 3.7: Percentage of household waste sent for recycling, preparation for reuse or composting, England, 2016/17

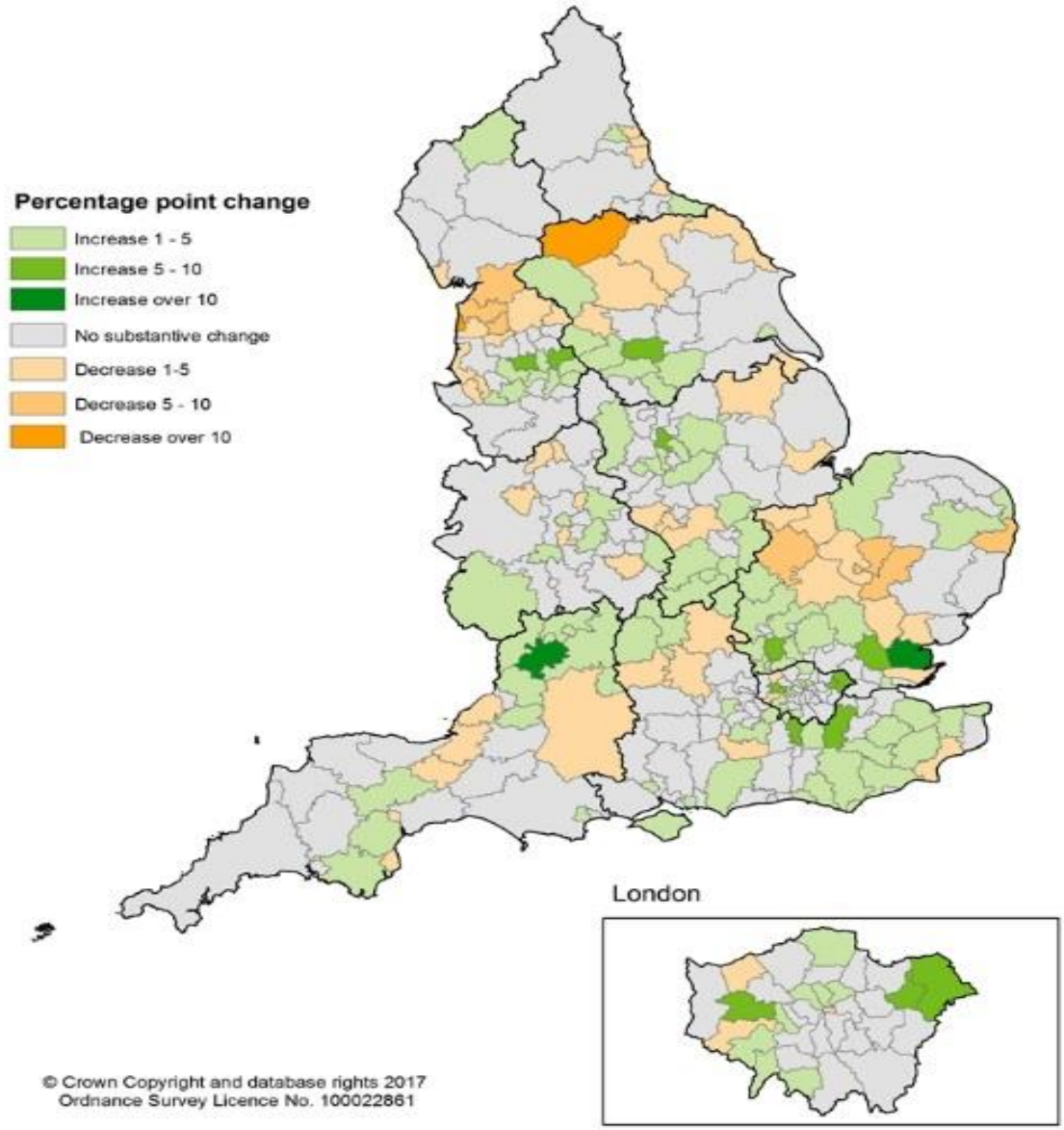


- At Local Authority level, recycling rates ranged from 14 per cent to 65 per cent.
- There is a tendency for recycling rates to be similar in adjacent areas although high and low recycling rates are spread across England.

Notes: Preparation for reuse is the following:
a) A waste product or component of a waste product has undergone a checking, cleaning or repairing recovery operation and
b) The waste product or component of a waste product can be re-used for its original purpose.

Source: Waste Dataflow, snapshot taken in October
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/664594/LACW_mgt_annual_Stats_Notice_Dec_2017.pdf
Figure 7

Figure 3.8: Map of change in Household Waste recycling rates for individual local authorities in England for 2016/17 compared to 2015/16



- At Local Authority level, changes in recycling rates ranged from a 14 per cent increase to an 11 per cent decrease.
- There is a tendency for changes in recycling rates to be similar in adjacent areas, although increases and decreases in recycling rate are spread across England.

Notes: Grey areas in this map indicate a local authority where there was little change or the increase or decrease in the recycling rate was less than 1 percentage point.
Source: As in Figure 3.7

Treatment of waste

Tables 3.2 and 3.3: All waste at final treatment, split by method, UK and England, 2010 to 2014 – tonnages and proportions.

Million tonnes and % change between 2012 and 2014

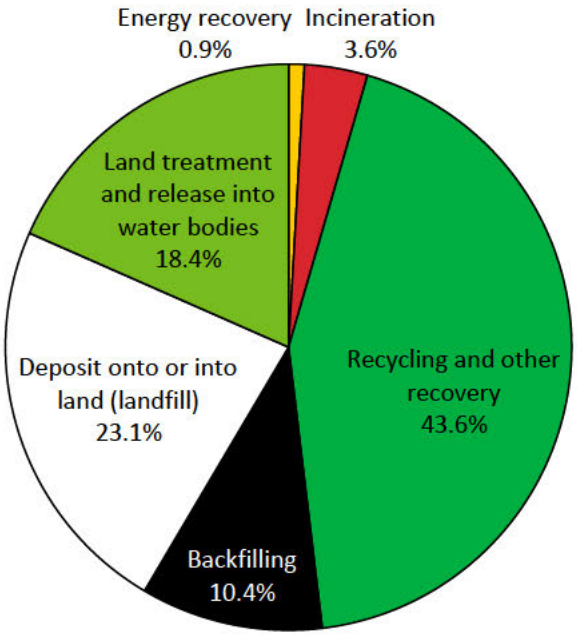
		Energy recovery	Incineration	Recycling and other recovery	Backfilling	Deposit onto or into land (landfill)	Land treatment and release into water bodies	Total
2010	UK	0.8	5.7	81.2	16.5	50.7	40.1	195.0
2012	UK	1.6	6.1	84.4	14.1	48.5	38.4	193.1
2014	UK	1.9	7.6	91.1	21.7	48.2	38.5	209.0
Change 2012 - 2014	UK	22.3%	23.8%	7.9%	53.8%	-0.7%	0.2%	8.2%
2010	England	0.6	5.4	74.0	10.6	43.6	27.4	161.7
2012	England	1.2	6.0	76.5	12.0	41.3	26.9	164.0
2014	England	1.3	7.3	81.4	19.1	41.3	27.2	177.7
Change 2012 - 2014	England	4.7%	22.0%	6.5%	59.2%	-0.1%	1.1%	8.4%

% of total waste tonnage and % point change between 2012 and 2014

		Energy recovery	Incineration	Recycling and other recovery	Backfilling	Deposit onto or into land (landfill)	Land treatment and release into water bodies	Total
2010	UK	0.4%	2.9%	41.6%	8.5%	26.0%	20.6%	100.0%
2012	UK	0.8%	3.2%	43.7%	7.3%	25.1%	19.9%	100.0%
2014	UK	0.9%	3.6%	43.6%	10.4%	23.1%	18.4%	100.0%
Change 2012 - 2014	UK	0.1%	0.5%	-0.1%	3.1%	-2.1%	-1.5%	
2010	England	0.4%	3.3%	45.8%	6.6%	26.9%	16.9%	100.0%
2012	England	0.8%	3.6%	46.6%	7.3%	25.2%	16.4%	100.0%
2014	England	0.7%	4.1%	45.8%	10.8%	23.2%	15.3%	100.0%
Change 2012 - 2014	England	0.1%	0.5%	-0.8%	3.4%	-2.0%	-1.1%	

Figure 3.9 Waste split by final treatment method, UK, 2014.

Percentages



- 'Recycling and other recovery' is the most common final waste treatment type in the UK in 2014, accounting for over 43% (91 million tonnes).
- Landfill is the second most used waste treatment in the UK, with 23.1% (48.2 million tonnes) of waste disposed of at landfill in 2014.

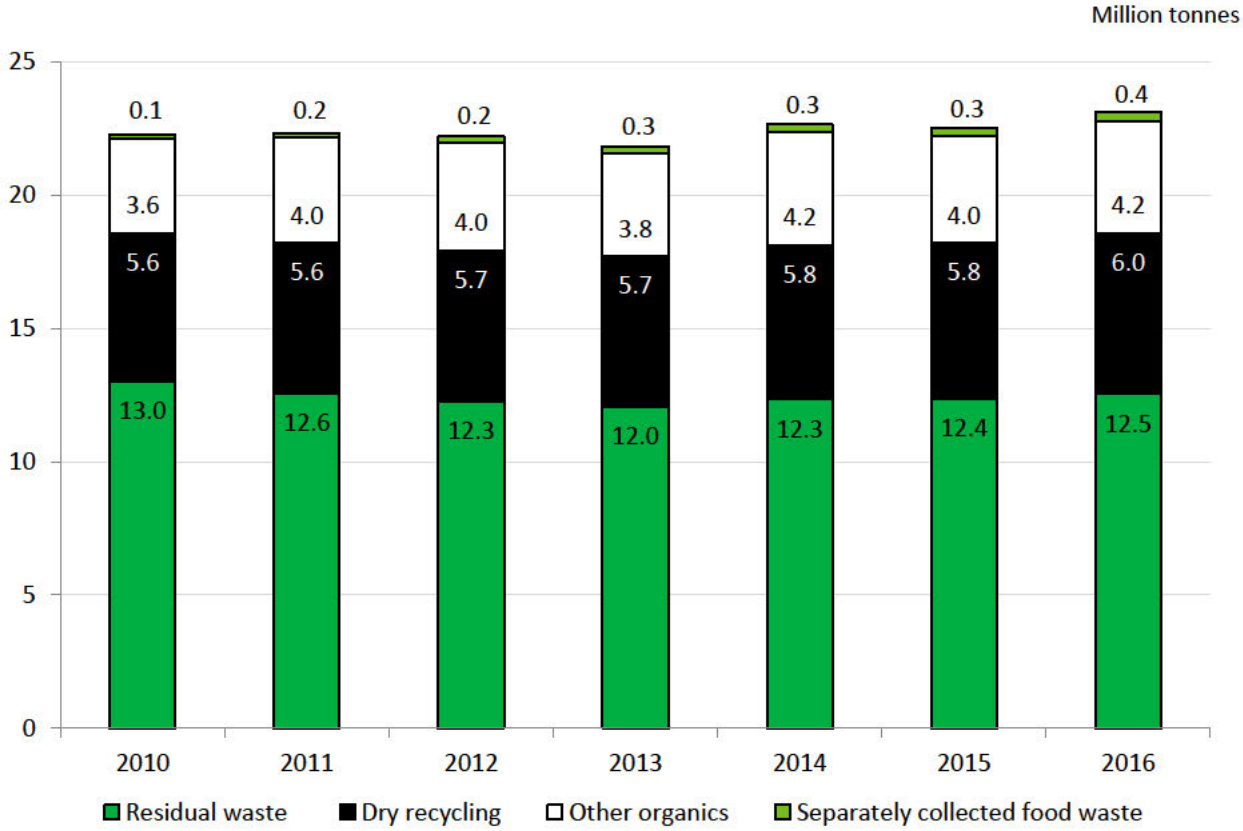
Notes: 'Energy recovery' refers to facilities where the main purpose is generation of energy, or formal R1 accreditation has been awarded 'Recycling and other recovery' refers to the Eurostat category 'Recovery other than energy recovery - Except backfilling' Includes waste that may have been imported. More information on the treatment categories used can be found in the Eurostat publication 'Manual on Waste Statistics'
Link to 'Manual on Waste Statistics'

Source: UK Waste Statistics Regulation return. UK Statistics on Waste.

Section 4: Waste Composition

Composition of waste from households

Figure 4.1: Composition of waste from households, England, 2010 to 2016.

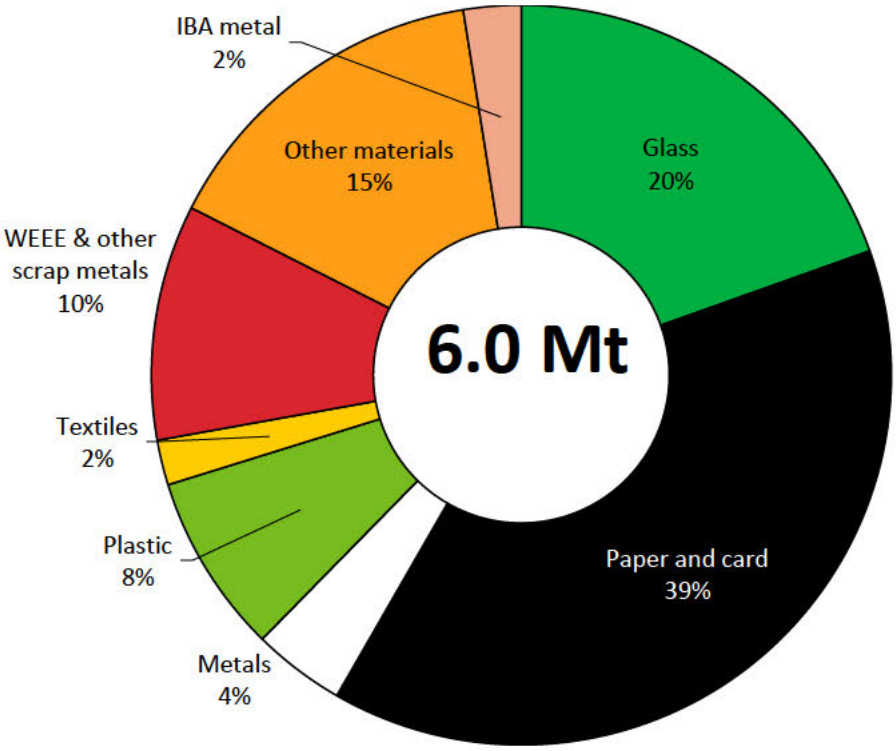


- At the aggregate level, the composition of 'waste from households' has changed very little since 2010.
- Between 2015 and 2016, residual waste increased by 1.3 per cent to 12.5 million tonnes, however as a proportion of total 'waste from households' it decreased by 0.6 percentage points.
- Dry recycling volumes rose by 3.7 per cent to 6.0 million tonnes in 2016, and there were also small increases for other organic waste and separately collected food waste.

Notes: ***Residual waste*** includes waste from households' regular collections e.g. black bags, bulky waste, household civic amenity waste, 'other household waste' and rejects from recycling.
Dry recycling includes paper and card, glass, plastic, waste electrical and electronic equipment (WEEE), scrap metals as well as other materials.
Other organics includes green garden waste, mixed garden and food waste, wood for composting and other compostable waste
Source: WasteDataFlow
www.gov.uk/government/uploads/system/uploads/attachment_data/file/664594/LACW_mgt_annual_Stats_Notice_Dec_2017.pdf - Figure 1

Composition of dry recycling

Figure 4.2: Composition of 'Waste from Households' dry recycling in England, 2016.



- In 2016, approximately 6.0 million tonnes of dry recycling came from households in England.
- The composition of dry recycling has remained similar since 2012 for many items. Paper and card has seen a gradual decrease over time, and in 2016 accounts for 5.4 percentage points less of the total than in 2012, whilst the proportions of plastics and WEEE have each increased by 1.7 and 2.0 percentage points respectively in the last couple of years.

Notes: Dry recycling includes furniture, wood, mattresses and other recycled materials.
IBA metal is incineration bottom ash metal – metal recovered and recycled after incineration.

Source: WasteDataFlow
www.gov.uk/government/uploads/system/uploads/attachment_data/file/664594/LACW_mgt_annual_Stats_Notice_Dec_2017.pdf - Figure 4

Composition, biodegradability and recyclability of Municipal Solid Waste (MSW) to landfill

Table 4.1: Calculated Composition and biodegradability of Municipal Solid Waste to landfill in 2011, England and Wales, for European Waste catalogue codes 19.12.12 and 20.03.01.

	EWC code 19.12.12	EWC code 20.03.01	Total
Tonnes per annum (2011)	8,431,131	9,088,763	17,519,894
Composition (%)	**Mean of EWC code 19.12.12**	**Mean of EWC code 20.03.01**	**Weighted Average**
Paper	10.3	10.6	10.5
Card	9.1	7.7	8.4
Plastic film	9.4	8.4	8.9
Dense plastics	13.2	9.6	11.3
Sanitary waste	1.3	3.1	2.2
Wood	10.0	5.3	7.6
Textiles and shoes	5.9	5.6	5.7
Glass	1.3	3.0	2.2
Food waste	8.2	21.3	15.0
Garden waste	1.8	3.5	2.7
Other organic	1.3	2.1	1.7
Metals	3.2	3.7	3.5
WEEE	1.4	1.5	1.5
Hazardous waste and batteries	1.1	0.9	1.0
Carpet, underlay and furniture	7.0	5.0	6.0
Other combustibles	2.7	1.4	2.0
Bricks, plaster and soil	7.9	4.1	5.9
Other non-combustible	1.7	1.5	1.6
Fines < 10mm	3.3	1.8	2.5
Total	100.0	100.0	100.0
Est biodegradability	46.3	56.1	51.4
Est. combustibility	84.4	86.1	85.3
Est recyclability	23.8	27.2	25.6

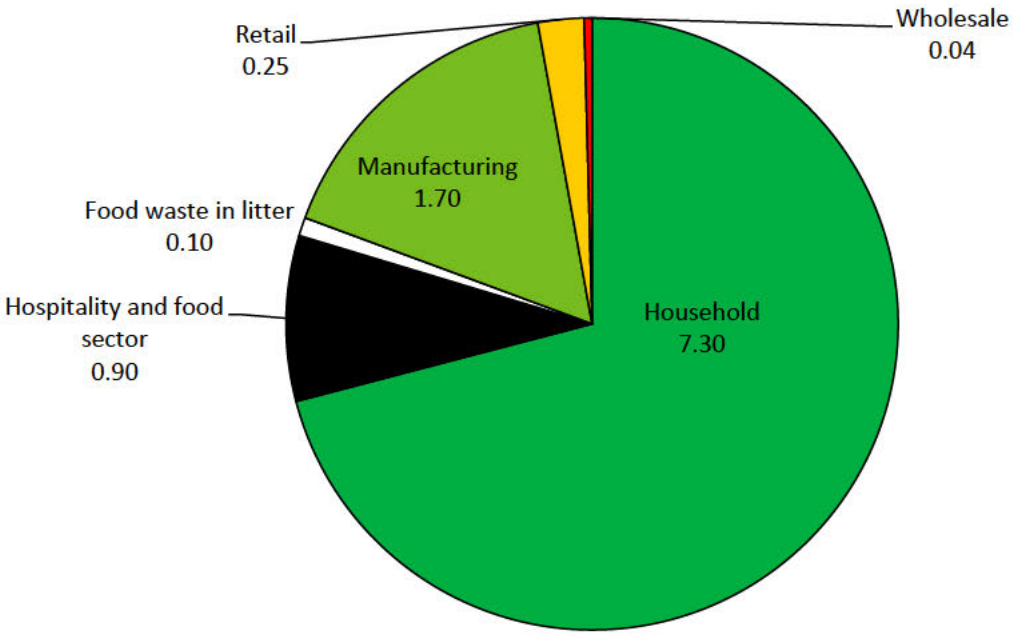
- The primary aim of this analysis was to provide information about municipal solid waste landfilled, in terms of its composition and the amount of biodegradable material landfilled, under a range of European Waste Catalogue codes, with particular emphasis on codes 19.12.12 and 20.03.01, given their importance with municipal waste (see 'notes' below).
- The results suggest that the combined biodegradability of material landfilled under the two EWC codes is around 51 per cent, and the combined estimated recyclability is around 26 per cent.

Notes: 'Municipal waste' here is waste from households and other waste which, because of its nature or composition, is similar to waste from households.
EWC (European Waste Catalogue) code 19.12.12 is other wastes from mechanical treatment of wastes; EWC code 20.03.01 is mixed municipal wastes. Material recorded under these two codes accounts for around 96 per cent of the material recorded under mixed waste codes that could be regarded as municipal waste.
Source:
http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17447

Section 5: Food Waste
UK food and drink waste through the food chain

Figure 5.1: Amounts of food waste arising in the UK by sector, 2015

Million tonnes

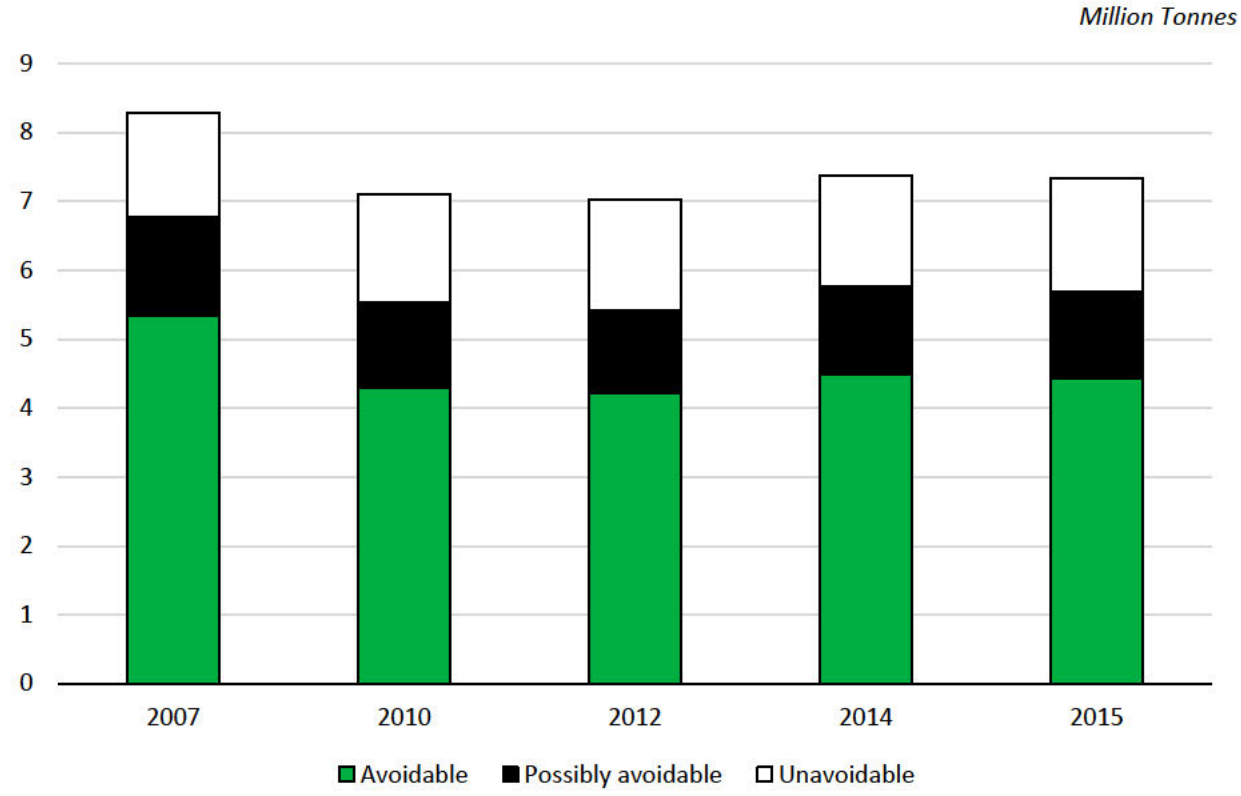


- Around 10 million tonnes of food and drink is wasted in the food chain annually. This is equivalent to around one quarter of the 41 million tonnes of food bought. Around 60 per cent of this is avoidable. The total food waste had a value of over £17 billion in 2015 and is associated with around 20 million tonnes of greenhouse gas (GHG) emissions.
- By weight, household food waste made up 70 per cent of the UK post-farm-gate total, manufacturing 17 per cent, hospitality and food service 9 per cent and retail 2 per cent. Around 85 per cent (by weight) of the avoidable food waste arises in households and food manufacture.
- Levels of household food waste in the UK in 2015 were equivalent to 75.2 kg per person per year. In 2015 the average UK household with children spent £60 per month on food that could have been eaten but was thrown away.
- In addition to food ending up as waste, 710,000 tonnes of food surplus from manufacturing and retail is either being redistributed via charitable and commercial routes (47,000 tonnes in 2015), or being diverted to produce animal feed (660,000 tonnes in 2015).

Notes: Avoidable waste is food and drink thrown away because it is no longer wanted or has been allowed to go past its best. The vast majority of avoidable food is composed of material that was, at some point prior to disposal, edible. Possibly avoidable waste is food that some but not all people would eat, and unavoidable waste is elements that are not suitable for consumption. Further details can be found in the glossary.

Source: Estimates of Food Surplus and Waste Arisings in the UK, and other associated WRAP reports: http://www.wrap.org.uk/sites/files/wrap/Estimates_%20in_the_UK_Jan17.pdf

Figure 5.2: Total household food and drink waste in the UK, split by avoidability, 2015



- There was a substantial reduction in household food waste from 2007 to 2012, with the majority of the reduction occurring between 2007 and 2010.
- Household food waste amounted to 7.3 million tonnes in 2015.
- Avoidable household food waste in 2014 and 2015 amounted to 4.5 million tonnes and 4.4 million tonnes respectively, compared to 4.2 million tonnes in 2012.
- The 2015 research does not allow for detailed estimated for different food and drink categories, therefore WRAP recommends referring to their 2012 report by clicking here.

Notes: Avoidable waste is food and drink thrown away because it is no longer wanted or has been allowed to go past its best. The vast majority of avoidable food is composed of material that was, at some point prior to disposal, edible, even though a proportion is not edible at the time of disposal due to deterioration (e.g. gone mouldy).
Possibly avoidable waste is food and drink that some people eat and others do not – e.g. bread crusts and potato skins.
Unavoidable waste is waste arising from food preparation that is not edible under normal circumstances e.g. egg shells, meat bones, apple cores. Further details can be found in the glossary

Food and drink material that is sent to animal feed does not legally constitute waste because it is regarded as 'redistribution.'

Source: http://www.wrap.org.uk/sites/files/wrap/Household_food_waste_in_the_UK_2015_Report.pdf

Local authorities collecting food waste

Figure 5.3: Percentage of local authorities collecting food waste, UK countries, 2015/16

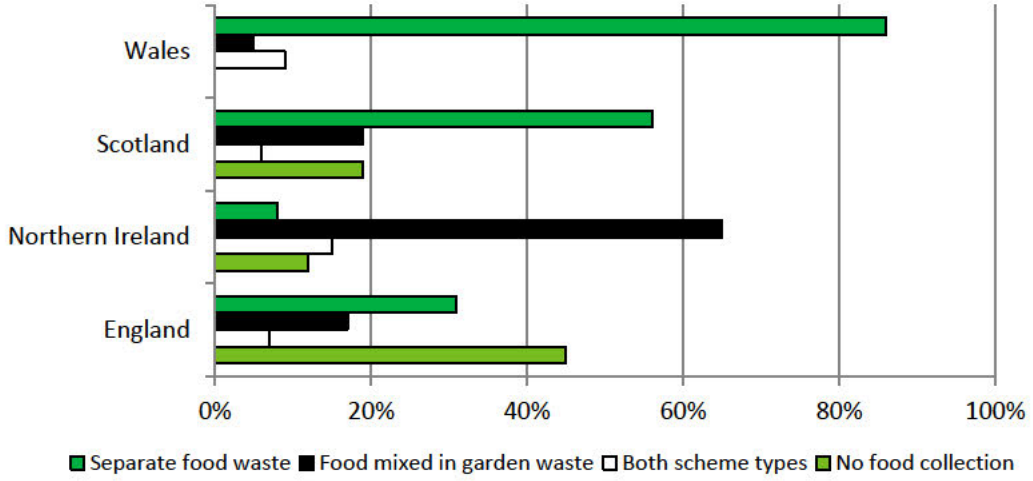
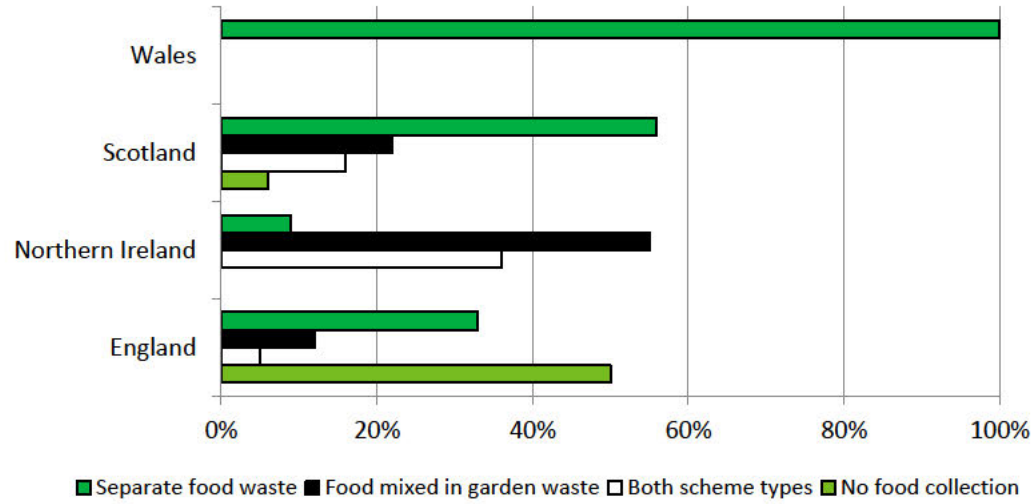


Figure 5.4: Percentage of local authorities collecting food waste, UK countries, 2016/17



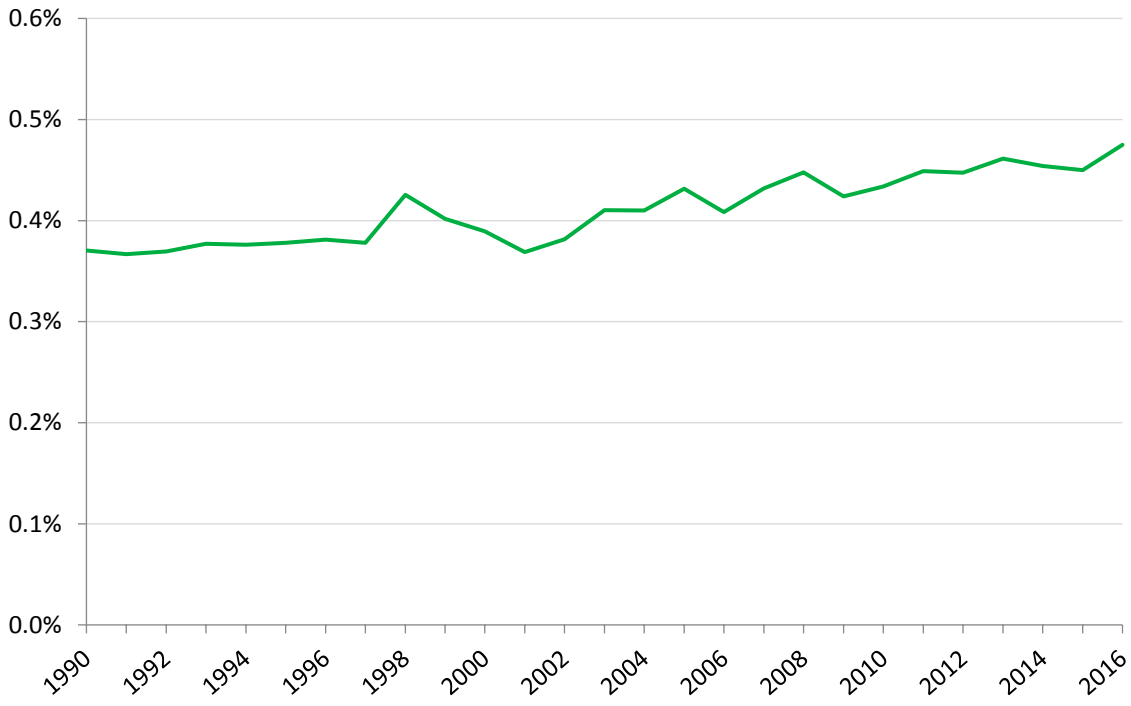
- Figures 5.3 and 5.4 cover the types of collection schemes operated by all authorities in the UK.
- 100 per cent of local authorities in Wales now have separate food waste collections, but they no longer run any food mixed in with garden waste schemes.
- In England, Scotland and Northern Ireland some local authorities just collected food waste mixed in garden waste.

Notes: In any authority a scheme may not be available to every household.
Source: WRAP
http://laportal.wrap.org.uk/Statistics.aspx

Section 6 Economic characteristics of the waste management sector

Gross Value Added of the waste management sector as a percentage of the whole economy.

Figure 6.1: GVA of the waste management sector as a percentage of the economy's GVA, UK, 1990 to 2016.



- Figure 6.1 uses the chain volume measure of GVA. This measure already takes price fluctuations into account.
- In 2016 the GVA that the waste sector generated showed a slight increase (0.47 per cent of the economy's GVA).

Source: Office for National Statistics – National Accounts – GVA given in CVM
www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/ukgdpolowlevelaggregates

Gross Value Added by waste management sector

Table 6.1: GVA by waste management sectors, UK, 2009 to 2016.

£m (2016 values)

	2009	2010	2011	2012	2013	2014	2015	2016
Waste collection	2,506	2,420	2,732	2,917	2,739	3,473	3,454	3,373
Waste treatment and disposal	1,133	1,278	1,701	1,247	1,456	1,442	1,774	1,785
Materials recovery	1,365	2,073	2,155	1,926	1,315	1,691	1,475	1,584

- For comparison purposes, all values have been converted to 2016 figures.
- Between 2009 and 2016 Gross Value Added (GVA) of the all waste sectors fluctuated.

Source: Office for National Statistics – Annual Business Survey
www.ons.gov.uk/businessindustryandtrade/business/businessservices/datasets/uknonfinancialbusinesseconomyannualbusinesssurveysectionsas

GVA of waste management sector

Figure 6.2: Index of GVA over time of the waste management sector and the whole economy in constant prices[1], UK, 1990 to 2016.

(1990=100)

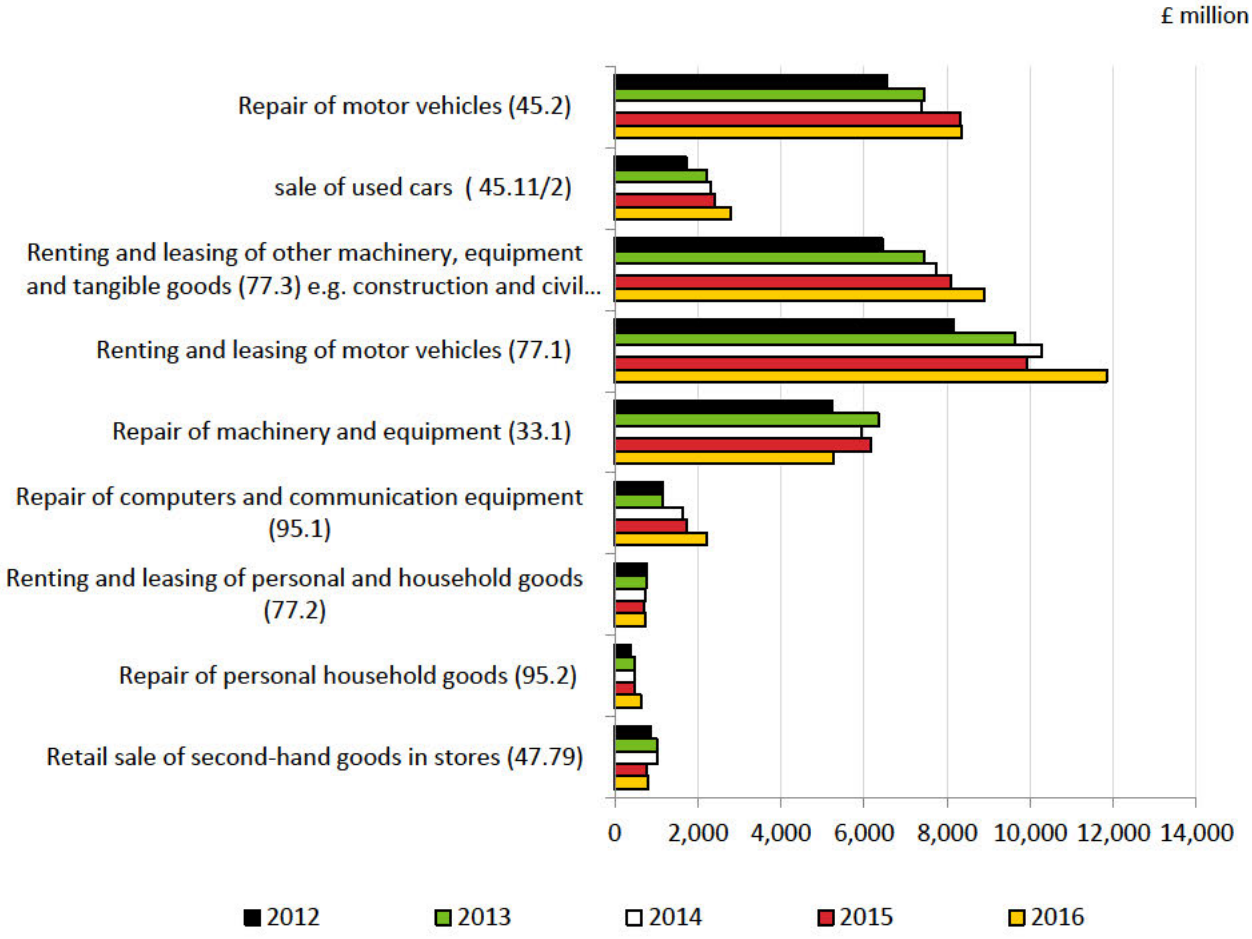
[1] – UK National Accounts Chain Value Measure (CVM) – waste sector defined by SIC 38

- Figure 6.2 uses the chain volume measure of GVA. This measure already takes price fluctuations into account.
- Between 1990 and 2016 Gross Value Added (GVA) of the waste sector fluctuated more than that of the whole economy.
- Over the past decade the GVA of the waste and resource management sector has grown at a faster rate than the wider economy. Following the downturn in 2009, the GVA of the waste sector has steadily increased and in 2016 increased by 8 per cent from the previous year.

Source: Office for National Statistics – National Accounts – GVA given in CVM
www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/ukgdpolowlevelaggregates

GVA for repair, re-use and leasing sectors

Figure 6.3: GVA for repair, re-use and leasing sectors[1], UK, 2011 to 2016 *(Waste Prevention Metric)*.



- Repair, renting and leasing of motor vehicles makes up around 50 per cent of the total GVA from the repair, reuse and leasing sector covered in the above

[1] GVA at basic prices.
2016 data is provisional.
Source:
www.ons.gov.uk/businessindustryandtrade/business/businessservices/datasets/uknonfinancialbusinesseconomyannualbusinesssurveysectionsas

Exports of Refuse-Derived Fuel

Table 6.2: Exports of Refuse-Derived Fuel (RDF) from England and Wales[1], 2010 to 2017.

Thousand tonnes

	2010	2011	2012	2013	2014	2015	2016	2017
Export of refused - derived fuel	9	250	961	1,799	2,374	2,819	3,213	3,201

- Refuse derived fuel consists of residual waste that is subject to a contract with an end-user for use as a fuel in an energy from waste facility. The contract must include the end-user's technical specifications relating as a minimum to the calorific value, the moisture content, the form and quantity of the RDF[2].
- Exports of refuse derived fuel to energy from waste facilities elsewhere in the European Union have increased dramatically in recent years as it becomes a more favoured management route for waste.

[2] This is a new definition for RDF in England that will be trialled with industry for a six month period during 2016. Following the trial, a decision will be made on the permanent introduction of the definition

Notes: There were no exports prior to 2010.
[1] Until October 2014 this data included exports from England and Wales, from November 2014 this data is exports from England only

Source: Environment Agency.
www.geostore.com/environment-agency/WebStore?xml=environment-agency/xml/ogcDataDownload.xml
International Waste Shipments

Table 6.3: Destination of RDF exports from England, 2017

Country	Percentage of England's RDF export received
The Netherlands	48.1%
Germany	20.0%
Sweden	16.5%
Norway	4.2%
Latvia	2.5%
Denmark	2.4%
Cyprus	1.5%
Portugal	1.4%
Poland	1.3%
Bulgaria	1.0%
France	0.3%
Estonia	0.2%
Belgium	0.2%
Greece	0.1%
Spain	0.1%

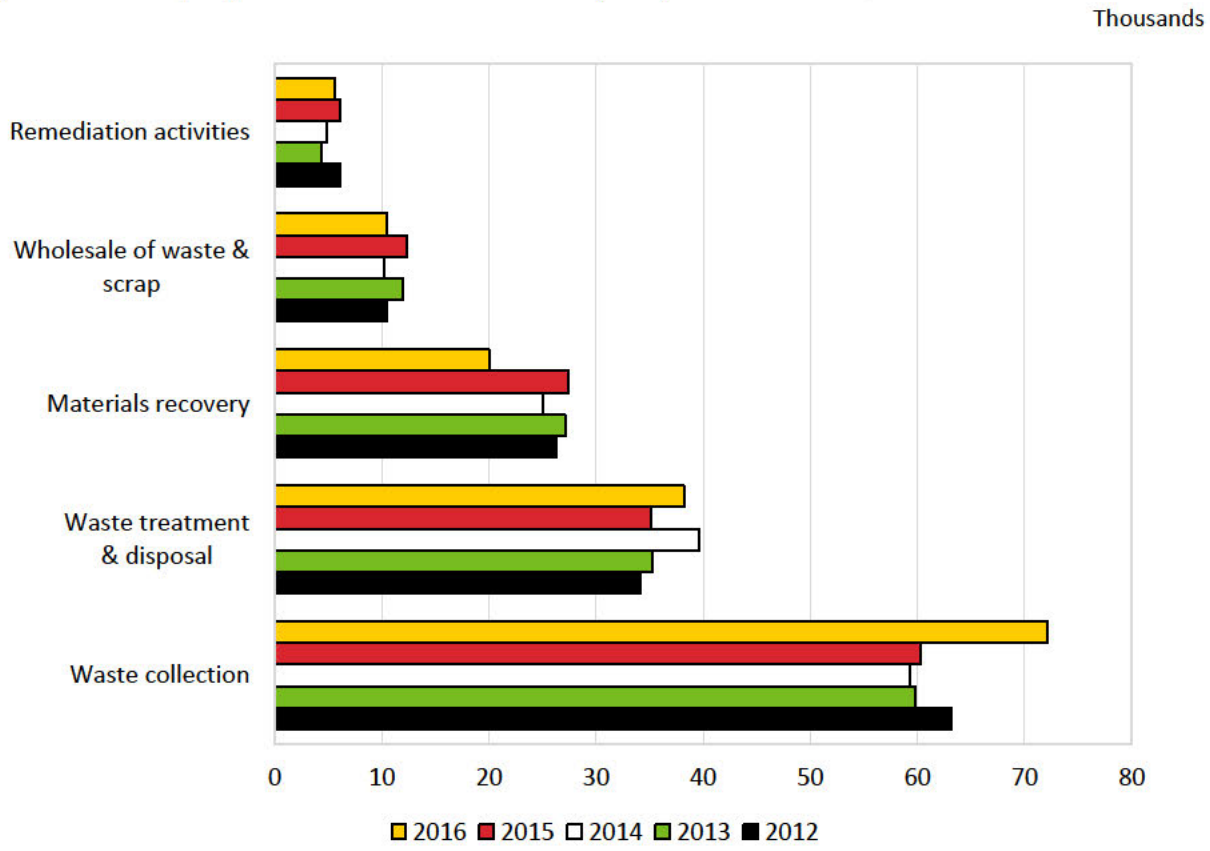
- The majority of refuse-derived fuel exported from England in 2017 was sent to The Netherlands (48%), Germany (20%) and Sweden (16.5%).

Source: Environment Agency.
www.geostore.com/environment-agency/WebStore?xml=environment-agency/xml/ogcDataDownload.xml - International Waste Shipments

Employees in the waste sector

Employees in the waste sector, GB

Figure 6.5: Employees in the waste sector, GB, 2012 to 2016.



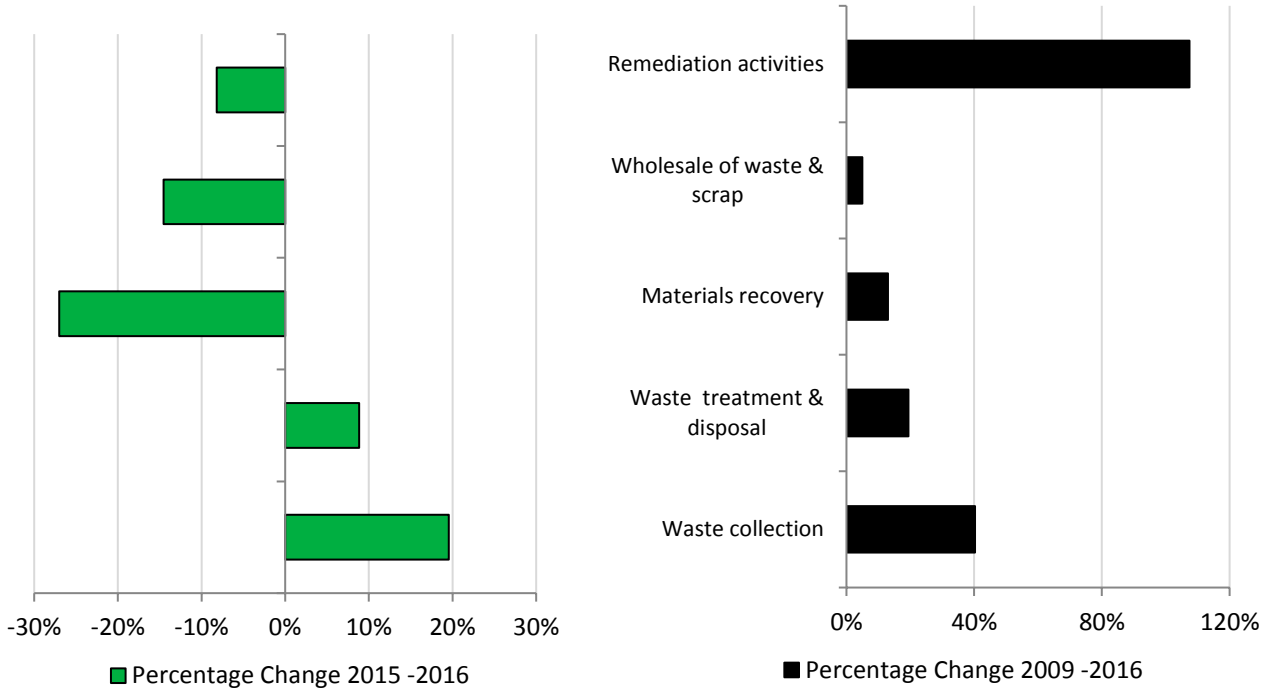
- Total number of employees in the waste industry covers both full time and part time employees, from the private and public sectors.
- The waste collection industry covers employees in both hazardous and non-hazardous waste. The materials recovery industry covers both dismantling of wrecks and also recovery of sorted materials.
- The waste treatment and disposal industry also covers hazardous and non-hazardous waste
- In 2016, 2 out of the 5 sectors experienced increases in the number of employees compared to 2015 – waste collection, and waste treatment and disposal.
- Employees data presented are estimated and subject to standard errors, therefore should be treated with caution.

Source: ONS

Industry (2, 3 & 5 - digit SIC) - Business Register and Employment Survey (BRES): Table 2 - Office for National Statistics

Table 2: Annual employee and employment estimates for GB and UK in September 2014 split by 2, 3 and 5 digit SIC codes (SIC2007). Results given by full-time/part-time and public/private splits.

Figure 6.6: **Percentage change in employees in the waste industry in Great Britain, between 2009 to 2016 and 2015 to 2016.**

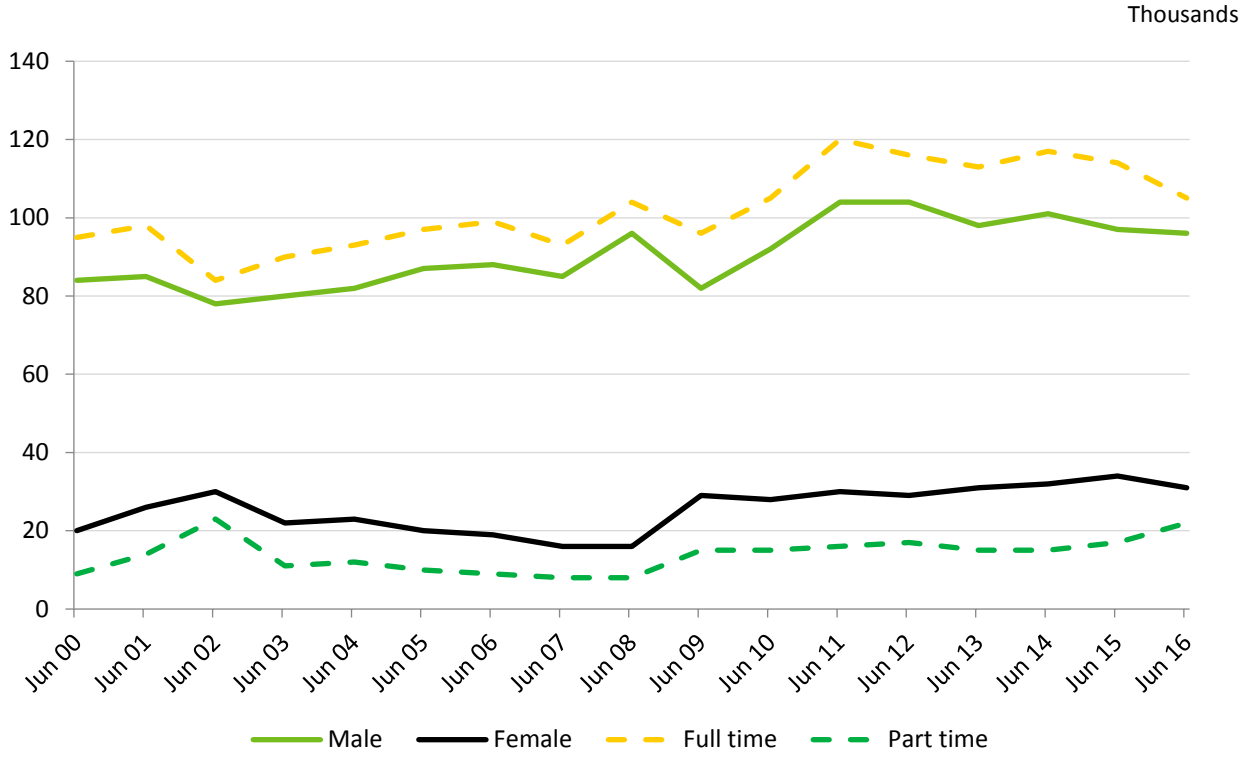


- Figure 6.6 is based on the percentage growth in the number of employees in the waste industry between 2009 - 2016, and 2015 - 2016.
- The percentage growth covers both full and part time employees in both public and private sectors of the waste industry.
- Between 2009 and 2016, all sectors within the waste industry experienced increases in employment numbers.
- The Remediation activities saw the largest increase in employment since 2009.
- Between 2015 and 2016 employee numbers in the Remediation activities, Wholesale of waste & scrap and Materials recovery sectors decreased. This caused an overall reduction in employment numbers within the industry of 21 per cent from 2015 – 2016.
- Employees data presented are estimated and subject to standard errors, therefore should be treated with caution.

Source: ONS
Industry (2, 3 & 5 - digit SIC) - Business Register and Employment Survey (BRES): Table 2 - Office for National Statistics

Employees in the waste sector, UK

Figure 6.8: Employees in the waste sector, UK, 2000 to 2016.



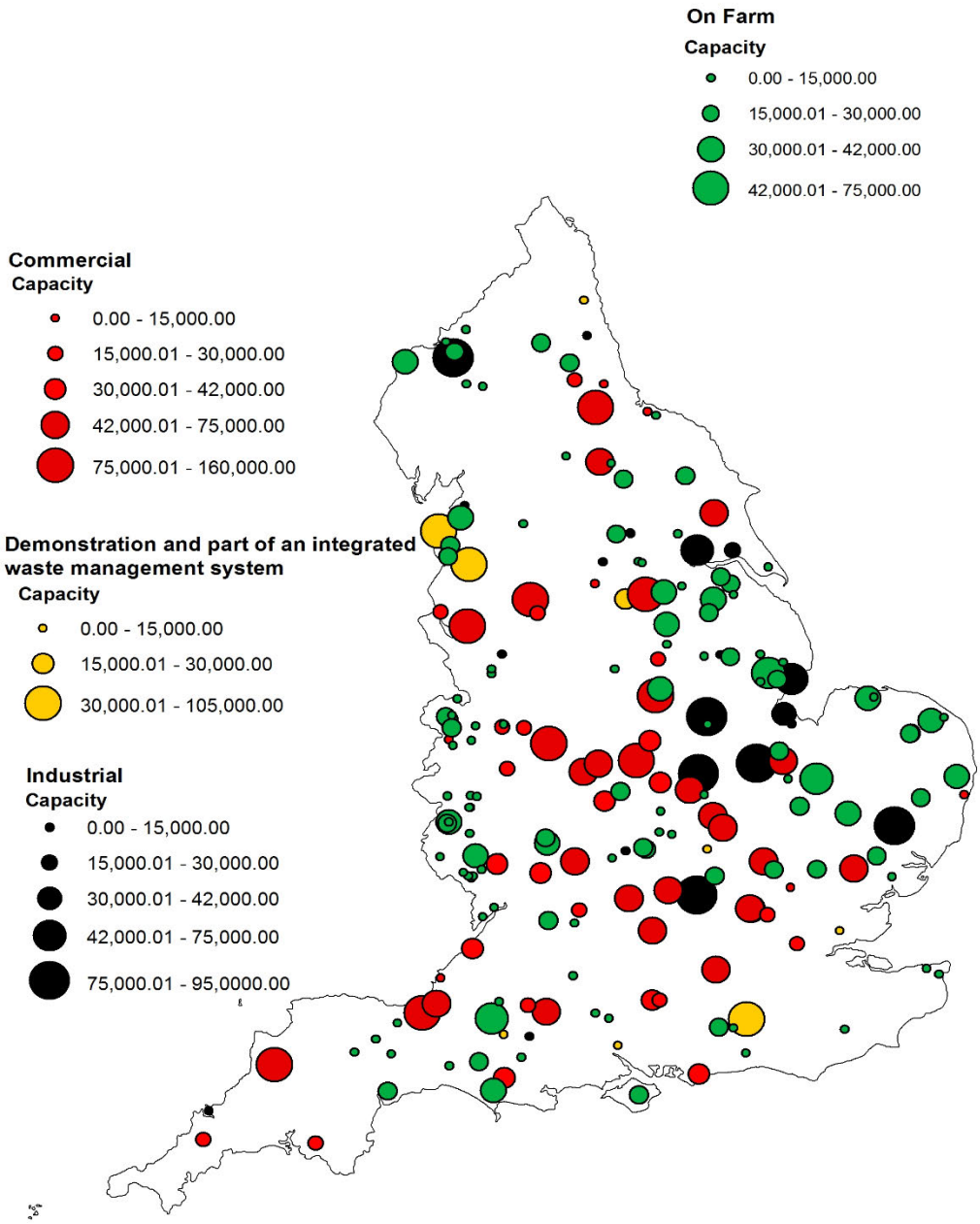
- Figure 6.8 covers all employee jobs in both public and private sectors of the waste industry in the UK excluding the Wholesale waste & scrap sector.
- Data is based on June series of each year and covers full and part time jobs as well as number of male and female jobs in the waste industry.
- The index for male employees (both part time and full time) is very similar to that of full time employees and has been steady over the years. While the index for female employees (also covering full and time) follows similar index pattern to that of part time employees.
- In 2015, part time employees in the waste industry increased by nearly 30 per cent from the previous year, mainly due to an increase in part time male employment. The number of full time female employees decreased within the same period
- Employees data presented are estimated and subject to standard errors, therefore should be treated with caution.

Note: Part-time employees are those contracted to work 30 hours or less per week.
Source: ONS
www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/employeejobsbyindustryjobs03

Section 7: Waste Infrastructure

Anaerobic digestion

Figure 7.1: Anaerobic Digestion sites, England, 2016.



- Listed capacity (tonnage) is operational capacity, not throughput. This reflects the potential capacity of the digester

Notes: data here is updated after verification from contractor, it may differ from other sources
Source: www.wrap.org.uk/content/operational-ad-sites

Landfill sites

Figure 7.2: Landfill inputs by region, England, 2016

Thousand tonnes

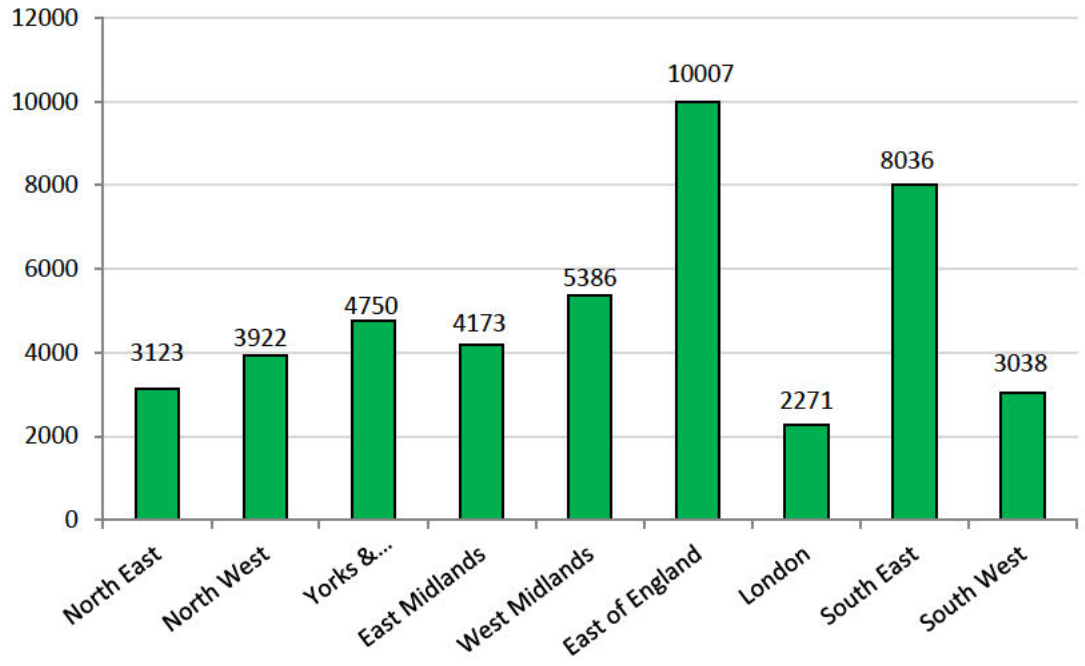
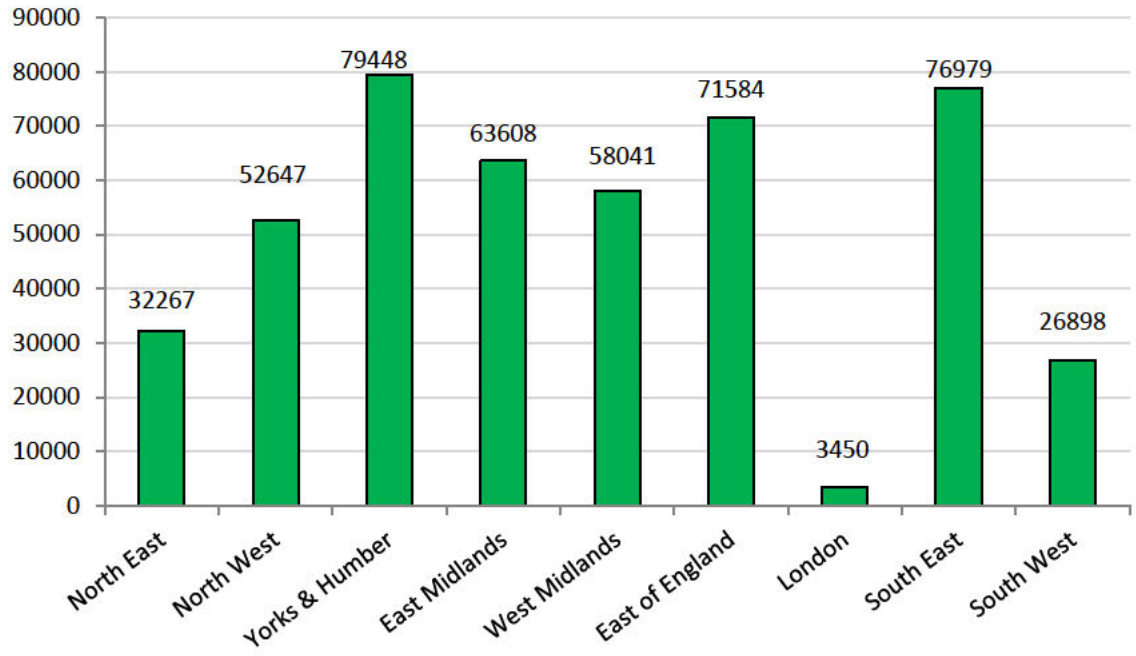


Figure 7.3: Landfill capacity by region, England, 2016

Thousand Cubic Metres



Source: Environment Agency
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/642373/Waste_management_2016_summary.pdf

Number and Capacity of Final Treatment facilities, UK and England

Table 7.1: Number and capacity of final treatment facilities, UK and England, 2014.

Facility type	Measure	UK	England
Energy recovery	Number of facilities	29	13
	of which dedicated to the processing of MSW	5	4
	Capacity (000t/yr.)	4,862	2,803
	of which dedicated to the processing of MSW	2,317	1,967
Incineration	Number of facilities	83	60
	Capacity (000t/yr.)	9,859	9,040
Recovery other than energy recovery (includes backfilling)	Number of facilities	2,660	1,699
	Permitted Capacity	:	:
Deposit onto or into land (landfill)	Number of facilities (includes closed facilities)	608	493
	Rest (remaining) Capacity (000 m^3)	602,223	484,370

: = Not available
000 t/yr. = thousand tonnes per year
MSW – Municipal Solid Waste – for further details please see Glossary
Energy recovery refers to facilities where the main purpose is generation of energy, or formal R1 accreditation has been awarded. Excludes recovery facilities operating solely under a waste exemption.

- Table 7.1 contains information on the number and capacity of various facilities for the final treatment of waste. Defra collates summaries from the environment agencies of all four UK countries of facilities authorised by mandatory permit or license. The data excludes facilities that were formally *closed* throughout 2014 (except landfills) but may include facilities which despite being permitted were non-*operational* in 2014. Facilities permitted only for treatment operations identified as intermediate (which includes most anaerobic digesters) are excluded from Table 7.1. Capacity is based on the level authorised by permit or license with the exception of some small scale incinerators where the permit did not feature capacity. In these cases, operational capacity is used.
- 'Energy recovery' in table 7.1 refers to facilities where the main purpose is generation of energy, or formal R1 accreditation has been awarded. Only a subset of these are dedicated to the processing of municipal waste. Facilities without formal R1 accreditation are reported as 'Incineration' rather than 'Energy Recovery'.

Notes: R1 accreditation is an EC standard based on efficiency factors. Application is voluntary, so the number of plants meeting R1 standards may be in excess of the number actually accredited.

Recovery operations covered by simple exemptions or simple registrations are not included. These operations are classed as low risk or low volume and do not have to report activity to Environment Agencies.

The permitted capacity of Energy Recovery and Incineration facilities includes municipal, commercial and industrial waste, and will be higher than the actual volume of waste treated.

Source: UK Waste Statistics Regulation return. See section 6 of UK Statistics on Waste.

Permitted estate at end of 2016, England

Table 7.2: Permitted estate at the end of 2016, England.

Waste management method	Sites permitted at end 2016	Sites that accepted waste in 2016	Million tonnes managed in 2016
Landfill	507	340	44.7
Transfer	2,987	2,340	46.7
Treatment	2,782	2,075	72.4
Metal recycling	2,420	1,244	13.8
Incineration	146	81	11.6
Use of waste	175	90	1.6
Land disposal	317	212	12.2
Total	**9,334**	**6,382**	**203**

- In 2016 there were around two-thirds of permitted sites accepting waste.
- Around 78 per cent of permitted transfer sites were accepting waste in 2016, whilst only 51 percent of metal recycling sites accepted waste.

Notes: There is a possibility of waste being double-counted because an item of waste can pass through more than one facility
This data is based on permitted waste site monitoring returns. Some sites may not have submitted their returns in 2016 but may have accepted waste.

Source: Environment Agency, Waste management 2016
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/642373/Waste_management_2016_summary.pdf

Gate Fees

Figure 7.4: Median Gate Fees for various waste streams, UK, 2009/10 to 2016/17.

£ per tonne

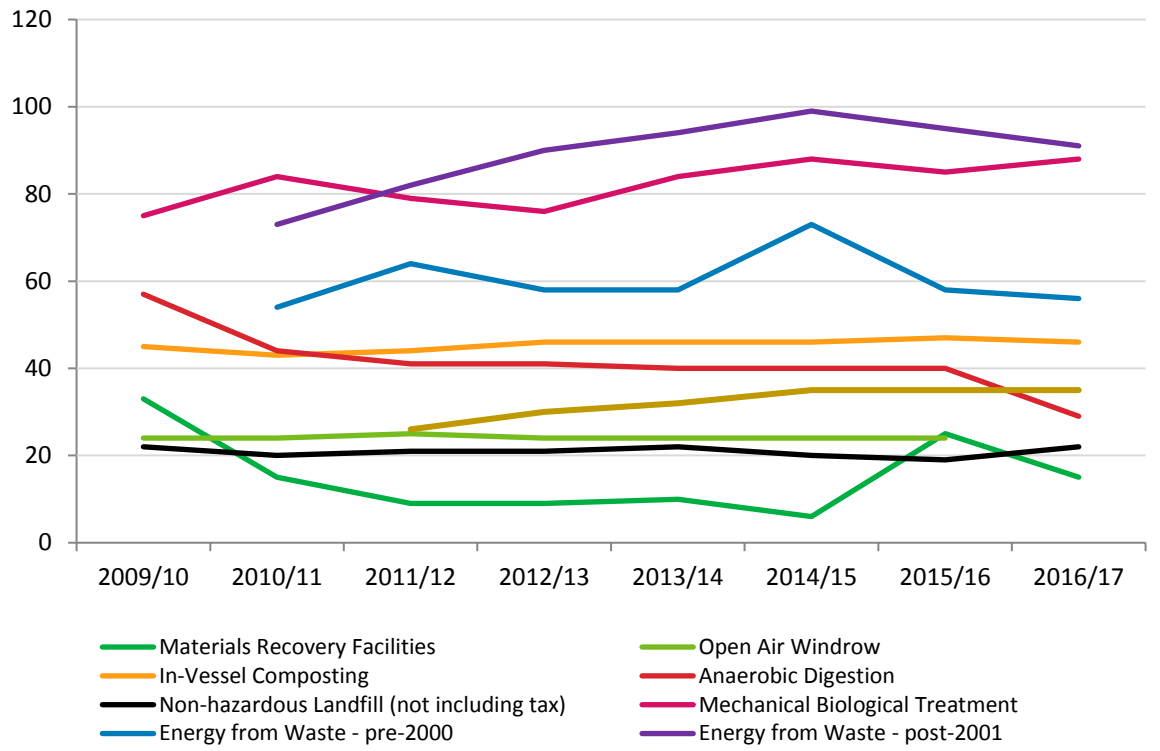


Table 7.3: Median Gate Fees for various waste streams, UK, 2012/13 to 2016/17

£ per tonne

Facility Type	2012/13	2013/14	2014/15	2015/16	2016/17
Materials Recovery Facility	9	10	6	25	15
Open Air Windrow	24	24	24	24	
In-Vessel Composting	46	46	46	47	46
Anaerobic Digestion	41	40	40	40	29
Non-hazardous Landfill (not including tax)	21	22	20	19	22
Mechanical Biological Treatment	76	84	88	85	88
Energy from Waste – pre-2000	58	58	73	58	56
Energy from Waste – post 2001	90	94	99	95	91
Wood Processors – All grades	30	32	35	35	35

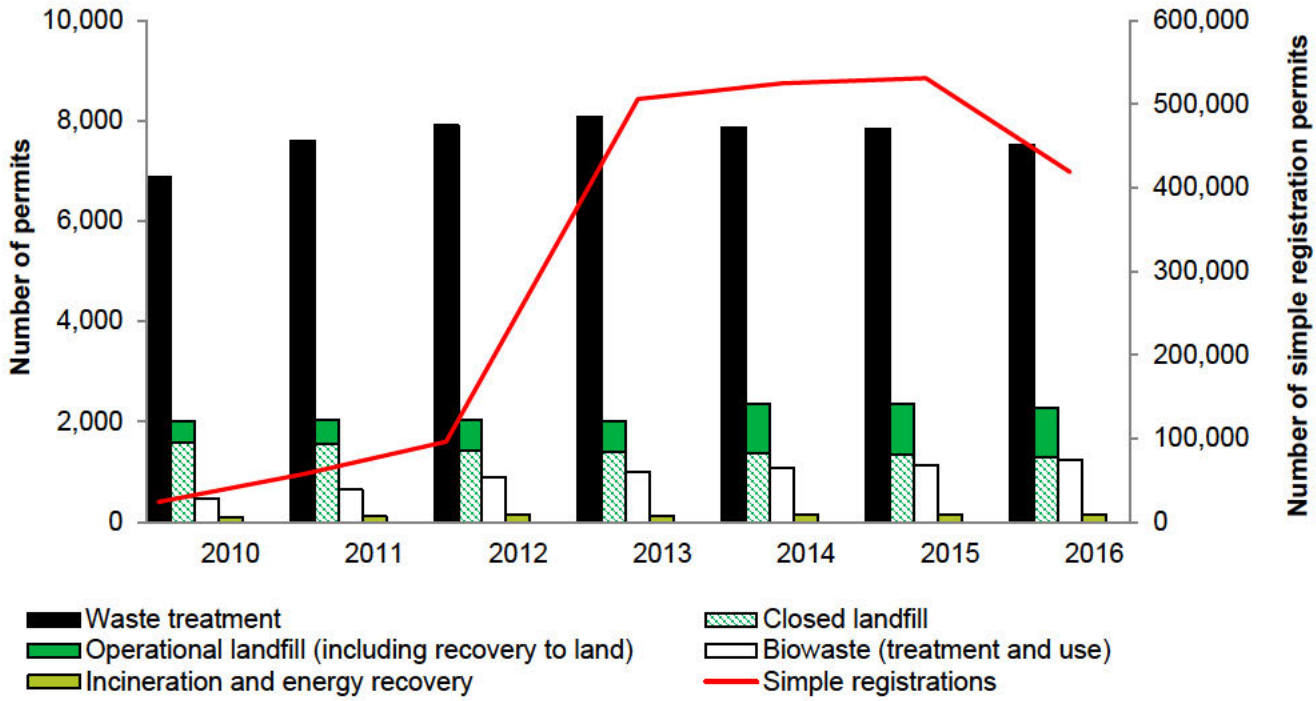
- Gate Fees for non-hazardous landfill are shown excluding landfill tax, which pushes the median cost per tonne to over £100. This additional tax would make energy from waste a preferable method.
- Materials Recovery Facilities have the lowest gate fees, but they also have the largest range of gate fees.
- Anaerobic Digestion and In Vessel Composting sites would be competing for the same waste types. Figure 7.4 shows Anaerobic Digestion to have a lower median price, but they have similar ranges of prices.

Notes: Energy from Waste – pre- 2000 are plants built before 2000, which were built in a different way to those built post-2000. Operating costs tend to be lower in the 'older' facilities.

Source: WRAP
http://www.wrap.org.uk/sites/files/wrap/Gate%20Fees%20report%202017_FINAL_clean.pdf

Waste Management Infrastructure, England.

Figure 7.5: Number of waste sector permits, England, 2010 to 2016.



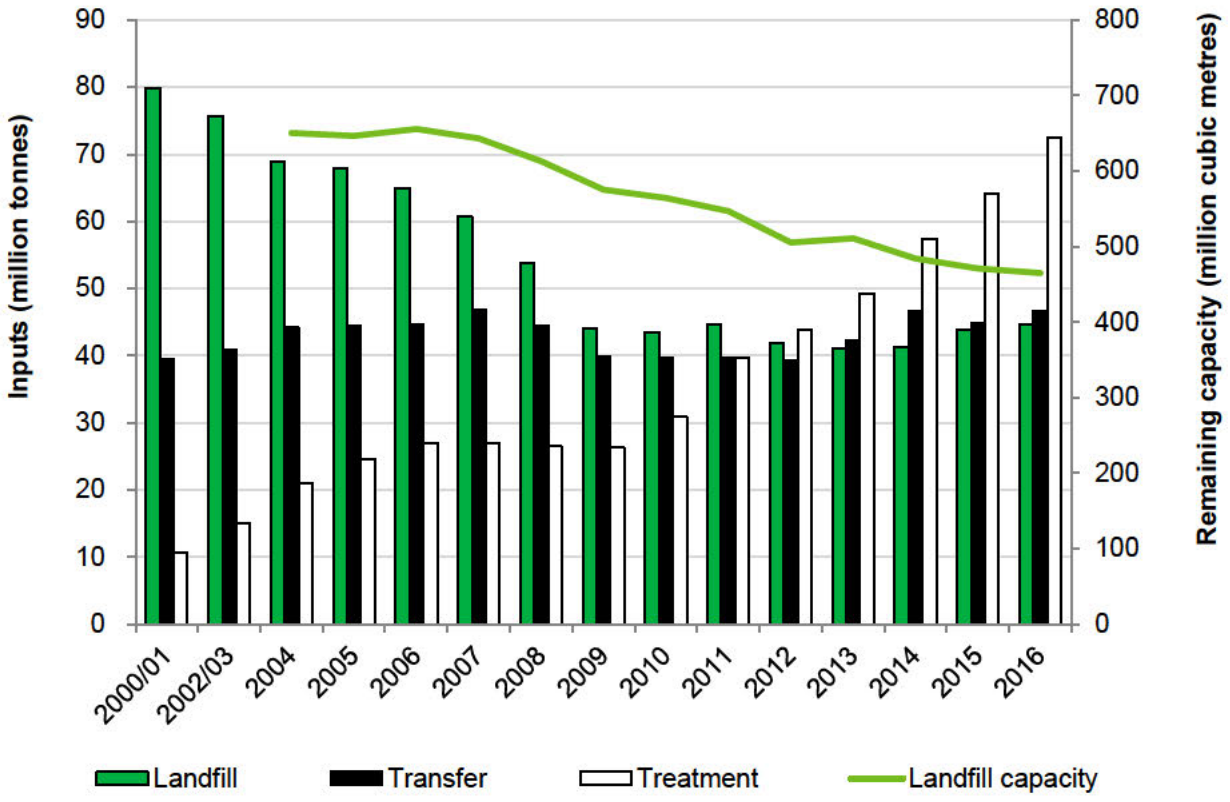
- The waste industry in England holds over 11,000 Environmental Permitting Regulations (EPR) permits issued by the Environment Agency.
- The number of permitted waste facilities increased by 18 per cent between 2010 and 2016. The increases are mostly in the waste treatment, operational landfill, and bio-waste sectors.
- Simple waste operations are exempt from needing a permit. These exemptions need to be registered. These simple registrations increased significantly in 2013 because the transitional requirements for agricultural exemptions ended and many farmers registered new simple waste registrations in the middle of that year.

Notes: Sites can hold more than 1 permit
Treatment includes composting and recycling
Examples of simple registrations are: storing and bulking-up plastic packaging in a container at a place before it's moved to another site to be recovered, storing sewage sludge at a farm before it is spread on land or anaerobic digestion of manure and plant tissue waste in a dedicated AD plant to produce a digestate

For more information: www.gov.uk/guidance/register-your-waste-exemptions-environmental-permits

Source: Environment Agency
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/663672/Regulating_for_people_the_environment_and_growth_2016_summary.pdf

Figure 7.6: Waste Management Throughput and Capacity, England, 2000/01 to 2016.



- In recent years more waste has been re-used and recycled, and less landfilled.

Notes: Sites can hold more than one permit
Treatment includes composting, incineration and recycling

Source: Environment Agency
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/642373/Waste_management_2016_summary.pdf

Section 8: Environmental issues relating to waste

Litter and Littering in England, 2016/2017

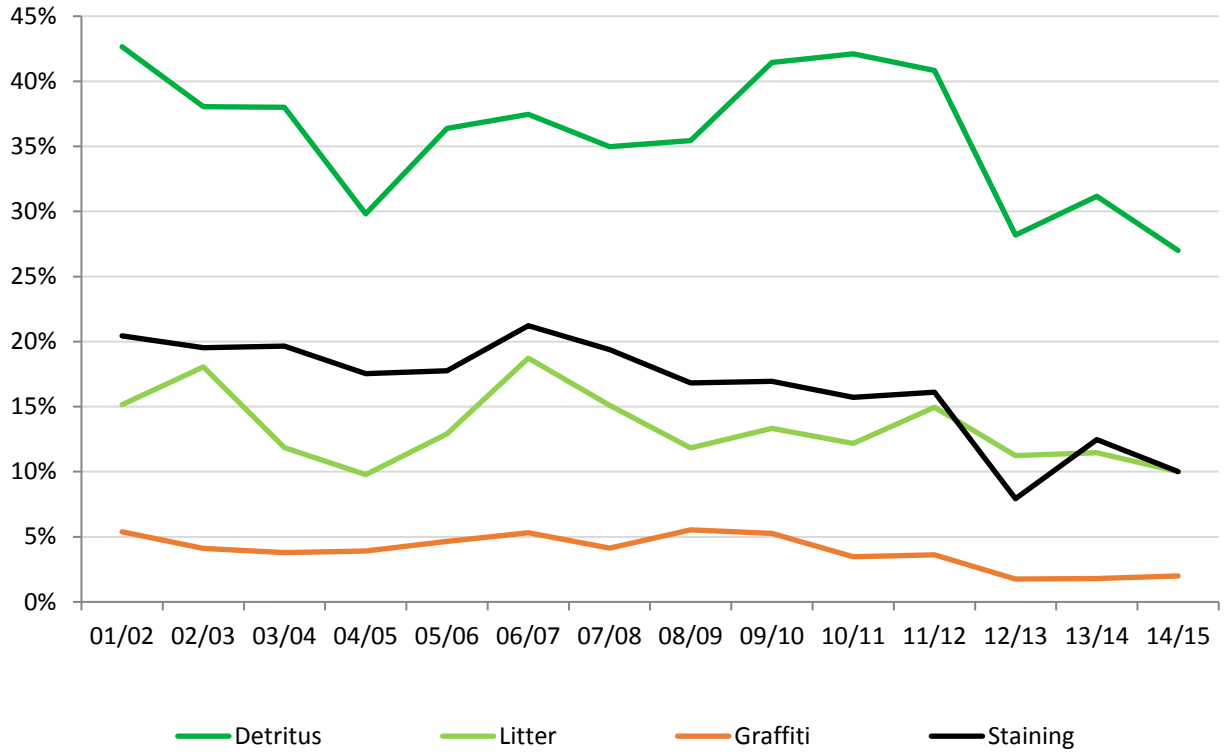
Figure 8.1: Key Figures from Litter Dashboard

- A group or 'dashboard' of indicators covering litter from 5 angles was published for the first time in February 2018. Key indicators were identified by the Litter Strategy Working Group for Data and Monitoring.
- The dashboard covers litter on the ground (including beach litter), public perception of litter, cleanliness or public places, involvement of the public in doing something about litter, and the cost to the public of keeping the streets clean.
- Around 3,800 people used mobile apps to report 11,900 incidents in 2016/17.
- The majority of litter incidents reported on beaches are plastic and polystyrene.
- Public perception of litter have been fairly consistent in recent years, with 30% of people saying there was a problem with litter in their areas.
- In 2016/17 it cost local authorities £682 million or £29 per household to keep our streets clean.

Notes: Data relates to the period April 2016 to March 2017 and is for England only.
The dashboard is not a definitive measure of litter, but illustrates what is happening now, using the data currently available, by looking at littler from different angles. These indicators should therefore be viewed as a group, to keep each one in context.
Source: Defra, Litter Dashboard
https://www.gov.uk/government/publications/litter-and-littering-in-england-2016-to-2017/litter-and-littering-in-england-2016-to-2017

Local Environmental Quality, percentage of survey sites below acceptable standard

Figure 8.2: Percentage of survey sites below an acceptable standard[1], England, 2001/02 to 2014/15.



[1]An acceptable standard is Grade B and above – Predominantly free with some minor instances of the issue to none of the issues present

- Overall, there has been an improvement in sites with detritus, with less sites being found to be below an acceptable standard over time.
- Graffiti has scored consistently well over time, with only a small percentage of sites below standard.

Notes: Due to a change in site selection methodology between 2012/13 and 2013/14 onwards, it is not possible to make any comparisons between these years.
Staining refers to chewing gum.

Source: KBT, the Local Environmental Quality Survey of England 2014/15 (LEQSE)
http://www.keepbritaintidy.org/sites/default/files/resource/LEQSE%202014-15.pdf – Figure 4

Carrier Bags

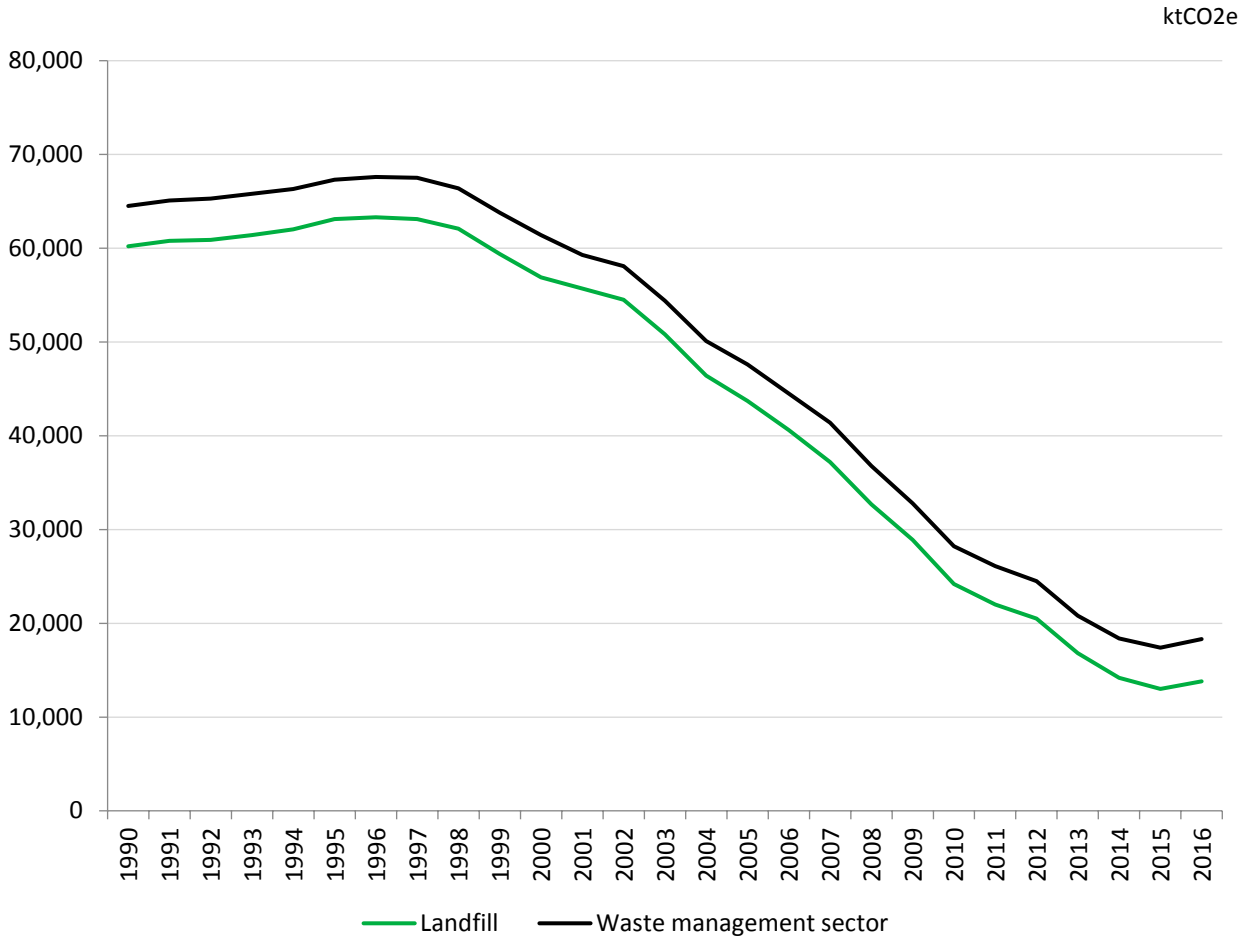
Figure 8.3: Carrier bags, England, 2016 to 2017.

- In the financial year 2016 - 2017, 2.1 billion single-use carrier bags were sold by large retailers who registered and reported data, compared to 1.1 billion sold in the first six months of 2015 – 2016.
- Of these, 1.3 billion were issued by the 7 main retailers (Asda, Marks and Spencer's, Sainsbury's, Tesco, The Co-operative group, Waitrose and WM Morrison). This represents around 83% fewer bags compared to 2014 (for which WRAP reported data).
- Almost two-thirds of retailers voluntarily provided additional information on the amount donated and the type of good causes supported; over £66 million was donated to good causes - environment, education, health, arts, charity, heritage and sports as well as local causes chosen by staff and customers

Source: https://www.gov.uk/government/publications/carrier-bag-charge-summary-of-data-in-england/single-use-plastic-carrier-bags-charge-data-in-england-for-2016-to-2017

Emissions from landfill

Figure 8.4: Historical trend of methane (CH_4) emissions from landfill and waste management sector, UK, 1990 to 2016 *(Waste Prevention Metric).*



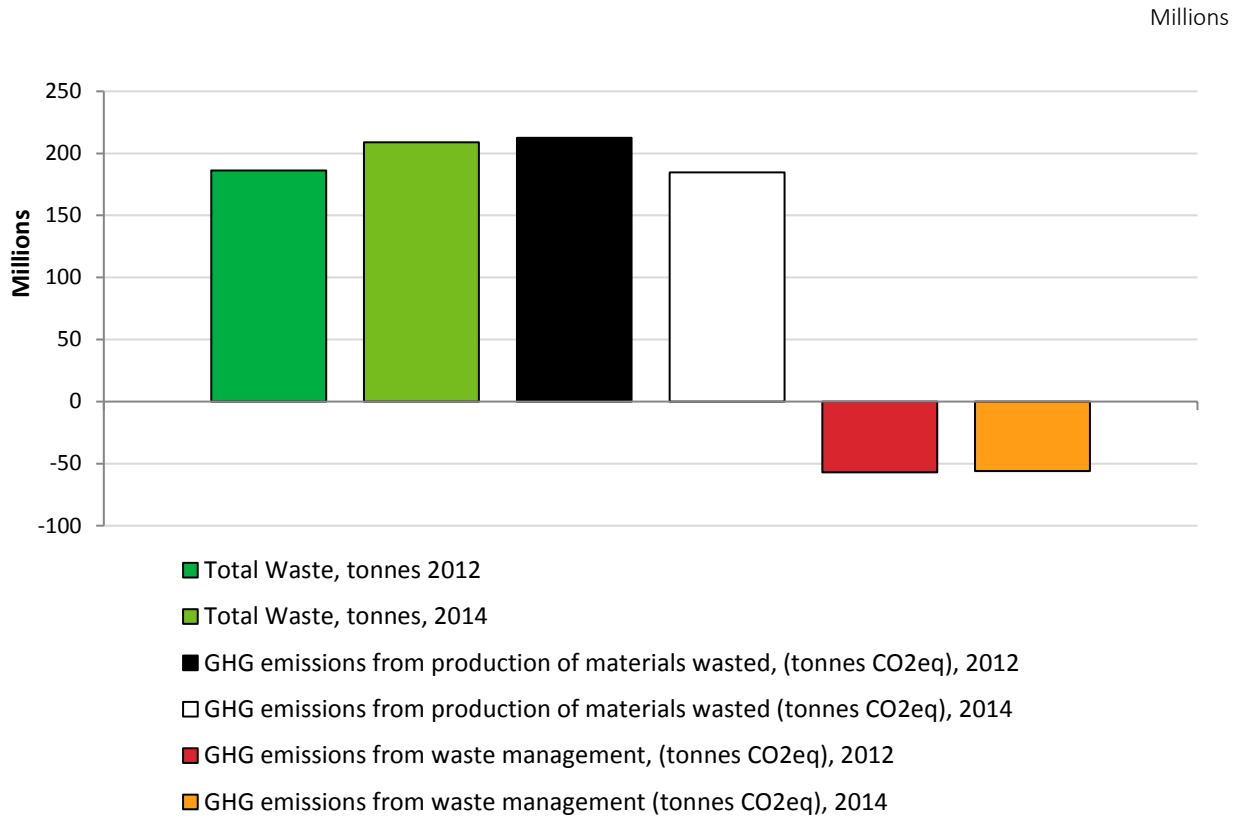
- The above chart shows CH_4 emissions measured as 'carbon dioxide equivalents'.
- The amount of CH_4 emitted from landfills depends on the difference between methane generation and methane capture at landfill.
- Emissions have decreased since 1995 due to reductions in waste sent to landfill due to the introduction of landfill tax and an increase in recycling, the waste PFI programme, as well as improvements in landfill management and the introduction of CH_4 capture technology.
- Emissions from both landfill and the wider waste management sector increased slightly in 2016 compared to 2015, however these are similar to the emissions in 2014.

Notes: The entire time series is revised each year to take account of methodological improvements.
Source: BEIS
https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2016

Carbon Metric Factors

This section of the Digest presents data on carbon emissions from waste management.

Figure 8.5: Waste weight and GHG emissions 2012 and 2014.

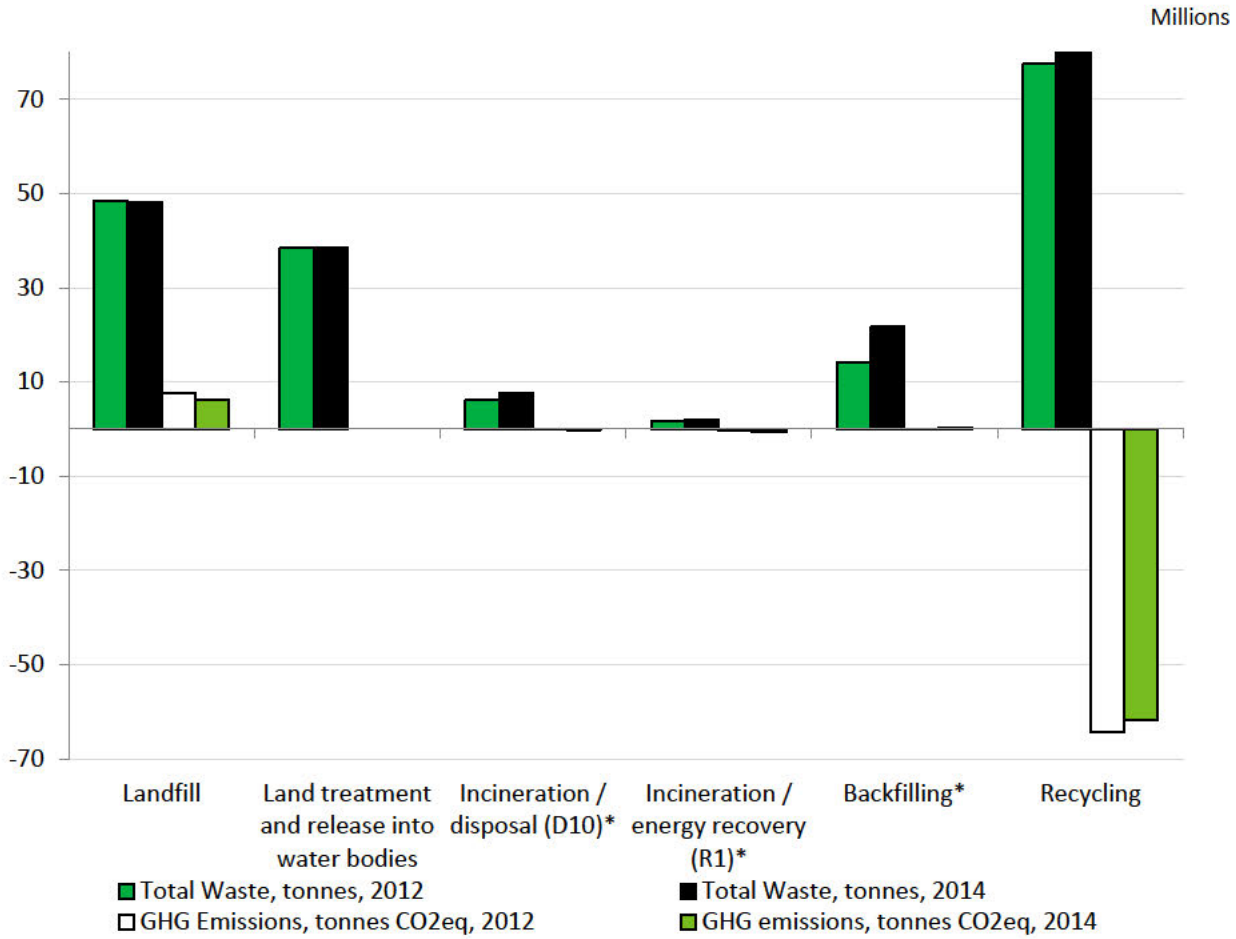


- Figure 8.4 shows total waste arisings, in million tonnes and total greenhouse gas emissions resulting from the production of materials which become waste and from waste treatment activities, measured in million tonnes of carbon dioxide equivalent (CO_2 eq).
- Emissions associated with materials discarded in 2014 were approximately 185 million tonnes of CO_2 eq, and the eventual treatment all of this waste avoids emissions of around 56 million tonnes of CO_2 eq. The majority of this benefit is from avoiding raw materials through recycling.

Notes: These are estimates based on a life cycle perspective and cover global emissions associated with materials discarded in the UK – they are not confined to emissions from the UK alone. For example, the emissions associated with imported products include embedded emissions.
Note that GHG emissions from waste management are net values.

Source: WRAP
Factors: www.ukconversionfactorscarbonsmart.co.uk/ as factors per tonne

Figure 8.6: Waste weight and GHG emissions 2012 and 2014.



- Figure 8.5 shows total waste going into each waste management activity and the emissions from each of the activities.
- Depositing waste onto or into land results in emissions of around 7 million tonnes of CO_2eq over and above those resulting from production.
- Land treatment and release into water bodies is largely dredging spoils and mineral wastes, the treatment of which results in negligible emissions.
- Recycling avoids emissions of around 62 million tonnes of CO_2 eq compared to providing an equivalent amount of materials from primary sources (e.g. mining).

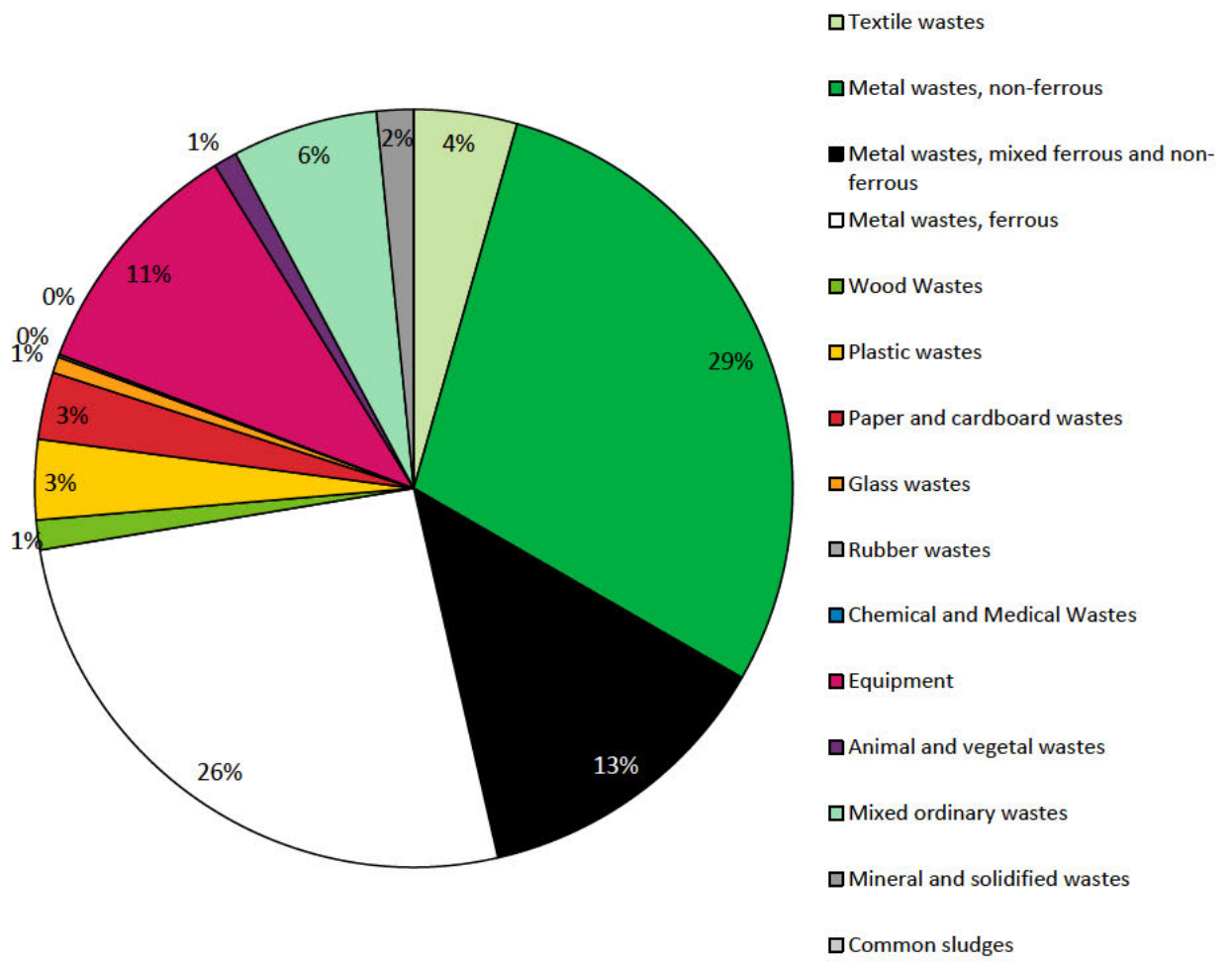
Notes: * Incineration/disposal means thermal treatment of waste in an incineration plant or a co-incineration plant, incineration/energy recovery is incineration that fulfils the energy efficiency criteria laid down in the WFD, backfilling is a recovery operation where waste is used in excavated areas as a substitute for other non-waste materials

Note that GHG emissions are net values.

These are estimates based on a life cycle perspective and cover global emissions associated with materials discarded in the UK – they are not confined to emissions from the UK alone. For example, the emissions associated with imported products include embedded emissions.

Source: As for Figure 8.3

Figure 8.7: Material contribution GHG emissions avoided by recycling, 2014



- The above chart shows that in 2014, over half of the emissions avoided by recycling come from metal wastes. As some of these materials and wastes are traded internationally, the savings from recycling also extend beyond UK territorial emissions.

Source: As for Figures 8.3 and 8.4

Section 9: Behaviours regarding waste

The Recycling Tracker is an annual survey of UK households run by WRAP, designed to gather evidence on consumers' current attitudes, knowledge and behaviour in relation to recycling (both dry recyclables/packaging and food).
In the 2017 wave, 3,239 interviews were undertaken across the UK: in England (2127), Scotland (207), Wales (650) and Northern Ireland (300). The sample is representative of adults aged 18 and over who have some responsibility for waste disposal and recycling in the household. The analysis has compared respondents' self-reported recycling behaviour to the known kerbside service provision in their area.

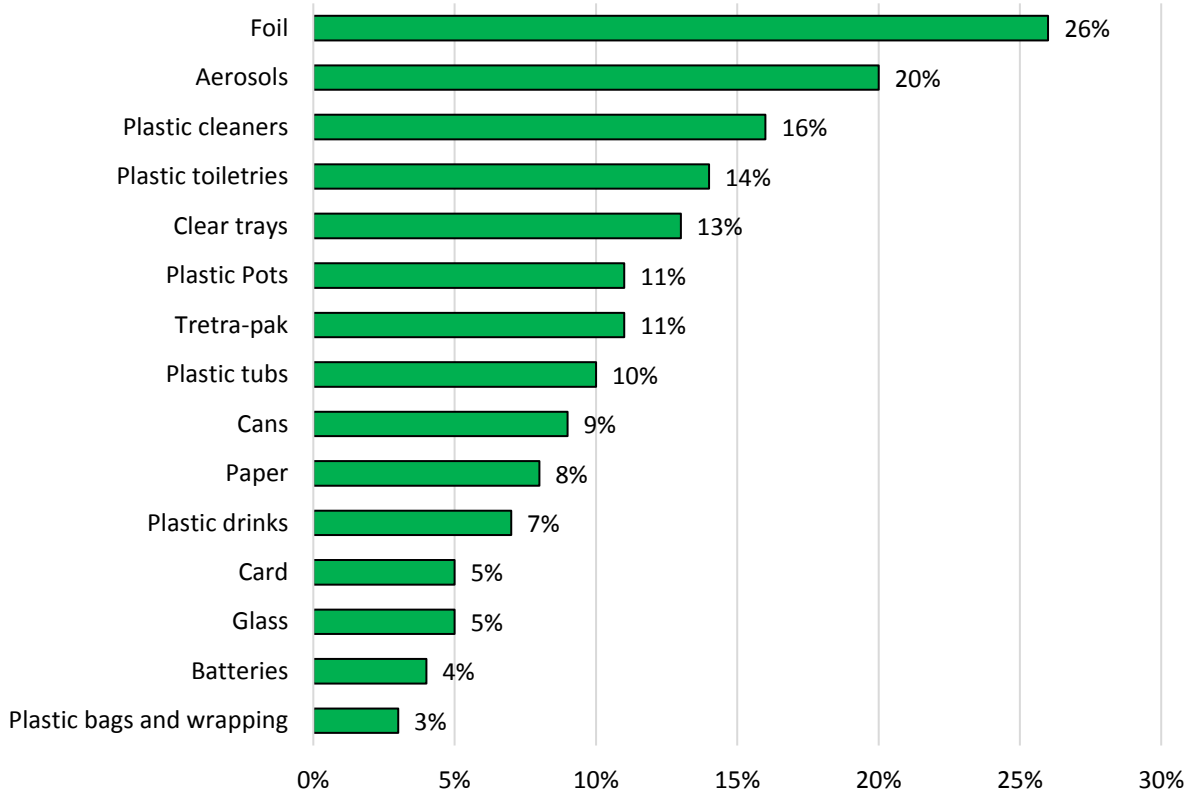
The tracker survey assess two key elements of recycling behaviour: **missed capture** (i.e. items put in the general rubbish that are accepted for recycling locally) and **contamination** (i.e. items put in the recycling when they are not accepted).

Key Findings for 2017:

Recycling behaviour.

- Almost two thirds of households (66%) express uncertainty over what can be put in the recycling bin.
- Over three quarters (76%) add one or more item to their recycling collection that is not accepted locally.
- Over half (53%) of UK households dispose of one or more items in the residual bin that are collected for recycling in their area.
- The majority of households (87%) have at least some room for improvement as only one in eight households (13%) do not put any items in the residual bin that could be recycled, nor do they put any items in the recycling that are not accepted.

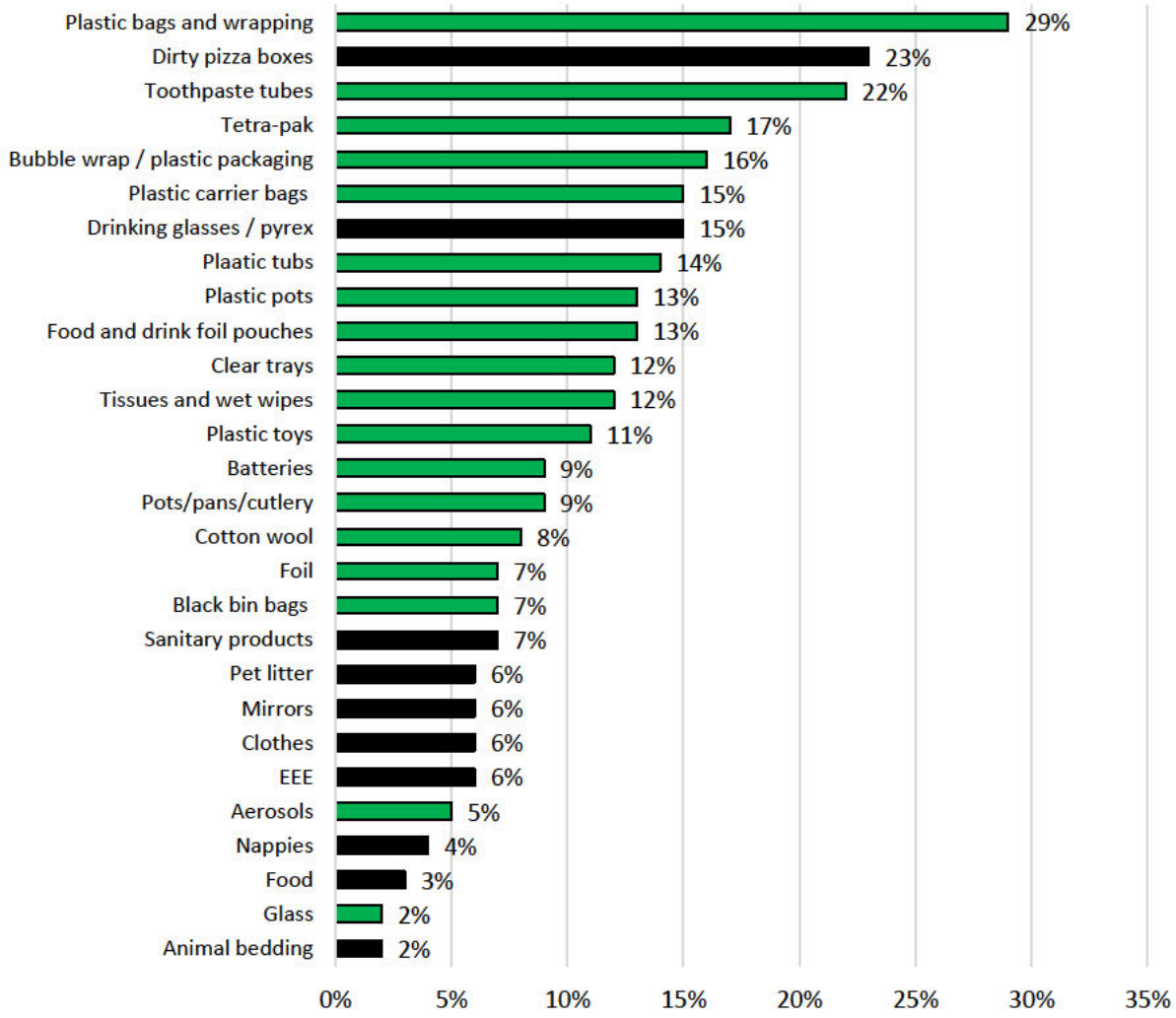
Figure 9.1: Potential to increase capture, item by item – percentage of households who put items in the general rubbish when they are collected for recycling locally, UK, 2017



- The most common items not captured for recycling are foil (26% could have recycled this on the last disposal occasion), aerosols (20%) and plastic cleaning bottle (16%)
- The level of missed capture has increased for foil (from 21% in 2013), which appears to be the result of an increase in the number of local authorities that accept it, with not all residents aware and/or adopting it.
- By contrast, there is less missed capture for aerosols – 20% could recycle this locally, down from 24% in 2014.
- Survey respondents were given a series of statements to assess reasons for missed capture and asked how frequently each applied to them. Some common reasons for missed capture were identified as food residue on items, confusion about what can and can't be recycled, and lack of bin capacity in their recycling bin.

Source: http://www.wrap.org.uk/sites/files/wrap/Recycling-Tracker-Report-2017.pdf

Figure 9.2: Contamination, item by item – percentage of households who recycled items when they are not accepted locally, UK, 2017



Note: Items of Figure 9.2 in black have been classified by WRAP as "serious"; whereas those in green are classified as "non-targeted recycling"

- Common items for contamination include plastic bags and wrapping (29%), dirty pizza boxes (23%), toothpaste tubes (22%) and Tetra Pak (17%).
- Survey respondents were given a series of statements to assess reasons for contamination and asked how frequently each applied to them. Some common reasons for contamination were identified as presuming on package guidance applies to the local collection, lack of capacity in general rubbish bins, and uncertainty over what can and cannot be recycled.

Source: http://www.wrap.org.uk/sites/files/wrap/Recycling-Tracker-Report-2017.pdf

Table 9.1: Recycling behavioural groups and approximate proportion of population within each group, UK, 2017

1	Top recyclers	13%	Do not contaminate or miss opportunities to recycle. Use their kerbside service to its fullest potential
2	Minor issues	20%	Get the vast majority of their recycling right but contaminate or miss opportunities to recycle with a small number of items
3	Medium Issues	15%	Get most of their recycling right but contaminate or miss opportunities to recycle with some items.
4	High contamination, no missed capture	21%	Not responsible for any missed capture, but add multiple items to the recycling collection that are not accepted locally.
5	High missed capture, no contamination	10%	Not responsible for any contamination but add multiple items to the residual waste that are collected locally for recycling
6	Multiple Issues	21%	Responsible for both contamination and missed capture with multiple items

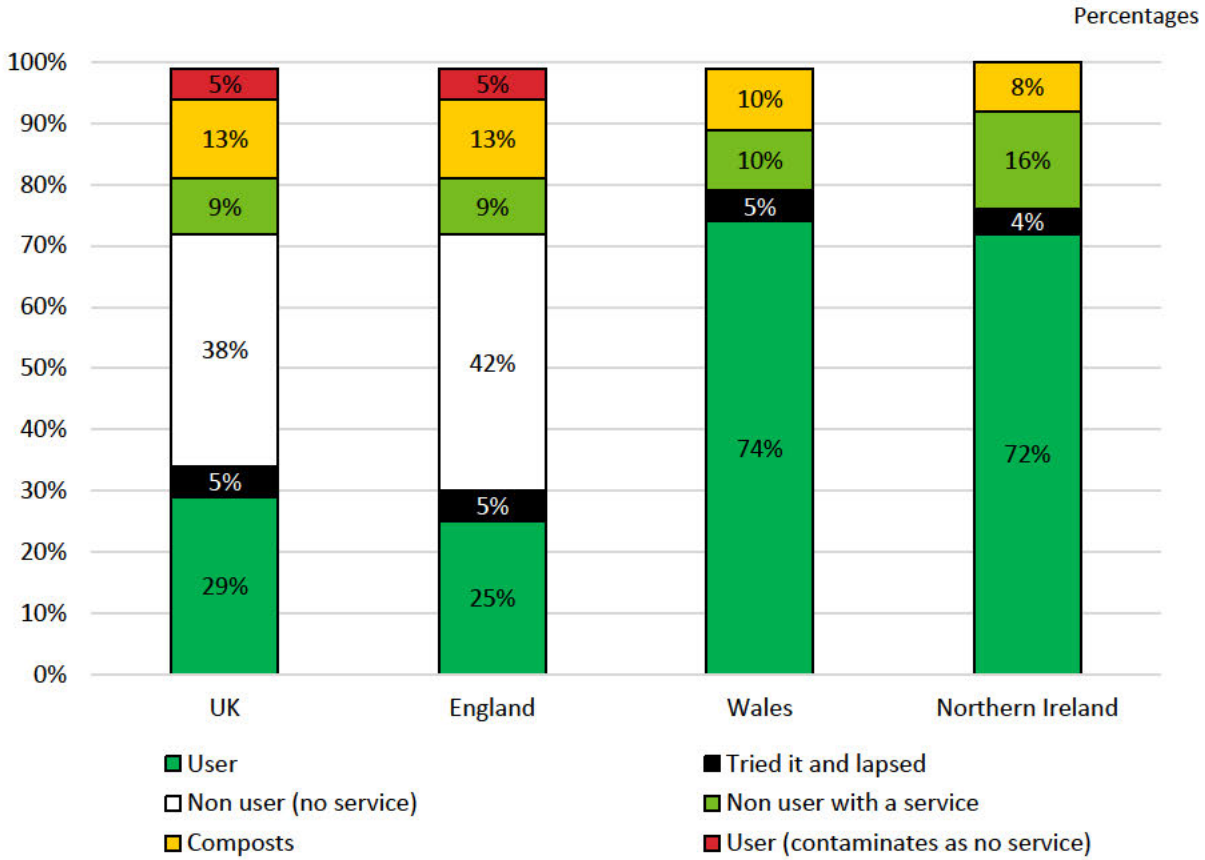
- The number of items collected for recycling also has an impact on behaviour. The more items collected, the higher the proportion of households who have no room for improvement. By contrast, the fewer the number of items collected, the higher the likelihood that non-targeted materials will be placed in the recycling.
- There are a number of other barriers to recycling, including a lack of recycling bin capacity, food residue on items and a lack of information about outcomes (i.e. what happens to recycling and what the local benefits are).
- A lack of motivation is also a barrier for some, including households feeling that they do enough already.

Recycling attitudes

- When asked to select a statement that most closely described their own recycling outlook, almost half (48 per cent) identify with the statement "I want to be a really good recycler and I take the trouble to ensure I'm doing everything right"
- Over one third (36 per cent) identify with "Recycling is a good thing but I don't spend too much time worrying about it – the same things go in every week and I feel like I'm doing my bit".
- When asked why they recycle, households main motivations were 'to do my bit for the environment' and 'the council provides the service so I am doing what I am supposed to.'

Source: http://www.wrap.org.uk/sites/files/wrap/Recycling-Tracker-Report-2017.pdf

Figure 9.3: Food Waste Disposal Routes, UK, 2017

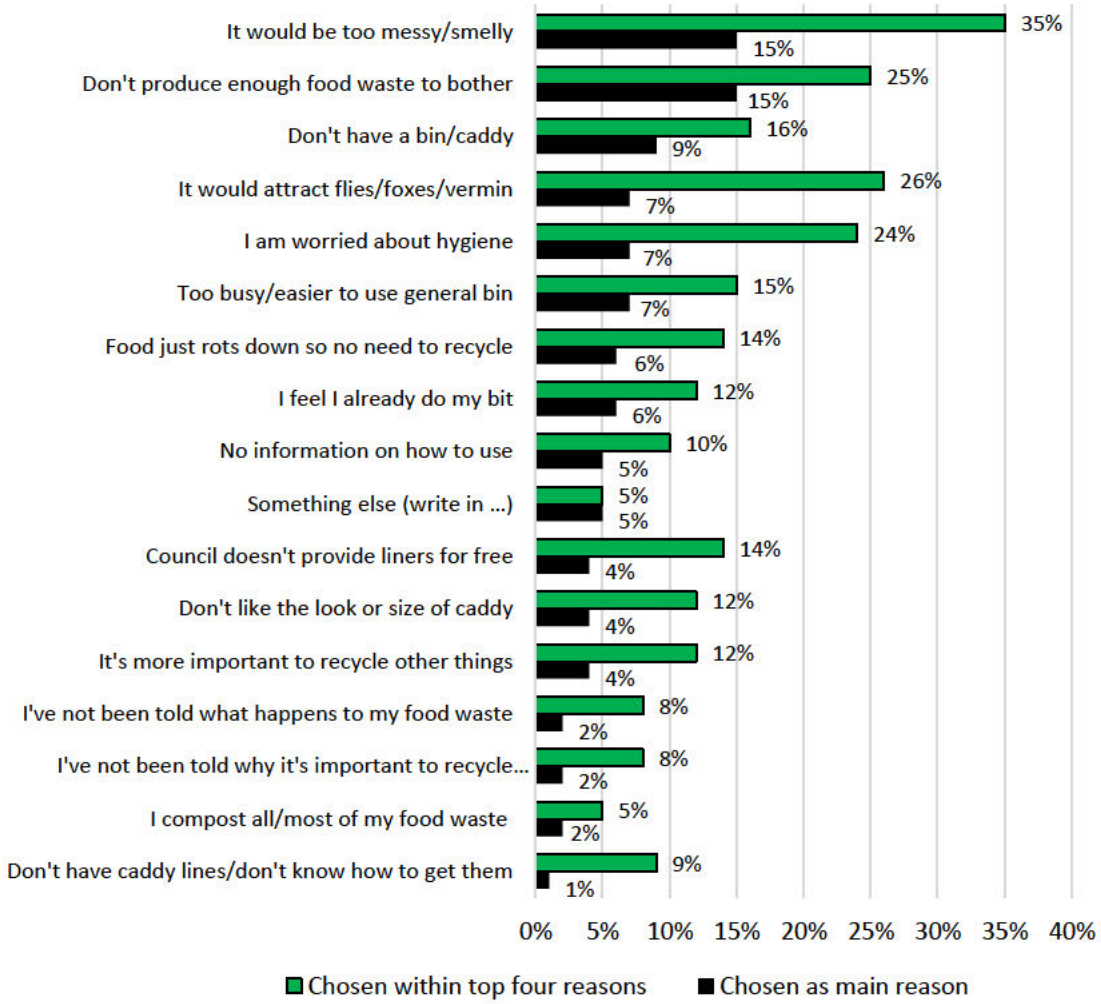


- For the UK as a whole, 29% of households recycle their food waste correctly – that is, are served by a local collection and use it. A further 38% correctly use the residual bin (because no food waste collection is provided locally), while 13% compost it.
- By contrast, 14% are non-users – that is, living in an area where a service is provided but they don't use it. This comprises 5% who are 'lapsed users' (i.e. they used the service previously, but have since stopped) and 9% who have never used it.
- A small minority say they recycle food waste even though they live in an area where no service is provided – potentially representing contamination of the dry recycling collection.
- It should be noted that there are pronounced differences between the levels of service offered across the four countries. The proportion of food recyclers is highest in Wales (74%) and lowest in England (25%).
- Age is a key influence – with older households more likely to be correct users, and 18-34s more likely to be lapsed users and non-users with a service.

Source: http://www.wrap.org.uk/sites/files/wrap/Recycling-Tracker-Report-2017.pdf

Figure 9.4: Main reasons why food waste collection not is not used, UK, 2017

Percentage



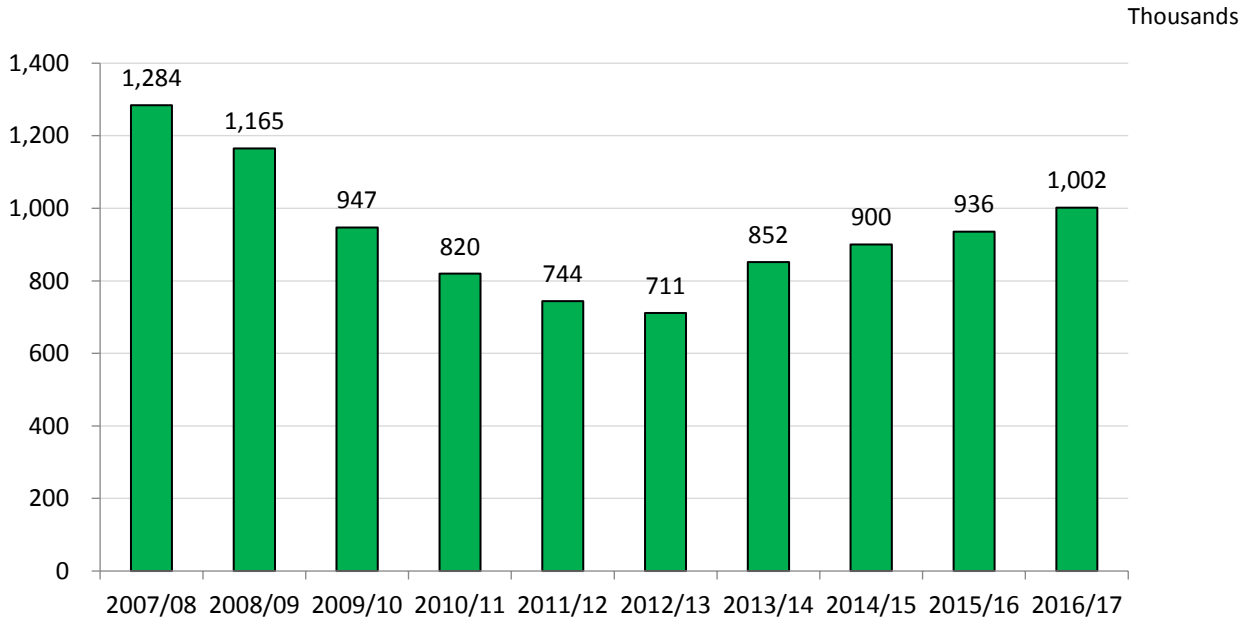
- Non-users who are aware of the food waste service that is provided locally were asked to identify reasons that they do not use it, and then the main reason.
- The main reasons include “it would be too messy or smelly” (15%), “don’t produce much/enough to bother” (15%) and “don’t have a bin/caddy” (9%).
- Concerns about hygiene and flies/foxes/vermin are also prominent within the top four reasons cited, although time series comparisons show a decrease in those citing this (from 13% in 2016 down to 7% now).

Source: www.wrap.org.uk/sites/files/wrap/Recycling%20Tracker%20Report%202016_0.pdf

Section 10: Fly tipping, Waste Crime and Pollution Incidents

Fly tipping

Figure 10.1: Trends in number of fly tipping incidents, England, 2007/08 to 2016/17.

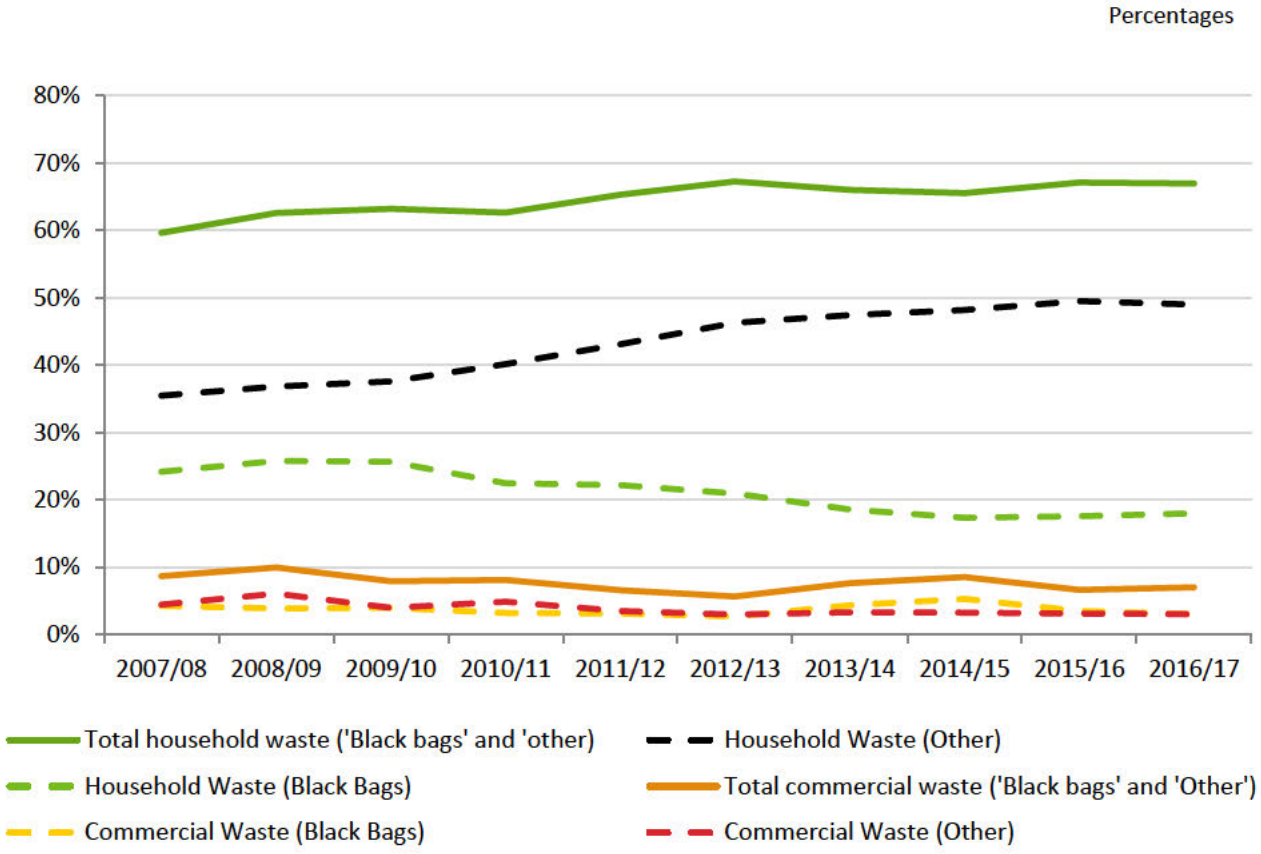


- Local Authorities dealt with over 1 million incidents of fly-tipping in 2016/17 in England, a 7 per cent increase on 2015/16.
- In 2016/17, the estimated cost of clearance of fly-tipping to local authorities in England was £57.7 million, a 16 per cent increase from the previous year, where it was reported to be £49.8 million.
- Size of fly-tips range from single black bags to significant/multi loads. The most common size category fly-tipping incidents was equivalent to a 'small van load' (33% of total incidents).

Notes: Some local authorities have introduced new technologies such as on-line reporting and electronic applications, along with increased training for staff – this may have accounted for some of the increase in reported incidents.

Source: WasteDataFlow
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/652958/Flytipping_201617_statistical_release_FINAL.pdf - Figure 1

Figure 10.2: Breakdown of most common fly-tipping waste types: Household and commercial waste in England, 2007/08 to 2016/17.

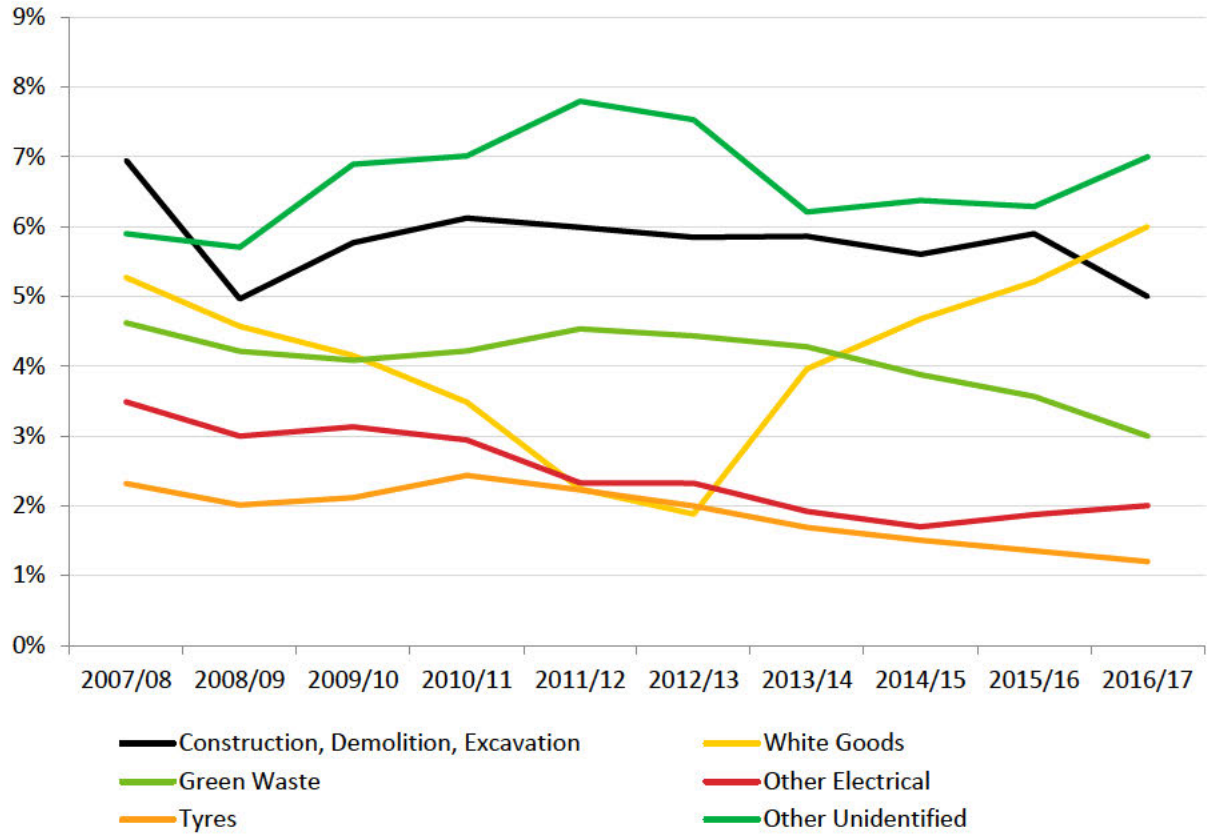


- 67 per cent of all fly-tips in England in 2016/17 were household waste. This was more than 675 thousand incidents, an increase of 8 per cent.
- The number of Household black bag incidents increased by 11 per cent in 2016/17, and the number of incidents of other Household waste also increased by 6 per cent.
- The second most common waste type in 2016/17 was total commercial waste with 66 thousand incidents, accounting for 7 per cent of total incidents. This was a 7 per cent increase on 2015/16 where 62 thousand incidents of commercial waste had been reported.
- The increase in 2016/17 in total commercial waste incidents is due to a 14 per cent reported increase in other commercial waste.

Source: WasteDataFlow
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/652958/Flytipping_201617_statistical_release_FINAL.pdf - Figure 3

Figure 10.3: Types of fly-tipping other than household and commercial waste in England, 2007/08 to 2016/17, as a proportion of total incidents.

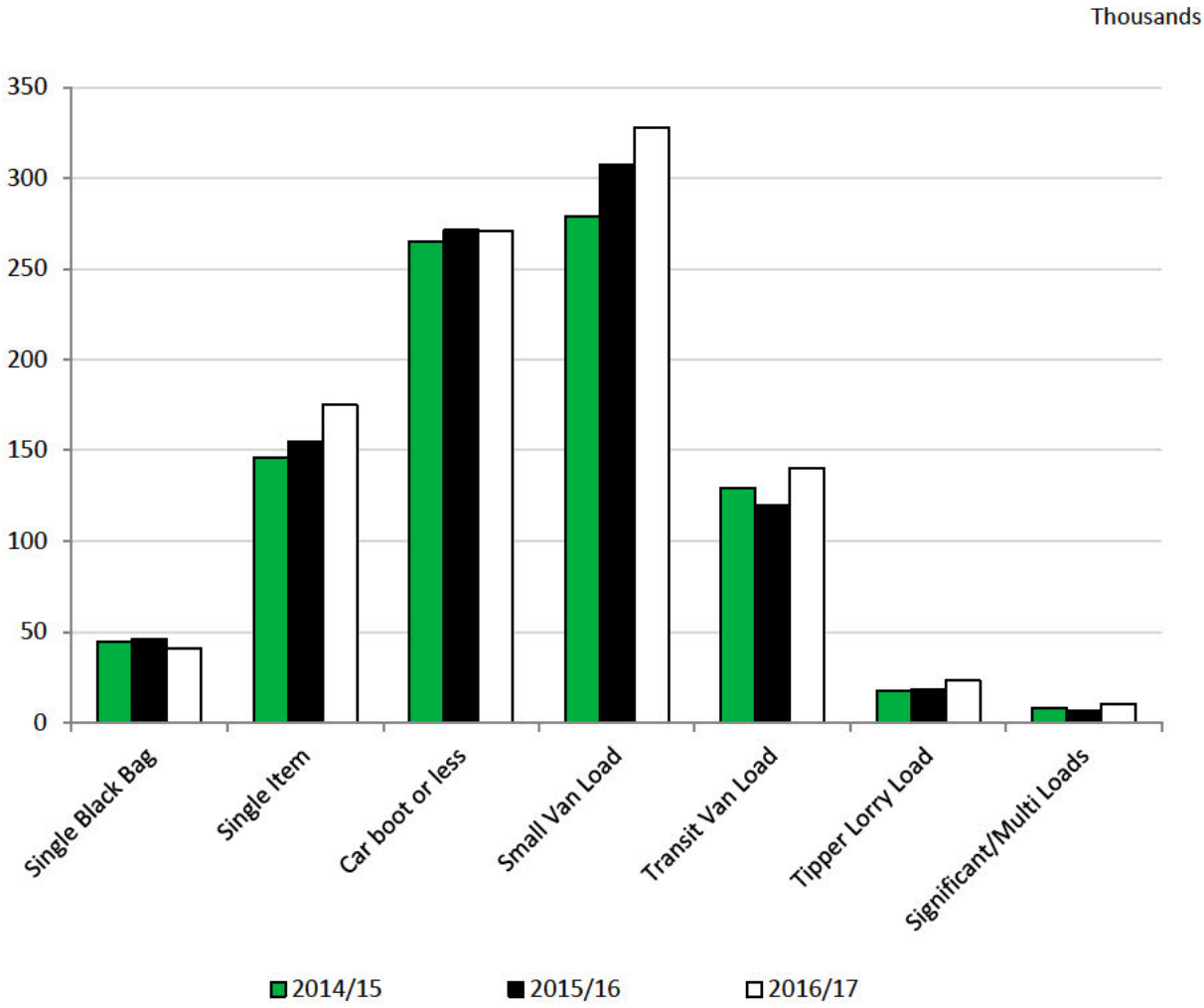
Percentages



- A notable increase is for white goods, which has been increasing since 2012/13; white goods had another smaller increase for the 2016/17 year with 55 thousand incidents compared to 49 thousand incidents in 2015/16.
- Since 2007/08, green waste has been steadily declining over time, and accounts for 3 per cent of total incidents in 2016/17.
- Tyres have also been decreasing over time, and accounts for 1 per cent of total incidents in 2016/17.
- Since 2015/16, other unidentified incidents have increased by 14 per cent and now account for 7 per cent of total incidents.

Source: WasteDataFlow
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/652958/Flytipping_201617_statistical_release_FINAL.pdf - Table 3

Figure 10.4: Fly-tipping incidents by size in England, 2015/16 to 2016/17.



- A third of incidents were reported to be the size of a 'small van' in 2016/17. Incidents of this size are consistently the most common over time.
- Single items, which cover items such as furniture, mattresses etc. accounted for 17 per cent of total incidents and has increased by 13 per cent from 155 thousand incidents in 2015/16 to 175 thousand incidents in 2016/17.
- The estimated cost of clearance of fly-tipping to Local Authorities in England in 2016/17 was nearly £57.7 million, a 16 per cent increase on last year.

Source: WasteDataFlow
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/652958/Flytipping_201617_statistical_release_FINAL.pdf - Figure 4

Figure 10.5: Fly-tipping enforcement actions in England, 2007/08 to 2016/17.

- 474 thousand enforcement actions were carried out in England in 2016/17, a 4 per cent decrease since 2015/16. Local authorities spent £16.0 million on enforcement actions in England in 2016/17, down from £16.9 million in 2015/16.
- Local authorities issued 47 thousand warning letters in 2016/17, a 33 percent decrease from the 70 thousand warning letters issued in 2015/16. In 2016/17, 22 thousand statutory notices were issued, a 12 per cent decrease from 25 thousand in 2015/16.
- Local authorities in England carried out 307 thousand investigations in 2016/17, a 3 per cent decrease on those carried out in 2015/16.
- 56 thousand fixed penalty notices were issued in 2016/17, accounting for 12 per cent of all enforcement actions, a 56 per cent increase from 36 thousand in 2015/16.

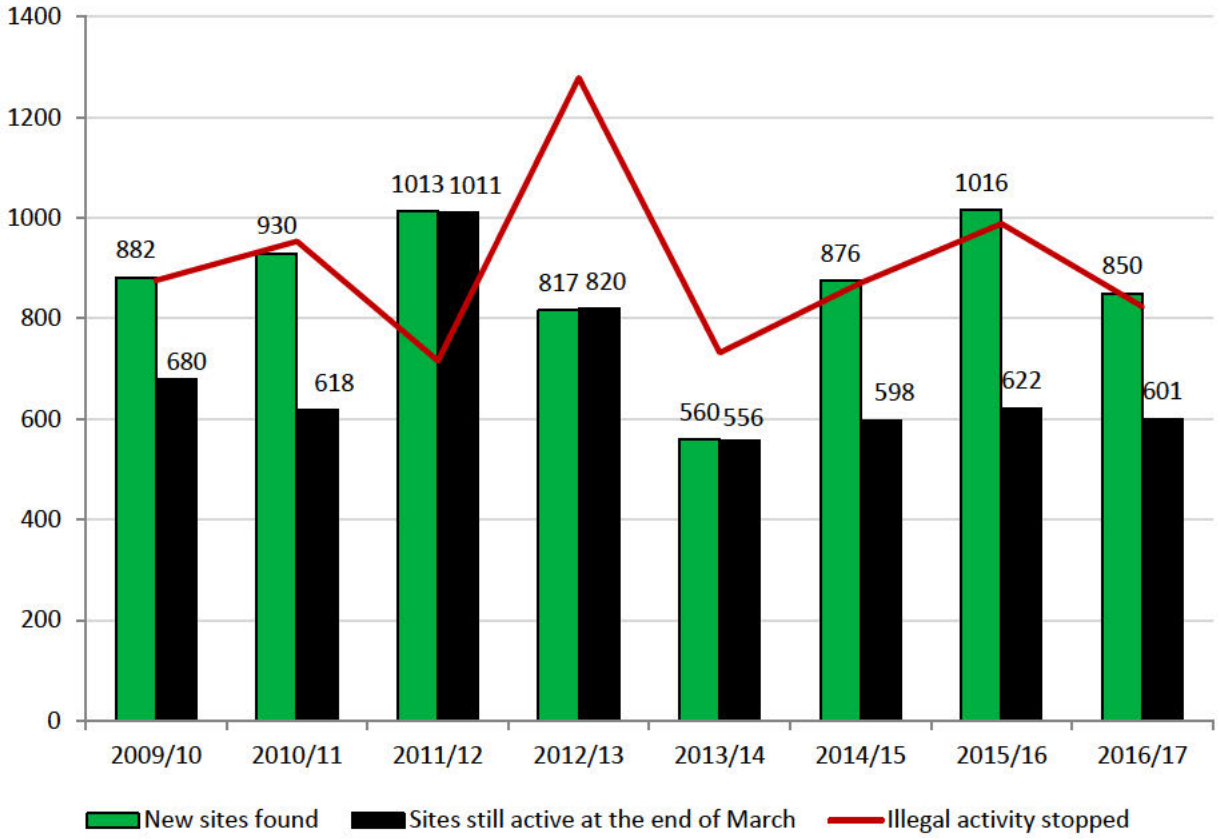
Source: WasteDataFlow
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/652958/Flytipping_201617_statistical_release_FINAL.pdf - Figure 5

Waste Crime

Illegal Waste Sites

Figure 10.6: Reported Illegal Waste Sites, England, 2009/10 to 2016/17.

Number of sites



- Sites are illegal if they do not have a permit when they should, or do not meet all legal requirements.
- In 2016/17 illegal activity was stopped at 824 sites. The economic impact of illegal waste sites was estimated at £98 million in 2015.
- For the last three years, illegal activity was stopped within 90 days at more than 45 per cent of new sites, which exceeded the national target.
- The top 3 types of waste found at illegal sites were household and commercial waste, end-of-life vehicles and construction and demolition waste.

Source: Environment Agency
https://www.gov.uk/government/publications/regulating-the-waste-industry-evidence-summaries

Pollution Incidents

Figure 10.7: Serious Pollution Incidents (all sectors) caused by activities with permits and those without permits, England, 2000, 2005, 2010 to 2016.

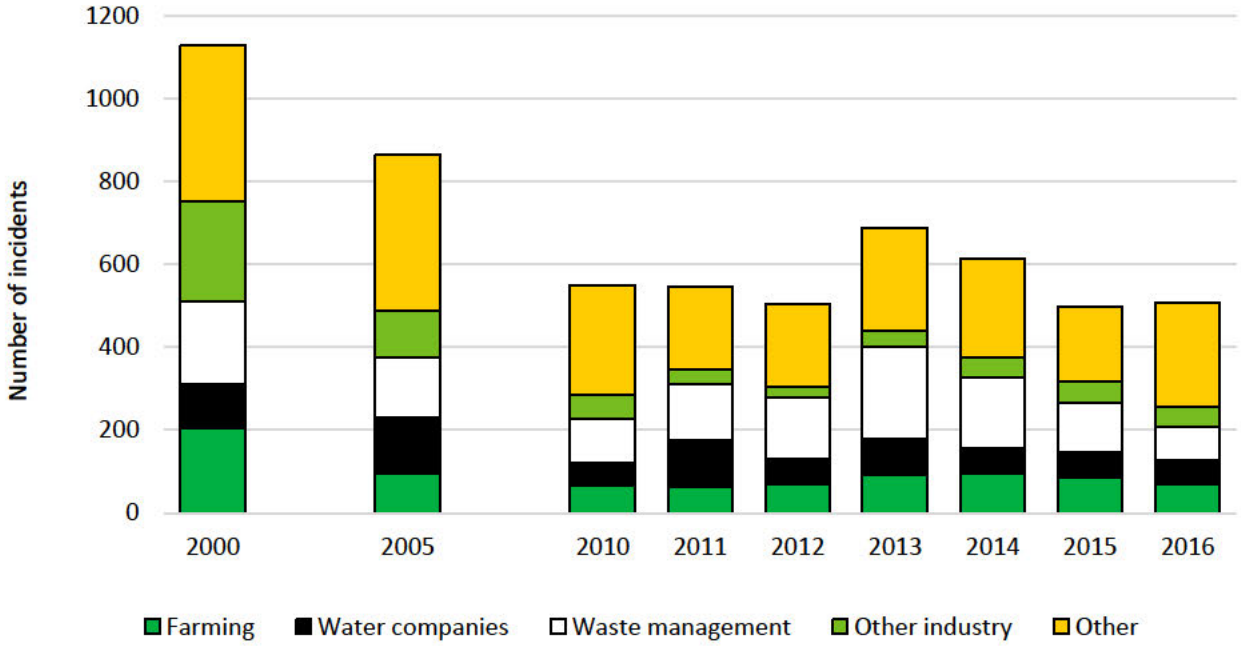
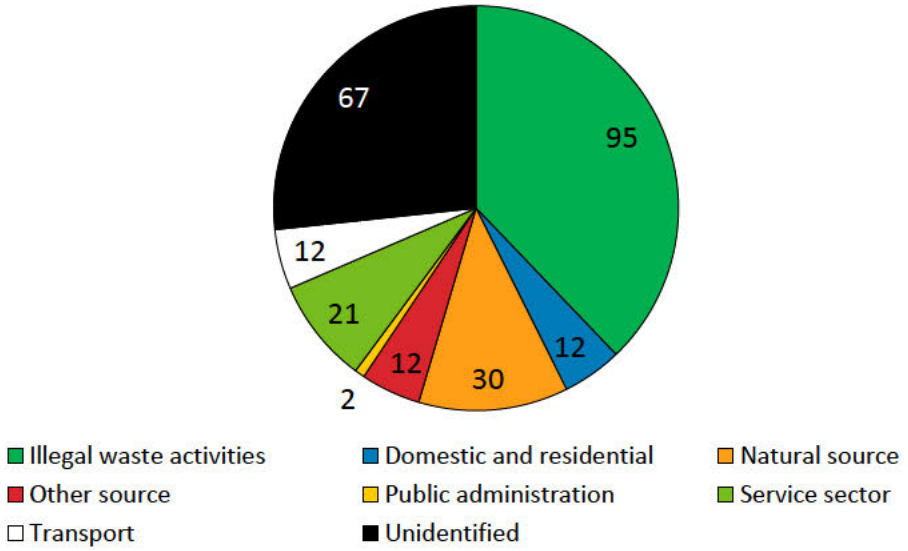
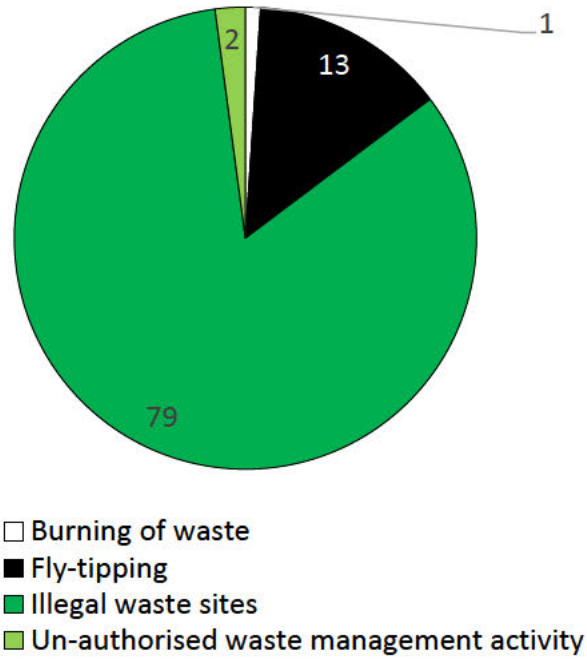


Figure 10.8: Serious Pollution Incidents caused by 'Other' sectors, England, 2016.



Notes: These charts cover all incidents from all sources – not waste-only incidents. Each 'sector' will include both permitted and non-permitted activities, with the exception of water companies, which includes only the activities of the 9 major water and sewerage companies in England.
'Other' in Figure 10.8 is the breakdown of 'Other' in Figure 10.7
Activities without permits are activities the Environment Agency does not need to permit, therefore illegal activities fall in to the 'Other' category of Figure 10.7 only.

Figure 10.9: Serious Pollution Incidents caused by Illegal Waste Activities, England, 2016.



- The total number of serious pollution incidents increased slightly in 2016 to 508, compared to 499 in 2015.
- In 2016, there has been a decrease in incidents from the waste management sector (from 120 incidents in 2015 to 80 incidents in 2016). This sector includes EPR permitted and non-permitted activities. It does not include illegal waste activities – these are categories as 'Other'.
- There were 95 incidents caused by illegal waste activities. Of these, 79 were caused by illegal waste sites, 13 by fly-tipping, 2 by un-authorised waste

Notes: 'Activities with permits' are those that are given permits by the Environment Agency under the Environmental Permitting Regulations 2010 (EPR).
'Non-permitted' activities includes industrial activities that do not require a permit under EPR (or are exempt), and any other source of pollution activities. They are NOT illegal activities.
Pollution incidents are classified according to their impact on the environment and people, from category 1 (the most serious) to category 4 (little or no impact). Categories 1 and 2 are included here.
Source: Environment Agency

www.gov.uk/government/uploads/system/uploads/attachment_data/file/553537/Pollution_incidents__2015_evidence_summary.pdf

Figure 10.10: Serious Pollution incidents (all sectors), affecting land, air and water, England, 2016

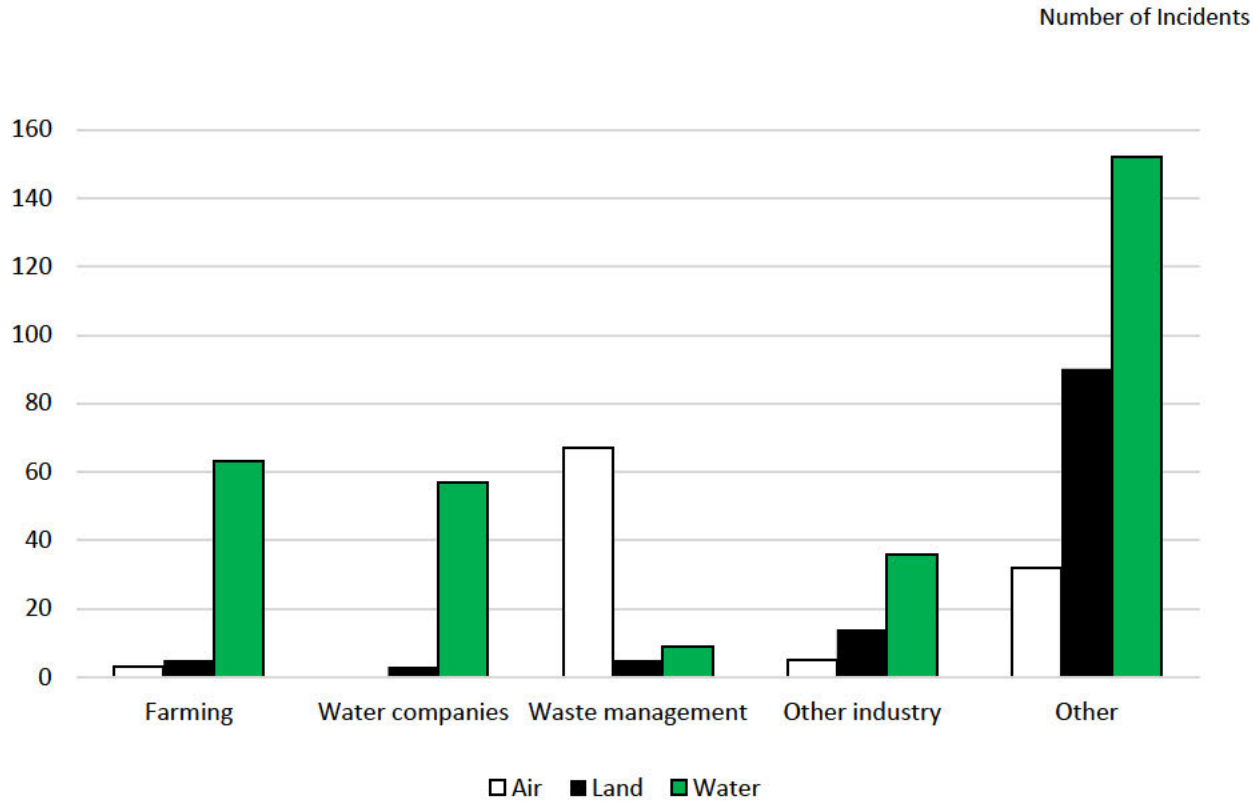
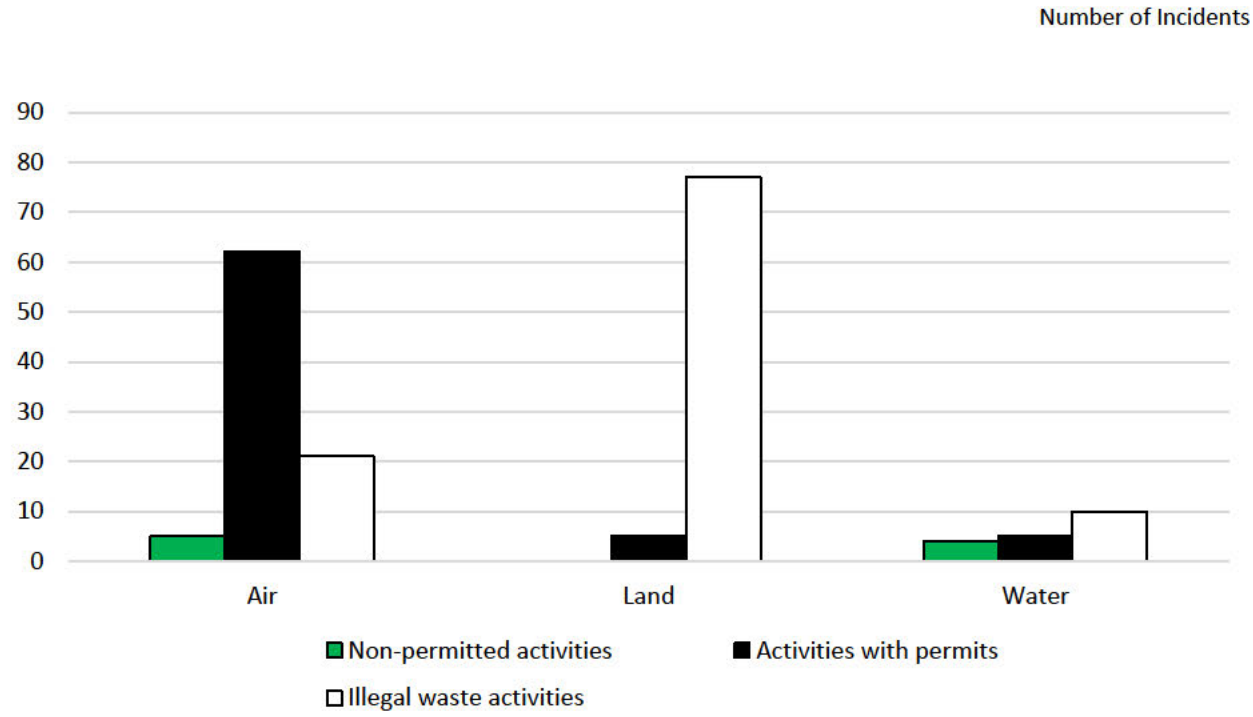


Figure 10.11: Serious Pollution incidents, caused by the waste management sector, affecting land, air and water, England, 2016



- Of the serious pollution incidents caused by all sectors in 2016, 21 per cent had an impact on air, 23 per cent affect land, and 62 per cent affected water.
- Figure 10.10 shows that the waste management sector caused more serious pollution incidents affecting air, than all other sectors, but fewer affecting water than all other sectors.
- Within the waste management sector, there were 80 serious pollution incidents caused by legal (permitted and non-permitted) activities, and 95 by illegal waste activities.
- Of these, 50 per cent affected air, 47 per cent affected land, and 11 per cent affected water. The majority of incidents affecting air were caused by activities with permits, whilst the majority of incidents affecting land were caused by illegal waste activities.

Notes: A single incident may affect multiple environmental media (i.e. air, land, water).

Figure 10.10 covers all incidents from all sources – not waste-only incidents. Each 'sector' will include both permitted and non-permitted activities, with the exception of water companies, which includes only the activities of the 9 major water and sewerage companies in England.
The 'Waste management' sector includes only activities with permits, and activities that lawfully do not need permits. Incidents relating to illegal activities are included in the 'other' category.

Figure 10.11 – There were no incidents caused by waste activities where the source could not be identified. Illegal waste activities are separated from the other data to differentiate which incidents are caused by lawful permitted or non-permitted activities, and those that are not lawful.

Source: Environment Agency

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/553537/Pollution_incidents_2015_evidence_summary.pdf

Figures 10.12 to 10.14: Serious pollution incidents to all media in England, 2016

Figure 10.12: Waste treatment (non-hazardous sector).

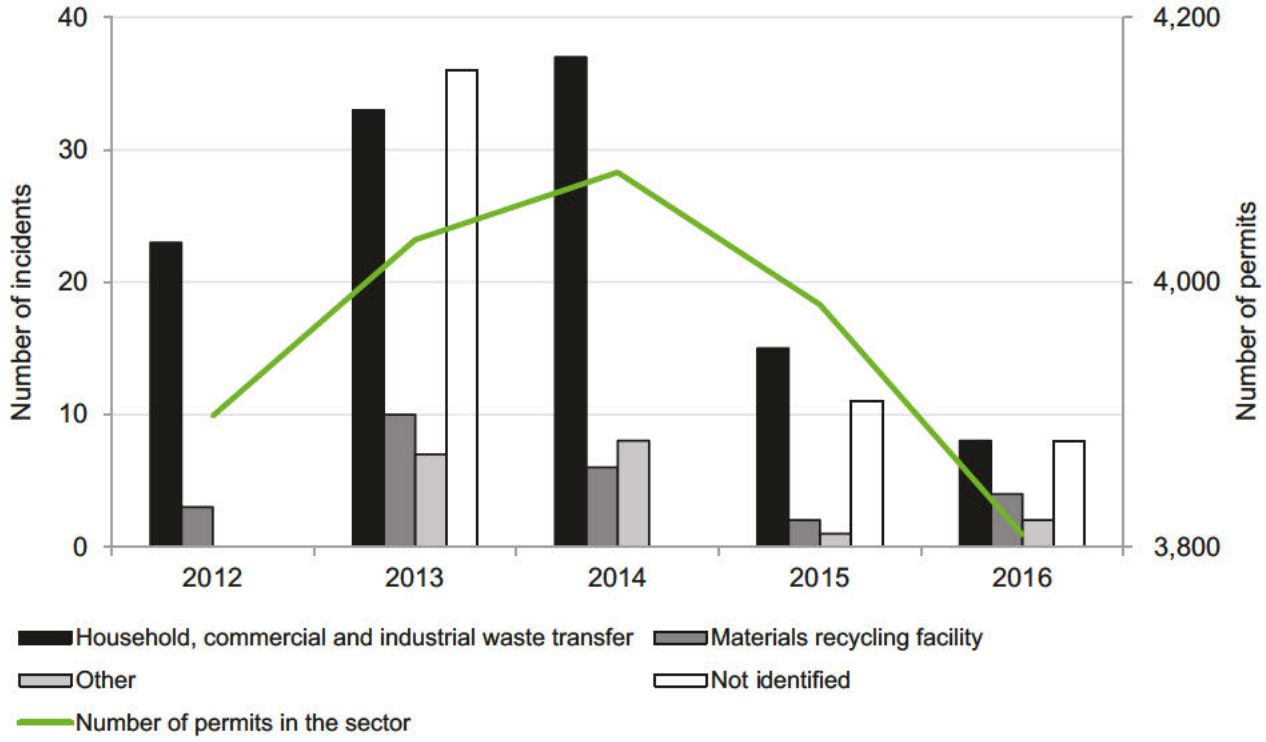


Figure 10.13: Bio-waste sector

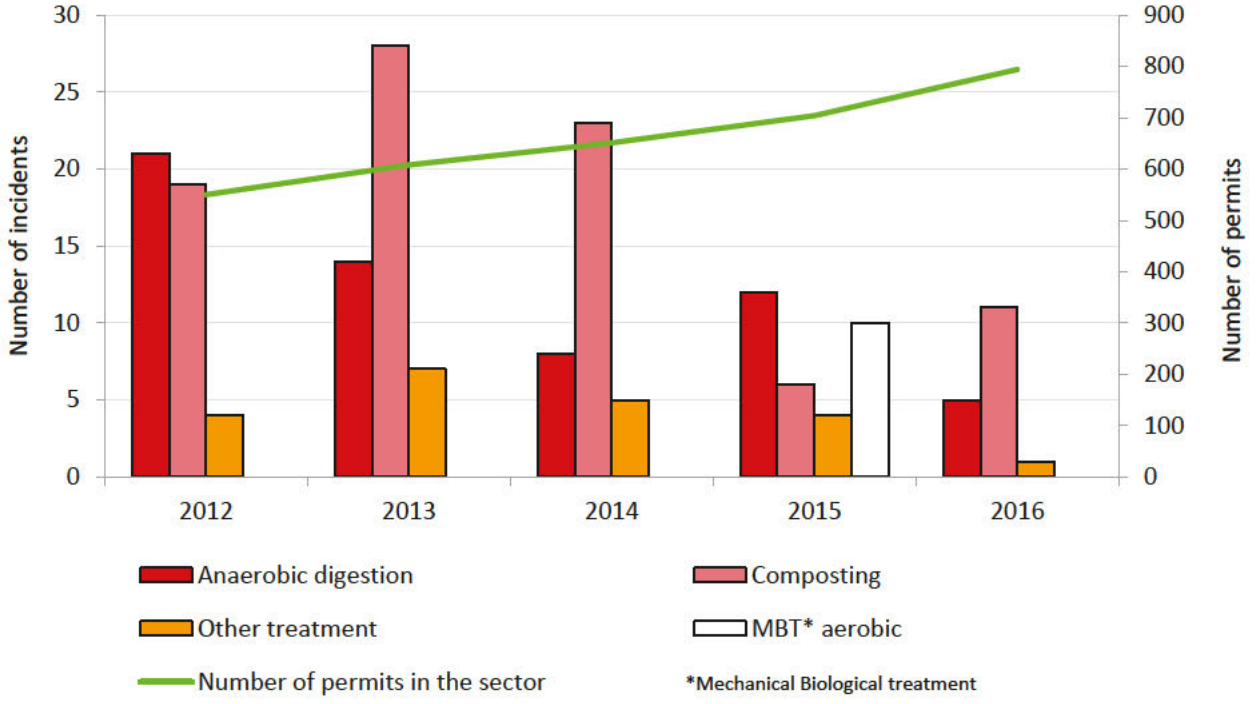
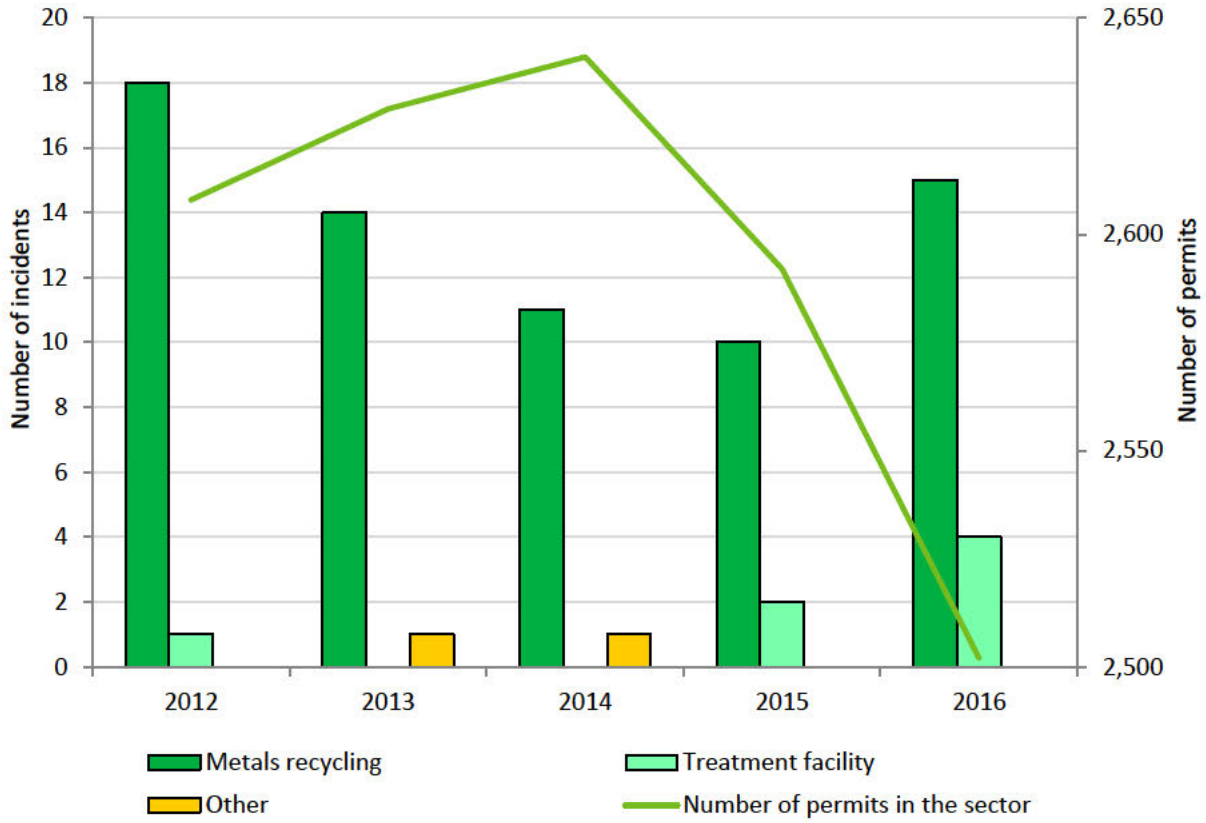


Figure 10.14: Metals recycling sector



- The number of serious pollution incidents from the waste treatment (non-hazardous) sector decreased in 2016 compared to 2015 (from 29 incidents in 2015 to 22 in 2016). This was also the case for the bio-waste sector (32 in 2015, but 17 in 2016)
- Conversely, the number of serious pollution incidents from the metals recycling sector increased in 2016 to 19 incidents, compared to 12 in 2015.

Source: Environment Agency
www.gov.uk/government/uploads/system/uploads/attachment_data/file/553537/Pollution_incidents__2015_evidence_summary.pdf

Glossary

Resource terms:

DMC: **Domestic Material Consumption** is (Domestic extraction + Imports – Exports) and measures the amount of materials used in the economy, and is calculated by subtracting exports from DMI.

DMI: **Direct Material Input** is (Domestic extraction + Imports) and measures the total amount of materials that are available for use in the economy.

GDP: **Gross Domestic Product** is an integral part of the United Kingdom's (UK) National Accounts and provides a measure of the total economic activity in the country.
GVA: **Gross Value Added** is a key component of GDP. It measures the contribution to the economy of each individual producer, industry or sector.-

CVM - **chained volume measures** is updated every year, meaning that, in practice, every series to be presented in real terms is estimated both in current prices and prices of the previous year (PYPs). The growth rates of the series in successive years on the same prices (for example 2006 estimated in current prices and 2007 in PYPs) are linked together in a chain of short series (known as chain-linking) to give a full real terms time series. CVMs are more responsive to major structural changes in the economy and, given the fact that the industry and product mixes of the economy are changing more rapidly now than in the past, they provide a more accurate picture of change in the economy than constant price series rebased every five years.

RMC: **Raw Material Consumption** is Domestic extraction and includes imports expressed or converted into their Raw Material Equivalents

RME: **Raw Material Equivalents** are the equivalents of domestic extraction from the rest of the world to produce the respective goods

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Waste terms:

AD: **Anaerobic digestion**. This process works by bacteria, which thrive in the absence of oxygen, breaking down the bio-degradable fraction of the waste to produce a stable residue.

BMW: **Biodegradable Municipal Waste.** It is the fraction of Municipal Waste that will degrade within a landfill, giving rise to landfill gas emissions, primarily methane. It includes, amongst other materials, food waste, green waste, paper and cardboard

CH_4:.**methane.** It is a colourless, odourless gas with a wide distribution in nature

C&I: **Commercial and Industrial waste.** This is waste from mainly manufacturing and service industries.

C&D: **Construction and Demolition** is a waste stream that is primarily received from construction sites. Some examples of C&D waste include, but are not limited to, concrete, rebar, wood, panelling, linoleum, and carpet

EfW: **Energy from Waste.** The process of creating energy in the form of electricity or heat from the incineration of waste materials

EU_28: Member States of the European Union as at July 2013

EWC: **European Waste Catalogue.** Is a hierarchical list of waste descriptions established by the European Commission. These are used by industry to record their waste activities.

Fly-tipping: - refers to dumping waste illegally instead of using an authorised method

GWh – **Gigawatt-hours**. It is a Unit of electrical energy equal to one billion (10^9) watt hours, which is a unit of energy equivalent to one watt (1 W) of power expended for one hour (1 h) of time

Incineration: is a waste treatment technology that involves the combustion of organic materials and substances. Incineration and other high temperature waste systems are described as "thermal treatment". Incineration of waste materials converts the waste into incinerator bottom ash, flue gases, particulates, and heat, which can in turn be used to generate electric power.

IVC: **In Vessel Composting**. This can be used to treat food and garden waste mixtures. These systems ensure that composting takes place in an enclosed environment, with accurate temperature control and monitoring. There are many different systems, but they can be broadly categorised into six types: containers, silos, agitated bays, tunnels, rotating drums and enclosed halls.

KBT: **Keep Britain Tidy**. It is a British campaign run by the Keep Britain Tidy environmental charity.

LEQSE: **Local Environmental Quality Survey of England.** It is a report that tells just how clean our country is in a scientific, statistically robust way

MBT: **Mechanical Biological Treatment**. MBT describes a number of different processes dealing with the biological treatment of waste. It is the combination of both biological and physical processes, which can be arranged in a number of different ways

MRF: **Materials Recovery Facility**. Line of business where recyclable material is processed, separated, and sold. This is a facility where recyclable materials are sorted and processed for sale. This process includes separating recyclable materials (manually or by machine) according to type, and baling or otherwise preparing the separated material for sale. Operating costs and revenues for MRF's are accounted for as a separate line of business.

MSW: **Municipal Solid Waste.** This is "Regular" waste from non-industrial sources, such as residential homes, restaurants, retail centres, and office buildings. Typical MSW includes paper, discarded food items, and other general discards. Green waste is considered MSW and includes garden clippings, leaves, trees, etc.

OAW: **Open Air Windrow**. This is a composting method used for processing garden waste, such as grass cuttings, pruning and leaves in either an open air environment or

within large covered areas where the material can break down in the presence of oxygen.

Waste from Households: includes waste from: Regular household collection, Civic amenity sites, 'Bulky waste' 'Other household waste'. It does not include street cleaning/sweeping, gully emptying, separately collected healthcare waste, or asbestos waste. It is a narrower measure than 'municipal waste' and 'council collected waste'. It was first published by Defra in May 2014. It was introduced for statistical purposes to provide a harmonised UK indicator with a comparable calculation in each of the four UK countries and to provide a consistent approach to report recycling rates at UK level on a calendar year basis under the Waste Framework Directive (2008/98/EC).
WEEE: **Waste Electrical and Electronic Equipment Regulations.** Recycling of WEEE is a specialist part of the waste and recycling industry. The Waste Electric and Electronic Equipment (WEEE) Regulations 2013 became law in the UK on the 1st of January 2014

WRAP: **Waste and Resources Action Programme**. This is a UK based non-profit recycling advocate

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Food Waste terms

Avoidable waste: Food and drink that is thrown away untouched or opened/started but not finished (e.g. whole apples, yoghurts, half loaves of bread, unused slices of bacon etc.) or food and drink we cook or serve too much of

Possibly Avoidable waste: Food that some but not all people would eat (e.g. bread crusts) or that can be eaten when a food is prepared in one way but not in another (e.g. potato skins).

Unavoidable waste: This is elements of food that has not been edible under normal circumstances, such as bones, cores, peelings egg shells, banana skins and tea-bags