

Estimates of Food and Packaging Waste in the UK Grocery Retail and Hospitality Supply Chains

1.0 UK Food and Drink Waste Arisings

Three major WRAP studies carried out in 2013 estimated annual food¹ waste² arisings within UK households, hospitality and food service, food manufacture, retail and wholesale sectors at around 12 million tonnes, 75% of which could have been avoided. This had a value of over £19 billion a year, and was associated with at least 20 million tonnes of greenhouse gas (GHG) emissions. Around 90% (by weight) of the avoidable food waste arises in households and food manufacture, although waste arising in one part of the supply chain is certainly influenced by other parts of the chain.

It has also been estimated that 3 million tonnes of food waste arises from other sectors in the UK. This includes estimates for other food thrown away by consumers out of home (e.g. from home-made lunches at work, as litter, in litter bins) and the pre-factory gate stages of the food supply chain. Existing estimates of agricultural food waste are indicative, and based on a 2004 Environment Agency synthesis of evidence available at that time³. WRAP will look to provide more robust estimates in the future, including the waste arising overseas to provide food for UK consumption (which is not included in the current document).

This results in an estimate of 15 million tonnes of food waste arising in the UK each year (see Figure 1). In comparison, around 41 million tonnes of food are purchased in the UK⁴ (the majority for in home use), meaning that the amount of food wasted throughout the supply chain is equivalent to around a third of that purchased. In addition to food waste, there are also 2.2 million tonnes of food or food by-products from food manufacturing used as animal feed, and another 2 million tonnes of animal by-products sent to rendering plants. WRAP's focus on resource efficiency follows the food and drink material hierarchy (Figure 2).

Figure 3 illustrates the 'food loop' in the UK. Table 1 presents a summary of what is known about food waste and related material arisings in the UK, and the treatment and disposal routes of these. Further detail is given in Appendix 1.

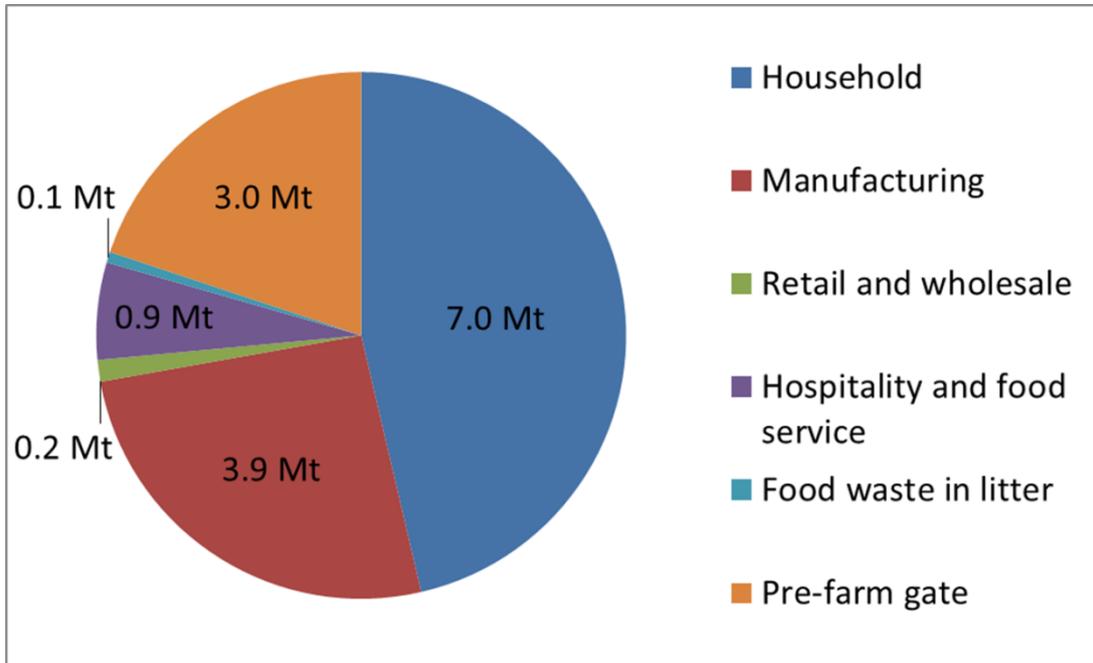
¹ Food is used throughout as shorthand for both food and drink.

² Food waste, as referred to in this document, includes all food and drink types, all disposal routes, and all sectors from farm to consumer. Food surplus used as animal feed is not considered to be waste because it does not leave the human food supply chain.

³ <http://cdn.environment-agency.gov.uk/qeho1204bikm-e-e.pdf>

⁴ www.gov.uk/government/publications/family-food-2012;
www.wrap.org.uk/content/true-cost-waste-hospitality-and-food-service

Figure 1 Amounts of food waste arising in the UK by sector (total = ca. 15 Mt)*



** Post-farm gate data is based on various sector-specific WRAP reports (household and food waste in litter, 2012 data; manufacturing, wholesale and hospitality and foodservice 2011 data) and additional WRAP analysis of retail food waste based on 2014 BRC reported data. The pre-farm gate estimate is not considered robust, and is based on a 2004 EA report. NB data for household also includes waste to sewer, which is not currently available for other sectors.*

Figure 2 Food and drink material hierarchy

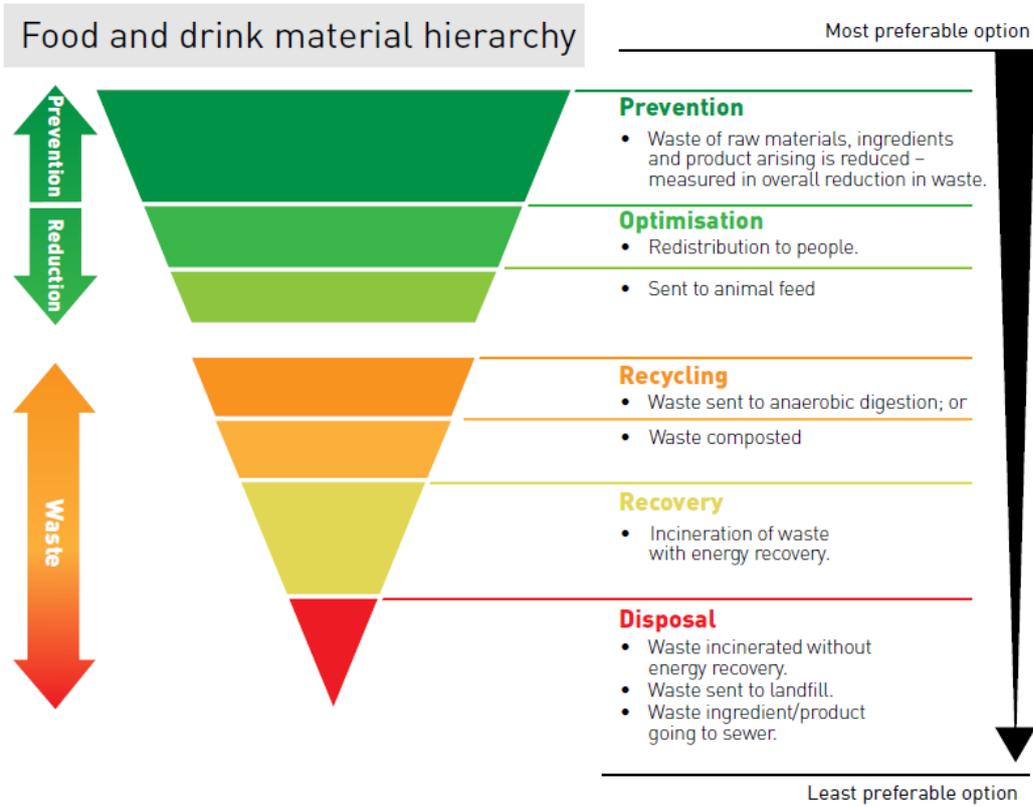


Table 1 Summary of what is known about food waste and related material arisings in the UK, and the treatment and disposal routes of these (See notes for further detail)

	Household	HaFS*	Retail**	Manufac- turing	Farm	Total ¹⁰
Total food waste	7.0 Mt	0.9 Mt	0.2 Mt¹³	3.9 Mt	ca 3.0 Mt	ca. 15 Mt
 Preventable food waste	4.2 – 5.4 Mt ¹ (£12.5 bn)	0.7 Mt (£2.5 bn ²)	0.2 Mt (£0.3 bn)	3.9 Mt ¹² (£3.7 bn)	nk	> 9 Mt (>£19 bn)
'Redistribution' (humans & animals)	0.3 Mt ³ [n/a humans 0.3 Mt pets/ other animals]	nk	<0.02 Mt ⁴ [n/a animals]	<0.50 Mt ⁵ [0.45Mt to animals]	nk	> 0.7 Mt [20,000 tonnes redistributed to people]
 Recycling (AD/composting)	1.0 Mt ⁶	0.1 Mt	0.1 Mt ⁷	1.3 Mt	nk	> 2.5 Mt
Recovery (thermal, landspreading)	1.0 Mt ⁸	0.16 Mt ⁸	0.1 Mt ⁷	2.6 Mt ⁹	nk	> 3.9 Mt
Disposal (sewer, landfill)	4.7 Mt [1.6 Mt sewer 3.1 Mt landfill]	0.65 Mt [0.14 Mt sewer 0.51 landfill]	nk ⁷	0.05 Mt [nk sewer 0.05 Mt landfill]	nk	> 5.4 Mt
<u>In addition:</u>						
Rendering of animal by-products				2.0 Mt	nk	2.0 Mt
Other food by-products ¹¹				1.7 – 1.9 Mt		1.7 – 1.9 Mt

* HaFS = hospitality and food service; ** Retail includes wholesale; nk = not known; n/a = not applicable



Notes relating to Table 1:

Figures in black are the breakdown of the total food waste (figures in black and bold). The fractions of the total food waste that could be prevented are shown in red, and are a fraction of the total food waste (and should not be added to the figures in black or blue). Figures in blue are materials arising from food manufacture but not classed as food waste, and are therefore not included in the total food waste figures in black.

1- Includes both avoidable (4.2 Mt) and possibly avoidable (1.2 Mt) food waste (items which some people may eat, some of the time, including potato peelings, bread crusts), but the financial value is based on the avoidable fraction only.

2 – The value of food waste in the HaFS sector is based on both avoidable and unavoidable food waste (as this sector probably has the greatest scope to reduce unavoidable food waste through altered procurement, or to make use of this fraction of food waste).

3 – This covers food waste fed to pets and other animals, most of which is likely to leave the 'food chain' and should therefore be considered as waste diversion.

4 – This covers food redistributed for human consumption, which was estimated to be around 20,000 tonnes for both manufacturing and retail combined.

5 – This consists of 0.45 Mt of food used as animal feed (this is therefore not classed as food waste, but could be added to the 3.9 Mt of food waste to give a total indication of food lost to the human food chain; and food redistributed for human consumption, which was estimated to be around 20,000 tonnes for both manufacturing and retail combined).

6 – This includes 0.5 Mt of food waste collected separately by local authorities and 0.5 Mt of food waste home composted.

7 – In WRAP's research it was not possible to identify the disposal route for much of the food waste from retail, but information from Courtauld signatories suggests that about half is recycled (via AD or composting) and half sent for recovery (primarily via thermal treatment).

8 – Based on 2010 UK data as submitted to Eurostat, which shows 24% of household mixed waste being incinerated and 76% going to landfill

9 – In WRAP's published research it was not possible to identify the disposal route for around 0.2 Mt of food waste from the manufacturing sector, but information from Courtauld signatories suggests this is unlikely to be disposed of to landfill, and so this has been included within the estimate for food recovery.

10 – Estimates under the total column are indicated as minima, due to the absence of detailed data from on farm.

11 – Examples include spent grain from brewing and dried sugar beet pulp

12 - For food waste arising in manufacturing it is assumed that all is avoidable, as the vast majority of what would be unavoidable is not classed as a waste but a by-product of some sort. It is possible that a small proportion of manufacturing waste is unavoidable though it appears that the majority of this material is disposed to animal feed.

13 – Based on a 2014 estimate for retailers (0.18 Mt reported by BRC, based on Courtauld 3 reporting; scaled up to 0.21 Mt to include non-BRC members) and a 2011 estimate for wholesale (17,000 tonnes)

Note – For households, food waste fed to pets and other animals has been included in the overall estimate for waste; whilst commercial food and related by-products used as animal feed are not classed as waste (as this is defined as a waste prevention activity). Estimates have been rounded and may not therefore add up to the total estimate for any given sector.

Source material:

- Households ('Household Food and Drink Waste in the UK 2012'; WRAP 2013; www.wrap.org.uk/household-food-waste)
- Hospitality and Food Service ('Overview of Waste in the UK Hospitality and Food Service Sector'; WRAP 2013; data for 2011; www.wrap.org.uk/foodwastehafs)
- Retail, wholesale and manufacturing ('Estimates of waste in the food and drink supply chain'; WRAP 2013; data for 2011; <http://www.wrap.org.uk/node/16087>; Courtauld 3/retailer results for 2014; <http://www.wrap.org.uk/content/courtauld-commitment-3-signatory-case-studies>; http://www.brc.org.uk/brc_policy_content.asp?id=268&iCat=43&iSubCat=651&sPolicy=Environment&sSubPolicy=Food Waste)
- Farm (Food waste arising in agriculture has not been an area of focus for WRAP). Existing estimates of agricultural food waste are indicative, and based on a 2004 Environment Agency synthesis of evidence available at that time ('Review of agricultural waste research and development projects') (<http://cdn.environment-agency.gov.uk/geho1204bikm-e-e.pdf>)

2.0 Further information

For information about WRAP's work to reduce food and packaging waste, please visit:

- www.wrap.org.uk/food
- www.wrap.org.uk/groceryresearch

WRAP has also published an assessment of how food waste levels have changed historically in the UK, and the potential impact of a range of 'exogenous' factors and interventions on food waste levels in the future (UK food waste – Historical changes and how amounts might be influenced in the future; see <http://www.wrap.org.uk/node/29936>).

The key findings are:

- The UK has had large-scale interventions in place since 2007 aimed at reducing food waste across supply chains, and within households. This contributed to a reduction in post-farm-gate food waste between 2007 and 2012 of around 12%, or 1.6 million tonnes.
- Reductions in food waste by 2015 could amount to 2.0 million tonnes a year compared to 2007, preventing around £4 billion worth of food being wasted in 2015, and saving around 7.0 million tonnes of CO₂e. Cumulatively, around 12 million tonnes of food waste would have been prevented between 2007 and 2015, with a value of around £24 billion, avoiding around 40 million tonnes of CO₂e.

- A reduction of 30% by 2025, from 2007 levels (when the UK ramped up efforts to decrease food waste), could be achieved but would be extremely challenging. The actual level of reduction is influenced by factors such as population levels, global economic conditions and food prices, in addition to the levels of interventions aimed at supporting food waste reduction.
- There is a lack of data and research to accurately estimate the full social, economic and environmental costs and benefits of food waste reduction. However, the evidence available suggests that between 2015 and 2025 around 20 million tonnes of food waste could be prevented.
- This would prevent £30 to £40 billion of food being wasted over the 10 year period (at present values), and avoid 60 to 70 million tonnes of CO₂e being generated
- The costs of achieving this could range from between £200 million and £530 million, over the 10 year period from 2015.

This report may be relevant to the European Commission's thinking on a new Circular Economy package, and also the development of a proposed successor agreement to the Courtauld Commitment. Any future successor agreement would aim to deliver further reductions in food waste in addition to wider resource efficiency benefits, across the UK, to Governments, businesses, communities and individuals.

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Appendix 1 Detailed Data

Household Food Waste

Latest data available from: www.wrap.org.uk/household-food-waste⁵

Waste Stream	Financial (p.a.)	Million tonnes (p.a.)	Environmental impact	Notes
TOTAL Household Food & Drink		<u>7.0 Mt</u>		Consumers throw away 7.0 Mt per year of food & drink – the majority of which (4.2 Mt) was avoidable (Source: WRAP). 1/5th is truly unavoidable (bones, cores and peelings) (Source: WRAP). Household food waste is almost half (47%) of the total UK food waste (~15Mt) (Source: WRAP).
Avoidable food & drink	<u>£12.5 bn</u>	<u>4.2 Mt</u>	<u>17 Mt CO₂e</u>	4.2 Mt is equivalent to filling ca. 8,400 Olympic sized swimming pools (Source: WRAP). Producing, storing and getting products to our homes uses a lot of energy. If we stopped wasting avoidable food and drink it would save ca. 17 Mt CO₂eq. – equivalent to the emissions from one quarter of private car journeys made in the UK (Source: WRAP). Most discarded food reaches landfill sites where it emits methane, a powerful greenhouse gas 25 times more powerful than CO ₂ (Source: IPCC http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml#1) £470 - Average UK household spend on food that could have been eaten but is thrown away (Source: WRAP). £700 - Average UK household with children spend on food that could have been eaten but is thrown away. The average family could save almost £60 a month (Source: WRAP).

⁵ Between 2007 and 2012 UK total HHFW reduced by around 15% (1.3 Mt) and avoidable food waste reduced by 21% (1.1 Mt from 5.3 Mt to 4.2 Mt)



Waste Stream	Financial (p.a.)	Million tonnes (p.a.)	Environmental impact	Notes
Reasons for disposal (avoidable)	£5.6 bn	2.0 Mt		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.)
	£4.1 bn	1.3 Mt		Food and drink we cook, prepare or serve too much of.
	£2.8 bn	0.87 Mt		Other (linked to accidents or personal preference).
Possibly avoidable		1.2 Mt		Food that some but not all people would eat (e.g. bread crusts, potato skins).
Unavoidable		1.6 Mt		Elements of food and drink that are not suitable for consumption (e.g. egg shells, bones, banana skins, tea-bags).
Examples				<p>Examples of avoidable household food we throw away p.a. (Source: WRAP).</p> <p>Fresh fruit and vegetables: £2.6bn / 1,200,000 t.</p> <p>Bakery: £860 m / 450,000 t.</p> <p>Home-made and pre-prepared meals: £2.1 bn / 440,000 t.</p> <p>Dairy and eggs. <i>Includes milk thrown away from the fridge and leftovers from serving too much (e.g. breakfast cereals):</i> £780 m / 420,000 t. £290m worth of milk is thrown away and over 90% of this is in amounts of 50g or more = about quarter of a glass each time.</p> <p>Examples of avoidable household drink we throw away p.a. (Source: WRAP).</p> <p>£270 m of wine.</p> <p>£200 m of carbonated soft drinks.</p> <p>£150 m of fruit juices and smoothies.</p>
<p>WRAP comment: We waste more food than packaging, and food waste has a significantly greater impact on the environment. Packaging has an important role to play in protecting and preserving food and a lot of work is being done to optimise packaging, see www.wrap.org.uk/fresherforlonger. Estimates suggest that food waste has at least 10x the environmental impact of packaging waste and that's excluding the impact of methane from food in landfill. (Source: Advisory Committee on Packaging brochure 'Packaging in Perspective' (page 5)).</p>				



Packaging Waste

Scope: Retail sector: grocery (food & drink and household & personal care products) and non-food products (DIY/toys, etc.)
Covering household (the consumer at home) and commercial and industrial (C&I) waste

The overall figure for packaging has increased as it comes from Packflow. Packflow estimated packaging flows using a model for UK packaging which assumed a packaging growth. At the current time this is the figure used by Defra but there is ongoing work to clarify material flows for plastics and metals and an updated flow was produced last year for glass, therefore total packaging flow data may be subject to change.

Waste Stream	Financial (p.a.)	Million tonnes (p.a.)	Env. impact	Notes
TOTAL (Retail: UK household + C&I) (2009)		10.9 Mt	17.4 Mt CO₂e	<p>2011: 10.9 Mt of packaging is used to protect the billions of goods used by UK households and industry. Includes transit packaging. 67% of total packaging was recycled or recovered. (2011 Defra) - https://www.gov.uk/government/policies/reducing-and-managing-waste/supporting-pages/packaging-waste-producer-responsibility-regimes).</p> <p>Every year, over 10 Mt of packaging is placed on the UK market. About half that amount (5 Mt) goes to households, where it accounts for about 20% of the waste stream. The other half is used in the Commercial and Industrial sectors, where it accounts for about 10% of the waste stream. (Source: Defra http://www.defra.gov.uk/news/2010/10/26/uk-packaging-recycling-targets/).</p>
<p>WRAP comment: Without packaging we couldn't get products to the customer. We need the right amount of packaging to protect and preserve products and prevent product waste. Packaging prolongs the life of food and helps prevent waste. It is important that industry and designers optimise packaging (light-weighting, recycled content, design for recyclability and re-use) and also look at how the product/packaging system can be re-designed to minimise environmental impact, e.g. refills, self-dispensing, concentrates.</p> <p>Useful links: Advisory Committee on Packaging - 'Packaging in Perspective' and Government packaging website.</p> <p>WRAP administers the Courtauld Commitment, a voluntary agreement involving the major UK food and drink retailers and many UK food and drink manufacturers. Between 2009 and 2012, the Courtauld Commitment signatories reduced the weight of packaging on groceries they manufactured and sold by almost 11%. This is despite an increase in the overall volume of groceries they manufactured and sold. http://www.wrap.org.uk/node/9297</p>				



Manufacturing and Retail Sector

Scope: Waste arising in the supply of food and drink to UK households (from factory in-gate, through to point of purchase by consumers)

Retail sector: grocery (food & drink and household & personal care products)

Covering household (the consumer at home) and Commercial & Industrial (C&I) waste (manufacture, distribution and retail)

This specifically excludes agricultural and aquacultural wastes

Waste Stream	Financial (p.a.)	Million tonnes (p.a.)	Env. impact	Notes
Food & Drink (household) (2012)	£12.5 bn ~	7.0 Mt	17 Mt CO ₂ eq. ~	~ Financial and CO ₂ eq. figures relate to the 4.2 Mt of avoidable household food and drink waste. 7.0 Mt excludes packaging. Source: WRAP (taken from Household Food and Drink Waste section above.)
Household sub total (2012)		11.0 Mt	22 Mt CO₂eq.	N.B: The household food and drink waste environmental impact includes packaging associated with avoidable food and drink waste. The sum of household impact is therefore less than the separate household packaging and household food and drink waste values.
Supply Chain Food and Drink (2011/13)	£4.0 bn	4.1 Mt	0.2 Mt CO ₂ eq. ⁶	Retail (including Wholesale): 0.2 Mt (227,000t, of which 210,000t is retail, 17,000t wholesale); £0.3 bn. Source - Based on a 2014 estimate for retailers (0.18 Mt reported by BRC, based on Courtauld 3 reporting; scaled up to 0.21 Mt to include non-BRC members) and a 2011 estimate for wholesale (17,000 tonnes; Estimates of waste in the food and drink supply chain (2013). Manufacturing: 3.9 Mt (3,920,000t); £3.7 bn. Source: Estimates of waste in the food and drink supply chain (2013) The manufacturing total includes 120,000t of mixed waste that is believed to be primarily food.

⁶ WRAP allocate all emissions from agriculture, processing and retail of food and drink to the food purchased by households. Supply chain waste therefore arises 'free' of emissions. The emissions shown here are those associated with treatment of waste materials only.



Waste Stream	Financial (p.a.)	Million tonnes (p.a.)	Env. impact	Notes
Packaging in supply chain (2011)	£2.7 bn	1.7 Mt	2.7 Mt CO ₂ eq.	Retail (including Wholesale): 1.2 Mt; £1.9 bn (of which 1,068,000t; £1.7 bn is retail) Manufacturing: 0.5 Mt (480,000t); £0.8 bn. Source: Estimates of waste in the food and drink supply chain – Executive Summary, and other WRAP research (soon to be published) The retail and manufacturing total includes 137,000t (retail/wholesale) and 126,000t (manufacturing) of mixed waste that is believed to be primarily packaging.
Other (2011)		0.5 Mt		Manufacturing (496,000t): includes waste that cannot be segregated, office and other material. Excludes 2.2 Mt of food and co/by-product sent to animal feed from the manufacturing stage. Excludes 2.0 Mt of animal by-products sent primarily to rendering derived from the slaughter of animals/fish Source: Estimates of waste in the food and drink supply chain – Executive Summary. Ramirez (2012) Greenhouse Gas Life Cycle Assessment of Products Arising from the Rendering of Mammalian Animal By-products in the UK
Supply Chain sub total	£6.7bn	6.3 Mt	2.9 Mt CO₂eq.	2011 data for food and packaging (see Waste arising in the supply of food and drink to households in the UK) updated with 2013 data from retail (see above)
TOTAL Supply chain & household waste (2011)	£19.2 bn	17.3 Mt	**	Waste generated within the UK food/drink (including packaging) supply chain and households. Two significant areas for resource efficiency opportunities: 1. Household waste accounts for 63% of the estimated 17.5 Mt of waste generated / £12.5bn. 2. Manufacturing accounts for 28% of UK food and drink waste (4.9 Mt)/ £4.5bn. Total food waste arisings for the supply chain and households = 11.1 Mt and total packaging = 5.7 Mt. In addition there are 2.2 Mt of by-product sent to animal feed from the manufacturing stage of the chain. (** not calculated at this stage due to potential double counting across household and supply chain data).
Key research for supply chain data: Waste arising in the supply of food and drink to households in the UK . This report identifies the areas of greatest opportunity for cost savings, improved resource efficiencies and future interventions.				
There are plenty of opportunities to reduce waste with commercial and environmental benefits for the entire supply chain, from field to fork.				



Hospitality and Food Service Sector (HaFS)

Scope: Waste arising in the supply of food and drink in the UK

Links to source reports and related materials are at www.wrap.org.uk/foodwastehafs

Waste Stream	Financial (p.a.)	Million tonnes (p.a.)	Env. impact	Notes
Total waste arising		2.87 Mt		The total amount of waste, including food, packaging and other 'non-food' waste, produced each year at HaFS outlets is 2.87 million tonnes, of which 46% is recycled, sent to Anaerobic Digestion (AD) or composted. There are nine major HaFS subsectors as defined by Horizons: staff catering, healthcare, education, services, restaurants, Quick Service Restaurants (QSRs), pubs, hotels and leisure. In addition to food and packaging waste, 'other' wastes amount to a total 0.66 million tonnes, and include kitchen towels, disposable cups, newspapers and office paper.
Food Waste	£2.5 bn	0.92 Mt	3.6 Mt CO ₂ eq.	The amount of food that is wasted each year in the UK is equivalent to 1.3 billion meals, or one in six of the 8 billion meals served each year. On average 21% of food waste arises from spoilage; 45% from food preparation and 34% from consumer plates. The total cost of food being wasted in the UK HaFS industry for 2011 is estimated at over £2.5 billion; three subsectors (restaurants, pubs and hotels) account for 54% of this financial cost.
Avoidable food waste		0.68 Mt	2.7 Mt CO ₂ eq.	75% of food waste in HaFS is avoidable. 40% of all food waste is associated with 'carbohydrate foods', including: potato and potato products (21%); bread and bakery (12%); and pasta/rice (7%).
Unavoidable Food Waste		0.24 Mt	0.9 Mt CO ₂ eq.	A quarter of all food waste that is unavoidable mainly consists of fruit and vegetable peelings.
Packaging		1.3 Mt	0.4 Mt CO ₂ eq.	An estimated 1.3 million tonnes of packaging is used by UK HaFS outlets each year, including packaging around food, drink, cleaning products and other HaFS supplies. Of this, 61% is glass packaging, used mainly in pubs, restaurants and hotels. Of the 1.3 million tonnes of packaging, 66% is recycled. Greenhouse gas impacts shown are the potential savings associated with recycling all readily recyclable packaging and other wastes currently disposed of to landfill.
WRAP comment – figures for food waste exclude any waste associated with drinks. In addition to the figures in the table above, a further 130,000 tonnes of food waste is generated from the preparation of ready to serve food items and meals for the HaFS sector, at food manufacturing sites (most of which will be counted within the estimates for the manufacturing & retail sector above).				



Total Food Waste

Please note: Household data also includes drink, which is not included in data for the grocery supply chain or hospitality and foodservice.

Waste Stream	Financial (p.a.)	Million tonnes (p.a.)	Environmental impact	Notes
Total UK Food Waste (2011-2014*)	>£19 bn	15 Mt	>21 Mt	<p>Based on the available evidence WRAP estimates that around 15 Mt of food waste arises in the UK every year:</p> <p>7.0 Mt from households (£12.5 bn). Household food waste is about half of the total UK food waste. Consumers throw away 7.0 Mt per year of food & drink – 60% of which (4.2 Mt) could have been consumed. (Source: WRAP; www.wrap.org.uk/household-food-waste). NB – This estimate covers all food & drink waste disposed of in the home (collected, home composted, disposed of via the sewer, fed to animals).</p> <p>4.1 Mt from the grocery supply chain (£4 bn). (Product and ingredients wasted in manufacture, retail and wholesale: Retail (including Wholesale): 0.2 Mt (227,000t, of which 210,000t is retail, 17,000t wholesale).</p> <p>Manufacturing: 3.9 Mt (3,920,000t). Source: Estimates of waste in the food and drink supply chain – Executive Summary. The manufacturing total includes 120,000t of mixed waste that is believed to be primarily food. In addition there are 2.2 Mt of food and co/by-product sent to animal feed from the manufacturing stage, and 2.0 Mt of animal by-products sent primarily to rendering derived from the slaughter of animals/fish.</p> <p>0.92 Mt from the hospitality and foodservice sector (HaFS) (£2.5 bn), 75% of which is avoidable and could have been eaten. There are nine major HaFS subsectors: staff catering, healthcare, education, services, restaurants, QSRs, pubs, hotels and leisure. Around 40% of food waste arises within restaurants and pubs, and a further 26% from education and healthcare sectors. These estimates exclude drink waste.</p>



* with the exception of farm level estimates				<p>3.0 Mt from other sectors. This includes estimates for other food thrown away by consumers out of home (e.g. from home-made lunches at work, as litter, in litter bins) and the pre-factory gate stages of the food supply chain. Existing estimates of agricultural food waste are indicative, and based on a 2004 Environment Agency synthesis of evidence available at that time ('Review of agricultural waste research and development projects' (Environment Agency 2004) (http://cdn.environment-agency.gov.uk/geho1204bikm-e-e.pdf))</p> <p>A proportion of the 15 Mt food waste does not enter waste streams – e.g. food waste that is composted at home or material that is treated on a food-manufacturing site. Nevertheless, this constitutes a considerable loss in value because the food is not consumed, and is therefore included in the estimates above.</p>
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Total UK Household Waste (all waste streams)

Waste Stream	Financial (p.a.)	Million tonnes (p.a.)	Environmental impact	Notes
Total UK Household waste (2011-12)		28 Mt		<p>Total household waste generated in the UK per year. This covers packaging and other waste, including grocery (food & drink and household & personal care products, non-food products such as DIY, toys, clothing and other textiles, furniture and other bulky items, electrical, etc.) and garden waste.</p> <p>Definition of household waste: Audit Commission (http://www.audit-commission.gov.uk/localgov/audit/nis/Pages/NI192percentageofhouseholdwastesentforreuse,recyclingandcomposting.aspx)</p> <p>After several years of growth, UK household waste has declined (waste = residual bin waste, recycling, municipal composting):</p> <p>2011/12: 27.7 Mt (of which 11.9 Mt (or 43%) was recycled or composted)</p> <p>2010/11: 28.6 Mt (of which 11.8 Mt (or 41%) was recycled or composted)</p> <p>2009/10: 28.8 Mt (of which 11.4 Mt (or 39%) was recycled or composted)</p> <p>2008/09: 29.6 Mt (of which 11.0 Mt (or 37%) was recycled or composted)</p> <p>2007/08: 30.8 Mt (of which 10.5 Mt (or 34%) was recycled or composted)</p> <p>2006/07: 31.3 Mt (of which 9.5 Mt (or 30%) was recycled or composted)</p> <p>(14% of household waste was recycled / composted in 2000/01).</p> <p>Sources:</p> <p>England: http://www.defra.gov.uk/statistics/environment/waste/</p> <p>Northern Ireland: http://www.doeni.gov.uk/niea/waste/municipal_data_reporting.htm</p> <p>Wales: http://wales.gov.uk/docs/statistics/2010/101116sdr1922010en.pdf</p> <p>Scotland: www.sepa.org.uk/about_us/news/2011/waste_data_digest_11_%e2%80%93_data_ta.aspx</p>



				<p>Each year we generate over 80 Mt of waste from UK households and Commerce & Industry. (Source: Defra http://www.defra.gov.uk/environment/economy/waste/)</p> <p>More than 7.7 Mt of packaging was recycled or recovered during 2010 in the UK against a target of 6.8 Mt. (Source: Environment Agency http://npwd.environment-agency.gov.uk/Public/PublicSummaryData.aspx)</p> <p>The amount of waste sent to landfill has gone down by over a third since 2001. Source: Defra Secretary of State Caroline Spelman speech (15 June 2010) http://www.defra.gov.uk/news/2010/06/15/caroline-selman-waste/</p> <p>Useful links: UK statistics - Measuring Progress: Sustainable development indicators 2010 (pages 34 – 35) http://archive.defra.gov.uk/sustainable/government/progress/documents/SDI2010_001.pdf Waste & Recycling web pages http://www.defra.gov.uk/environment/economy/waste/</p>
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Notes

All figures featured are estimates, rounded and referenced where possible.

Abbreviations: m=million / bn=billion / t=tonnes / Mt=million tonnes / p.a. =per annum / CO₂eq. =carbon dioxide emissions equivalent, B2B=business to business.

Further WRAP information can be found at: www.wrap.org.uk/food, www.wrap.org.uk/hospitality, www.lovefoodhatewaste.com and www.recyclenow.com.