Food Waste in Birmingham

What is food waste?

Food waste happens at all stages ‘from farm to fork’: production, processing, retailing and consumption. Reference to food waste in this report means food that is discarded rather than eaten during the last two stages.

A further distinction is useful; the difference between:

- unavoidable food waste e.g. banana skins and orange peel
- avoidable food waste - food that could have been eaten

Why does food waste matter?

It is estimated that the greenhouse gas emissions associated with avoidable food and drink waste from UK homes is equivalent to 17 million tonnes of CO2. The carbon saving of preventing this waste is equivalent to taking one in four cars off the road. Additionally, it is estimated that it took 19,000 square kilometres of land to produce this wasted food, an area equivalent to 91% of Wales.

The amount of food wasted in the UK

WRAP is generally considered to be the authoritative voice on food waste in the UK. WRAP is the Waste and Resources Action Programme, a not for profit organization established in 2000 to ‘help recycling take off in the UK and create a market for recyclable material’. Reducing food waste is one of four strategic areas of their work.

The table below quantifies food waste in the UK, based on WRAP data:

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount of avoidable food waste</th>
<th>Cost of avoidable food waste</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Food and Drink Survey 2012 – WRAP</td>
<td>4.2 million tonnes</td>
<td>£12.5 billion</td>
<td>Household Food and Drink Survey 2012 – WRAP</td>
</tr>
<tr>
<td>An Overview of Waste in the Hospitality and Food Sector - WRAP</td>
<td>0.7 million tonnes</td>
<td>£2.5 billion*</td>
<td>An Overview of Waste in the Hospitality and Food Sector - WRAP</td>
</tr>
<tr>
<td>Waste arisings in the supply of food and drink to households in the UK - WRAP</td>
<td>0.4 million tonnes*</td>
<td>£0.5 billion*</td>
<td>Waste arisings in the supply of food and drink to households in the UK - WRAP</td>
</tr>
</tbody>
</table>

* figure reported is total food waste, a distinction between avoidable and unavoidable waste is not drawn
WRAP’s Household Food and Drink Survey 2012 is the most widely quoted source of UK consumer food waste facts. It is based on three sources of data:

1. **Measuring the weight and type of food and drink waste from 1,800 consenting households.** This data is used to estimate the type, and state of food wasted and to comment on how avoidable to waste was.

2. **A week long food and drink diary completed by 950 households** detailing the amount and type of food and drink waste in addition to how this was disposed of (put in the bin, poured down the sink, composted etc.). Each household also completed a questionnaire at the start and end of the week about their attitude and behaviour in relation to food waste. This data is used to estimate the amount and type of food waste that is composted or fed to animals, also to assess reasons for food waste. It was intended to use this data to estimate the amount of food waste disposed of via household sewer. Instead, this was estimated from an earlier piece of research, specifically focussing on sewer disposal.

3. **Food waste composition data from more than 80 Local Authorities.** This data is used to give an estimate of the total amount of food and drink waste entering the waste streams collected by Local Authorities (municipal waste and recycling) also to report on the type of food wasted.

The report and its methodology have been peer reviewed.

The report states that:

- Consumer waste accounts for approximately 50% of all food waste
- Households created 7.0 million tonnes of food waste in 2012, which represents 19% in weight of the food bought into our homes
- 4.2 million tonnes of this was avoidable waste, food and drink that could have been eaten, worth £12.5 billion
- This equates to 3kg per household per week, costing households £470 a year, not including the costs of disposal

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2. A report outlining research methods and calculations used to generate the data presented in the 2012 food and drink survey report can be found at [http://www.wrap.org.uk/sites/files/wrap/Methods%20Annex%20Report%20v2.pdf](http://www.wrap.org.uk/sites/files/wrap/Methods%20Annex%20Report%20v2.pdf). The calculations and assumptions made are very complex. To give an example in calculating the food waste created from cups of tea, the weight of discarded tea bags was treated as unavoidable waste, but an adjustment made for the fact that some cups of tea are not drunk. In short a vast amount of thought and attention has been paid to the data, but a large number of assumptions have also been made.

3. Down the Drain ([http://www.wrap.org.uk/sites/files/wrap/Down%20the%20drain%20-%20report.pdf](http://www.wrap.org.uk/sites/files/wrap/Down%20the%20drain%20-%20report.pdf)) is a piece of research commissioned by WRAP in 2008. The amount of food and drink waste this report estimates is significantly (circa four times) higher than the amount estimated by the 2012 food and drink diary research. WRAP discuss their reasons for using the Down the Drain data at some length in their methodological report (see note above). It is an interesting choice, particularly given that one of the headlines quoted from the research is that food and drink waste has decreased substantially between 2007 and 2012; but they have adjusted the figures based on the assumption that sewer waste has fallen proportionately to Local Authority collected waste.

• Not surprisingly houses with more people in generate more waste, but the increase is not proportional i.e. an average four person household wastes less than four times the amount of an average one person household
• The vast majority of householders are unaware of the amount of food they waste
• Household food waste has reduced significantly since 2007.

It goes on to report that the food most likely to become avoidable food waste were:

• Fresh vegetables and salads (19%; 810,000 tonnes)
• Drink (17%; 710,000 tonnes)
• Bakery (11%; 450,000 tonnes)
• Home-made and pre-prepared meals (10%; 440,000 tonnes)
• Dairy and eggs (10%; 420,000 tonnes)

Further that the main reasons for avoidable food waste are:

• not using food in time; discarding it because it had either gone off or passed the date on the packaging (the cause of just under half of all waste)
• cooking, preparing or serving too much (the cause of almost a third of waste)

Other reasons include food being dropped on the floor and failure of a freezer.

**Hospitality and Food Service Sector Waste**

The Hospitality and Food Service (HaFS) Sector covers outlets that sell food and drink for immediate consumption outside of the home. This includes restaurants, pubs, hotels, schools, hospitals.

WRAP is the main source of data about food waste in the HaFS sector as well. Their 2013 report, An Overview of Waste in the Hospitality and Food Sector estimates the level of waste from the sector. It draws together findings from a number of other pieces of research; waste reviews and surveys undertaken between 2009 and 2013. The combined dataset created includes data from 480 HaFS premises and WRAP acknowledge the limitations of this data. However it appears to give the most useful assessment of waste in the sector available.

WRAP report that the HaFS sector creates 690,000 tonnes of avoidable food waste per year; which they say is equivalent to one in six of the 8 billion meals it serves annually. It estimates that a further 130,000 tonnes of food is wasted in the supply of ready to serve items such as sandwiches, soups and pre-prepared meals.

The amount of waste per sub-sector is shown in the table below.

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5 Based on data from the 2007 food and drink survey (http://www.wrap.org.uk/content/household-food-and-drink-waste-uk-2007-estimates)

6 http://www.wrap.org.uk/cy/node/17924

7 It is not entirely clear why this figure is reported separately, or whether this is considered avoidable or unavoidable waste
Figure 1: Food waste across the HaFS sector

![Graph showing food waste across different sectors](image)

*(QSR = Quick Service Restaurant)*

The total cost of the waste has been estimated at £2.5bn per year. This considers factors such as purchase cost disposal costs and wasted labour and energy. Given that 75% of the waste is seen as avoidable, presumably the cost of avoidable waste is £1.9bn, however WRAP don’t appear to present a figure for this.

WRAP do report that most of the waste avoidable waste is potatoes, followed by fruit & vegetables, bread/bakery products, plate scrapings and rice/pasta. In addition, that it mainly arises from spoilage (food that is damaged, or past its use by date), overproduction and food being left on plates.

**Retail waste**

This covers the supply of food and drink to UK households from large and small grocery retailers.

Yet another WRAP report looks at this\(^8\), referring to a study undertaken in 2009 involving four of the UKs largest grocery retailers. Each retailer provided data on store waste figures in 2007 and 2008, broken down by waste management route. It suggests that 362,000 tonnes of food waste comes from grocery retail each year, 232,000 of which goes to landfill. A distinction between avoidable and unavoidable waste is not drawn. This is low when compared to the level of consumer waste, in part due to significant redistribution instigated in recent years through organisations such as Fareshare\(^9\) and Company Shop\(^10\). However, Tristram Stuart\(^11\) argues that the retail sector should be held to account for an element of:

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9 Fareshare is a charity that collects surplus food from the food industry and redistributes it to charities and community groups. In 2013 they report redistributing enough food for 13.2 million meals. Fareshare redistributes food to 50 organisations across Birmingham and Coventry [http://www.fareshare.org.uk/regional-centres/west-midlands/](http://www.fareshare.org.uk/regional-centres/west-midlands/)

10 Company Shop is a limited company that sells surplus stock from leading food brands and supermarkets at reduced prices. Company Shop outlets are only open to members. However they have recently launched Community Shop, a
• consumer waste, as they encourage people to buy more than they need;
• waste within the supply chain, as the quality standards and contracts supermarkets stipulate promote waste.

The main type of food waste sent to landfill is reportedly produce (39%) and bakery (18%) with waste mainly arising due from imperfect food, or stock that is damaged or out of date.

**Food Waste in Birmingham**

Data about food waste tends to be reported at national level, so the level of food waste in Birmingham needs to be extrapolated from this.

Based on its population, Birmingham should account for approximately 1.56% of the UKs Household waste. This would mean 65,520 tonnes of avoidable food waste from Birmingham householdsx1 each year.

If it is reasonable to assume that HaFS and retail sector outlets are distributed in proportion to the population (quite a significant if) then waste in Birmingham would bex2:

- 10,764 tonnes of avoidable food waste from the HaFS sector and
- 5,647 tonnes of food waste from the retail (grocery) sector.

These figures are all very tenuous.

**Tackling Food Waste**

The food recovery hierarchyx3 is the generally accepted framework to respond to food waste:

- First reduce the amount of waste
- Next redistribute to feed people
- Recycle as much as possible of what cannot be eaten through composting, anaerobic digestion or feeding to animals
- Only dispose when absolutely necessary

**Reducing waste**

**Schemes operating in Birmingham**

**Love Food Hate Waste Campaign (LFHW)**

LFHWx4 is WRAPs consumer campaign, established in 2007 to raise awareness of food waste and encourage individuals to reduce the amount of food they throw away. On the strength of a campaignx5 they ran in west

social supermarket for people living in areas of high deprivation and experiencing in-work poverty. The social supermarket model is new in the UK but well established elsewhere in Europe. [http://www.companyshop.ltd.uk/](http://www.companyshop.ltd.uk/)

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x1 Stuart, T., Waste: Uncovering the Global Food Scandal (2009) [http://www.tristramstuart.co.uk/](http://www.tristramstuart.co.uk/)

x2 The amount of avoidable food waste in the UK x 0.0156 (see table 1)

x3 Waste from the HaFS and retail sector x 0.0156 (see table 1)

x4 This is based on the waste hierarchy, a guide to sustainable waste management and a legal requirement of the revised EU Waste Framework Directive ([law in England through the Waste (England and Wales) Regulations 2011](http://www.lovefoodhatewaste.com/))

x5 [http://www.lovefoodhatewaste.com/](http://www.lovefoodhatewaste.com/)
London, which reportedly reduced food waste by 14% in six months\(^\text{16}\), LFHW recently launched campaigns in 10 UK Cities including Birmingham. The Birmingham campaign\(^\text{17}\) was launched on 24 July 2014 and will run for 18 months. It is being run in partnership with Birmingham City Council and the Central England Co-op and will:

- Encourage individuals to pledge to ‘do one thing differently’ to reduce food waste
- Offer free training on reducing food waste, with the aim of creating ‘community champions’ to spread the message
- Provide cookery classes, budgeting and kitchen skills

**Courtauld Commitment**\(^\text{19}\)

A voluntary agreement between Government and the food industry, brokered by WRAP to reduce food and food packaging waste from households and the supply chain. Courtauld 3 - the current phase, aims to reduce household food and drink waste by 5% by 2015 from a 2012 baseline.

**Hospitality and Food Service Agreement**\(^\text{20}\)

A voluntary agreement brokered by WRAP to reduce waste and increase recycling in the HaFS sector. Signatories make specific waste reduction pledges and receive support and information on how to achieve this\(^\text{21}\).

**Sustainable Restaurant Association**\(^\text{22}\)

Approximately 17 Birmingham restaurants\(^\text{23}\) (including the chains TGI Friday and Ask) have joined the Sustainable Restaurant Association (SRA), a not for profit members organization aimed at helping restaurants to become more sustainable. This covers a number of things, but reducing waste is key. The SRA provides information, including a toolkit that aims to help restaurants reduce food waste\(^\text{24}\).

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\(^{16}\) A campaign to raise awareness of food waste and change behavior, including activities such as radio, digital and print advertising, events and cookery classes; run between September 2013 and March 2013. [http://www.wrap.org.uk/sites/files/wrap/West%20London%20LFHW%20Impact%20case%20study_0.pdf](http://www.wrap.org.uk/sites/files/wrap/West%20London%20LFHW%20Impact%20case%20study_0.pdf)

\(^{17}\) Based on measuring the amount of food waste generated by West London households using waste compositional analysis, before and after the campaign. In their report (see note above) WRAP acknowledge that the reduction in waste could be due to factors other than the campaign and suggest that the results presented should be seen as an upper limit on the impact of this campaign. [http://england.lovefoodhatewaste.com/content/love-food-hate-waste-10-cities-birmingham](http://england.lovefoodhatewaste.com/content/love-food-hate-waste-10-cities-birmingham)

\(^{18}\) [http://www.wrap.org.uk/node/14507](http://www.wrap.org.uk/node/14507)

\(^{20}\) [http://www.wrap.org.uk/content/hospitality-and-food-service-agreement-3](http://www.wrap.org.uk/content/hospitality-and-food-service-agreement-3)

\(^{21}\) This covers a variety of areas including stock management, menu planning and staff training. WRAP have created information sheets for each HaFS subsector outlining how to waste less (http://www.wrap.org.uk/content/taking-action-waste-information-sheets). Large organisations (with more than 250 full time employees) signing up to the agreement are assigned an account manager to help them establish their baseline level of waste and develop an implementation plan. Smaller organisations are given access to an online resource centre to help them identify areas for improvement.

\(^{22}\) [http://www.thesra.org/](http://www.thesra.org/)

\(^{23}\) [http://www.thesra.org/for-diners/restaurant-directory/?type=location&search=birmingham](http://www.thesra.org/for-diners/restaurant-directory/?type=location&search=birmingham)

The SRA are supporting two London based campaigns to reduce food waste from restaurants, Food Save and Too Good Waste, both described below.

**Approaches from elsewhere**

**Food Save**

A project to help small and medium sized London based food businesses reduce their food waste and divert unavoidable food waste from landfill. The project is aiming to 240 Food Business by March 2015. Those who have already participated (number unknown) have reportedly saved an average of £6,000 per year and diverted 1.6 tonnes of food from landfill per year per business.

**Too Good to Waste**

A campaign launched in 2011 in London that aims to raise consumer and industry awareness about the scale of restaurant food waste. The central elements of the campaign are the use of ‘doggy boxes’ for diners to take left over food home and advice to restaurants on waste reduction. The website does not report any evaluation data.

**Working on Waste**

The Institute of Grocery Distributors (IGD) has launched a campaign to reduce household waste. The main focus of the campaign is to reduce the household waste of the industry’s 3.6 million employees. For 2014, the organisations participating in the campaign (including the major supermarkets and organisations such as Heinz and Mondalez) were asked to deliver activity during October to encourage their employees to waste less at home. In 2015 they will publish a paper to share what has been learnt.

**Redistributing Waste**

**Schemes operating in Birmingham**

**Esther Community Resource**

Provides emergency food support by redistributing food from supermarkets and food outlets. They have four distribution centres in Birmingham and one in Walsall.

**Fareshare**

An organisation that distributes surplus food from the food industry to people in disadvantaged communities. Fareshare West Midlands distributes food to ‘over 50 organisations in Birmingham and Coventry that work with people in need, from families on low income and older people at risk of isolation to those affected by homelessness and mental health issues’

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25 Foodsave is funded by the European Regional Development Fund, the London Waste and Recycling Board and the Mayor of London. Their website contains a DIY waste audit for HaFS outlets plus tips and information on how to reduce food waste. [http://www.foodsave.org/](http://www.foodsave.org/)

26 By providing advice on how to conduct a waste audit and tips on reducing waste covering things such as segregating waste, seasonal menu planning, portion sizing and staff awareness.

27 [https://www.london.gov.uk/priorities/environment/putting-waste-good-use/foodsave](https://www.london.gov.uk/priorities/environment/putting-waste-good-use/foodsave)

28 [http://www.toogood-towaste.co.uk/](http://www.toogood-towaste.co.uk/)


30 [http://esthercommunityresources.co.uk/](http://esthercommunityresources.co.uk/)

Food Cycle*  
Food Cycle is a national charity with a hub within Birmingham. Its aim is to ‘combine volunteers, surplus food and spare kitchen spaces to create tasty nutritious meals for people at risk of food poverty and social isolation’. The Birmingham project operates from a community kitchen in Aston. Every Saturday, volunteers collect surplus food donated by vendors at the Bullring market, to make a three course meal available from 2-3 each Sunday.

Approaches from elsewhere  

Company Shop**
An organization that works with major retailers, distributing surplus stock at vastly discounted prices through member based shops. Initially these were staff shops in factories, but in 2013 the model was extended to communities. The first store opened in Barnsley, open to people living in a specific area also in receipt of welfare support.

Feeding the 5000***
Events that serve a communal feast made entirely of food that would otherwise have gone to waste, to highlight the issue of food waste. The first event was held in Trafalgar Square in 2009 and since have been held worldwide.

Gleaning Network UK****
Team of volunteers who glean (collect fruit and vegetables left over after harvesting, usually because they are not attractive enough to sell) to distribute to those who need it

Plan Zheroes*****
An organization that finds food businesses (shops, restaurants, cafés and hotels) willing to donate surplus food to local communities. Mainly operates in London.

Skipchen******
A not for profit café, run by the real junk food project******, opened in Bristol recently that serves food saved from supermarket bins. A team of volunteers remove usable food from supermarket food and the café also receives donations from farmers and local businesses and has an agreement with Nando’s to receive surplus chicken.

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32 http://foodcycle.org.uk/location/birmingham/
33 http://www.companyshop.ltd.uk/
34 http://feedbackglobal.org/campaigns/feeding-the-5000/
35 http://feedbackglobal.org/campaigns/gleaning-network/
36 http://www.planzheroes.org/
37 http://www.telegraph.co.uk/foodanddrink/11150728/Real-junk-food-Bristol-cafe-serves-up-food-saved-from-supermarket-rubbish-bins.html
38 http://therealjunkfoodproject.co.uk/
Recycling and disposing of waste

Sending food waste to landfill has significant environmental consequences, because it rots and produces methane, a gas worse for the environment than carbon dioxide. Yet the House of Commons EFRA report\(^9\) states that 'about four million tonnes of food waste is sent to landfill each year.

UK waste policies emphasise the need to reduce the amount of food waste sent to landfill but Scotland is the only area to have introduced legislation to address this. The case to stop sending food waste to landfill is articulated in the Vision 2020\(^**\) report. This report also recommends making it compulsory for Local Authorities to make separate food waste collections from households and businesses.

Some Local Authorities already undertake separate food waste collections; some areas\(^4\) have also introduced weekly food waste collections from schools. Birmingham does not collect any food waste separately, however a City Council Scrutiny Report\(^7\) published in July 2014 identifies that food waste is:

> 'the most obvious additional waste stream to consider in terms of driving recycling as it comprises the largest remaining recyclable element of residual waste in Birmingham. It is also especially unsuitable for landfill and incineration'.

Introducing a separate collection was considered in 2009, but was not recommended. The 2014 report identifies that there is an opportunity to develop an anaerobic digestion facility at Tyseley to generate electricity from food waste\(^**\) and states that the draft Birmingham Development Plan would support separating food waste. BCC will be engaging on a new Waste Strategy in 2015.

Evidence on the value of separate food collections is mixed. The House of Commons EFRA report\(^9\) relates that in Wales, 96% of households have food waste collected separately and this is credited with an overall recycling rate of 52% in Wales compared to 43% in England. However it goes on to report that separate food waste collection is often characterised by high implementation costs and low participation rates, stating that 45% of households have access to separate food waste collections, yet only 10% of all food waste is collected. Tamworth and Lichfield council’s decision to stop accepting food waste in brown bins in August 2014 due to high costs\(^**\) is cited as an example of food waste collection not proving cost effective, however this conclusion may not apply in this case, as Tamworth and Lichfield offered a mixed food and garden waste service.\(^4\)

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\(^**\) Vision 2020 is a campaign to achieve zero food waste to landfill by 2020, the year it is estimated that current UK landfill capacity will be fully utilised. http://www.vision2020.info/ It is promoted by BioRegional, a charity which establishes sustainable businesses and promotes sustainability (http://www.bioregional.co.uk) and ReFood a food waste collection and recycling business (http://www.refood.co.uk)

\(^4\) For example Bath and North East Somerset (http://www.bathnes.gov.uk/services/bins-rubbish-and-recycling/campaigns-road-shows-and-schools/schools-rubbish-and-recycling)

\(^7\) From Waste to Resource A Sustainable Strategy for 2019, Birmingham City Council, July 2014

\(^3\) House of Commons Environment. Food and Rural Affairs Committee Waste Management in England October 2014

\(^3242\) http://resource.co/government/article/lichfield-and-tamworth-stop-collecting-food-waste-3242

\(^5\) The Insomnia blog page (www.isonomia.co.uk/?p=3432) reports that yields of food waste from mixed food and garden services have been shown to be considerably lower than yields from separate waste collection and explain that mixed collection is often no cost effective because it has to be sent to in-vessel composting, whereas pure garden waste could be sent to windrow composting which is significantly cheaper. They go on to argue that there is no evidence to suggest that separate food waste collection for anaerobic digestion is prohibitively expensive. The blog was written by Peter Jones, a consultation for Eunomia (www.eunomia.co.uk) with expertise in the implications of waste regulations for waste collectors.
There are a number of organisations who collect food waste for anaerobic digestion including but not limited to SITA\textsuperscript{46}, Wastesafe\textsuperscript{47}, and ORA\textsuperscript{48}. Birmingham Airport\textsuperscript{49} is one organisation disposing of their food waste in this way. A knock on benefit is that separating food waste can increase recycling of other materials as they are not contaminated by the food waste. The food waste network\textsuperscript{50} is a free service that ‘matches a UK business (offices, schools, café’s, restaurants and hospitals) with its ideal waste recycling partner’

However, whilst this form of recycling is better than food waste being sent to landfill, it is not clear whether any of the food disposed of in this way could have been distributed for human consumption.

Su Balu
16 November 2014

\textsuperscript{46} SITA introduced a food waste collection service for businesses in Birmingham in 2013, with help from a grant from WRAP http://www.sita.co.uk/news-and-views/press-releases/new-food-waste-recycling-service-launches-for

\textsuperscript{47} An organisation that provides a food waste collection service, sending the waste for anaerobic digestion http://www.wastesafeservices.co.uk/food-waste-collection.php

\textsuperscript{48} A ‘consulting, engineering and research company specialising in sustainable waste management’. ORA has worked with local authorities to design food waste collection strategies and worked with the NEC group to audit food waste and consider approaches to food waste collection http://www.o-r-a.co.uk/reports_coll.html


\textsuperscript{50} The Food Waste Network (http://www.foodwastenetwork.org.uk/) is an initiative created by Vegware (a compostable food packaging firm). Their website asserts that the service is free and carries no obligation to receive Vegware information or to use their products. They collect information UK recycling service for commercial and industrial food waste, the services they offer and the postcodes they cover. Offices, schools and restaurants can submit an enquiry to the Food Waste Network and their contact details will be passed to the three recycling services that best match their requirements.