



## HOW MUCH WASTE IS PRODUCED BY THE CONSTRUCTION SECTOR?

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**In the UK, construction and maintenance of our built environment, our homes, offices, schools, roads, railways etc, uses up the greatest volume of material resources and also represents the largest waste flows by tonnage. Though in England and Wales over 90% of this is recovered mainly for use as aggregate. However, five million tonnes of construction and demolition waste still finds its way to landfill.**

But what are the statistics underpinning our knowledge of the waste generated. There seem to be a whole variety of different statistics reported for construction in different reports. What is reliable and where do we find the relevant data. Only with an understanding of what constitutes construction waste and how much there actually is will we be able to manage it better and reduce it. Fortunately, research work by the Green Construction Board, and its predecessor the Strategic Forum for Construction, has over the past decade given us a much better understanding of the construction sector's waste and where it originates.

### What constitutes construction waste? Definitions

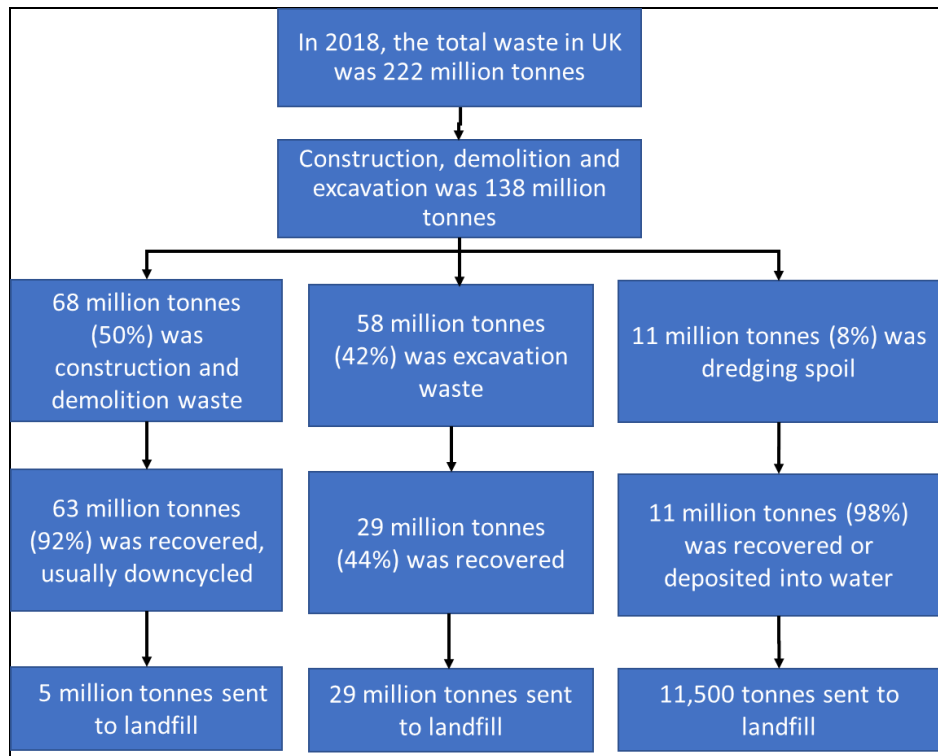
Before we can look at numbers and statistics we need to be clear what we are talking about. The first question is what constitutes “waste” in the construction sector. In simplistic terms, waste comes from three main sources: from demolition, from excavation and from materials wasted during the construction process on site. This is known as construction, demolition and excavation waste (CD&E). But any gathering of, or reporting of, statistics will also need to consider the following:

- How “waste” is defined legally. In UK law, post BREXIT, for England and Wales, it is by the [Waste \(England and Wales\) Regulations 2011 \(as amended\)](#) and in [Scotland](#). Pre-BREXIT the legal definition came from the [EU Waste Framework Directive](#); the definition still aligns to the EU definition. There have been occasions when our national courts and European courts have interpreted this definition, with a substantial body of case law now in existence.
- The geographic scope – is it the whole of the UK and / or the devolved nations separately.
- The scope of the construction sector being reported: is it buildings and / or infrastructure?
- The different types of waste generated across the different construction life cycle stages

These different considerations are discussed in depth in the Green Construction Board's 2020 publication: [Working Interpretation on Zero Avoidable Waste in Construction](#).

### Waste Statistics

The government collects and publishes [waste statistics](#), the lead department is [Defra](#). In 2018 (the most recent data available for non-hazardous construction and demolition waste) this showed that in the UK we produced 137.8 million tonnes of CD&E waste (in England this was 119.4 million tonnes). The following diagram shows how this is broken down.



Please Note, due to the way waste data is collected there can be anomalies between the total figures of waste generated and waste recovered; this is why the % for excavation waste (soils) for recovery and landfill only adds up to 94%.

## Waste Data Collection and Measurement

How are these figures / statistics arrived at? Nationally, waste data is collected through information provided by waste facilities (e.g. waste transfer stations and landfills) to the Regulators (e.g. [Environment Agency](#) in England). For England and Wales, this information can be searched via the [Waste Data Interrogator](#). Scotland has a similar [tool](#). [European Waste Catalogue \(EWC\) codes](#) are used to distinguish between the different materials. Those with a “Chapter 17” code are for waste from the construction sector. In Wales, a survey is undertaken to assess how much C&D waste there is by type and what happens to it. The last one published is from [2012](#), though there is another one being finalised covering data for [2019](#). For Northern Ireland a [report](#) in 2011 was produced for C&DE waste arising, use and disposal; there is no more recent measurement.

Between 2008 and 2012, the [Green Construction Board](#), and its predecessor the Strategic Forum for Construction, working with Defra and the Environment Agency carried out research into waste data to obtain greater granularity in the national headline figures. Part of this involved research to develop a methodology for measuring C&DE waste to landfill and then to monitor progress over a 5 year period (2008-12) with annual reports (the last one was for 2012).

Other sources of waste data and measurement include:

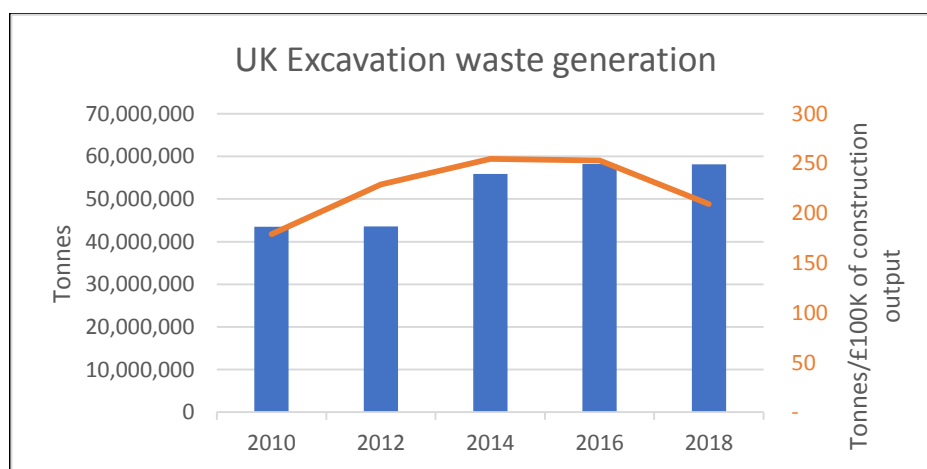
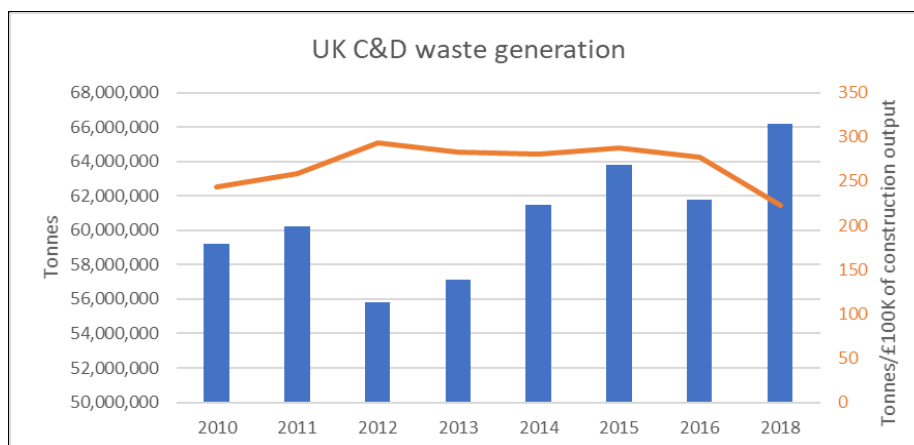
- Some clients and contractors use software systems such as [BRE SmartWaste](#), and [QFlow](#) to record their waste data. BRE aggregates this data and produces benchmarks which are used in [BREEAM](#) (an assessment methodology for rating the sustainability of buildings).

- Many clients and contractors will record their waste arisings and what happens to it and report this within their sustainability reports. However, this information is not aggregated.
- The [National Federation of Demolition Contractors \(NFDC\)](#) collect waste information from their members annually on the types of waste produced and how they are managed.
- The [Waste Resources Action Programme \(WRAP\)](#) from 2008 to 2012 ran a programme on Halving Waste to Landfill which encouraged contractors to use tools to reduce waste and measure their progress.

## Waste Trends

The graphs below show the trends for C&D waste and excavation waste generation in million tonnes (absolute) and relative to construction output per £100K in current prices – the plotted line (data is taken from the [Construction Statistics Annual](#)). In 2018, waste appears to be reducing in relative terms but not in absolute terms. In previous years the waste produced has either risen or been largely static.

Defra measures the amount of CD&E waste generated per capita (person) for England; this shows an increase of 12.8% between 2010 and 2016, from 1.9 to 2.2 tonnes (note the latest data is from [2016](#)). Also measured by Defra is the [waste intensity by economic sector](#) (a decreasing waste intensity means less waste is being produced for each unit of economic value generated). The waste intensity of the construction sector increased from 1.3 tonnes of waste per £1,000 GVA in 2010 to 1.4 tonnes in 2014, before falling back in 2016. There is no more recent data.



## Limitations

There are limitations for the data we have for CD&E waste and these are discussed in the Green Construction Board's [Working Interpretation on Zero Avoidable Waste in Construction](#).

- There is a time lag with the national statistics, which is around 2 years; the latest data available is for 2018.
- The UK devolved nations collect and measure waste data in different ways.
- It is difficult with the national statistics to separate the data for waste arising from construction from waste arising from demolition.
- For waste generated from new build construction activities, the data does not tell us the reasons why this waste is created.
- Manufacturing waste data is not always classified as waste from construction; so will not appear in CD&E waste figures. Some will be recorded as industrial waste.
- There is a lack of granularity for waste types and recovery routes as a lot is classified as mixed waste. Some of the codes used cover more than one type of material e.g. packaging.
- Some waste recovery routes are not recorded in the national waste statistics (for example when an exemption can occur for an activity which does not require an environmental permit).

Recommendations for how to improve waste data collection and measurement are included in the Green Construction Board's [Zero Avoidable Waste Routemap in Construction](#) (2021)

### Further reading:

- [Waste \(England and Wales\) Regulations 2011 \(as amended\)](#)
- [UK Waste Statistics](#)
- [Digest of waste and resource statistics](#)
- [Waste Data Interrogator](#)
- [Construction Statistics Annual](#)
- [Wales C&DE waste figures](#) / [Scotland waste figures](#) / [Northern Ireland C&DE waste figures](#)
- [Green Construction Board - Zero Avoidable Waste Working Interpretation](#)
- [Green Construction Board - Zero Avoidable Waste Routemap](#)
- [Defra Resources and Waste Strategy \(England\)](#) and [Monitoring](#)
- [Waste Prevention Programme Consultation \(England\), March 2021](#)

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