

Methodology for estimating annual waste generation from the Construction, Demolition and Excavation (CD&E) Sectors in England

Background

The revised Waste Framework Directive (rWFD) requires that all Member States recover a minimum of 70 per cent of the waste generated from the C&D industry by 2020. The first reporting towards this target is expected in 2013, and every 3 years until 2020. It is thought that the UK is currently meeting, or indeed exceeding, this target; however we currently lack the evidence to reliably demonstrate this.

Moreover, under the EU Waste Statistics Regulation, Defra is required to report biennial statistics demonstrating the generation of waste (by weight) from each sector across the UK, including the CD&E sector. Until now, this responsibility has been met by overarching estimates and high level extrapolations from pre-existing surveys, however this is unlikely to provide the level of detail required by the rWFD for 2020, and does not include recovery data. These combined pressures have generated a genuine and urgent need to better understand the waste generation and management activities of the CD&E sectors through the collation and analysis of robust and detailed data sources¹. We hope that this methodology will provide time series data to monitor progress towards European targets and a baseline methodology for measuring CD&E waste arisings across the UK.

Methodology

The methodology described here is designed to resolve the existing data gap and meet our data reporting needs to the European Commission. It uses existing data sources and adapted methodologies to estimate the amount of waste generated in 2010 by the CD&E sectors. It then applies existing Strategic Forum for Construction (SFfC) landfill estimates to calculate the proportion of this waste that is recovered.

In order to estimate total waste arisings from the sectors, data needs to be gathered on the amount of waste that is sent to four key treatment/disposal routes:

- Waste dealt with by transfer and treatment facilities.
- Waste sent to landfill sites.
- Waste disposed of under exemptions.
- Waste recycled as aggregate.

Assuming that C&D Waste Arisings =

$$\Sigma (\text{Inputs} - \text{Outputs to transfer and treatment facilities}) + \text{Landfilled} + \text{Exemptions} + \text{Aggregate}$$

¹ Previously DCLG (and its predecessor dept's) commissioned regular national surveys into CDEW, however the last of these was in 2005. Since that time, WRAP has commissioned one further survey in 2008, published in 2010.

The weight of waste material dealt with via these four treatment/disposal routes is estimated using different methodologies and different data sources. These are outlined in more detail below. Furthermore, the methods developed enable separate estimates of C&D waste arisings and E waste arisings, in order to meet differing reporting requirements.

Waste dealt with by transfer and treatment facilities

This part of the method is based upon a formula developed by SEPA² which estimates that waste dealt with by transfer/treatment facilities can be accounted for by estimating the total C&D waste received by treatment and transfer stations (chapter 17 inputs) minus the total C&D waste that leaves the treatment and transfer stations (chapter 17 outputs). This methodology has been adapted to include additional waste codes deriving from the sector as identified by SFfC (including parts of chapters 21, 22, 24 and 26).

This method does not account for Chapter 19 wastes (mixed wastes) that have been generated from C&D activities and reclassified as they pass through treatment and transfer stations, but as it deals with arisings only, this omission will not affect the accuracy of the methodology and it avoids double counting waste that has been recoded.

Data sources: Chapter 17 inputs EA site returns
Chapter 17 outputs EA site returns

Waste sent to landfill sites

This method is based on that developed by the SFfC³. It combines existing up-to-date data sources with well developed assumptions. It assumes that the total C&D waste landfilled can be calculated by summing the total CD&E waste sent directly to landfill with the total CD&E waste sent to landfill from transfer and treatment stations (usually recoded as Chapter 19).

The pressing challenge for this methodology is how to estimate that waste which has been sent to landfill from transfer and treatment stations, but has been recoded (as Chapter 19), and so is no longer identified as a Chapter 17 waste. For this purpose, SFfC have developed a methodology to calculate the average proportion of all mixed waste that stems from the C&D sector. This enables a factor to be applied to the mixed waste total in order to estimate the tonnage of Chapter 19 waste that derives from CD&E activities.

Data sources: Landfill inputs EA landfill operator returns

Waste disposed of under exemptions

Since no in-depth data reporting is required for waste disposed of under exemptions, an estimate has been made using WRAP's 2008 estimate and adjusting it for 2009 and 2010 based on the change in construction activity output for these years. All waste dealt with under exemptions is likely to be uncontaminated soil and stones from excavation processes.

² SEPA (2011) 'Detailed methodology for estimating construction and demolition waste arisings in Scotland (2008)'

³ SFfC (2010) 'Measuring CD&E waste to landfill in England – A methodology'
http://www.strategicforum.org.uk/pdf/Waste_report_4_draft_22-3-10V4.pdf

To further complicate matters, Paragraph 9 and 19 exemptions that used to be available to sites dealing with CD&E waste have been replaced by U1 exemptions and Standard Permits. This transition period is likely to cause complications as sites move from Paragraph 9 and 19 exemptions to U1 Exemptions or Standard Permits, but this issue should be resolved and improved data available by the first expected reporting milestone in 2013.

Data sources: Waste disposed under exemptions WRAP 2008 survey
Construction output ONS data adjusted by SFfC

Waste recycled as aggregate

For the purposes of this methodology, aggregate includes soils that are screened and recycled. The Mineral Products Association (MPA) collate data from their members on the generation of recycled or secondary aggregate produced from C&D materials, such as hardcore and crushed bricks and stone. For this reason, MPA figures are used as an estimate of the total aggregate generated from the C&D sector in 2010. This figure includes material that is crushed and reused on site.

The tonnage of screened and recycled soils has been estimated by applying the ratio of recycled aggregate to recycled soils that was obtained during WRAP's 2008 study.

Data sources: Recycled aggregate MPA data
Recycled soils MPA data plus WRAP ratios

Total arisings and the proportion recycled/recovered

By totalling the figures generated from the four calculations above, the total CD&E waste arisings can be estimated.

From the total waste arisings, SFfC estimates for the total CD&E waste landfilled annually can be subtracted. This gives an indication of the amount of waste from the CD&E sectors that is being recovered/recycled annually.

Feedback and acknowledgements

This methodology has been developed in consultation with colleagues in the SFfC Waste Subgroup, SEPA, MPA and others.

We would welcome any comments from users.

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