

REPORT 023

# CD&E WASTE:

Halving Construction, Demolition and Excavation Waste to Landfill by 2012 compared to 2008

2008-2013 Five years of focus on waste – achievements and changes

2014

The 2012 figures for CD&E Waste to Landfill in England  
Prepared by Katherine Adams on behalf of the Greening the Industry Working Group of the Green Construction Board



A contribution to delivering the targets in the joint government and industry Strategy for Sustainable Construction and the ambitions of the Green Construction Board



## **CD&E WASTE: 2008 – 2012 Five years of focus on waste – achievements and changes and the 2012 figures for CD&E Waste to Landfill in England**

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**This report is the final waste focussed output in a series aimed at supporting the delivery of the targets within the Strategy for Sustainable Construction, a joint industry and government strategy published in June 2008 as well as the ambitions of the Green Construction Board.**

More information about the strategy can be found at

<http://webarchive.nationalarchives.gov.uk/+/www.bis.gov.uk/policies/business-sectors/construction/sustainable-construction/strategy-for-sustainable-construction>

This report was prepared by the Waste Subgroup of the Green Construction Board's Greening the Industry Group, and formerly of the Strategic Forum for Construction.

The main author of the report was Katherine Adams of BRE who is the Secretariat of the Waste Subgroup.

[www.strategicforum.org.uk](http://www.strategicforum.org.uk)

[www.greenconstructionboard.org/](http://www.greenconstructionboard.org/)

[www.bre.co.uk](http://www.bre.co.uk)

The report was edited by Peter Johnson of Kier Group plc and Chair of the SFfC/Greening the Industry Waste Subgroup.

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WRAP is backed by government funding and aims to help business and individuals to reap the benefit of reducing waste, develop sustainable products and use resources in an efficient way.

[www.wrap.org.uk](http://www.wrap.org.uk)

The series was initiated by Jane Thornback of the Construction Products Association who is Secretariat for the Greening the Industry Group, one of the working groups of the Green Construction Board and who was Secretariat of the Strategic Forum's Sustainable Construction Task Group.

[www.constructionproducts.org.uk](http://www.constructionproducts.org.uk)

# EXECUTIVE SUMMARY

This report provides details on the activities of the Green Construction Board (GCB) Greening the Industry Group (GIG) Waste Subgroup since its formation in 2009. The Subgroup was established prior to the formation of the GCB by the Strategic Forum for Construction.

The report shows the key trends in construction, demolition and excavation (CD&E) waste to landfill in the 5 year period of 2008 to 2011 and the achievements of the Subgroup and its members. Lessons learnt by the Subgroup are also included as are recommendations for the future in the area of construction resource efficiency.

This report also provides an assessment of the target of 'by 2012, reducing the amount of CD&E waste sent to landfill by 50% against the 2008 baseline'. The Waste Subgroup has responsibility for measuring progress towards meeting this target.

In 2012, the amount of CD&E waste landfilled was 119 tonnes/£ million construction output against the target of 66.5 tonnes of CD&E waste landfilled/£million construction output; in 2011 it was 140 tonnes/£ million construction output. The 2012 target therefore has not been met, largely due to the amount of excavation waste (soils) landfilled. There are a number of reasons for this including the link with excavation waste and construction spend and a change in the Environmental Permitting Regulations.

In absolute terms, the data shows that the amount of CD&E waste sent to landfill has decreased by 12%, from 13.1 million tonnes in 2011 to 11.6 million tonnes in 2012. Comparing 2012 to the baseline year 2008, there has been a 900,000 tonnes reduction of CD&E waste landfilled (7% in absolute terms and 10% in relative terms).

Looking at C&D waste landfilled only (i.e. excluding excavation waste); there has been a 29% reduction from 2008, in relative terms, equivalent to nearly 1.5 million tonnes.

Over the 5 year period, there are some noticeable trends including the amount of CD&E waste entering waste facilities has increased by 12% and the amount of mixed C&D waste entering both landfill and waste facilities has decreased substantially. This suggests that waste is better segregated before entering waste facilities. The amount of CD&E waste landfilled from waste facilities has decreased by 21%, which suggests that improvements have been made in their infrastructure and reprocessing.

Over this period, the construction sector has paid an estimated £1 billion in landfill tax and has saved £144 million from diverting CD&E waste from landfill.

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## I. Introduction

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- I.1 This report outlines the activities and achievements and lessons learnt from the activities of the Waste Subgroup of the Green Construction Board's (GCB) Greening the Industry Working Group. This Subgroup was set up in 2008 by the Strategic Forum for Construction's (SFfC) Sustainable Construction Task Group and has met over 30 times.
- I.2 The report also provides an account of the construction sector's progress on diverting construction, demolition and excavation (CD&E) waste from landfill, highlighting key trends and recommending areas to focus on in the future in order to achieve higher levels of resource efficiency. The 2012 figures for CD&E waste landfilled in England are presented.
- I.3 The successes of the Waste Subgroup over its 5 years of operation is discussed, with a focus on achieving the waste target within the joint government and industry Strategy for Sustainable Construction<sup>1</sup> published in July 2008.
- I.4 The joint Government and industry Strategy for Sustainable Construction presented a number of issues and related targets to achieve higher sustainability levels within the construction sector. Within the construction sector, the government and industry highlighted the amount of CD&E waste that is produced and subsequently landfilled. This led to a number of commitments and an overarching target of

***“By 2012, a 50% reduction of construction, demolition and exaction (CD&E) waste to landfill compared to 2008’. This target excludes aggregates used for backfilling quarries, site restoration or legitimately spread on exempt sites.***

- I.5 The Waste Subgroup was set up by the SFfC, which was the body responsible for measuring, and delivering, against this waste target. The Subgroup comprises of key representatives from across the construction industry, including members of the UK Contractors Group (UKCG), Civil Engineering Contractors Association (CECA), RIBA, the Construction Products Association (CPA) and the National Federation of Demolition Contractors (NFDC). These organisations are in the position to lead and take forward work to meet the above target. Government officials and representatives from the regulatory agencies are also members. Those that have contributed to the Subgroup are listed in Annex A.
- I.6 Much work on improving resource efficiency had already been undertaken by various bodies before the formation of the Waste Subgroup. However, a lot of this work was disparate, with little dialogue between the various parts of the supply chain. This Subgroup has provided a joined up approach for work on CD&E waste across the supply chain.
- I.7 The Waste Subgroup has been supported in its work by research from an expert secretariat provided by BRE. Funding support for the Secretariat has been provided by WRAP.
- I.8 With the formation of the Green Construction Board (GCB), set up by the Coalition Government in 2011, the work to deliver the 2008 Strategy targets has been absorbed. The Board has therefore absorbed the work led by the Strategic Forum's Sustainable Construction Task Group on the Waste target and the Waste Subgroup activities now come within the remit of the Greening the Industry Group of the GCB. The ethos of the 2008 *Strategy for Sustainable Construction* of government and industry jointly working together continues.

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I. BERR (2008) Strategy for Sustainable Construction.

- 1.9 In order to measure progress annually against the target, the Waste Subgroup developed a methodology to produce the baseline. This report includes the outcome of the 2012 target and trends across the 5 years. Annex B provides detailed analysis of the 2012 figures.
- 1.10 Defra have a requirement to report CD&E Waste figures to the European Commission under the Waste Statistics Regulation 2002. Defra's methodology varies slightly and this is presented in Annex C.
- 1.11 An Action Plan<sup>2</sup> to address the action of CD&E waste to landfill was developed by the Waste Subgroup. The Action Plan was launched at an event held in June 2011.
- 1.12 The GCB GIG are pursuing similar work streams on targets relating to the reduction of carbon emissions and water. There are some commonalities between the work streams including the units by which baselines are declared and elements of the construction life-cycle that are included and excluded from consideration.

## 2. Measurement and reporting of CD&E waste to landfill

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### Measurement and baseline

- 2.1 The Environment Agency, as part of their regulatory duties, collect data from licensed waste facilities, and this is the main source of information used to calculate the amount of CD&E waste that was landfilled in England in 2012 and previous years. In analysing this data a number of assumptions were made and these are clearly stated in 'CD&E Waste: Measuring CD&E waste to landfill in England – A Methodology'<sup>3</sup>. Progress against the target has been published annually with the detailed analysis for 2012 presented in Annex B.
- 2.2 The 2008 baseline was developed by the Waste Subgroup in order to determine progress against the 2012 target. The agreed baseline is 133 tonnes of CD&E waste per £ million contractors output at constant (2005) price. This equates to a target of 66.5 of waste per £ million contractors output landfilled in 2012. In absolute terms, the baseline is 12.55 million tonnes of CD&E waste landfilled in 2008.

CD&E Waste to Landfill
2008 Baseline : 133 tonnes of CD&E Waste/£ million construction output
2012 Target: 66.5 tonnes of CD&E Waste/£ million construction output

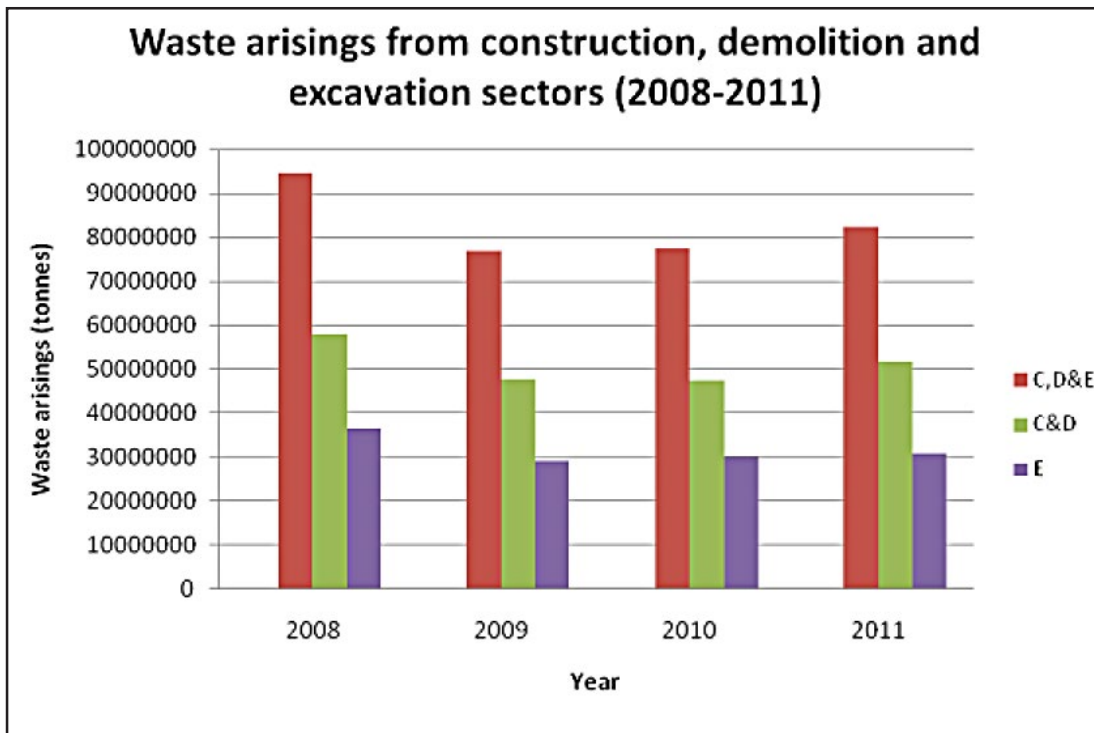
- 2.3 To put the baseline in context, the overall amount of CD&E waste generated in England was approximately 95 million tonnes in 2008; with around 13% of all CD&E waste landfilled. Defra has produced estimates for 2008 to 2011<sup>4</sup> for CD&E waste arisings which are summarised in Figure 1.

2. This report can be found at: <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>

3. This report can be found at: <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>

4. These figures will be available on the [www.gov.uk](http://www.gov.uk) website.

Figure 1: CD&E waste arisings 2008 to 2011



### CD&E Waste to Landfill 2012

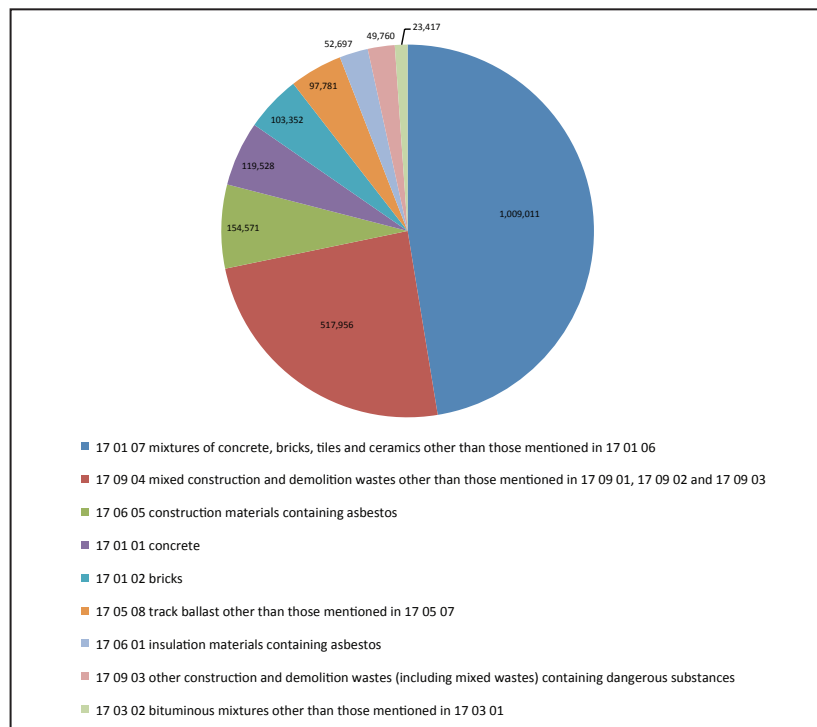
- 2.4 In 2012, the amount of CD&E waste landfilled was 119 tonnes/£ million construction output against the target of 66.5 tonnes of CD&E waste landfilled/£million construction output; in 2011 it was 140 tonnes/£ million construction output. The 2012 target therefore has not been met, largely due to the rise in excavation waste (soils) landfilled.
- 2.5 In absolute terms, the data shows that the amount of CD&E waste sent to landfill has decreased by 12%, from 13.1 million tonnes in 2011 to 11.6 million tonnes in 2012.
- 2.6 For excavation waste only, the amount that is landfilled has increased by 4%, relatively, since 2008, from 82 tonnes/£ million construction output to 85 tonnes/£ million construction output in 2012. Excavation waste has increased by 7% in absolute terms from 2008, with a further over 0.5 million tonnes being landfilled in 2012.
- 2.7 The failure in reaching the target largely lies with the rise in excavation waste landfilled year on year since 2010. The reasons for this rise, were investigated by Capita Symonds, funded by WRAP which resulted in a report<sup>5</sup> listing the key factors:
  - The tonnage of excavation waste arising relative to construction spend will vary according to the type of construction work being undertaken and the proportion of the work that is earthworks. In times of recession new projects are delayed, so the amount of earthworks undertaken falls, and consequently the amount of excavation waste produced.
  - Similarly an increase in construction expenditure linked to new project starts generates a disproportionate increase in earthworks and excavation waste. This effect can be clearly

5. WRAP: Review of the factors causing waste soil to be sent to landfill, 2007 to 2011; report available at: <http://www.wrap.org.uk/content/factors-causing-waste-soil-be-sent-landfill>

seen in the annual tonnage of excavation waste arising from 2007 to 2011 and accounts for a proportion of the increase in excavation waste landfilled without beneficial use in 2010 and 2011.

- Over the same period, the construction industry was adjusting to a new Environmental Permitting regime via transitional arrangements that had been put in place in 2007. During this transitional period, and particularly during 2010, some waste soil which would otherwise have been used on construction sites under waste exemptions was disposed of to landfill.
- 2.8 For construction and demolition (C&D) waste landfilled, there has been a 31% reduction from 2008, in relative terms, equivalent to nearly 1.5 million tonnes. A further 0.9 million tonnes of C&D waste would have to be diverted from landfill in 2012 if the target was solely for C&D waste.
- 2.9 Of the 3.3 million tonnes of C&D waste landfilled, 2.6 million tonnes is 'assumed' (nearly 80%). This is from the waste that is generated from sending CD&E waste to waste facilities and then sent to landfill, but not coded as CD&E waste.
- 2.10 Analysis of the figures by waste type shows that the 'known'<sup>6</sup> amount of C&D waste received<sup>7</sup> at landfill is dominated by concrete, bricks and ceramics, accounting for 60% as shown in Figure 2.
- 2.11 For excavation waste, by far the largest proportion received at landfill, is soils and stones (EWC 17 05 04) at over 90%. The remainder is hazardous soils and dredging spoils.

**Figure 2: Types of known C&D waste received at landfill in 2012**



6. 'Known' CD&E waste is based on the European Waste Catalogue Codes that are identified as originating from construction activities. More information is available in the methodology report, available at: <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>

7. 'Waste received' does not take into account any waste that may be beneficially reused within landfills. More information is available in the methodology report, available at: <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>



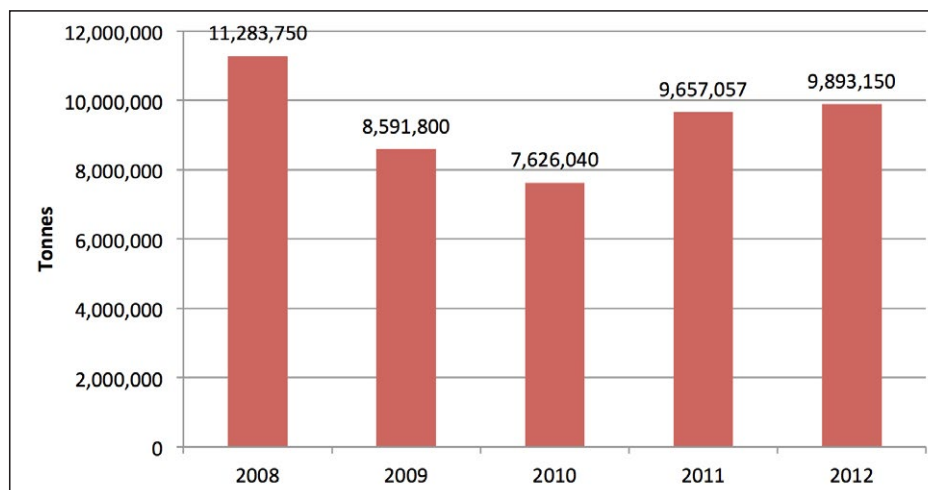
## Analysis over the 5 years

2.12 The data analysis shows that in 2012 there has been a decrease in the amount of CD&E waste disposed of to landfill compared to 2011. An upward trend for CD&E waste landfilled was from 2010 to 2011. 2008 to 2009, saw a decrease in the amount of CD&E waste landfilled.

2.13 5 years of data (2008 – 2012) has been analysed to understand if there are any underlying trends. Key findings are:

- The amount of known CD&E waste received at landfill has decreased by 12%, in relative terms. In absolute terms this is a reduction of 1.1 million tonnes. This part of the methodology does not have any assumptions related to it and as such shows a decreasing trend of CD&E waste being sent to landfill
- The amount of known CD&E waste that is estimated to be beneficially reused within landfills has decreased by 15%, relatively. However this reduction may be partly due to our methodology which uses data from the HM Revenue and Customs (adjusted for England only) for waste that is exempt from Landfill Tax. This data is used as a proxy for determining how much CD&E waste has been beneficially reused<sup>8</sup>. The criteria that determine whether a material is exempt from landfill changed over the years 2008 to 2010, due to the removal of exempt status for materials used in temporary works, such as daily cover or temporary roads and this has affected the figures used to calculate CD&E waste that is beneficially reused. It is not possible to recalculate the HMRC exempt figures for 2008 and 2009 to exclude temporary works, so the original figures stand. Over the 5 years, from 2012 to 2008, there has been a reduction of 1.4 million tonnes of waste beneficially reused, based on our methodology; 12% in absolute terms and 15% in relative terms. Figure 3 shows the estimated amount of waste that is beneficially reused over the 5 year period.

Figure 3: Amount of CD&E waste that is beneficially reused



8. Landfill Tax bulletins available from [http://data.gov.uk/dataset/landfill\\_tax\\_bulletin](http://data.gov.uk/dataset/landfill_tax_bulletin)

- When comparing 2012 with the 2008 baseline year, the amount of all waste that is received at waste transfer stations, waste treatment sites and metal recycling sites has increased considerably (13% in relative terms). The total CD&E waste received has also increased (11% in relative terms). More waste, including CD&E waste is therefore being sent for sorting, than direct to landfill. This coincided with the introduction of the Environmental Permitting regime with more waste entering waste facilities rather than being treated as an exempt activity on site and as such is now being recorded within the dataset. This is largely from the move to standard/bespoke permits for fixed aggregate recycling plants that were previously operating under an exemption and is now being captured within the waste figures.
- Over the 5 year period, the amount of waste sent to landfill (as Chapter 19 codes) from these facilities has decreased by 21%. Of the 26.44 million tonnes of CD&E waste entering these facilities in 2012, only 12% is estimated to be sent to landfill compared to 13% in 2011 and 17% in the baseline year. This indicates that waste entering these facilities may be becoming better sorted at the site of production to aid recovery. Additionally, facilities sorting processes have improved, realising more value from the waste and less sent to landfill.
- There has been a substantial decrease (58%) in the amount of CD&E waste removed from landfill. This is likely to be due to the improved sorting of CD&E waste before it reaches the landfill site and hence there is little opportunity for further reprocessing and is therefore landfilled.

- 2.14 Further analysis has been undertaken on the hazardous amount of CD&E waste landfilled. In 2012, 3% of all CD&E waste landfilled was hazardous, compared to 8% in 2008, a reduction of 5% (390,000 tonnes). Hazardous excavation waste has reduced by 73,000 tonnes over the 5 year period, with 317,000 tonnes landfilled in 2012. Over 290,000 tonnes of C&D waste landfilled was hazardous in 2012, a reduction of 350,000 tonnes from 2008. The proportion of hazardous C&D waste that is landfilled is 9% (down from 11% in 2008). These figures show that the underlying trend for hazardous C&DE waste landfilled is going down.
- 2.15 Analysis has been undertaken on C&D waste only i.e. excluding excavation waste (soils). C&D waste landfilled has decreased by nearly 1.5 million tonnes in the five year period, equivalent to 29%. From 2011 to 2012, there is a reduction of 75,000 tonnes of CD&E waste landfilled, equivalent to 2%. The relative amount of C&D waste landfilled has decreased from a baseline of 50 tonnes/£ million construction output in 2008 and 37 tonnes/£ million construction output in 2011, to 34 tonnes/£ million construction output in 2012. This represents a decrease of 29% when comparing 2012 to 2008, or 2% when comparing 2012 to 2011. These figures show that the underlying trend for C&D waste landfilled is a decreasing one. If the target had been set for C&D waste only, it would have been 25 tonnes/£million construction output of C&D waste landfilled; to reach this target a further 0.9 million tonnes would have had to be diverted from landfill..
- 2.16 There has been a significant reduction for a number of C&D waste types landfilled; examples include:
- Concrete and mixtures of (EWC 17 01) has decreased by 500,000 tonnes (from 1.7 million tonnes to 1.2 million tonnes). A proportion of this will be beneficially reused.
  - The amount of wood landfilled (as EWC 17 02 01) has dropped by 90% from 48,000 tonnes to 5000 tonnes.
  - Mixed C&D waste (EWC 17 09 04) landfilled has reduced from 1.2 million tonnes to 500,000 tonnes.

- 2.17 For C&D waste entering waste transfer stations and treatment facilities, a number of trends are shown:
- More concrete waste has entered these facilities, up from 3.7 million tonnes to 5.5 million tonnes.
  - Mixed C&D waste has decreased by 1.5 million tonnes down from 8.7 million tonnes to 7.2 million tonnes, even though more waste is being sent to these facilities. This therefore illustrates that more waste is being segregated before being sent to a transfer station.
- 2.18 The industry continues to pay a considerable amount of landfill tax annually. In 2012, this amounted to an estimated £235 million, equivalent to a fifth of all landfill tax receipts and 0.24% of construction output. In 2008 this was around £200 million. Over the 5 year period, the landfill tax for the CD&E waste landfilled is estimated to be at £1 billion.
- 2.19 The industry has made considerable savings by diverting CD&E waste landfill over the 5 year period. This equates to £144 million of landfill tax (using the higher rate of landfill tax).

<b>Highlights (2008 to 2012)</b>
There has been a 29% reduction in the amount of C&D waste landfilled
The proportion of CD&E waste landfilled that is hazardous has decreased to 5%
The total amount of CD&E waste entering waste facilities has increased by 12%
The amount of mixed C&D waste entering both landfill and waste facilities has decreased substantially
The amount of CD&E waste landfilled from waste facilities has decreased by 21%
The construction sector has paid an estimated £1 billion in landfill tax from 2008 to 2012 but has saved £144 million from diverting CD&E waste from landfill

### 3. Activities/achievements of the Waste Subgroup

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- 3.1 Since its inception in 2000, the Waste Subgroup has undertaken a number of activities, several of which have achieved the following.
- 3.2 An Action Plan<sup>9</sup> was published in 2010 by the Subgroup to assist the industry in diverting CD&E waste from landfill. This identified a number of challenges that required action by all members of the construction supply chain. Progress achieved by these actions was published in the 2011 CD&E waste data report<sup>10</sup>. and include:
- Working with appropriate client bodies, WRAP ensured that over £40 billion of construction projects have incorporated requirements for waste reduction in client tender and/or contract documents
  - Through working with the Subgroup, Defra now has an agreed methodology for determining CD&E waste arisings, which must be reported to the EU on a biannual basis
  - Overlay to the RIBA Outline Plan of Work<sup>11</sup>, published in November 2012 includes references to Designing Out Waste principles
  - WRAP have developed a Briefing Note on Reusable Packaging in Construction<sup>12</sup>
  - With the National Specialist Construction Contractors (NSCC), WRAP have produced a number of trade specific information sheets on waste management, measurement and reporting<sup>13</sup>
  - The UK Contractors Group (UKCG) and WRAP have produced a tool<sup>14</sup> to estimate the carbon impact of CD&E waste
  - The National Federation of Demolition Contractors (NFDC) has produced a guide for their members on environmental permitting<sup>15</sup>
  - The first part of the BS 8895 standard on 'Designing for Material Efficiency in Buildings'<sup>16</sup> has been published with assistance from the Subgroup
- 3.3 The Subgroup has promoted its activities through a number of channels. There have been a number of events, including the launch of the 2008 baseline and associated methodology in March 2010, attended by over 60 key members of the construction industry. Presentations on the Group's activities and the CD&E waste figures have been given at Ecobuild in 2010, WRAP's Halving Waste to Landfill Signatory event in 2011 and at a number of forums/groups e.g. the Construction Products Association Resource Efficiency Group.

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9. The Action Plan is available at: <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>

10. Report is available at: <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>

11. The Green Overlay is available free here: <http://www.ribabookshops.com/uploads/9a0204f4-8775-d644-c9d1-b2d508c5924b.pdf>

12. <http://www.wrap.org.uk/sites/files/wrap/RTP%20briefing%20note%20for%20suppliers%20-%20Final.pdf>

13. <http://www.wrap.org.uk/content/reducing-waste-site>

14. <http://www.wrap.org.uk/content/carbon-calculator-construction-and-demolition-waste-0>

15. [http://demolition-nfdc.com/files/en/group/download/file/11\\_nfdc\\_wasteguidance2012digital.pdf](http://demolition-nfdc.com/files/en/group/download/file/11_nfdc_wasteguidance2012digital.pdf)

16. <http://shop.bsigroup.com/ProductDetail/?pid=00000000030258602>

- 3.4 In 2012, the Subgroup helped to produce a number of waste 'top tips' for the Green Construction Board for Ecobuild<sup>17</sup>. Others were produced for carbon, water, materials and biodiversity. These 'top tips' are useful pointers for industry to consider in a clear and concise way. They have been incorporated into a number of company's guidance and training material, including Kier (a member of the Subgroup).

## ACT ON [WASTE]

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- 1 ] PLAN WORKS TO MINIMISE WASTE**  
Avoid late changes to design and plan all works to minimise waste from the start of the construction process. Poor coordination and late design changes are major contributors to waste on projects.
- 2 ] DESIGN OUT WASTE**  
Choose solutions that generate less waste and design assets that can be dismantled. Avoid over-ordering and enable reuse.
- 3 ] OPTIMISE PACKAGING**  
Only use as much packaging as is required to protect the product. Use materials that can be recycled and reuse pallets.
- 4 ] PUT WASTE TO GOOD USE**  
Re-think waste. Prioritise reuse and recycling and avoid landfill.

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- 3.5 One of the key successes of the Subgroup has been its ability to have a focus across the supply chain with appropriate representation. This is an important issue for waste, as CD&E waste generated in one part of the supply chain may be a result of a decision taken by another part of the supply chain e.g. packaging.
- 3.6 The Subgroup has also benefited from active participation of Government and their bodies, particularly Defra, Environment Agency and WRAP. This has led to informed discussions on waste policy, legislation and interpretation of legislation and has widened the understanding of both industry's and Government viewpoints. The Group have also supplied evidence and advice into various Government consultations on waste.
- 3.7 Members of the Group have achieved their own successes and much progress on construction resource efficiency, with support from the Subgroup; these include but aren't limited to:
- Resource efficiency action plans (REAPs)<sup>18</sup> – the Construction Products Association originally initiated these plans which focus on a particular product or sector and involve the supply chain working together to agree actions for improved resource efficiency. They are usually led by the appropriate manufacturer trade body. To date, 10 have been produced, in areas such as windows, flooring, building foam insulation and precast and ready mix concrete. Members of the Subgroup are actively involved with a number of the REAP's.

17. <http://www.greenconstructionboard.org/index.php/resources/top-tips>

18. <http://www.wrap.org.uk/content/resource-efficiency-action-plans>

- The National Federation of Demolition Contractors (NFDC) have developed 'Demolition and Refurbishment Information Sheets' (DRIDS)<sup>19</sup>, which highlight how materials should be handled at the end of life and their waste management options.
- The UKCG members are committed to measuring their waste arising's and disposal and in 2012, diverted 91% of C&D waste away from landfill
- Over 800 signatories to WRAP's halving waste to landfill commitment
- The SKA rating system for non-domestic fit outs covers waste minimisation with a focus on wastes such as plasterboard than can be difficult to recover

3.8 The Subgroup has also worked with other SFfC Subgroups. CD&E waste data has been supplied to the Carbon Subgroup, so they can understand the amount of CO<sub>2</sub>e that is generated from the transportation of CD&E waste.

<b>Key achievements</b>
• A methodology to record how much CD&E waste is sent to landfill
• Annual reporting on CD&E waste to landfill
• An Action Plan for all parts of the supply chain to reduce CD&E waste to landfill
• Top tips for waste
• Many success for members including: <ul style="list-style-type: none"> <li>o 10 Resource Efficiency Action Plans</li> <li>o Demolition and Refurbishment Information Datasheets</li> <li>o BS Standard for Designing out Waste</li> </ul>
• Over 800 signatories to Halving Waste to Landfill Commitment

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<sup>19</sup>. <http://demolition-nfdc.com/page/drids.html>

## 4. Lessons Learnt

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Through its activities in the last 5 years, the Subgroup has generated a numbers of 'lessons learnt' to aid in achieving higher levels of material resource efficiency in the construction sector. Linked to this are the challenges that the sector faces for resource efficiency which were developed for the Action Plan in 2011. These lessons learnt include:

**Excavation waste** – excavation waste should not have been included in the 2012 target and instead considered separately, as there are distinct drivers for its arising and management. As such a high tonnage of excavation waste is landfilled, the Waste Subgroup's focus inevitably shifted towards this, which distracted the Subgroup from other waste materials which have a higher environmental impact. However by including it, our knowledge of excavation waste and how it is managed has improved substantially.

**The importance of data** – before the existence of the Subgroup there was little knowledge and understanding of the amount and types of CD&E waste going to landfill with disparate datasets used. By developing a robust measurement methodology, there is now greater clarity on what waste is landfilled, the role of waste facilities, the effect of Government policies and which types of waste should be a priority. It has also provided organisations such as the UKCG with the impetus of requiring their members to report on waste which has resulted in the majority of their C&D waste diverted from landfill.

**Supply chain focus** – a key challenge identified by the Subgroup is the lack of communication and collaboration across the supply chain. However, where there is better dialogue and understanding, improvements can still be made. For example, in the last 5 years, the waste management industry has improved the way it manages construction waste, leading to higher recovery rates. This has been partly a result of dialogue between the construction sector and their waste contractors. Other examples include greater use of schemes developed to divert specific waste streams from landfill, such as the National Community Wood Recycling Project (NCWRP). Kier, working in partnership with the NCWRP, has diverted nearly 2000 tonnes of waste wood from its sites from landfill, with 40% of the wood being reused.

There has also been innovation across the supply chain, some of this has been driven by the sector Resource Efficiency Action Plans (REAPs) and includes the development of take back schemes for surplus or waste materials (e.g. ceiling tiles) and increased use of returnable packaging for construction products.

**Enlighten clients** – the Waste Subgroup has had only limited success in engaging with private construction clients. However, when clients are involved, major improvements in material resource efficiency can be achieved. Engagements with clients' needs to focus on the business case i.e. the savings and efficiencies gained through diverting waste from landfill and reducing the amount of waste produced. Case studies<sup>20</sup> from WRAP show that on average 0.4% of project costs can be saved through waste reduction alone.

**Design requirements** – it is imperative to engage with designers for better material resource efficiency outcomes. To do this, it is important to communicate to the design world in a manner that relates to them; the amount of CD&E waste landfilled has little meaning or traction. Issues more familiar to the design world, such as the optimisation of materials, avoiding over-specification and consideration of the lifespan of products, which are all part of improving resource efficiency, are likely to resonate more so.

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20. <http://www.wrap.org.uk/content/business-case-reducing-waste-during-construction-1>

**Halving waste to landfill initiative** – this commitment led by WRAP was highly successful, with 800 signatories participating in the initiative. It was a simple message to communicate enabling companies to understand it without difficulty. It provided a focus for companies/organisations to set targets in identifying and implementing solutions to reduce waste being sent to landfill and work together across their supply chains.

<b>Action Plan Challenges for Material Resource Efficiency</b>
• The need to provide good quality information on the amounts of CD&E waste produced and where it goes
• Insufficient awareness of the benefits of resource efficiency
• Lack of communication and collaboration between supply chain members
• The procurement process does not encourage or reward waste reduction
• Failure to identify opportunities for reducing waste at the design stage
• Opportunities missed for reducing the amount of waste created in the first place
• Legislative hurdles preventing the easy reuse of soils and stones
• Insufficient attention by product manufacturers on resource efficiency
• Poor storage and handling of materials contributes to waste generation
• Lack of adequate end markets for certain waste materials
• Lack of sufficient waste management infrastructure
• SMEs not sufficiently aware of the role they can play in waste reduction



## 5. Recommendations for future

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5.1 Based on the work that has been undertaken by the Waste Subgroup, the achievements (e.g. the reduction of C&D waste to landfill) and the failures (e.g. the rise of excavation waste landfilled), a number of recommendations are made for the future. These are discussed in turn:

- **Towards ‘Zero Waste Construction’** – over the last 5 years, there has been much improvement in diverting C&D waste from landfill. Whilst this continues to be important, the focus should now switch to ‘waste reduction’ (including reuse). This is where greater environmental and cost savings can be made. To support this, there needs to be more engagement higher up the supply chain and a better understanding of the causes of waste and how they can be overcome. The level of ambition of the construction industry in this arena needs to be established. Just how close can we get to zero waste construction?
- **Continuation of data analysis** – the significance of obtaining accurate data cannot be underestimated. Whilst we now have a good understanding of the amount of CD&E waste landfilled, we have less knowledge of waste arisings, the causes of waste and their environmental impact. Better data in these areas will help drive waste reduction.
- **Better ways of communicating and sharing of information** – the ways we communicate are changing, with digital communication and exchange of “bite-size” increasing all the time. To actively engage with the design community and others, we need to relay material resource efficiency messages in a sharp, quick and effective manner. An example of this working effectively is the Top Tips campaign.
- **Design for resource efficiency** – over the last few years, the term resource efficiency has often been widened out to incorporate other issues such as water use, embodied carbon, durability etc. Waste cannot be viewed in isolation to these other issues and as such considering waste within the whole context of resource efficiency is required.
- **Carbon savings focus** – little work has been undertaken on establishing the carbon savings through better material resource efficiency. However it is a key driver for both Government and industry and more information is now available on the environmental impacts of products and waste management routes. This will enable the industry to focus attention on where the greatest savings can be made.
- **The circular economy** – recently the ‘circular economy’ thinking has come to the fore. It is essentially, doing more with less, whether it be through utilising resources for longer, ensuring that they are kept within the construction loop and that their value is maintained. The construction sector needs to look at embracing the circular economy which, means looking at construction and product lifecycles and different ways of working e.g. providing services rather than products.
- **The business imperative** – a question that should be asked, is why does waste persist? The cost of waste still has to be addressed and the industry needs going forward in a climate of fewer and more expensive resources, rising prices and global competition.

5.2 In addition, it is recommended, that a number of actions identified within the Action Plan are taken forward as they are still relevant.

#### Recommended Actions from the Action Plan to take forward

- Look to obtain better data on CD&E arisings through development of an appropriate mechanism
- Manufacturing industry to continue to look to develop new resource efficiency action plans considered relevant/useful
- Undertake pre-demolition audits and adopt best practice as a result of client requirements
- Encourage reclamation and salvage, where appropriate, by working with appropriate bodies and developing guidance.
- Develop best practice guidance for correct handling of materials to avoid breakage and damage
- Establish better relationships with the waste management industry to assist in continuation of waste diversion from landfill

5.3 The Waste Subgroup was set up in 2008 to deliver on the 2012 target included in the 2008 Strategy for a Sustainable Construction, and with the 2012 reporting now complete, the project that supported the secretariat and the Subgroup has concluded and the group set up for the purposes of the 2012 Halving Waste to Landfill target has disbanded. Going forward, it is the recommendation of the Subgroup that the Green Construction Board, through its Greening the Industry Working Group, continues to facilitate supply chain integration to ensure that steps are taken to eliminate waste and improve resource efficiency across the entire construction sector. *Construction 2025, the Industrial Strategy for Construction*<sup>21</sup>, includes in its actions for businesses to commit to voluntary resource efficiency agreements, supported by WRAP.

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21. Available at: <https://www.gov.uk/government/publications/construction-2025-strategy>

**Annex A: Table of contributors**

**Annex B: 2012 Figures for CD&E waste landfilled in England**

**Annex C: Defra - CD&E waste landfilled in England**

## 6. Annex A: Table of Contributors

The table below lists those that have been members of the Subgroup and have given their valuable time and input.

Name	Organisation
Katherine Adams (Secretariat) Gilli Hobbs (Secretariat)	<b>BRE</b>
Peter Kelly (Sir Robert McAlpine) Caroline Hutson	<b>Civil Engineering Contractors Association</b>
Jane Thornback (Secretariat for Greening the Industry Group) Rod Leigh (Saint Gobain) Steve Millward (ex Jewson)	<b>Construction Products Association</b>
Christian Wadey Paul Bleazard Jim Holding Robin Karfoot Karim Mirtha Andrew Gregory	<b>Defra</b>
Martin Fodor (left EA) Graham Winter	<b>Environment Agency</b>
Howard Button John Harris (John F Hunt)	<b>National Federation of Demolition Contractors (NFDC)</b>
Scott McLew	<b>National Specialist Contractors Council (NSCC)</b>
Anne Dye Mark Elton James Chambers (Powell Dobson) Mohamed Osmani (Loughborough University/ BSI)	<b>RIBA</b>
Elina Grigoriou (Grigoriou Interiors)	<b>SKA</b>
Peter Johnson (Chair) (Kier) Charlie Law (BAM Construct UK) Chris Hayes (Skanska) Paul Toyne (Balfour Beatty)	<b>UKCG</b>
John Barritt (left WRAP) Mike Watson (left WRAP) Richard Buckingham Gareth Brown Mike Falconer Hall (left WRAP)	<b>WRAP</b>

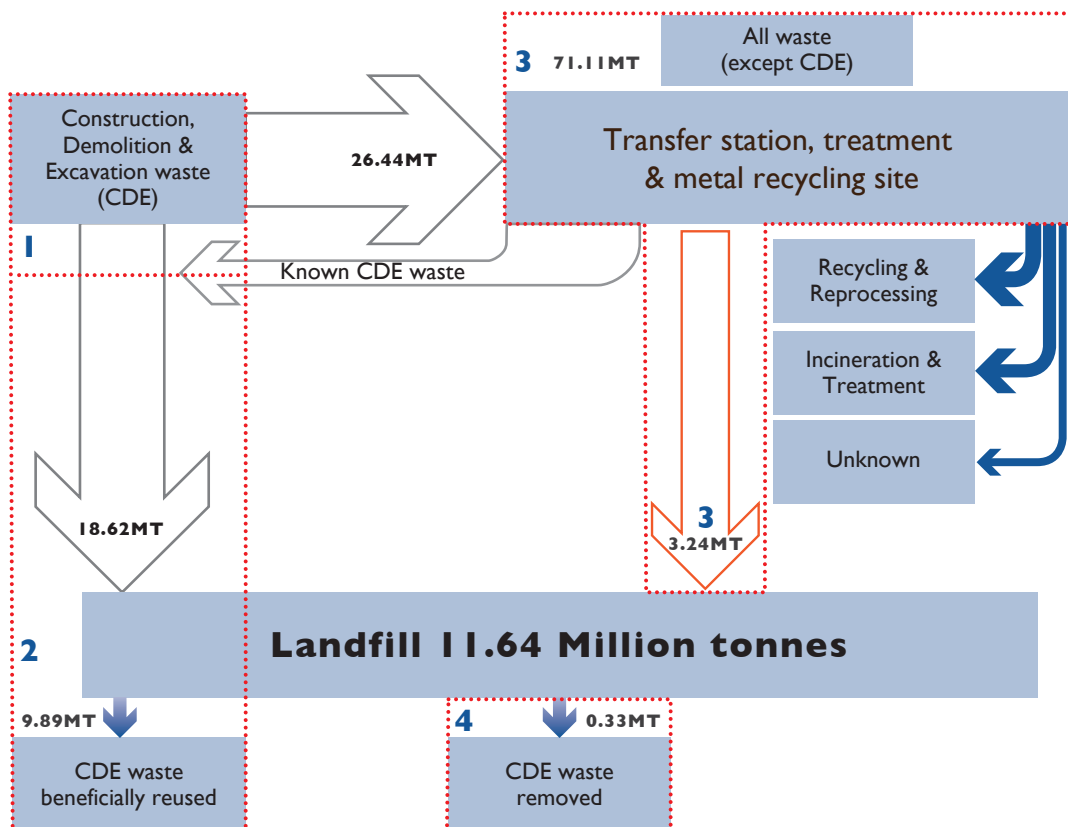
## 7. Annex B: CD&E waste landfilled in England 2012 Figures

- 7.1 This Annex presents the amount of construction, demolition and excavation (CD&E) waste landfilled in England in 2012 against the Strategy for Sustainable Construction target to reduce the amount of CD&E waste sent to landfill by 50%, against the 2008 baseline. The Government's Green Construction Board Greening the Industry Group has taken over from the Strategic Forum for Construction as the body responsible for measuring progress towards meeting this target.
- 7.2 The figures presented are calculated using the methodology which was published in March 2010 in the Report: 'CD&E Waste: Measuring CD&E waste to landfill in England – A Methodology'<sup>22</sup>.

### The 2012 figures

- 7.3 The 2012 figures for the amount of CD&E waste sent to landfill are summarised in the flowchart on Figure B1. These are absolute figures. The tonnages are highlighted in bold.

Figure B1: Methodology and results for CD&E waste to landfill in England for 2012



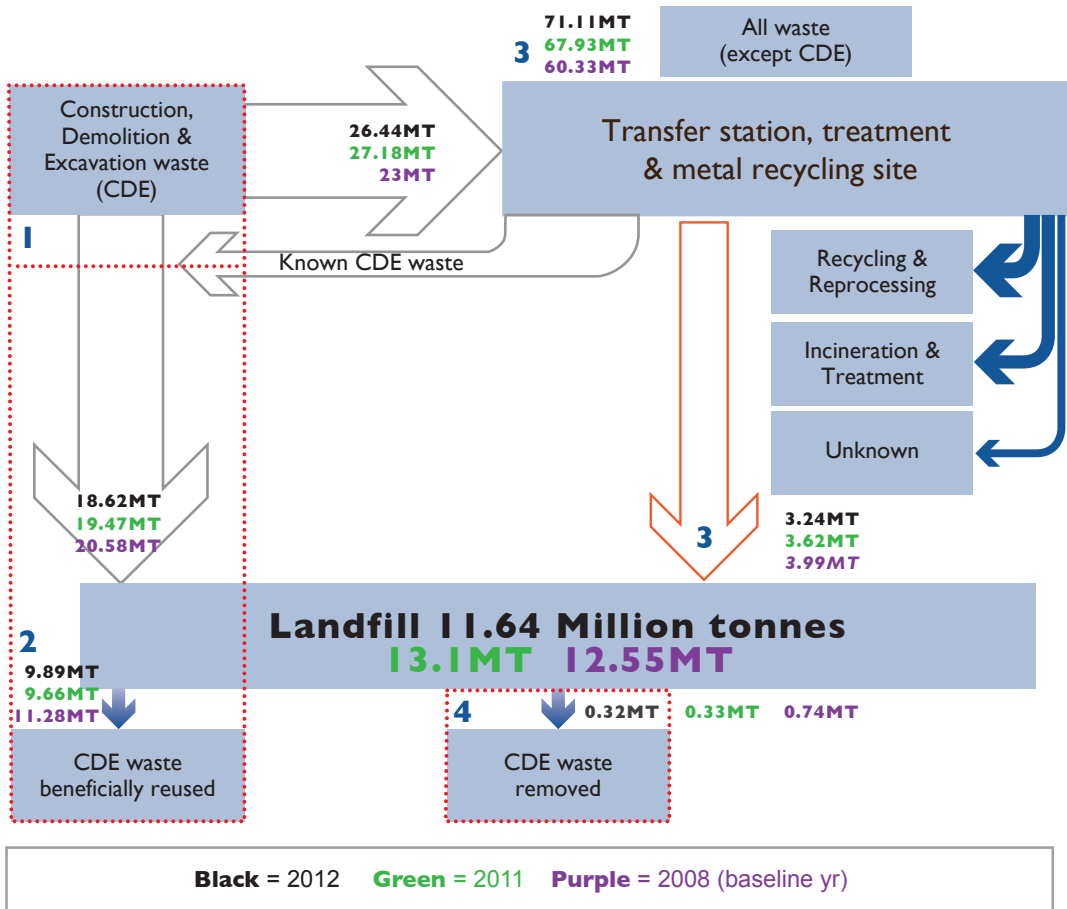
22. <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>

Section		Million tonnes
1	The data source and defining CD&E waste to landfill	n/a
2	Known classified CD&E waste received at landfilled CD&E waste assumed to be beneficially reused within landfill	18.62 9.89
3	CD&E waste landfilled from waste transfer stations, treatment plants and metal recycling sites, determined in accordance with 'CD&E Waste: Measuring CD&E waste to landfill in England – A Methodology' <sup>22</sup>	3.24
4	CD&E waste that is removed from landfill	0.32

- 7.4 The amount of CD&E waste landfilled in England for 2012 in absolute terms is 11.64 million tonnes. In relative terms, this is equivalent to 119 tonnes/£ million of construction output for 2012 in England<sup>23</sup>.
- 7.5 Figure B2 shows a more detailed comparison of the 2012 figures with the 2008 baseline figures, which are shown in purple. Overall, the amount of CD&E waste landfilled in England, in 2012, has decreased in absolute terms by 900,000 tonnes from the baseline year of 2008, equivalent to a decrease of 7%. The overall amount of CD&E waste entering waste facilities has increased by 15%, whereas all waste entering waste facilities has increased by 17%.
- 7.6 Figure B2 also shows the comparison of 2012 with 2011. Overall, the amount of CD&E waste landfilled in England, in 2012, has decreased in absolute terms by 1.5 million tonnes from 2011, equivalent to a decrease of 12%. When undertaking the same comparison in relative terms, there is a decrease of 15%.
- 7.7 In addition, when compared to the 2011 data, the overall amount of CD&E waste entering waste transfer/treatment facilities has decreased by 3% and all waste entering these facilities has increased (by 2%). At the same time the total for CD&E waste entering landfill, including that going for beneficial use in engineering and restoration has decreased by 0.85 million tonnes (5%).

23. The construction output figures have been derived from the Office of National Statistics Construction Output Data (November 2013) and produced by Noble Francis of the Construction Products Association

Figure B2: Comparison of 2012 tonnages of CD&E waste sent to landfill with 2011 and the 2008 baseline.



Section		Million Tonnes			Absolute change <sup>24</sup> 2012 to 2011	Absolute change 2012 to 2008	Relative change <sup>25</sup> 2012 to 2011	Relative change 2012 to 2008
		2008 (baseline)	2011	2012				
<b>1</b>	The data source and defining CD&E waste to landfill	n/a	n/a/	n/a	n/a	n/a	n/a	n/a
<b>2</b>	Known classified CD&E waste received at landfilled	20.58	19.47	18.62	-5	-10	-8	-12
	CD&E waste assumed to beneficially reused within landfill	11.28	9.66	9.89	2	-12	-2	-15
<b>3</b>	CD&E waste landfilled from waste transfer stations, treatment plants and metal recycling sites, determined in accordance with 'CD&E Waste: Measuring CD&E waste to landfill in England – A Methodology' <sup>26</sup>	3.99	3.62	3.24	-12	-19	-14	-8
<b>4</b>	CD&E waste that is removed from landfill	0.74	0.33	0.32	-4	-57	-8	-55
	<b>CD&amp;E waste landfilled</b>	<b>12.55</b>	<b>13.09</b>	<b>11.64</b>	<b>-12</b>	<b>-7</b>	<b>-15</b>	<b>-10</b>

24/25/26

24. The absolute change is based on the % difference from year to year based on the tonnage figures

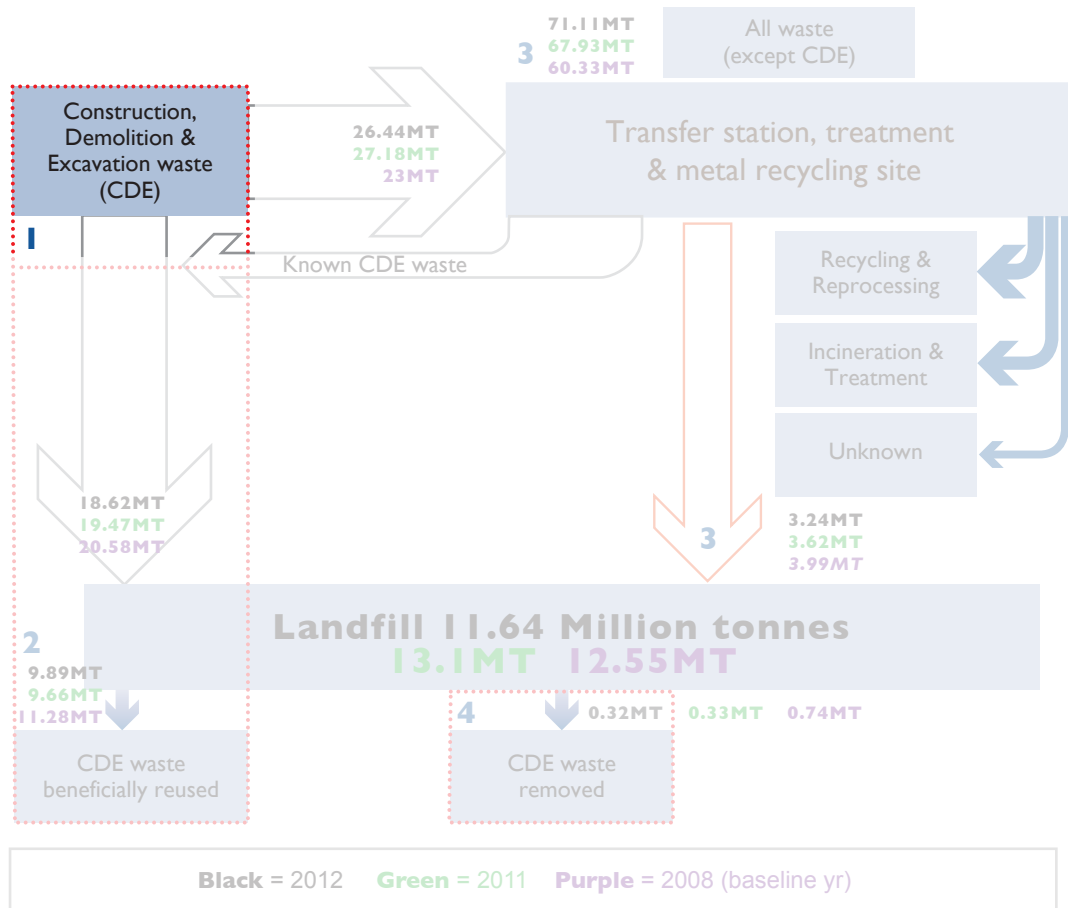
25. The relative change is based on the % difference from year to year based on the tonnage figures/£ million construction output

26. This report can be found at: <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>



## Numerical Analysis of the 2012 figures

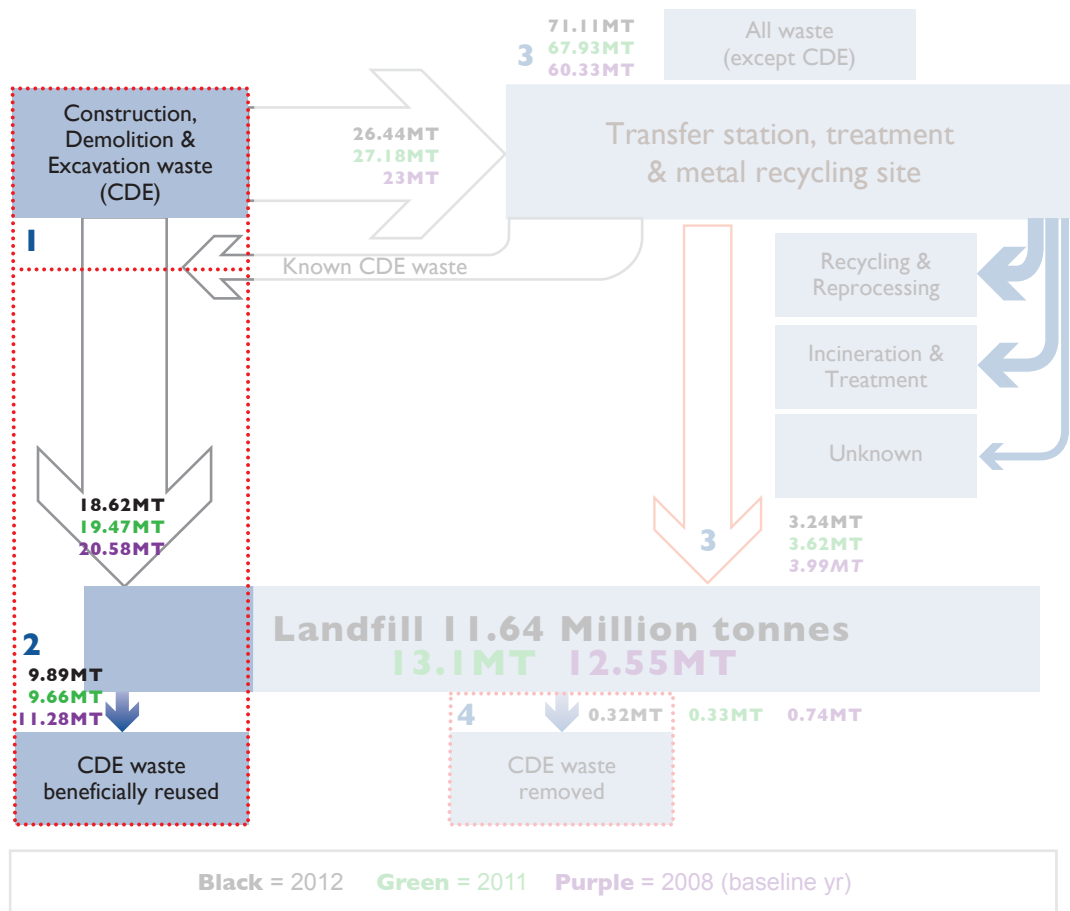
### Section I: The data source and defining CD&E waste



- 7.8 The Environment Agency's "operator waste site returns", containing information on the type and amount (in tonnes) of waste received, is the primary set of data used. This information is summarised in the Waste Data Interrogator 2012, which was provided by the Environment Agency.
- 7.9 The definition of CD&E waste, together with the relevant waste codes to be used, was agreed by the Waste Subgroup. All controlled waste in the UK is required to be coded against an appropriate code (six digits) within the List of Waste Regulations 2005<sup>27</sup>. The codes used are those in Chapter 17: 'construction and demolition wastes (including excavated soil from contaminated sites)' and certain codes from the UK list including: Chapter 21: Inert, Chapter 22: General and biodegradable, Chapter 24: Contaminated general waste and Chapter 26: Asbestos.

27. List of Waste (England) Regulations 2005; SI 2005 No 895; available on: <http://www.opsi.gov.uk/si/si2005/20050895.htm>

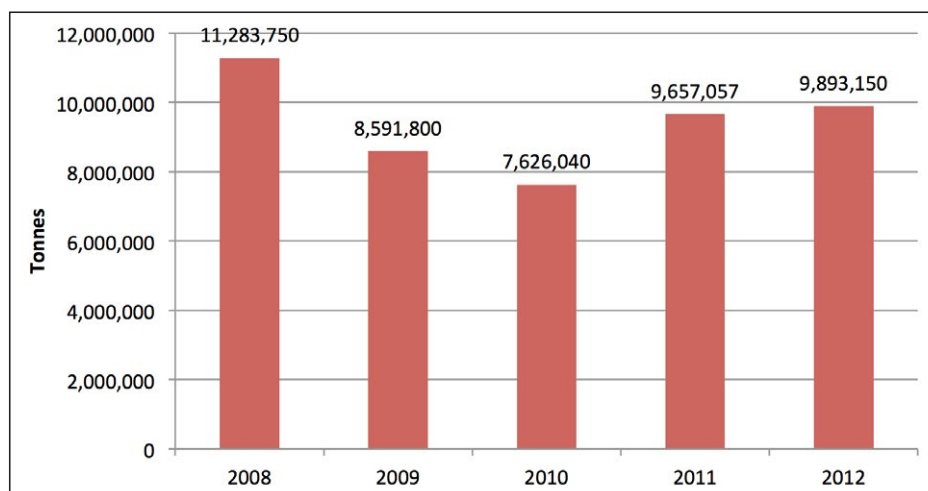
## Section 2: Known classified CD&E waste received at landfill and beneficially reused



- 7.10 The amount of known CD&E waste received at landfill in 2012 was 18.62 million tonnes, compared to 20.58 million tonnes in 2008. In absolute terms this is a decrease of 10%; relatively, (using construction output) it is a 12% decrease. Compared to 2011, the amount of known CD&E waste received at landfill decreased by 0.8 million tonnes. A proportion of this waste will be beneficially reused for landfill engineering and restoration purposes and is not actually landfilled as a waste.
- 7.11 Data from the HM Revenue and Customs (adjusted for England only) on waste that is exempt from Landfill Tax is used as a proxy for determining how much CD&E waste has been beneficially reused<sup>28</sup>. The criteria that determine whether a material is exempt from landfill changed over the years 2008 to 2010, and this has affected the figures used to calculate CD&E waste that is beneficially reused. Over the 5 years, from 2012 to 2008, there has been a reduction of 1.4 million tonnes of waste beneficially reused; 12% in absolute terms and 15% in relative terms. Figure B3 shows the total tonnage of CD&E waste beneficially reused by year. The proportion of known CD&E waste that is beneficially reused, over the same period has decreased by 5% (in 2008 it was 55% dropping to 53% in 2012). This change is thought to be due to the removal of exempt status for materials used in temporary works, such as daily cover or temporary roads which took place in 2010. It is not possible to recalculate the HMRC exempt figures for 2008 & 2009 to exclude temporary works, so the original figures stand.

28. Landfill Tax bulletins available from [http://data.gov.uk/dataset/landfill\\_tax\\_bulletin](http://data.gov.uk/dataset/landfill_tax_bulletin)

Figure B3: Absolute change in the CD&E waste beneficially reused.



7.12 The amount of known CD&E waste landfilled as a waste in 2012 was 8.72 million tonnes, compared to 2011 at 9.81 million tonnes, and 9.3 million tonnes in 2008. This is summarised in the following table.

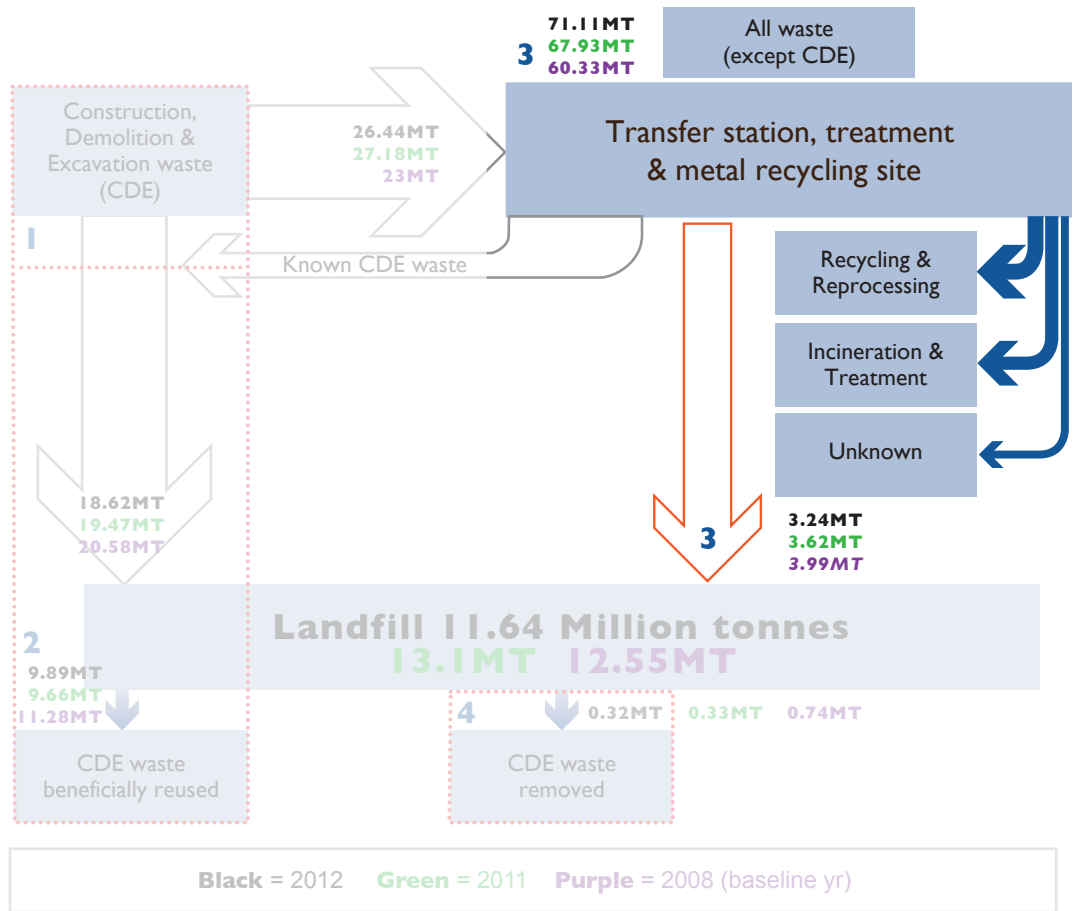
	Million Tonnes			Absolute change <sup>29</sup> 2012 to 2011	Absolute change 2012 to 2008	Relative change <sup>30</sup> 2012 to 2011	Relative change 2012 to 2008
	2008 (baseline)	2011	2012				
Known classified CD&E waste received at landfill	20.58	19.47	18.62	-5	-10	-8	-12
Known CD&E waste that is assumed to be beneficially reused within the landfill	11.28	9.67	9.89	2	-12	-2	-15
<b>Known CD&amp;E waste landfilled</b>	<b>9.30</b>	<b>9.81</b>	<b>8.72</b>	<b>-12</b>	<b>-6</b>	<b>-15</b>	<b>-11</b>

17/30

29. The absolute change is based on the % difference from year to year based on the tonnage figures

30. The relative change is based on the % difference from year to year based on the tonnage figures/£ million construction output

### Section 3: Assumed CD&E waste received at landfill from waste transfer stations, treatment plants and metal recycling sites



7.13 Some CD&E waste that is sent to a waste transfer station, a treatment plant or a metal recycling site may, after sorting and recovery, be sent to landfill. Some of this will be included in the figures presented in Section 2, as it is coded as CD&E waste. However, some of this waste may not be coded as CD&E even though it has originated from a construction process. It may be coded as Chapter 19: Waste and Water Treatment Works (which is waste arising from the sorting/recovery process). In order to estimate the amount of CD&E waste received at landfill from these facilities, a methodology based on the proportion of CD&E waste entering these facilities is used.

7.14 The amount of CD&E waste sent to waste transfer stations, treatment plants and metal recycling sites was 26.44 million tonnes in 2012 from a total of 97.55 million tonnes for all types of waste, which equates to 27.1%. This percentage has been applied to estimate the proportion of waste that is received at landfill (as a Chapter 19 code: Waste and Water Treatment Works), some of which may be CD&E waste. This accounts for 2.04 million tonnes. In addition, there are some waste types coded under Chapter 19, which are identifiable as originating from CD&E waste. These account for 1.2 million tonnes received to landfill. This is summarised in the table below.

	Million Tonnes			Absolute change <sup>31</sup> 2012 to 2011	Absolute change 2012 to 2008	Relative change <sup>32</sup> 2012 to 2011	Relative change 2012 to 2008
	2008 (baseline)	2011	2012				
All waste received at waste transfer stations, treatment and metal recycling sites	83.33	95.11	97.56	2	17	-2	13
Total CD&E waste received at waste transfer stations, treatment and metal recycling sites	23.00	27.18	26.44	-3	15	-7	11
% proportion of waste at waste transfer stations, treatment and metal recycling sites that is CD&E waste	27.6	28.6	27.1	-6	-2		
Waste from waste transfer stations, treatment and metal recycling sites that is received at landfill (Chapter 19)	11.08	8.50	7.54	-13	-32	-15	-34
Amount of Chapter 19 that is estimated to be CD&E waste	3.06	2.43	2.04	-19	-33	-19	-35
Amount of Chapter 19 that is known to be CD&E Waste	0.93	1.19	1.2	1	29	-4	25
CD&E waste that is received at landfill from waste transfer stations, treatment and metal recycling sites determined in accordance with 'CD&E Waste: Measuring CD&E waste to landfill in England – A Methodology' <sup>33</sup>	3.99	3.62	3.24	-12	-19	-14	-21

01 | 02 | 03

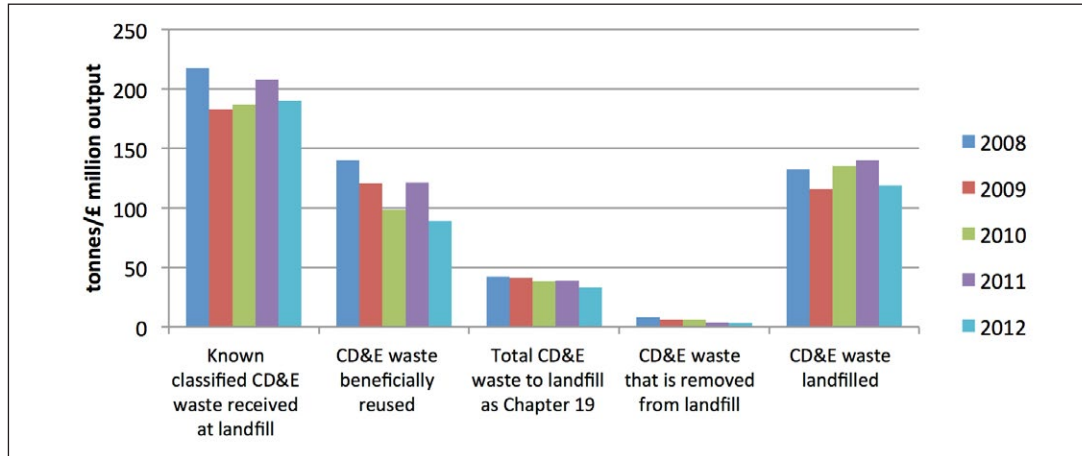
31. The absolute change is based on the % difference from year to year based on the tonnage figures

32. The relative change is based on the % difference from year to year based on the tonnage figures/£ million construction output

33. This report can be found at <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>

Figure B4 illustrates the changes (relative to construction output) for the five years.

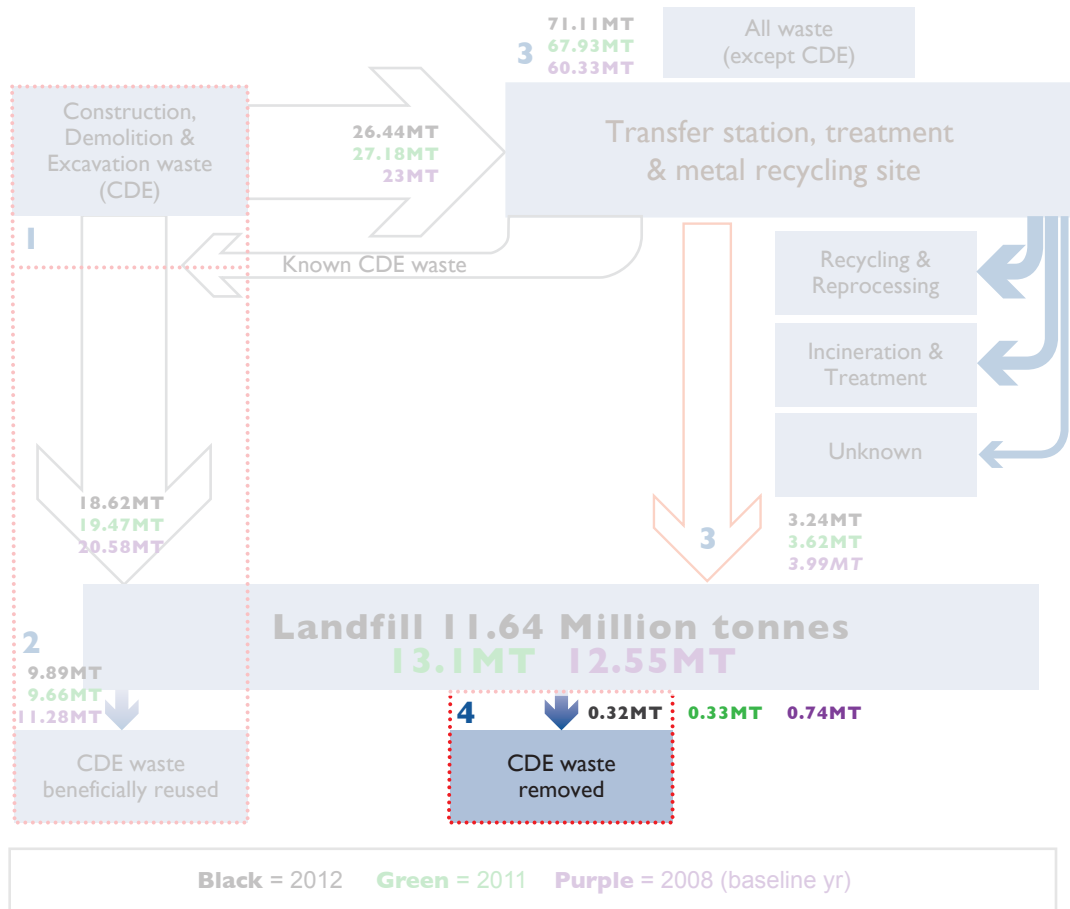
**Figure B4 relative changes in figures for transfer stations, treatment and metal recycling sites and CD&E waste**



7.15 When comparing 2012 figures with the baseline year (2008), the amount of all waste that is received at waste transfer stations, waste treatment sites and metal recycling sites increased considerably (13% in relative terms). The total CD&E waste received has also increased considerably (11%) in relative terms. Over the same period, the amount that is landfilled as known CD&E waste from Chapter 19 has increased in absolute terms by 29%. However, the estimated CD&E<sup>34</sup> waste has decreased by 33%. Relatively, there has been a 21% reduction in the CD&E waste landfilled from waste transfer stations, treatment and metal recycling sites. For the 26.44 million tonnes of CD&E waste entering these facilities in 2012 only 12% is estimated to be sent to landfill compared to 13% in 2011 and 17% in the baseline year. This indicates that waste transfer stations, treatment and metal recycling sites have improved their sorting processes and access to end markets.

34. The methodology for this can be found at: <http://www.greenconstructionboard.org/index.php/working-groups/greening-the-industry/waste>

## Section 4: CD&E waste that is removed from landfill



7.16 Some CD&E waste that is received at landfill may not actually be disposed of. It can be removed before it is deposited in the landfill. For instance, there could be a sorting plant at the landfill site which may send CD&E waste for recycling or treatment. The amount of CD&E waste that was removed in 2012 was 0.32 million tonnes, compared to 0.33 million tonnes in 2011 and 0.74 million tonnes in 2008. This figure relates to levels of sorting of the CD&E waste before it is received at the landfill site, which has improved since the baseline year. This may be because the CD&E waste has already been sorted well before it reaches the landfill limiting the scope for any further sorting for recycling and treatment. When compared to the amount of CD&E waste that was sent to landfill (Section 2), the proportion that was removed is around 2% for 2012, down from 4% in 2008.

### C&D waste

7.17 To understand whether there was an actual rise in the amount of construction and demolition related waste being landfilled if excavation waste had not increased so dramatically, a further analysis was undertaken. This removed the main data for excavation wastes which are:

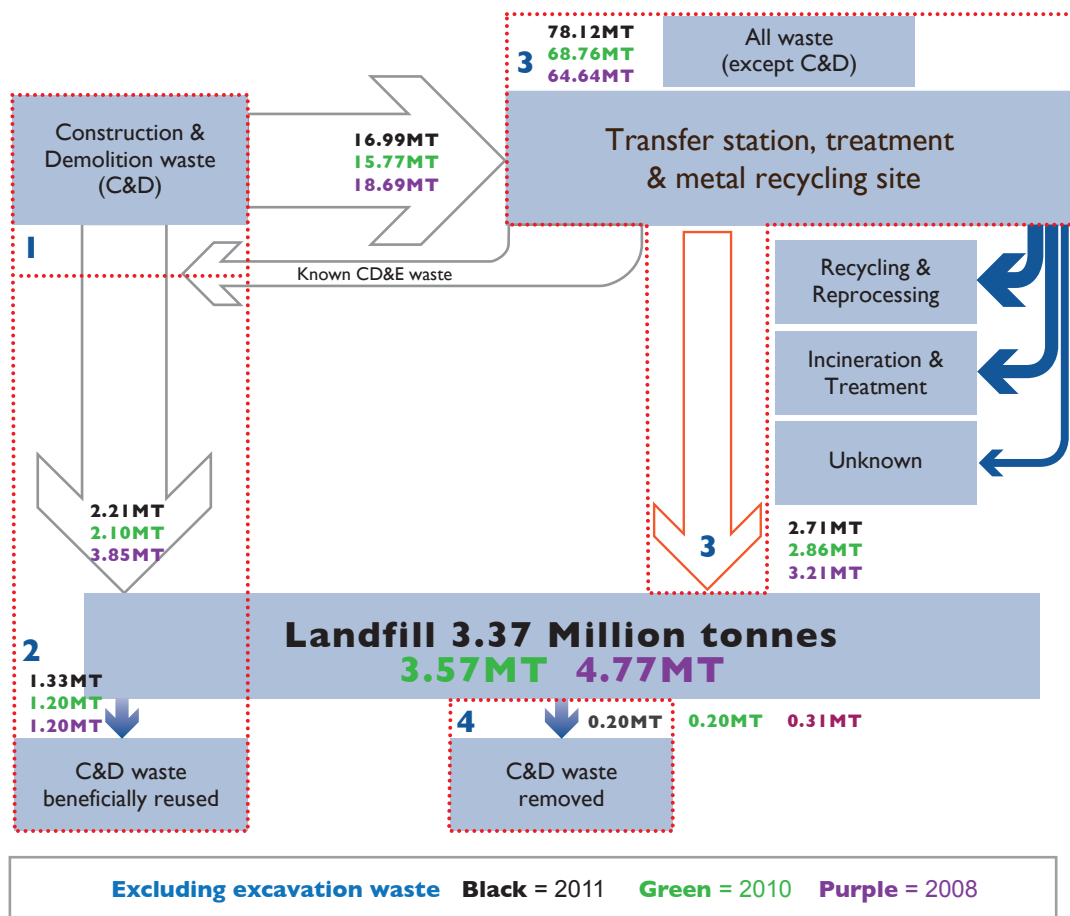
- 17 05 03 soil and stones containing dangerous substances
- 17 05 04 soil and stones other than those mentioned in 17 05 03
- 17 05 05 dredging spoil containing dangerous substances
- 17 05 06 dredging spoil other than those mentioned in 17 05 05
- 21 1 01 Inert – sub soils

- 7.18 The excavation wastes as coded above account for 14.85 million tonnes of known CD&E waste received at landfill; representing 88% of the total of which 6.43 million tonnes are estimated to beneficially reused.
- 7.19 Whilst removing the excavation waste from the calculations has not aided the industry in meeting the Strategy for Sustainable Construction target of reducing CD&E waste to landfill by 50% by 2012, it is helpful in understanding where to prioritise actions to achieve this and future targets and objectives. It is also relevant in terms of the EU target in the revised Waste Framework Directive, as detailed below:

*Member States shall take the necessary measures designed to achieve that by 2020 a minimum of 70% (by weight) of non-hazardous construction and demolition waste (excluding naturally occurring material defined in category 17 05 04 in the List ofWastes) shall be prepared for re-use, recycled or undergo other material recovery (including backfilling operations using waste to substitute other materials<sup>35</sup>).*

Figure B5 summarises the results of this further analysis<sup>36</sup>

Figure B5: Comparison of C&D wastes to landfill



35. This can be found at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:312:0003:0030:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:312:0003:0030:EN:PDF)

36. The figures have changed for 2010, 2009 and 2008 as more waste codes have been classified as excavation wastes (in the 2010 report only 17 05 04)

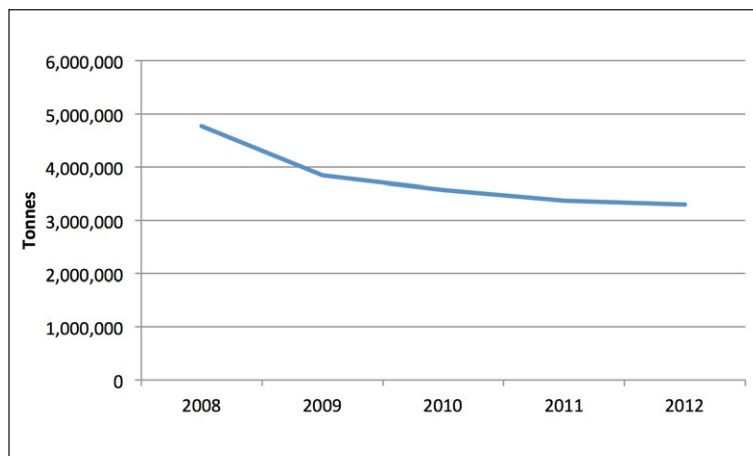


Section		Million Tonnes			Absolute change <sup>37</sup> 2012 to 2011	Absolute change 2012 to 2008	Relative change <sup>38</sup> 2012 to 2011	Relative change 2012 to 2008
		2008 (baseline)	2011	2012				
<b>1</b>	The data source and defining C&D waste to landfill	n/a	n/a/	n/a	n/a	n/a	n/a	n/a
<b>2</b>	Known classified C&D waste received at landfilled	3.85	2.21	2.18	-1	-43	-9	-44
	C&D waste assumed to beneficially reused within landfill	2.0	1.34	1.36	2	-29	-24	-28
<b>3</b>	C&D waste landfilled from waste transfer stations, treatment plants and metal recycling sites'	3.21	2.71	2.63	-3	-18	-10	-12
<b>4</b>	C&D waste that is removed from landfill	0.31	0.20	0.14	-44	-55	-36	-32
	<b>CD&amp;E waste landfilled</b>	<b>4.77</b>	<b>3.37</b>	<b>3.3</b>	<b>-2</b>	<b>-31</b>	<b>-2</b>	<b>-29</b>

37 38

Figures B6 and B7 provide a comparison of the figures provided in Figure B2.

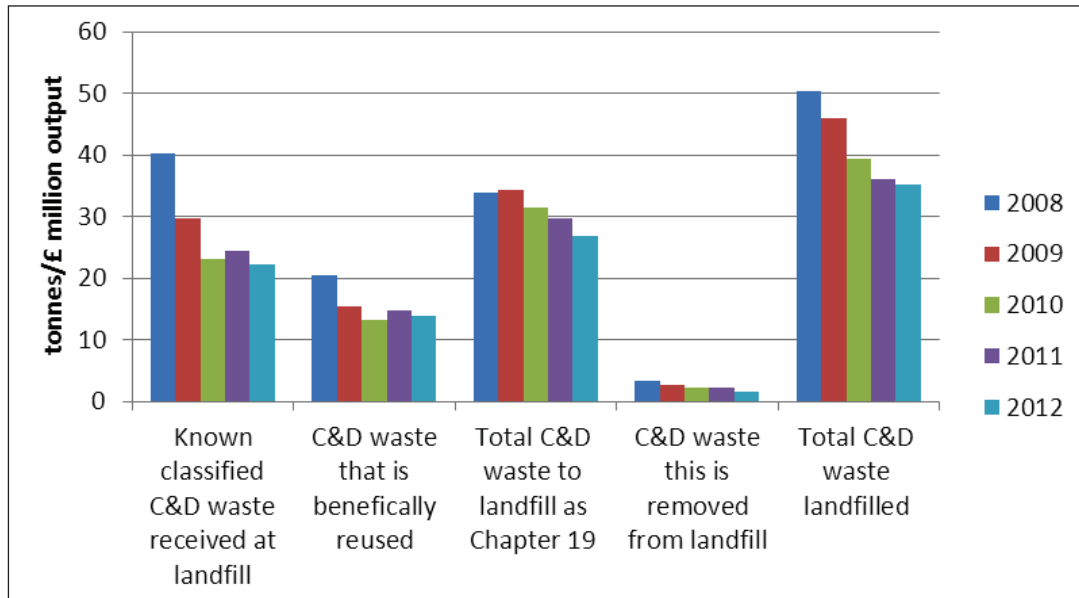
**Figure B6: Tonnes C&D waste landfilled**



37. The absolute change is based on the % difference from year to year based on the tonnage figures

38. The relative change is based on the % difference from year to year based on the tonnage figures/£ million construction output

Figure B7: Changes in figures relative to construction output 2008 – 2012



- 7.20 C&D waste to landfill has decreased by 1.5 million tonnes in the five year period from 2012 to 2008, equivalent to 31%. From 2012 to 2011, there is a reduction of 75,000 tonnes of CD&E waste landfilled, equivalent to 2%. Of the 3.3 million tonnes of C&D waste landfilled, 2.6 million tonnes is 'assumed' (nearly 80%). This is from the waste that is generated from waste facilities and sent to landfill.
- 7.21 The relative amount of C&D waste landfilled has decreased from a baseline of 50 tonnes/£ million construction output in 2008 and 36 tonnes/£ million construction output in 2011, to 34 tonnes/£ million construction output in 2012. This represents a decrease of 29% when comparing 2012 to 2008, or 2% when comparing 2012 to 2011. If the target was for C&D waste only, then 25 tonnes/£ million construction output in 2012 would have been required. This is equivalent to around a further 0.9 million tonnes being diverted from landfill.
- 7.22 These figures show that the underlying trend for C&D waste being landfilled is a decreasing one.

## 8. Annex C: CD&E waste landfilled in England – Defra figures

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- 8.1 The Subgroup has been assisting the waste statistics team at Defra in reporting CD&E waste figures to the European Commission. Defra is obliged to report waste statistics on a 2 year cycle (the latest are for 2012 and the changes since 2010). These are collated and published by Eurostat<sup>39</sup>.
- 8.2 Defra has updated its methodology for CD&E waste that is landfilled for 2012. The differences compared to the Subgroup's methodology are as follows:
- For the CD&E waste assumed to be sent to landfill from waste facilities (Section 3), the Subgroup's methodology looks at how much of ALL waste is sent to these facilities, and what proportion (%) is CD&E waste. This percentage is then applied to the Chapter 19<sup>40</sup> codes that are received at landfill from the waste transfer stations. Defra's methodology for ALL waste entering these facilities does not include the Chapter 19 codes. This therefore provides a % which is independent of Chapter 19. Defra also look at all Chapter 19 codes entering landfill, unlike the Subgroup's methodology, which only looks at Chapter 19 12<sup>41</sup> and 19 13 codes. With Defra's methodology, the proportion that is CD&E waste increases and the amount of CD&E waste landfilled also increases.
  - Dredging spoils (17 05 05 and 17 05 06) is required by Eurostat to be reported in dry weight. The Environment Agency's data (used in the CD&E waste to landfill methodology) reports this as a wet weight. Therefore there will be a small difference in the figures reported.
- 8.3 Defra will be publishing its CD&E waste figures on [www.gov.uk](http://www.gov.uk). Certain industry members of the Subgroup and BRE are working with Defra in an advisory role to assist in developing a joint methodology further which will include waste arisings, recovery and landfill of CD&E waste.

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39. [epp.eurostat.ec.europa.eu/portal/page/portal/eurostat](http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat)

40. Chapter 19 codes are defined as 'Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use.'

41. Chapter 19 12 codes are defined as 'wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified'. Chapter 19 13 codes are defined as 'wastes from soil and groundwater remediation'.

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