Department for Environment, Food and Rural Affairs
Nobel House, 17 Smith Square, London, SW1P 3JR

Public enquiries (phone): 08459 335577
Public enquiries (email): enviro.statistics@defra.gsi.gov.uk
Press enquiries: 020 7238 5334

Responsible Statistician: David Lee

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SURVEY OF COMMERCIAL AND INDUSTRIAL WASTE ARISINGS 2010 – REVISED FINAL RESULTS

Defra today published revised final results from the Department's Survey of Commercial and Industrial Waste Arisings 2010, according to the arrangements approved by the UK Statistics Authority. This is following the discovery of a data entry error since the final results were published on 16 December 2010. More detail on the revision is outlined in Annex 1.

The revised final results provide estimates of the amount of waste that businesses generate and how it is managed, in England, for 2009 calendar year.

Headline results

- Total commercial and industrial (C&I) waste generation in England, in 2009, is estimated to be 47.9 million tonnes. This is a decrease of 29 per cent from 67.9 million tonnes since the last national survey of business waste in 2002/3.
- The industrial sector accounts for 24.1 million tonnes and the commercial sector 23.8 million tonnes.
- Industrial wastes have declined by 13.5 million tonnes, or 36 per cent, since 2002/3 and commercial waste has declined by 6.5 million tonnes, or 21 per cent, in the same period.
- A total of 25.0 million tonnes, or 52 per cent, of C&I waste was recycled or reused in England in 2009, compared to 42 per cent in 2002/3. A total of 11.3 million tonnes, or 24 per cent, of C&I waste was sent to landfill in 2009, compared to 41 per cent in 2002/3.
- Small enterprises, with between 0 and 49 employees, produced 16.6 million tonnes of C&I waste in England, in 2009, or 35 per cent of total C&I waste.

The final project report and data tables are available at: http://www.defra.gov.uk/statistics/environment/waste/wrfg03-indcom/. We intend to make the full dataset available (in a suitably anonymised form as appropriate) on www.data.gov.uk once it has been verified against disclosure.

Background

Survey methodology

The results presented in this release are based on the combination of results from the Survey of Commercial and Industrial Waste Arisings for 2009 (hereafter referred to as the Defra survey) with data from the North West of England Commercial and Industrial Waste Survey for 2008/9 (hereafter referred to as the North West Survey), published in March 2010. More detail on these sources is in Annex 1.

Previous interim results

Defra published interim estimates for this survey on 10th November 2010. These data were interim estimates only as the full complement of samples planned for the survey was not complete. The estimates were based on approximately 60 per cent of the total sample of 6,005 businesses. The interim results were published in order to make 2009 estimates available in the public domain as soon as practically possible. Since the final sample was collected, the results have undergone further quality assurance which was only possible with the complete sample collected.

The final estimates in this release are lower than the published interim results. This is because the final results have been produced using a more rigorous grossing technique than the interim. To produce national estimates, the waste data provided by survey respondents are multiplied (grossed up) by the total number of businesses in England. For the interim estimates, all samples available were grossed up using business populations. For the final estimates, companies that produced significantly higher than average amounts of waste (more than 3 standard deviations from the sector average), were removed from the grossing and added to the total estimate after grossing. This ensured that the results were not skewed by big waste producers and is consistent with the approach adopted in previous surveys.

Previous C&I surveys

The two previous English national surveys of business waste were carried out in 1998/9 and 2002/3. Since 2002 there have been in addition two surveys in the North West and one covering Wales. All of these previous survey methodologies have generally been as consistent and comparable as possible, and the Defra survey has continued this policy. Results in this release are generally compared with the 2002/3 survey. Comparisons between estimates for the two years will be valid. However, please note that due to the interval between the two surveys there have been inevitable changes such as the standard SIC classification scheme for businesses, which will have some unavoidable effect on the results.

Full Results

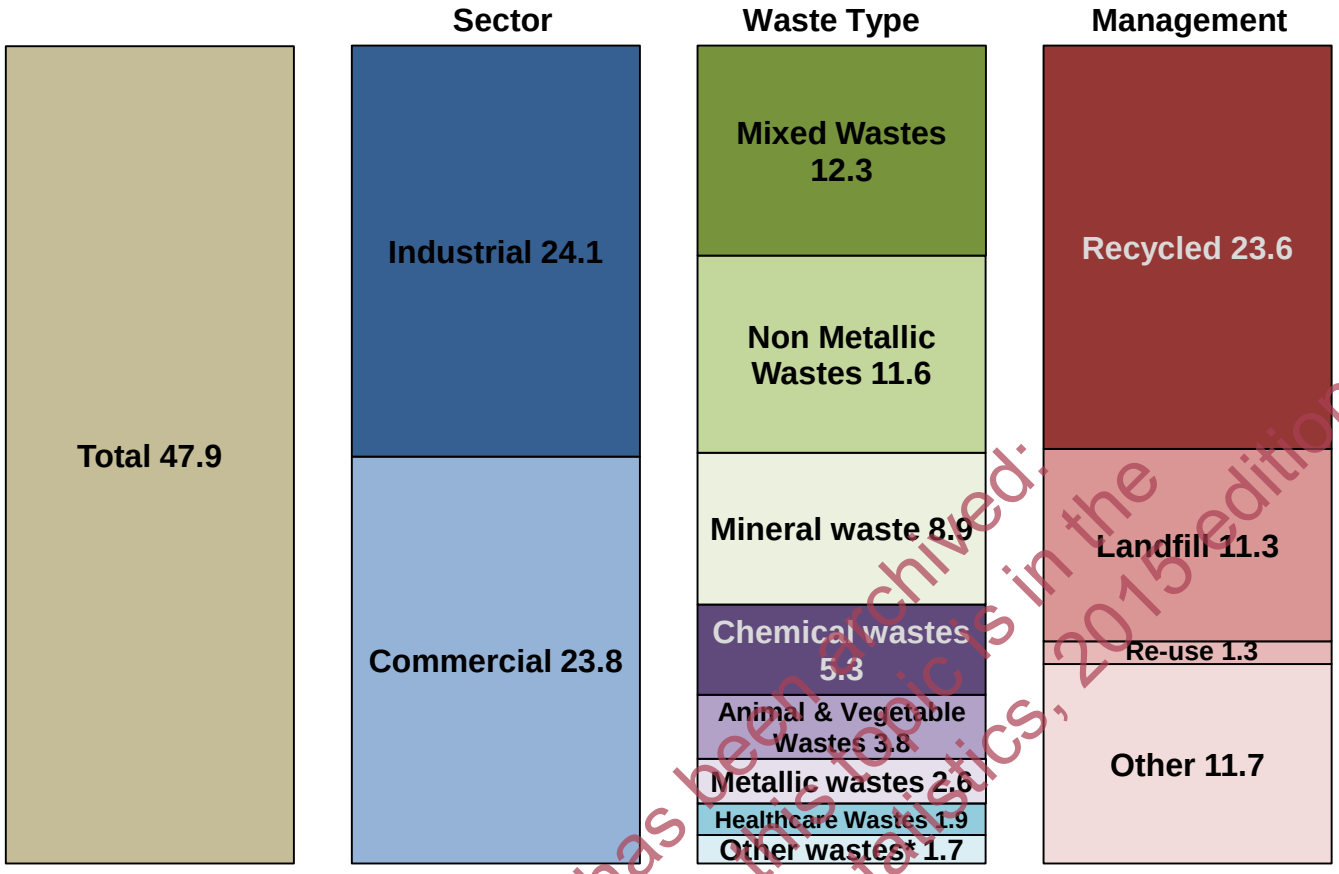
Table 1: Estimate of total C&I waste and sub-sector totals, England, 2009

	Waste 2002/3 (thousand tonnes)	Waste 2009 (thousand tonnes)	Percentage change 2002/3 to 2009 (%)	Recycling rate[1] (%)
Industrial sector	37,587	**24,084**	-35.9	51.3
Commercial sector	30,320	**23,844**	-21.4	52.8
ENGLAND TOTAL	**67,907**	**47,928**	**-29.4**	**52.1**

Source: Defra, Environment Agency

Notes:
[1]Includes reuse

Figure 1: Total C&I waste by sector, waste type and management method, England, 2009



Source: Defra, Environment Agency

*Other includes common sludges, discarded equipment and non-wastes

Note: Waste types are based on Substance Oriented Classification (SOC) groupings - see annex 2

- C&I waste generation in England has decreased by 29 per cent between 2002/3 and 2009. This is despite a rise in the total business population of 10 per cent over the same period.
- Approximately two thirds of the decline in waste generation (13.5 million tonnes) occurred in the industrial sector, where the business population has fallen by over 18 per cent in the same period. In the commercial sector, there was a fall in waste generation of 6.5 million tonnes between 2002/3 and 2009, which was set against a business population increase of 12 per cent in the same period.

Since the previous 2002/3 national survey of C&I waste, certain wastes are now considered by-products and are classified as 'non-wastes'. Therefore, in addition to the wastes identified in Table 1, it is estimated that there are around 2.5 million tonnes of 'non-wastes' not captured by the survey, specifically blast furnace slag and virgin timber.

The following sections show the survey results by broad business sector (Section 1), material type (Section 2), management method (Section 3), region of generation (Section 4) and company size (Section 5).

Section 1: Waste by business sector

Table 2: C&I waste by broad business sector, England, 2009

Sector[1]	Waste (000 tonnes)	Sector recycling & reuse rate (%)
Food, drink & tobacco	**4,667**	**51.2**
Textiles / wood / paper / publishing	**3,450**	**58.9**
Power & utilities	**5,720**	**46.3**
Chemicals / non-metallic minerals manufacturing	**3,847**	**42.0**
Metal manufacturing	**4,235**	**53.1**
Machinery & equipment (other manufacturing)	**2,164**	**65.5**
Subtotal – Industrial	**24,084**	**51.3**
Retail & wholesale	**9,212**	**59.6**
Hotels & catering	**2,671**	**45.0**
Public administration & social work	**2,890**	**29.1**
Education	**1,481**	**34.4**
Transport & storage	**2,189**	**71.0**
Other services	**5,402**	**55.7**
Subtotal – Commercial	**23,844**	**52.8**
TOTAL	**47,928**	**52.1**

Source: Defra, Environment Agency

Notes:
[1] Based on Standard Industrial Classification (2007) groupings – see Annex 2.

- Direct comparison between the business sector results of previous surveys and these results is complicated by the fact that the older surveys used the SIC 2003 business classification – some business types have moved between sectors in the SIC 2007 scheme used in this survey.
- At a sector level, there are marked increases in estimated waste generation in both the public administration and transport sectors since 2002/3. These reflect increases in business populations and activities in these sectors as well as the use of the newer SIC 2007 classification scheme.

Section 2: Waste by material type

Table 3: C&I waste by material type, England, 2002/3 & 2009

Material type[1]	Waste 2002/3 (000 tonnes)	Waste 2009 (000 tonnes)	% change
Chemical wastes	7,634	**5,285**	-30.8
Metallic wastes	3,330	**2,613**	-21.5
Healthcare wastes[2]	0	**1,855**	n/a
Non-metallic wastes[3]	13,833	**11,554**	-16.5
Discarded equipment	350	**759**	+117.0
Animal and vegetable wastes	6,295	**3,762**	-40.2
Mixed (ordinary) wastes	21,625	**12,303**	-43.1
Common sludges	915	**896**	-2.1
Mineral wastes	13,926	**8,896**	-36.1
TOTAL	67,907	**47,928**	**-29.4**

Source: Defra, Environment Agency

Notes:
[1] Based on Substance Oriented Classification (SOC) groupings – see Annex 2.
[2] Healthcare wastes were not identified in the 2002/3 survey results.
[3] Non-metallic waste consists of glass, paper & card, rubber, plastic, wood, textiles

- Between 2002/3 and 2009, there has been a reduction in the generated tonnages for all waste types apart from discarded equipment which more than doubled. This is likely to be due to the introduction of regulations derived from the WEEE Directive, and the resulting behaviour change during the intervening period.

Section 3: Waste by management method

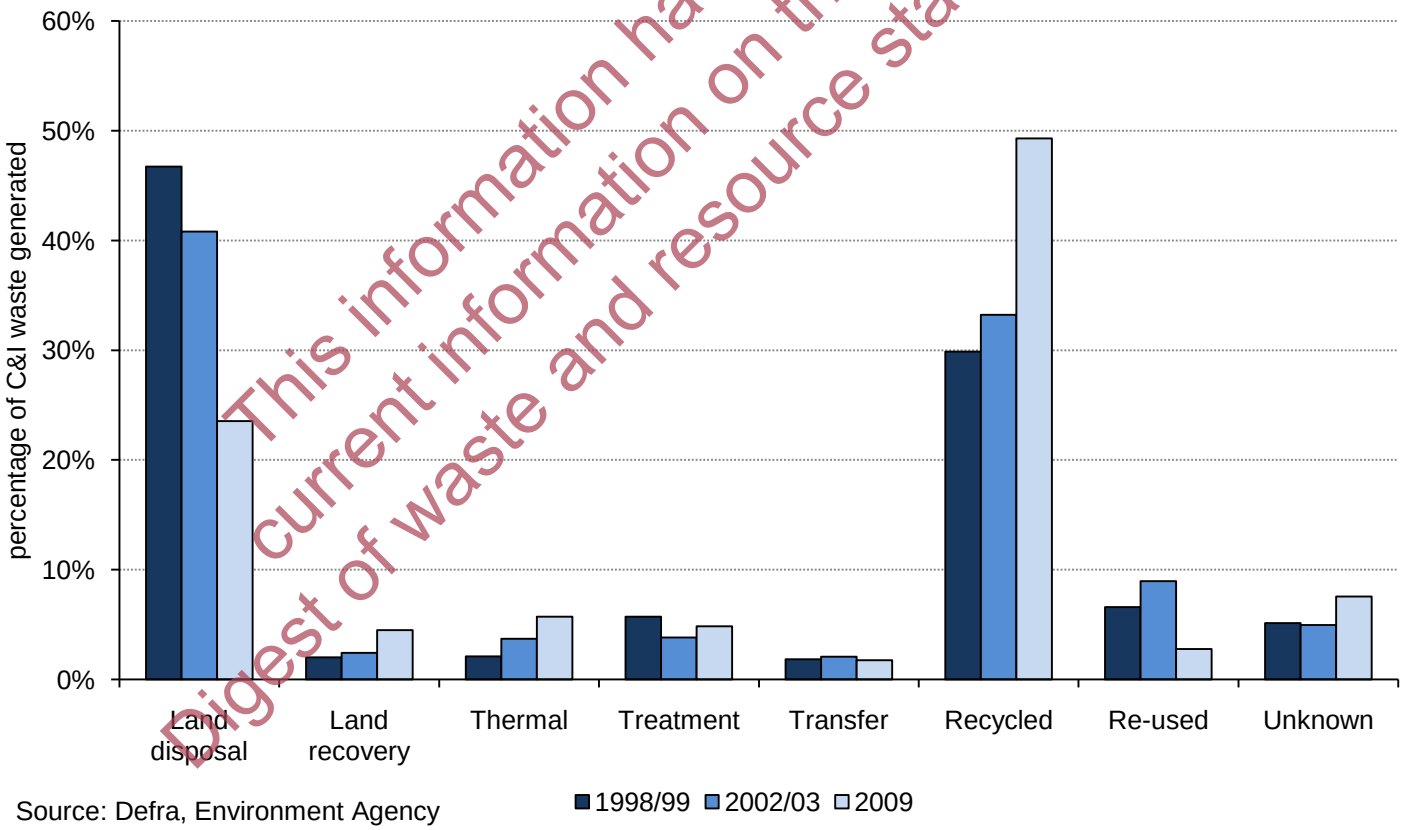
Table 4: C&I waste by management method, England 2002/3 & 2009

Waste management method	Waste 2002/3 (000 tonnes)	Waste 2009 (000 tonnes)	% change (from 2002/3 to 2009)
Land disposal	27,718	**11,280**	-59.3
Land recovery	1,645	**2,157**	+31.1
Thermal treatment	2,518	**2,744**	+9.0
Non-thermal treatment	2,596	**2,321**	-10.6
Transfer station	1,415	**841**	-40.5
Recycling[1]	22,556	**23,628**	+4.8
Re-use[1]	6,083	**1,329**	-78.1
Unknown	3,377	**3,628**	+7.4
TOTAL	**67,907**	**47,928**	**-29.4**

Source: Defra, Environment Agency

Notes:
[1] Includes composting, excludes recycling/re-use on site

Figure 2: Management method as a percentage of total waste, England, 1998/9, 2002/3 and 2009



Source: Defra, Environment Agency

- The management statistics presented in Figure 2 show an increase in the C&I recycling rate (including reuse) to 52 per cent in 2009, compared with 42 per cent in 2002/3. This is coupled with a decrease in waste sent to landfill, from 41 per cent in 2002/3 to 24 per cent in 2009.

- These trends - increased recycling and a decrease in landfill – were also seen in recent sub national surveys, and may reflect the fact that awareness of waste and recycling issues has become increasingly important for business. A reduction in the amount of mixed waste recorded also supports this.
- Reuse has fallen by 78 per cent, however, this is likely to be due to the declassification of blast furnace slags as non-wastes.

Section 4: Waste by region

Table 5: C&I waste by region, England, 2002/3 & 2009

Region	Waste 2002/3 (000 tonnes)	Waste 2009 (000 tonnes)	% change (from 2002/3 to 2009)
North West[1]	8,335	**7,527**	-9.7
North East	4,599	**2,357**	-48.7
Yorkshire and The Humber	11,136	**6,944**	-37.6
East Midlands	8,093	**6,308**	-22.0
West Midlands	7,265	**5,247**	-27.8
East of England	6,564	**4,507**	-31.3
London	7,507	**4,811**	-35.9
South East	8,852	**6,250**	-29.4
South West	5,556	**3,977**	-28.4
TOTAL	**67,907**	**47,928**	**-29.4**

Source: Defra, Environment Agency

Notes:
[1] North West estimates produced from analysis of the North West 2008/9 survey

Changes in regional waste generally reflect the national results, with marked decreases in total waste generated. Since 2002/3 the makeup of industry has changed, and this is perhaps more marked when considering regional results, particularly in areas where big waste producers such as power generators or large metal or other manufacturing activities have been traditionally based. The North East and Yorkshire and The Humber have shown the greatest proportional decline in waste. The North West estimate shows the least decrease.

Section 5: Waste generation by business size band

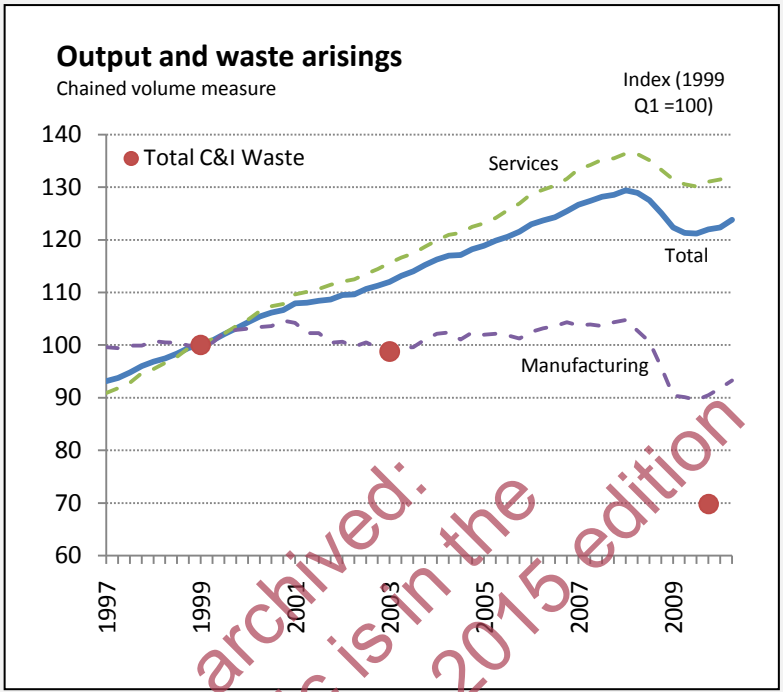
Table 7: C&I waste by company size, and as a percentage of total C&I waste, England, 2009.

Company sizeband (total employment)	Waste 2009 (000 tonnes)	Percentage of total 2009 C&I waste (%)	Business population (000s)
0-4	**2,286**	4.8	1,575
5-9	**3,581**	7.5	295
10-19	**4,528**	9.4	175
20-49	**6,221**	13.0	119
50-99	**5,135**	10.7	41
100-249	**9,058**	18.9	23
250+	**17,120**	35.7	10
TOTAL	**47,928**	**100.0**	**2,238**

Small businesses (under 50 employees) accounted for over one third of the total waste, or 35 per cent. The smallest business sizeband represented only 5 per cent of C&I waste, although these businesses are over 70 per cent of the business population in England.

Context: Impact of the economy on survey results

In 2009, the national economy was recovering from a recession. Clearly survey estimates may be expected to reflect prevailing economic conditions at the time. In the absence of regular time series data on business waste it is difficult to confidently assess how the performance of the economy has related to waste generation since 2002/3. However, comparing indices of available estimates of total waste with output measures (see chart) does provide some evidence that waste has been decoupled from economic growth.



Despite this however, it is to be expected that total C&I waste generation does reflect at least in part the state of the economy (not least because business populations are integral to the survey estimates). The chart also shows the performance of the UK economy from 1997 to 2010, in overall terms. The downturn that started in 2008, and subsequent performance, is illustrated very clearly. It would be very difficult, and probably misleading, to attempt to quantify the effects of this on waste generation estimates in any meaningful sense – particularly on a sectoral, regional or business size basis. However, users should bear in mind that survey estimates for these variables, whilst technically correct for 2009, could be misleading if these factors are not considered when drawing conclusions on policy effectiveness, business awareness or other issues going forward.

Further information

Strengths and limitations of the data

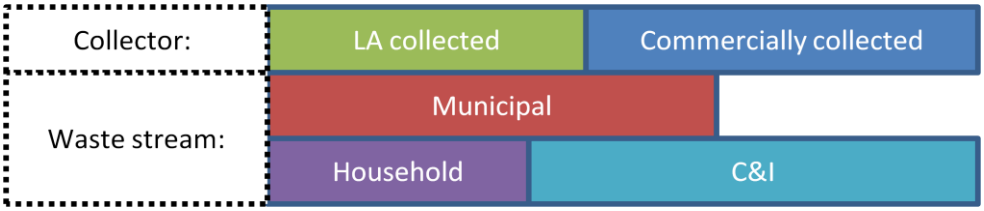
- The survey total sample size was 6,005 businesses to provide national level estimates, with more intensive sampling in London and the South West to allow more detailed breakdowns for their waste planning purposes.

- The precision for the total national waste generation estimate of 47.9 million tonnes, is 7.3 per cent at a 95 per cent confidence interval.

- When using these data in combination with other published waste data concerning different waste streams, such as municipal, there is an overlap between the information collected. C&I waste is defined as waste arising from businesses, which is primarily collected by commercial waste management companies (see figure 3 below). However, small amounts of business waste are collected by Local Authorities, and there is evidence that some very small businesses can manage their waste by putting into household waste collections. In addition, municipal waste is defined as household and similar waste, which includes a large amount of waste generated by business (such as offices). Users should take care when using these estimates in conjunction with published data on Municipal or Local Authority collected waste.

- Every effort has been made to ensure that a consistent approach has been used to produce these results, for comparison with those from the 2002/3 national survey. However, factors such as timing and the economic landscape during the survey period will also have an impact on the results.
- For further information on the strengths and limitations of the data, see the final project report at: http://www.defra.gov.uk/statistics/environment/waste/wrfg03-indcom/

Figure 3: Relationship between C&I, Municipal and Household waste



Use of the data

- The results from this survey provide a timely update to our understanding of commercial and industrial waste, and will fill a clear evidence gap. The results will help to underpin the proposals for the Waste Review that is currently in progress and is planned to report in 2011.

- These data will also provide more up to date figures to enable national reporting under EU regulation (EC) No 2150/2002 on waste statistics (Waste Statistics Regulation).

- The data will also be used in London and the South West, where more intensive sampling was carried out, to underpin local and regional waste management and land-use planning direction. The results will also provide information on the potential for further recovery of materials, which will aid regional business opportunity analysis.

Annex 1: Notes

- The Survey of Commercial and Industrial Waste Arisings 2010 was carried out by Jacobs Engineering UK Ltd. in partnership with Halcrow, on behalf of Defra working in partnership with the London Waste and Recycling Board and a group of partners representing the South West Region (namely Government Office South West, South West Regional Development Agency, Environment Agency, and South West Councils).

- The last national survey was carried out 7 years ago. This is a major project for both regional and national public bodies which will fill a large gap in our current knowledge of the picture of waste in England. To maximise the value for money of the project, eight out of nine English Regions were surveyed, and these results have been combined with the data from a recent survey in North West England.

- The survey ran between June and October 2010, collecting data on waste generated in 2009. The data was collected though face-to-face interviews (3,273), telephone interviews (801), from the Environment Agency for companies in the sample that have Pollution Prevention and Control (PPC) licenses (319) and from company head offices (1,612).

- The Defra and North West surveys employ comparable methodologies. The results from the North West 2008/9 survey have been updated for the calendar year 2009 and adjusted to account for SIC classification and sector differences between the surveys. As a result, the revised totals differ from those published in the survey.

- The final C&I survey results were published on 16 December 2010. Since publication, it was discovered that some of the waste data for one business in the food, drink and tobacco sector, in the South West, was entered incorrectly, resulting in an overestimate of waste generation by approximately 100,000 tonnes. This also affects the national C&I total waste arisings estimate, the C&I waste management data and some waste types. There has been a correction made to the business sector classification as well which resulted from the amalgamation of the Defra and North West survey data sets and has affected the sector recycling and reuse rates. As a result, the survey data tables and final project report have been revised to remove the errors and republished today.

- For more information and analyses, see the accompanying final project report, available at: http://www.defra.gov.uk/statistics/environment/waste/wrfg03-indcom/

Annex 2: Background information

Survey of Commercial and Industrial Waste Arisings 2010

- The survey covered all commercial and industrial businesses, which excludes businesses involved in agriculture, mining and quarrying, construction, and waste management and recycling. See table below for business sectors groupings.

	Sector no.	Description	SIC 2007[1] groups
INDUSTRIAL	1	Food, drink & tobacco	10.1 – 12.0
	2	Textiles / wood / paper / publishing	13.1 – 18.2
	3	Power & utilities	19.1 – 19.2, 35.1 – 36.0
	4	Chemicals / non-metallic minerals manufacturing	20.1 – 23.9
	5	Metal manufacturing	24.1 – 25.9
	6	Machinery & equipment (other manufacturing)	26.1 – 33.2
COMMERCIAL	7	Retail & wholesale	45.1 – 47.9
	8	Hotels & catering	55.1 – 56.3
	9	Public administration & social work	84.1 – 84.3, 86.1 – 88.9
	10	Education	85.1 – 85.6
	11	Transport & storage	49.1 – 53.2
	12	Other services	58.1 – 82.9, 90.0 – 96.0

[1] http://www.statistics.gov.uk/methods_quality/sic/downloads/SIC2007explanatorynotes.pdf

- The survey covers businesses with 5 or more employees. Separate estimates are made for companies with less than 5 employees and are included in the totals.

- The survey considers all hazardous and non-hazardous wastes produced on a business' premises, excluding wastes recycled or re-used on site. The material type of each individual waste stream was recorded using Substance Oriented Classification (SOC) groups, as shown in the table below. Tonnage data was recorded if available; otherwise tonnages were estimated using waste volumes and material-specific density conversion factors. The management method (e.g. disposal to landfill, sent off site for recycling etc.) was also recorded.

SOC Group	Summary of wastes included
Chemical wastes	Solvents, acids/alkalis, used oil, catalysts, wastes from chemical preparation, residues and sludges
Healthcare wastes	Healthcare wastes
Metallic wastes	Metallic wastes
Non-metallic wastes	Glass, paper & card, rubber, plastic, wood, textiles

Discarded equipment	End of life vehicles (ELVs), batteries, waste electronics (WEEE) other discarded equipment
Animal & vegetable wastes	Food, manure, other animal and vegetable wastes
Mixed (ordinary) wastes	Household, undifferentiated wastes and sorting residues
Common sludges	Sludges (common) and dredging wastes
Mineral wastes	Combustion residues, contaminated soils, solidified mineral wastes, other mineral wastes
Non wastes	Blast furnace slag and virgin timber, i.e. materials recently declassified as wastes. We have chosen to record these two material streams labelled as “non wastes” for comparability with previous C&I survey results.

- A similar survey was undertaken in the North West region in 2009, collecting data for the 2008/09 financial year. It was decided that the Defra survey should not resurvey in the region, to avoid overburden on respondents and an unjustifiable use of public resources.

- The North West survey sampled 1,000 businesses in the region, and the results were published in March 2010 by the Environment Agency. The report of the survey can be found here: http://publications.environment-agency.gov.uk/pdf/GENW0410BSJM-e-e.pdf

Annex 3: Glossary

- **Land recovery:** Some waste materials can be used for the reclamation, restoration or improvement of land as a substitute for virgin materials.
- **Thermal treatment:** The combustion of waste, with or without energy recovery.
- **Non-thermal treatment:** Treatment includes a physical, thermal, chemical or biological process - which can include sorting - to change the characteristics of the waste to either reduce its volume, reduce its hazardous nature, facilitate its handling, or enhance its recovery.
- **Transfer station:** A waste transfer facility serves to bulk up waste before it is transferred to other facilities in larger vehicles
- **WEEE Directive:** Waste Electrical and Electronic Equipment Directive

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