

WasteDataFlow method for calculating “waste from households” (WfH) recycling

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1 Status of this document

This document has been written by Defra’s Waste Statistics team in conjunction with Defra Waste Policy and the WasteDataFlow (WDF) team.

The specifications given here form the basis of the calculations carried out using WDF data. This document only pertains to local authorities in England.

1.1 Rationale

The “waste from households” (WfH) recycling rate was introduced for statistical purposes to provide a harmonised UK indicator with a comparable calculation in each of the four UK countries. Additional measures will be proposed and discussed with local authorities at User Group meetings and other forums representing local authority interests to provide a full benchmarking capability across all local authority managed waste.

Within this document, the abbreviations WfH and WnfH are used to denote “waste from households” and “waste not from households” respectively.

Important note:

“Waste from households” and “waste not from households” are different definitions from the previous “household” and “non-household” waste definitions.

1.2 Categorisation within WasteDataFlow questions

Mostly, complete WasteDataFlow questions are categorised as WfH or WnfH. Where a WDF question has more than one element then the elements within a question are categorised as WfH and WnfH. The following tables give classifications for key WDF questions.

Table 1: Recycling and reuse collection questions (except Qu18)

Question	Categorisation
Q010 – Kerbside – by LA or its contractors	All materials are classified as WfH except plasterboard, rubble and soil which are classified as WnfH
Q012 – Kerbside – Non-contracted voluntary/community sector	
Q014 – Civic amenity sites	
Q016 – Civic amenity sites	
Q017 – Bring sites	
Q033 – Bring sites – by voluntary/community sector	
Q011 – Commercial, industrial or other non-household	Questions are classified as WnfH
Q034 – Street recycling bins	

Table 2: Categories within Question 18 (other recycling)

Question 18 category	Question 18 category	
	Household waste	Non-household waste
Municipal parks/grounds waste collected through 'other' means for composting	Waste not from households (organics)	Waste not from households (organics)
Other method of waste / material capture	Waste not from households (recycling)	Waste not from households (recycling)
Waste collected in community skips	Waste from households (recycling)	Waste not from households (recycling)

Table 3: Categories within Question 23 (residual waste)

Category within Qu23	Classification
Civic amenity sites waste: Household	Waste from households
Collected household waste: Bulky Waste	
Collected household waste: Other	
Collected household waste: Regular Collection	
Asbestos Waste separately collected	Waste not from households
Beach cleansing	
Civic amenity sites waste: Non-household	
Collected gully emptyings	
Collected household waste: Street Cleaning	
Collected non-household waste: Commercial and Industrial	
Collected non-household waste: Construction and Demolition	
Collected non-household waste: Grounds waste	
Collected non-household waste: Highways waste	
Collected non-household waste: Other	
Other collected waste	
Separately collected healthcare waste	
Waste Arising from clearance of fly-tipped materials	

2 Definition in terms of WDF questions

The denominator for the WfH calculation is an estimate of total waste arisings and is based on data from Qu10, Qu12, Qu14, Qu16, Qu17, Qu33 and the relevant categories of Qu18 (see Table 2, page 2) and Qu23 (see Table 3, page 2). Below a more detailed calculation of the denominator is given.

The numerator of the WfH recycling calculation is an estimate of total waste recycled after deducting rejections.¹ A detailed calculation of the recycling numerator is given in sections 2.3 and 2.4 below.

2.1 Denominator for UAs and WCAs

The calculation of the denominator for unitary authorities (UAs) and collection authorities (WCAs) is as given below.

Table 4: Calculating the WfH denominator for UAs and WCAs

Calculation	Notes
All recycling and reuse (before any rejections) from Qus 10, 12, 14, 16, 17, 33, for all materials except plasterboard, rubble and soil.	Plasterboard, rubble and soil are not classed as waste from households and therefore are not included in the calculation. Material rejected is not deducted as this is part of the total WfH arisings.
PLUS	
Recycling from Qu18 (WfH portion only)	
PLUS	
Residual waste from Qu23 (WfH portion only)	As noted in Table 3 (page 2), this includes residual waste from kerbside collections, CA sites, bulky waste, and other collected waste.

2.2 Denominator for WDAs

The calculation for the denominator for WDAs is similar to the calculation for UAs and WCAs described in 2.1 above, with the key difference being that the WDA's calculation includes the WCAs' recycling and reuse figures (the WCAs' residual figures will already be included in the WDA's own Question 23). The table below summarises this calculation.

¹ For years from 2015-16 onwards, the numerator is based on Qu100 data as described in this document (for years before that the numerator was based on Qu19, Qu35, Qu56, Qu57, Qu59, Qu60, Qu64 and Qu65).

Table 5: Calculating the WfH denominator for WDAs

Calculation	Notes
From the WDA and its WCAs: all recycling and reuse (before any rejections) from Qus 10, 12, 14, 16, 17, 33, for all materials except plasterboard, rubble and soil.	Plasterboard, rubble and soil are not classed as waste from households and therefore are not included in the calculation. Material rejected is not deducted as this is part of the total WfH arisings.
PLUS	
From the WDA and its WCAs: recycling from Qu18 (WfH portion only)	
PLUS	
From the WDA only: residual waste from Qu23 (WfH portion only)	As noted in Table 3 (page 2), this includes residual waste from kerbside collections, CA sites, bulky waste, and other collected waste.

2.3 Recycling numerator for UAs and WCAs

The numerator of the WfH recycling calculation is calculated by summing material tonnages from “final destination” nodes in Qu100. However, not all material tonnages from all “final destination” nodes count as WfH recycling: a tonnage might be excluded because is not considered as “recycling” for the purposes of this definition or because it is not considered WfH. Even when a material tonnage passes the tests which qualify it as suitable to count as recycling, a factor is applied which determines the proportion of the tonnage which is deemed to count as WfH.

Section 2.3.1 below describes the tests which determine whether a particular material tonnage can contribute towards the WfH recycling numerator, and section 2.3.2 describes the factors which are applied to determine what proportion of a qualifying material tonnage counts in the numerator.

2.3.1 Tests for inclusion in the recycling numerator

For each tonnage reported at a “final destination” node in Qu100, a number of tests are applied which determine whether the tonnage can contribute towards WfH recycling or not. The tests relate to the tonnage’s material type and to what has happened to that tonnage in its waste treatment journey (i.e. in its chain of treatment in the Qu100 tree).

- The tonnage’s material type must fall into one of the following categories: “Glass”, “Paper & card”, “Metals”, “Plastics”, “Textiles”, “Other materials”, “Organics - excl. separate food”, “WEEE & other scrap metal”, “Organics - separate food”, “IBA metal”.
 - Each material in WDF is assigned to a higher-level category. Categories which do not count for WfH recycling are “Plasterboard and Rubble”, “Soil & aggregates” and “IBA”.
- The tonnage’s Output Process Type must count for WfH recycling.

- If the tonnage does not have one of these four Output Process Types then it cannot count for WfH recycling: “Dry recyclate”, “Composting”, “Compost-like output”, “Incinerator bottom ash”.
- The tonnage must not have passed through incineration in the Qu100 tree (other than if it is metal from incinerator bottom ash or other scrap metal).
 - “IBA metal” or “other scrap metal” which have passed through incineration in the Qu100 tree can still count in WfH recycling; no other material which has passed through incineration can.
- The tonnage must not be classed as compost-like output (CLO).²
 - A tonnage is counted as CLO if it is of material type “other compostable waste” and it has passed through Mechanical Biological Treatment (MBT) at some point in the Qu100 tree.

2.3.2 Application of factors

If the tests described in section 2.3.1 above ascertain that a material tonnage can contribute towards the WfH recycling numerator, the tonnage counted in the numerator is: the material tonnage recorded in the Qu100 tree multiplied by a “WfH factor”. The “WfH factor” determines what proportion of the recorded tonnage is classed as WfH and therefore counts in the numerator. There are five possible WfH factors, and these are described in the sections which follow.

2.3.2.a User-defined factor

If a user-defined factor has been entered in the Qu100 tree at the start of the tonnage’s branch, then this factor is used. (The user-defined factor provides the proportion of the total tonnage for the branch which is “waste from households”. Entry of this factor is optional during completion of Qu100.)

If a user-defined factor is not provided, then one of four possible default factors will be applied to the tonnage. The factor used depends on the nature of the material in question and its collection source. The four possible factors are as follows:

- Residual factor

² Reporting rules for statistics on municipal waste specifically exclude compost-like output counting towards recycling as it doesn’t meet required quality standards. The relevant guidance (<http://ec.europa.eu/eurostat/documents/342366/351806/Municipal-waste-statistics-guidance.pdf>) states:

“The biological treatment of residual waste in an MBT cannot be regarded as composting, when the product of that treatment is subsequently landfilled, incinerated or otherwise not used for the purpose of land treatment resulting in benefit to agriculture or ecological improvement.”

Use of CLO from MBT output material to cap off landfill does not count in this context.

- Organics factor
- Dry recycling factor
- Reuse factor

These are described further in the sections which follow.

2.3.2.b Residual factor

The residual factor is applied to tonnages which start their Qu100 waste treatment journey at a facility with a waste stream type of “residual” or (in the case of WCAs) where the tonnage has been back-allocated to the WCA from its WDA via the use of a “Material from WDA” facility. The factor is calculated as per the table below.

Table 6: Calculating the WfH residual factor

Calculation	Notes
The WfH factor for residual recycling. This factor is calculated as (Qu23 WfH collected)/(Qu23 WfH collected + Qu23 WnfH collected).	This factor estimates the proportion of total local authority residual waste that is waste from households.

In situations where the residual factor doesn't apply an organic, dry recycling or reuse factor is applied as described in the sections which follow.

2.3.2.c Organics factor

The organics factor is applied if the tonnage is assigned of one of the five organic material types. It is calculated as follows.

Table 7: Calculating the WfH organics factor

Calculation	Notes
Qu1100 tonnages (sent for reprocessing minus any rejections at the gate of the reprocessor) for the five organics categories.	The five organics categories are green garden waste only, mixed garden and food waste, other compostable, waste food only, wood for composting.
MULTIPLIED BY	
<p>The WfH factor for organics.</p> <p>This factor is calculated as (Total WfH collected for organics, after collection rejections)/(Total LA collected for organics, after collection rejections).</p>	<p>This factor estimates the proportion of total local authority organic waste that is waste from households.</p> <p>The (Total WfH collected for organics, after collection rejections) is tonnages (collected for recycling minus rejected) from Qus10, 12, 14, 16, 17 and 33 for all the five organics categories. (Note that Qu18 is not included here because no element of that question is categorised as WfH organics.)</p> <p>The (Total LA collected for recycling, after collection rejections) is calculated as the (Total WfH collected for organics, after collection rejections) as above PLUS tonnages (collected for recycling minus rejected) from Qus11, 34 for the five organics categories PLUS Qu18 WnfH organics collected.</p> <p>Where organic material is reported for composting from a commingled waste stream output from a MRF, the WfH dry recycling factor (see section 2.3.2.d below) is applied.</p>

2.3.2.d Dry recycling factor

In situations where neither the residual factor nor the organic factor applies, a dry recycling or reuse factor is applied. The dry recycling factor, as described below, is applied in situations where the tonnage is taken from a final destination of a recycling reprocessor or exporter.

Table 8: Calculating the WfH dry recycling factor

Calculation	Notes
<p>Qu 100 tonnages (sent for recycling minus any rejections at the gate of the reprocessor and other rejections if reported) for all materials excluding plasterboard, rubble, soil and five organics categories (other than tonnages which originated from a residual waste stream; for tonnages from residual waste see section 2.3.2.b above).</p>	<p>Plasterboard, rubble and soil are not classed as waste from households and therefore are not included in the calculation.</p> <p>The five organics categories (green garden waste only, mixed garden and food waste, other compostable, waste food only, wood for composting) are not included because these will be counted in the organics element of the numerator – see section 2.3.2.c above.</p>
<p>MULTIPLIED BY</p>	
<p>The WfH factor for dry recycling.</p> <p>This factor is calculated as (Total WfH collected for dry recycling, after collection rejections)/(Total LA collected for dry recycling, after collection rejections).</p>	<p>This factor estimates the proportion of total local authority dry waste that is waste from households.</p> <p>The (Total WfH collected for dry recycling, after collection rejections) is tonnages (collected for recycling minus rejected) from Qus10, 12, 14, 16, 17 and 33 for all materials excluding plasterboard, rubble, soil and five organics categories PLUS Qu18 WfH recycling collected (see Table 2, page 2).</p> <p>The (Total LA collected for dry recycling, after collection rejections) is calculated as the (Total WfH collected for dry recycling, after collection rejections) as above PLUS tonnages (collected for recycling minus rejected) from Qus11, 34 for all materials excluding plasterboard, rubble, soil and the five organics categories PLUS Qu18 WnfH recycling collected (see Table 2, page 2).</p> <p>Collection rejections (i.e. rejections made at the point of collection) are excluded as described above because this material would not be sent to the reprocessor so would not be included in the tonnages to which the WfH factor for dry recycling is applied. Collection rejections are recorded in the collection questions and can therefore be identified as WfH or WnfH using the categorisations in Table 1, page 1.</p>

2.3.2.e Reuse factor

The reuse factor, as described below, is applied in situations where the tonnage is taken from a final destination of a reuse reprocessor or exporter.

Table 9: Calculating the WfH reuse factor

Calculation	Notes
Qu100 tonnages (sent for reuse minus any rejections at the gate of the reprocessor and other rejections if reported) for all materials excluding plasterboard, rubble, soil and five organics categories (other than tonnages which originated from a residual waste stream; for tonnages from residual waste see section 2.3.2.b above).	Plasterboard, rubble and soil are not classed as waste from households and therefore are not included in the calculation.
MULTIPLIED BY	
<p>The WfH factor for reuse.</p> <p>This factor is calculated as $\frac{\text{Total WfH collected for reuse, after collection rejections}}{\text{Total LA collected for reuse, after collection rejections}}$ </p>	<p>This factor estimates the proportion of total local authority waste prepared for reuse that comes from waste from households.</p> <p>The (Total WfH collected for reuse, after collection rejections) is tonnages (collected for reuse minus rejected) from Qus10, 12, 14, 16, 17 and 33 for all materials excluding plasterboard, rubble, soil.</p> <p>Where no reuse has been reported in the collection questions but materials are subsequently reported as being sent for reuse, the dry recycling WfH factor (see 2.3.2.b above) is applied.</p> <p>The (Total LA collected for reuse, after collection rejections) is calculated as the (Total WfH collected for reuse, after collection rejections) as above PLUS tonnages (collected for reuse minus rejected) from Qus11, 34 for all materials excluding plasterboard, rubble, soil.</p> <p>(Note that Qu18 is not included here because no element of that question is categorised as reuse.)</p>

2.4 Recycling numerator for WDAs

The numerator for WDAs is made up of contributions from the WDA itself and from each of its WCAs. Each WCA's own numerator (calculated as in 2.3 above) is included, and the WDA's contribution is calculated in the same manner.

The table below summarises this calculation.

Table 10: Calculating the recycling numerator for WDAs

Calculation	Notes
WDA's contribution	Calculated as in section 2.3 above.
PLUS	
The sum of the WDA's WCAs' numerators.	Each WCA's numerator is calculated as in section 2.3 above.

3 Frequently asked questions

3.1 Why was the "Waste from households" calculation introduced?

The "waste from households" (WfH) recycling rate was introduced for statistical purposes to provide a harmonised UK indicator with a comparable calculation in each of the four UK countries.

3.2 Are the National Indicator comparator (household waste basis) calculation reports still available?

The comparator reports for the historic National Indicator calculations continue to be available on WasteDataFlow for local authorities who need or wish to continue to use them. The National Indicator comparator reports will not be withdrawn from WasteDataFlow without discussion at the User Group and other forums representing local authority interests.

3.3 Will there be further measures or changes?

Additional measures will be proposed and discussed with local authorities at User Group meetings and other forums representing local authority interests to provide a full benchmarking capability across all local authority managed waste.

3.4 How does 'Waste from Households' differ from 'Household Waste' used in the historic National Indicator 192 (NI192)?

'Waste from Households' has a narrower scope and is designed to include waste generated from households to kerbside collection, civic amenity sites or community skips managed by local authorities. Examples of different classifications of "waste from households" and "household waste" are given in Table 11 (recycling) and Table 12 (residual) below. Notably "waste from households" includes metals from incinerator bottom ash.

Table 11: Example recycling classifications for "waste from households" and "household waste"

Recycling (including composting and reuse)	"Waste from households" recycling	"Household waste" recycling
From households and other premises similar to households, Civic Amenity sites, bring banks	✓	✓
From street recycling bins	✗	✓
From household-related parks and grounds	Community skips only	✓
From soil	✗	✓
From rubble and plasterboard	✗	✗
From compost-like output from MBT plant	✗	✓
From incineration bottom ash (IBA)	✗	✗
From metal recovered and recycled from incinerator bottom ash	✓	✗
Other, from residual streams	Some outputs – see section 2.3.1 (page 4) and section 2.3.2.b (page 6).	✓
Recycling rejections	✗	✗

Table 12: Example residual classifications for "waste from households" and "household waste"

Residual waste	"Waste from households" residual	"Household waste" residual
From regular household collection	✓	✓
From civic amenity sites	✓	✓
From bulky waste	✓	✓
From other household waste	✓	✓
From street cleaning/sweeping	✗	✓
From gully emptying	✗	✓
From separately collected healthcare waste	✗	✓
From asbestos waste	✗	✓

Guidance on the historic NI192 calculation is available here

http://www.wastedataflow.org/documents/guidancenotes/NationalIndicators/GN30_WDF_NI_Guidance_2.1.pdf.

Guidance on the comparator calculations for the historic National Indicators is available here

[WDF Guidance – Comparator calculations for NI 191-192 and BVPI 82a/b from Qu100 \(pdf\)](#).