

Chapter 9

Monitoring waste reduction



This chapter describes techniques for monitoring and evaluating waste prevention activities. The topics covered include bag reuse, composting (both at home and community composting), food waste prevention, grass cycling, reuse (of items such as furniture, household goods and paint), unwanted mail and washable or 'real' nappies.

WRAP helps individuals, businesses and local authorities to reduce waste and recycle more, making better use of resources and helping to tackle climate change.

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Contents

- 9.1 Background 9-2
- 9.2 What do we mean by waste prevention? 9-2
- 9.3 Home composting 9-2
 - 9.3.1 What type of composting are we talking about? 9-2
 - 9.3.2 How can I find out how many households have compost bins? 9-3
 - 9.3.3 What is a committed home composter? 9-4
 - 9.3.4 How can I establish how much waste is being diverted and the costs savings? 9-5
 - 9.3.5 What do I need to know to estimate how much material is being composted? 9-5
 - 9.3.6 How can I calculate home composting tonnage figures? 9-6
 - 9.3.7 Estimating cost savings from home composting 9-6
- 9.4 Community composting 9-7
 - 9.4.1 How can I monitor participation? 9-8
 - 9.4.2 How can I calculate tonnages of diversion? 9-8
- 9.5 Grass cycling 9-8
 - 9.5.1 How can this be monitored? 9-9
- 9.6 Food waste prevention 9-9
 - 9.6.1 How can I monitor my LFHW campaign? 9-9
 - 9.6.2 What is a committed food waste reducer? 9-10
 - 9.6.3 How can I determine the amount of food waste that has been prevented? 9-11
 - 9.6.4 What should I think about if I'm considering doing a waste analysis of food waste? 9-11
- 9.7 Reuse of thin gauge carrier bags 9-12
- 9.8 Unwanted mail 9-12
 - 9.8.1 What types of unwanted mail reduction are we talking about? 9-12
 - 9.8.2 Can I find out how many residents have registered for mailing opt out schemes? 9-13
 - 9.8.3 How can I assess the impact in tonnage terms? 9-13
- 9.9 Reuse in the community 9-14
 - 9.9.1 What can be measured? 9-15
 - 9.9.2 How can reuse tonnages be determined? 9-15
 - 9.9.3 Measuring equivalent market value 9-16
- 9.10 Washable nappy schemes 9-16
- 9.11 Summary of chapter 9-17
- 9.12 Where do you want to go next? 9-17

Monitoring waste reduction

9.1 Background

This chapter describes techniques for monitoring and evaluating waste prevention activities. The topics covered include:

- bag reuse;
- composting (both at home and on sites run by community composting groups);
- food waste prevention;
- grass cycling;
- reuse in the community (of items such as furniture, paint and household goods);
- unwanted mail; and
- washable or 'real' nappies.

Note that the advice given in this chapter focuses on measuring the **impact** of waste prevention work (i.e. tonnages prevented) relating to the specific topic areas covered. You will also need to read Chapter 10 to learn how to monitor the **inputs** of your waste prevention communications campaign and outreach activities.

9.2 What do we mean by waste prevention?

For the purposes of the guidance, 'waste prevention' refers to minimising the quantity (weight and volume) and hazardousness of household-derived waste, generated in a defined community for collection by any party. This includes avoidance, reduction and reuse.

9.3 Home composting

Home composting of garden and food waste by households is an important method of diverting biodegradable waste from residual waste. It can also provide cost savings and environmental benefits by reducing the quantities requiring collection as part of garden and food waste collections for centralised composting.

As the material is collected by households in their own homes, the levels of participation and quantities diverted cannot be monitored using the methods described in Chapters 7 and 8. This section provides some pointers on what can be monitored and how it might be useful.

9.3.1 What type of composting are we talking about?

Several methods of composting involving enclosed bins are used by householders (e.g. wormeries), but these are usually limited to food waste only. The guidance here is for monitoring waste prevention via open-bottomed containers, as this is the main method households use to compost food and garden waste.



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9.3.2 How can I find out how many households have compost bins?

Most home composting schemes are of an opt-in nature, so it is good practice to keep a record of how many bins have been sold to householders or provided for free by your scheme.

If you haven't got a historical record of bins provided or your records are incomplete, you could establish current composting levels by conducting a survey to identify the existing number of composters in your area. This may include households using bins bought through a council scheme or bought privately, as well as homemade bins and loose heaps.

All the types of composting listed above **can be** included in diversion estimates (see Section 9.3.6). At present, containers intended only for food waste such as wormeries and food waste digesters are not suitable for applying waste diversion estimates.

A survey approach will give a broad picture of claimed composting activity and, if combined with the committed composter metric questions (see Section 9.3.3) also indicates commitment to home composting. It is possible to include survey questions on food waste digesters and wormeries to give context as to the number of these kinds of bins in use, even though you cannot measure waste prevented. A survey will make it possible to work out how many people are composting in your area, with or without buying a bin from you. However, to know how much composting is a direct result of your work, bin sales will offer a more accurate picture to calculate diversion. See Annex 3 for examples of questions that can be used to gather information about home composting activity.

To find out what the home composting participation rate is in your area, a survey question should be asked of a representative set of households with access to a garden or other outdoor space, such as an allotment.

The home composting participation rate is defined as:

$$\frac{\text{number of hhlds with access to an outdoor space that are home composting}}{\text{total number of hhlds with access to an outdoor space}} \times 100\%$$

A screening question early on in the survey should be used so that the home composting participation question is only asked of households with such an outdoor space. A suggested question is:

Q. Do you have access to any of the following?

- Private garden
- Allotment
- Patio/yard/balcony
- Shared garden
- None of these



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To determine participation this question could then be followed with:

- Q. Have you or your household used any of the following to compost garden and/or food waste at home in the last 12 months?
- Council-supplied compost bin
 - Privately bought compost bin
 - Loose heap
 - Home made compost bin
 - Wormery
 - Bokashi unit
 - Leaf moulding
 - Other

9.3.3 *What is a committed home composter?*

WRAP has developed a 'committed home composter' metric to help you measure the commitment to composting of those that have a compost bin. This metric consists of a series of questions which, when analysed in combination, will tell who is committed to home composting. You can use this metric in any attitudinal survey work that you conduct to measure home composting behaviour. It makes it possible to establish whether home composting households are committed and therefore likely to persist with composting, compost more things more often and seek out solutions if they come across problems with composting.

Someone can be defined as a committed home composter using the following responses to three questions. See Annex 3 for the standard format that should be used when asking these questions and recording responses. (Please note that they should be asked in the exact order and with the exact wording provided.)

- Q1. Which of the following statements best describes how important home composting is to your household generally?
- Very important
 - Fairly important
- Q2. Which of the following statements best describes how much effort your household is prepared to put into home composting?
- We are prepared to compost at home even if it requires a lot of additional effort
 - We don't consider it requires additional effort as it is part of our normal routine
- Q3. Which of the following statements best describes how much your household composts at home?
- We compost everything that can be home composted
 - We compost a lot, but not everything that can be home composted

A committed home composter is defined as someone who answers 'very important' or 'fairly important' to Question 1, **and** 'are prepared to compost at home even if it requires a lot of additional effort' or 'it is part of our normal routine' to Question 2 **and** 'everything' or 'a lot' to Question 3.

In other words, a person who is defined as being a committed home composter will state that home composting is important to their household, they are prepared to put a lot additional effort into home composting and they compost all or most of what can be composted at home.

9.3.4 How can I establish how much waste is being diverted and the costs savings?

The current model for estimating how much waste is diverted from kerbside collections of refuse and garden waste via home composting is described below. Previous estimates focusing just on residual waste diversion have been updated in light of the increased provision of garden waste collections by local authorities.

In order to use the most robust estimates possible the diversion factor does not include diversion from household waste recycling centres (HWRCs), although some diversion from HWRCs is achieved by home composting. Issues to do with boundaries and catchment areas for example, have made it impossible to accurately model the contribution home composting makes to reducing the amount of garden waste arising at HWRCs.

It is important to bear in mind that home composting remains a cost-effective and environmentally preferable option than landfilling for dealing with garden waste. The method outlined below will enable you to work out both how much waste is being diverted via home composting in your area and approximate cost savings through this activity.

9.3.5 What do I need to know to estimate how much material is being composted?

You can estimate the quantity of material that is being composted, and hence prevented from entering your collection systems, via supported bins (e.g. supplied by you) and/or unsupported bins (e.g. households using their own bin). To do this you need to know the following information:

- the number of composting households in your area that are composting using bins supplied by you; and/or
- the number of composting households in your area that are composting using their own bins or other methods of containment; less
- how many composters have stopped using their bins (i.e., the lapse rate) during each year that you have supplied bins; or
- the proportion of households that have lapsed during the last year (as a proxy to knowing the actual figure; this % should then be applied to each year of the scheme).

You should know the number of compost bins supplied in your area from records of bin sales and/or the number of bins provided via free schemes. The number of households that compost with their own bins or other methods of containment e.g. using a loose heap or home made bin can be determined via a survey. Annex 3 contains examples of questions that can be used to gather this information.

If you do not know the number of bins that you have supplied then it will not be possible to calculate diversion achieved by these bins specifically and it will be necessary to try to capture this information going forwards. Those who have previously supplied bins as part of the WRAP-supported scheme should already be in receipt of data on numbers of bins sold in each year of their participation in the scheme.

To work out the actual number of bins being used and therefore calculate the diversion via these bins, you must **deduct** lapsed composters. Lapsed composters can be calculated specifically for your area or you can use the national likely rate for those giving up. You must do this for each year that you wish to claim diversion.

“The national lapse rate for supported compost bins is 3.9% – unsupported home compost bins have higher lapse rates in the order of 7–9%.”

“Overall home composting is the most cost-effective option compared with both free, fortnightly garden waste collections and landfill.”

You can work out the lapse rate for your area by asking people if they have given up in a survey (see Annex 3 for example questions). If you prefer not to do this or are not conducting a survey, then you can use the national lapse rate for supported compost bins of 3.9%. Unsupported home compost bins have higher lapse rates in the order of 7–9%.

If you wish to estimate the amount of waste that might appear as municipal waste if all householders currently composting (using both supported and unsupported bins) in your area suddenly stopped (an unlikely event) then the participation rate is relevant (see Section 9.3.2). It may also be of interest if you are running wider awareness and promotion of home composting other than just selling or supplying bins. Participation can only be worked out by surveying people to ask them if they have composted at home in the last 12 months.

9.3.6 How can I calculate home composting tonnage figures?

The first step is to take the number composters and reduce it by the figure for lapsed composters for each year the scheme has operated. Use the following equation:

Number of valid composters in the given year =
number of new composters in the given year + (last year's total composters – lapse rate)

Once you have calculated the number of active composters, you can multiply this by the average quantity that this type of composter is assumed to compost each year. The diversion estimate is 150kg per year per composting household. Of this approximately 50kg per year is diversion from landfill and 100kg per year is diversion from municipal composting.

The equation to calculate tonnages is therefore:

$$\text{Diversion (tonnes)} = \frac{\text{number of valid composters} \times 150\text{kg}}{1000}$$

9.3.7 Estimating cost savings from home composting

Once you have worked out the number of tonnes of home composting that you can attribute to your activities it will also be possible to estimate the cost savings that can be achieved. The amount of savings will be affected by the level of subsidy on offer as well as the cost of the alternatives available, e.g. the kind of collection scheme you are offering for garden waste and the type of treatment facility you are using.

The figures given here are average figures and will give you an indication of the financial benefits of home composting. More robust calculations specific to your circumstances will depend on a wide variety of factors. Using the amount of tonnage diverted you could apply the following figures:

- Home composting compared to collecting garden waste for open windrow composting will save on average £70 per tonne, each year, over a ten year period. This is offset against cost of collection and gate fees.
- Home composting compared to landfill will save a local authority on average £121 per tonne over the next ten years (which is the assumed lifespan of a bin). (This is offset against average collection costs, landfill gate fees and the landfill tax with the escalator applied up to 2013).

An example is shown in Table 9.1. The national annual lapse rate for supported bins of 3.9% is assumed here over a period of ten years.

Table 9.1 Example of estimated cost savings from home composting

Variable		Year 1	Year 2	Year 3	Year 4	Year 5	Year 10
A	Number of bins sold	500	500	500	500	500	500
B	Diversion per bin (tonnes) <i>[150kg]</i>	0.15	0.15	0.15	0.15	0.15	0.15
C	Diversion per year (tonnes)	75	75	75	75	75	75
D	Lapse rate (%)	-	3.9%	3.9%	3.9%	3.9%	3.9%
E	Lapse rate (tonnes) <i>[C x D]</i>	0	3	3	3	3	3
F	Diversion – lapse rate diversion (tonnes) <i>[C - E]</i>	75	72	72	72	72	72
G	Cumulative diversion per year (tonnes)	75	147	219	291	363	724
H	Diverted from landfill (tonnes) <i>[G x 33%]</i>	25	49	72	96	120	239
I	Diverted from open window composting (tonnes) <i>[G x 67%]</i>	50	99	147	195	243	485
J	Cumulative saving compared to landfill (£) <i>[H x £121]</i>	£2,994	£5,873	£8,751	£11,629	£14,507	£28,896
K	Cumulative saving compared to open window composting (£) <i>[I x £70]</i>	£3,518	£6,898	£10,278	£13,658	£17,039	£33,940

Once you have calculated the savings you will need to factor in the amount spent promoting and or selling composting bins. Overall, home composting is the most cost-effective option compared with both free, fortnightly garden waste collections and landfill.

9.4 Community composting

Community composting schemes at a local scale are usually operated by allotment groups or community groups, sometimes in partnership with their local authorities. Normally, these types of schemes rely on the public to bring garden waste to designated composting centres. There are some that offer to collect the materials, or which occasionally organise ad hoc collection points (e.g. Christmas tree shredding).

9.4.1 How can I monitor participation?

Schemes offering food or garden waste collections can use the participation rate methods discussed in Chapter 5, while drop-off schemes can adopt the usage monitoring methods described for HWRCs in Chapter 5.

However, in reality it may not be feasible, practical or cost-effective to undertake such comprehensive monitoring of what may be quite a small-scale initiative. In these cases, monitoring of the inputs (e.g. number of people using the site) may be a useful indicator as to activity levels if not actual usage rates.

Options for obtaining such data can include:

- assessing membership figures (if the scheme has a membership base);
- recording drop-offs on site (if the site is permanently staffed); or
- providing a log book on site which people can fill in when they use the facility (useful if the site is normally unstaffed).

None of these are watertight measures. Members may not be particularly active in using the site and not everyone will fill in a log book. But they are tools you might consider using depending on what scheme is in operation and what it is you want to know.

9.4.2 How can I calculate tonnages of diversion?

Many community composting organisations operate on a fairly small scale and do not have the equipment to record the weights of garden waste processed. In this instance, user surveys that seek to establish how much people use a site and how much they bring to be composted (in terms of volume) may be the only viable option to calculate estimated quantities – although this would be very imprecise. Larger community composting organisations, or ones supported with external funding to buy appropriate measuring equipment, may have processing machinery with on-board weighing systems, which can provide readouts of the quantities of material shredded. These schemes should be able to provide regular tonnage figures.

If you are planning a community composting scheme from scratch and/or want to allocate the tonnages to your authority's targets, you'll need to think about how you will measure quantities of material processed and put in systems for collecting this information on a regular basis. The simplest solution would be to ensure that you obtain weighing equipment, which is integrated into the machinery used for processing. This will make weighing and recording the information a lot easier, more reliable and less time-consuming than making estimates on the basis of user surveys. This equipment is likely to come at a price, but it will be a worthwhile investment in terms of measuring the impact of the activity in tonnage terms.

If you want to allocate the tonnage from a community composting scheme towards your authority's targets, you will need to differentiate between material arising from household sources and any other municipal sources such as parks waste, or any commercial waste handled by the scheme.

9.5 Grass cycling

Grass cycling involves leaving grass clippings in situ when a lawn is cut. You can either use a special mulching lawnmower that cuts grass into very fine pieces to help it to break down rapidly, or an ordinary lawn mower cutting at more regular intervals to ensure it decomposes rapidly.



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9.5.1 How can this be monitored?

This is a relatively new area of waste prevention and so there are no industry standards for monitoring. Local authorities could ask local retailers of mulching mowers to keep a record of sales. However, due to the variety of products available from numerous retailers (including online suppliers), collecting and collating these data would be very difficult.

If you wanted to track awareness of this activity as a result of promotion, you could add a question about grass cycling in a waste prevention survey.

Currently there is no agreed data on the amount of grass produced from lawns therefore it is not possible to provide details on how to calculate tonnage diversion for this activity. Information on how Dorset County Council calculated diversion can be found in WRAP's online Waste Prevention toolkit at:

http://www.wrap.org.uk/applications/waste_prevention_toolkit/restricted.rm.

9.6 Food waste prevention

The main initiative at present to prevent food waste is the 'Love Food Hate Waste' (LFHW) campaign. This section describes how to monitor this specific type of campaign.

Food waste may be a material that you collect at the kerbside. If this is the case, you should apply the monitoring methodologies outlined in Chapters 4–8.

Some local authorities that have introduced food waste collection services have found that the overall food waste arisings figures drop over time. By monitoring their food waste collection tonnages and determining a kg per household per year (kg/hh/year) figure, they have shown that a genuine reduction in the total amount of food waste produced. However, the cause of such reductions is still not proven. It may be that the amount of food wasted by householders suddenly becomes more obvious when they have to separate it for collection and that they therefore change their behaviour, although it has also been suggested that other factors (e.g. lower moisture content levels of materials separated for collection) may contribute to a decrease in weight figures. Regardless of the cause, to be sure that you are seeing a genuine reduction in food waste and not a displacement of the material from one collection stream into another, you would need to monitor both the amount of food waste collected as well as the amount present in the residual waste stream.

As this chapter focuses on waste prevention activities, the following deals only with food prevention and not with food waste collections.

9.6.1 How can I monitor my LFHW campaign?

As with any promotional campaign, the inputs of your local LFHW campaign should be recorded. Advice on monitoring communications campaign inputs is given in Chapter 10.

To monitor the effect of your campaign on people's attitudes and claimed behaviour, a survey will be required before and after the campaign to determine the percentage of **committed food waste reducers** in your area. WRAP has developed a series of questions specifically designed to measure changes in attitudes to food waste which together can be used to estimate commitment to food waste prevention. The change in committed food waste reducers can also

TOP TIP

All campaigns aimed at delivering food waste reduction should use WRAP's metric for committed food waste reducers – make sure to use all five questions!

be used in conjunction with other information to estimate the quantity of food waste avoided (see Section 9.6.3).

9.6.2 What is a committed food waste reducer?

Someone can be defined as a committed food waste reducer using the following questions, which should be asked with this exact wording, in the order presented below.

Questions 1a and 1b are included to make sure that the person answering the survey questions has some responsibility for managing food shopping or preparation. They should be excluded from the survey if they have no responsibility for either.

Q1a. How responsible are you for food shopping in your house?

Q1b. And how responsible are you for the preparation and cooking of food in your house?

Question 2 is referred to as a 'framing statement' and this is included to encourage the person answering the survey questions to think about all types of food waste, before they try and quantify how much they waste in Question 3. Each respondent will be asked to consider a number of different food types in Question 2 (see Annex 3 for the full list).

Q2. And thinking generally, how much of the following have you thrown away into the bin?

Q3. Thinking about the different types of food waste we have just discussed, how much uneaten food, overall, would you say you generally end up throwing away?

- Hardly any
- None

Q4. Thinking about when you have to throw food away, to what extent, if at all, does it bother you?

- A great deal

Q5. How much effort do you and your household go to in order to minimise the amount of uneaten food you throw away?

- A great deal

A committed food waste reducer is defined as someone who has some responsibility for food shopping or preparation (or both) and then answers 'hardly any' or 'none' to Question 3, **and** 'a great deal' to Question 4 **and** 'a great deal' to Question 5.

In other words, a person who is defined as being a committed food waste reducer will state that they throw away hardly any or no uneaten food, be bothered a great deal about throwing away uneaten food, and will put a great deal of effort into minimising the amount of uneaten food they throw away.

The committed food waste reducers metric should always be included in any survey seeking to measure the impact of a LFHW campaign. Annex 3 contains the full set of possible answers to these questions. For more on surveys, see Chapter 4 and on sampling see Chapter 3.



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9.6.3 How can I determine the amount of food waste that has been prevented?

WRAP studies have shown that a committed food waste reducer (CFWR) household will throw away less food than households that are not defined as CFWR; they waste approximately 1.5 kg/hh/week less in terms of total food waste.

Using the results of surveys conducted before and after a Love Food Hate Waste (LFHW) campaign, you can determine the additional number of CFWR households in your area as a result of your campaign. This is how you can apply the survey information to estimate the impact of your own campaign:

- Measure the proportion of CFWRs before the campaign, e.g. 10%;
- Apply this percentage to the number of households targeted by the campaign, e.g. 10% of 50,000 households = 5000 households;
- Measure the proportion of CFWRs after the campaign, e.g. 18%;
- Apply this percentage to the number of households targeted by the campaign, e.g. 18% of 50,000 households = 9000 households;
- Subtract the original number of CFWR households calculated in step 2 from the new number of CFWR households calculated in step 4, e.g. 9000 – 5000 = 4000 new CFWR households;
- Multiply the number of new CFWR households by 1.5kg to get the weekly food waste prevented by the campaign (in kg), e.g. 4000 × 1.5 = 6000kg or approximately six tonnes a week; and
- Multiply the weekly figure (before rounding) by 52 to get an annual figure, e.g. 6000kg × 52 = 312,000kg. Then divide by 1000 to express this in tonnes of food waste avoided annually e.g. 312,000kg ÷ 1000 = 312 tonnes.

However, these figures are estimates only and are based on data that was obtained UK-wide. Although representative of the UK as a whole they may not reflect local situations precisely.

If you wanted to produce local figures you would need to conduct a waste analysis of residual waste and, if you have one, your food waste collection service, to determine the quantities of both types of food waste collected before and after the campaign. If you want to track the changes in food waste arisings during the course of an ongoing campaign you will need to monitor more frequently. WRAP does not recommend that local authorities conduct a waste analysis just for this material unless circumstances require it (e.g. your area is very different to the make-up of the average household, for example, with a high number of flats or ethnic groups). Chapter 7 describes how to conduct a waste analysis.

9.6.4 What should I think about if I'm considering doing a waste analysis of food waste?

If you are already planning to do a waste analysis (and this identifies food waste as a category in your waste sort), then you could obtain food waste information that will help you to assess the success of your LFHW campaign – although you will need to check which sort categories will be used and the timing of the analysis. If you have the opportunity to influence the sort categories, then you should look to specify sorting on the basis of avoidable and unavoidable food waste. Bear in mind, though, that this type of monitoring can be expensive and as there is already a substantial amount of data available about food waste,

If you decide to conduct a waste analysis on food waste, there are two important points to note:



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- **Collections provided.** For authorities that do not provide a food waste collection service, the waste analysis will only need to include the content of residual waste containers. If you offer a kerbside food waste collection service, whether separately or co-mingled with garden waste, you will need to include both the residual and food waste collections in your waste analysis.
- **The difference between avoidable versus unavoidable food waste.** There is a difference between food waste that could have been avoided (e.g. through accurate portion measurements or correct preservation techniques) and food waste that could not have been eaten such as chicken bones. You will need to differentiate between the two in your waste analysis.

9.7 Reuse of thin gauge carrier bags

Currently there are no data to determine the likely tonnage diversion via bag reuse. The only measures for campaigns aimed at reducing the use of thin gauge carrier bags (often referred to as single use carrier bags) are to:

- record the number of bags given away or sold; and
- record the attitudes and behaviours of people using carrier bags.

Annex 3 contains a number of questions that can be used to track a range of attitudes and behaviours related to carrier bags.

9.8 Unwanted mail

Unwanted mail – often called ‘junk mail’ – is a waste stream that many local authorities have chosen to target. It is estimated that unwanted mail could account for up to 3% of waste generated by UK households each year; 40% of it in the form of free newspapers and a further 30% from organisations with which people already have dealings. This section describes the options for reducing unwanted mail and the ways this can be monitored.

9.8.1 *What types of unwanted mail reduction are we talking about?*

The main ways for people to reduce unwanted mail are to:

- sign up to the Mailing Preference Service (MPS) to reduce delivery of addressed mail;
- sign up to the Your Choice Preference Scheme (YCPS) to reduce delivery of unaddressed mail; and
- opt out of Royal Mail door-to-door unaddressed mail.

More information on each of these options and others such as using ‘No Junk Mail’ stickers is provided in WRAP’s Waste Prevention Toolkit available on the WRAP website at:

http://www.wrap.org.uk/applications/waste_prevention_toolkit/restricted.rm.

All the options for reducing unwanted mail require householders to take action for themselves. Monitoring the number of people who have signed up to these schemes is therefore one important way to establish what waste has been reduced.



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9.8.2 Can I find out how many residents have registered for mailing opt out schemes?

The MPS can provide information about the number of residents who have registered with them. To access this information you have to buy a licence. Different options are available, but for the purposes of monitoring a campaign the most cost-effective is an ad hoc request, which costs £50 plus VAT. This allows you to obtain figures for a geographically specific area, so you would need to provide the MPS with details of the postcode area(s) and/or postcodes that you are interested in. Postcode areas (e.g. SW1 for south west London, or OX for Oxford and surrounds) should be sufficient, although in some cases you may want to go to an extra level of detail – especially if you need to exclude particular postcodes that might fall outside your local authority area.



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The data you get will provide the total number of people who have subscribed to the service within the area specified. Since the MPS does not provide data on **when** registrations have been received, you will need to make sure that you request the information twice: once before a campaign and once again afterwards. You can't simply rely on getting the data afterwards and to see how many new people signed up – you won't be able to establish your baseline in this way. If you want to track changes in sign-up figures over a period of time, you will need to make repeated requests, in which case it may be more cost-effective to obtain an annual licence at a cost of £720 plus VAT. Note, however, that this licence is for information across the UK so will be more detailed than you are likely to require.

Further information on licences can be obtained from the MPS Corporate website (<http://corporate.mpsonline.org.uk/mpsC/html/default.asp>).

The Your Choice Preference Service is managed by the Direct Marketing Association (DMA) and information on who is subscribed to this service is available only to DMA door-to-door practitioner members.

It is not possible to obtain data from the Royal Mail's preference service

In the absence of any other way to obtain monitoring data, the only option is to monitor MPS registrations. If you are planning to conduct a general waste prevention survey or any other researches into subscriptions to unwanted mailing opt out schemes, you may also want to include a question that asks residents if they subscribe to the other services.

9.8.3 How can I assess the impact in tonnage terms?

Some Local Authorities have measured the amount of junk mail diverted before and after a campaign. This has produced an estimated diversion of between 4 (MPS only)-11(all options) kg/hh/pa. This data has not been verified by WRAP but could be used to provide an indication of tonnage diversion.

The best approach, if resources are available, is to analyse the waste of a sample selection of households before and after promoting mailing opt out services.

However, we recognise that this is a resource-intensive way to monitor so it is only recommended if you are already planning waste analysis at times that are before and after an unwanted mail campaign. You will need to make sure that unwanted mail is included as a sorting category to ensure that any junk mail can be identified. Bear in mind that if you are only analysing residual waste, you will only see the unwanted mail that was received but not recycled by the household, not any put out for recycling. To get a fuller picture of what unwanted mail is

being received overall, you would need to analyse both the residual waste and the paper recycling stream.

Remember also that there may be a time delay between your campaign and any observable effect. The DMA advises its subscribers that it can take up to four months for the service to take effect, so take this into consideration when you are deciding on your existing plans for waste analysis work. If you are conducting multi-phased analyses, you should look at results from analyses conducted at least four months after the unwanted mail campaign ends.

There are different ways in which unwanted mail can be identified and categorised during a waste analysis, so you will need to be clear what it is you are looking for and how you want it to be identified in the sorting process. Unopened envelopes which are either unaddressed or addressed to 'The owner' or 'The occupier' are clearly unwanted mail items, but you may also want to look for less obvious items such as advertising flyers or brochures. These items are less clearly unwanted mail, as they may have been obtained by other means (e.g. handed out by retailers or inserted into newspapers and magazines).

A method has been devised for assessing whether mail is likely to be unwanted or not which involves classifying items into:

- 'definitely unwanted mail';
- 'possibly unwanted mail'; and
- 'definitely not unwanted mail'.

These should include, wherever possible, the envelope as well as the contents. Loose leaflets and brochures should be classified as 'possibly unwanted mail' to account for the fact they may have arrived by other means.

Speak to the people conducting the waste analysis for you to get their advice on what options are available. The findings of waste analyses conducted before and after a campaign will give some indication as to whether or not changes have occurred in the amount of unwanted mail received by householders. For more on how to conduct a waste analysis, see Chapter 7.

9.9 Reuse in the community

The donations which people make to charity or reuse initiatives such as local swap shops or Community RePaint schemes are a form of waste prevention, as they keep potentially useful materials in circulation rather than entering the waste stream. As with all the other forms of waste prevention discussed in this chapter, monitoring is essential if you are to understand what change you are contributing to if you decide to promote such activity in your area.

The advice in this section is most appropriate and applicable to scrap stores, swap shops, furniture reuse projects and paint reuse schemes. The same principles can be applied to other forms of reuse, if applicable and practical.

All schemes reporting to funders or claiming reuse credits should keep an auditable trail of the types and levels of waste that they accept. There are two systems for claiming reuse credits as set out in the briefing paper on reuse credits for local authorities and furniture reuse organisations published jointly by the Furniture Re-use Network (FRN), the Local Authority Recycling Advisory Committee (LARAC) and WRAP (www.frn.org.uk/bulky_waste.asp).

- For charities claiming under 100 tonnes per year, the claim should be based on records of items reused, such as a sales book.



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- For charities claiming over 100 tonnes, a fully auditable trail should be in place, which can track items from initial to final household.

It is also useful to keep an audit trail for schemes to track activities against their own internal targets.

Ideally this will involve using weighing equipment and technologies to measure the weights of materials reused. However, sometimes this is not practical (e.g. too expensive for the size of the project) and estimates need to be made.

9.9.1 What can be measured?

At a minimum, records should be kept of:

- number and type of items received/collected
- number and type of items reused or assessed as reusable (e.g. percentage sofas that can be reused because they are both in a suitable condition and have the required fire hazard labels on them, or percentage tins containing enough unhardened paint)
- total quantities of materials (per type) collected (e.g. number and size of paint tins collected, or tonnages of bulky furniture items); and
- quantities of material requiring disposal (e.g. tonnages of donated clothing not suitable for reuse or recycling).

See also Chapter 6, Section 6.11 for advice on how to determine the quantity of material reused and pointers on the importance of assessing the quality of potentially reusable items.

9.9.2 How can reuse tonnages be determined?

There are two main methods for generating a figure for the quantity of material diverted via reuse schemes.

The first is to estimate tonnages on the basis of how many items of a particular type have been donated and are reusable by the scheme. This is particularly the case for initiatives that deal with furniture and electrical or electronic items. Standard weights for these items have been calculated by the Furniture Re-use Network and are available to download from its website (www.frn.org.uk/statistics.asp).

Multiplying the number of each item reused by the standard weight (in kg) and dividing by 1000 will give you an estimated tonnage for diversion rate purposes. Note that this list provides information on certain categories of material that can be used by initiatives handling specific items. So, for example, tool reuse projects can use the figures for garden items in this list to determine what quantities of material they have been handling. Standard figures for estimating volume have been developed for paint reuse achieved through Community RePaint schemes. (See Annex 1 for a case study about Community RePaint.)

The second method is to physically weigh the reusable items that have been donated. This has been done, for instance, at community swap shop events where the items are weighed using scales (e.g. those used for weighing airline luggage) before they are taken away for reuse. This method is easier to adopt when items are small and light enough to weigh without specialised machinery being necessary.

CASE STUDY

Community RePaint monitoring

Community RePaint is a national network of individual community-based projects which divert leftover and unused paint away from final disposal for reuse by individuals and organisations in social need.

To monitor the effectiveness of the network and its activities, a range of monitoring is undertaken. Data capture templates have been provided to each project in the network so that information can be obtained about:

- the number of paint tins collected;
- the size (in litres) of each tin; and
- an estimate of the volume of reusable paint in each (using the options of ¼, ½, ¾ and full).

Data about the impact of the scheme on social factors such as jobs, training and organisations assisted are also collected.

For more information, see full case study in Annex 1.

9.9.3 Measuring equivalent market value

Reuse projects such as those handling furniture or Community RePaint schemes supply materials free of charge or at significantly reduced rates to people in social need or groups that work with these people. They provide materials to those who might otherwise not be able to afford them at the equivalent market value. This makes a significant contribution towards the furnishing and maintenance of the built environment and can have a highly significant and positive impact on the quality of people's lives.

Determining the market value of the different items redistributed and multiplying this by the number of such items actually reused can derive the equivalent market value of a project's activities. Ideally you should use standard figures provided centrally and verified by national/overarching bodies to measure market value. In the case of paint, for instance, the volume of redistributed paint can be multiplied by the approximate cost per litre of retail paint (which in March 2009 averaged £3.85 per litre). In 2007-08, the equivalent market value of paint redistributed via the Community RePaint scheme was £1.75 million. Standard figures for other material types, such as furniture, do not currently exist. However, the Furniture Re-use Network has previously calculated that, on average, the prices of goods provided via furniture reuse schemes are a quarter lower than shop prices.



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9.10 Washable nappy schemes

Nappy waste represents approximately 2% of overall waste arisings, or 4.5% of residual waste. To monitor washable nappy schemes, you can monitor the amount of effort that you put into promotion (i.e. your inputs), but most importantly you should monitor the impact (i.e. tonnes of nappy waste prevented).

The inputs you can monitor will depend to some extent on the scheme you are running and the resources it provides. Some schemes, for example, offer incentives or vouchers for purchasing washable nappies. Others provide residents with a loan pack, which is provided on a trial basis so that parents can test out the nappies.

Chapter 10 gives some good examples of inputs for communications work that you should apply to any real nappy engagement work that you conduct. Other examples include:

- number of visits made and/or talks given to ante-natal groups or similar, and number of people spoken to at these;
- number of people who indicate at such talks that they intend to take up using real nappies;
- number of real nappy vouchers distributed;
- number of real nappy vouchers redeemed or incentives handed out; and
- number of real nappy loan packs provided

The ultimate aim of your monitoring should be to estimate the quantity, in tonnes, of disposable nappies that would have gone to landfill had those parents who use washable nappies used disposables instead. To do this, use the online nappy tonnage conversion tool available to download via the WRAP website at:

http://www.wrap.org.uk/applications/waste_prevention_toolkit/

An alternative method has been developed by the Highland Real Nappy project (HNRP) based on the tonnage conversion toolkit to take into account the different

CASE STUDY

Highland Real Nappy Project

The Highland Real Nappy Project (HNRP) has developed a method of monitoring the impact of nappy projects (based on the tonnage conversion toolkit) that takes account of the different levels of usage between those using the project's starter packs and trial kits.

Based on follow-up surveys with users, the project determined the proportion of parents who used the trial kits and starter packs. Using this information, and the standard nappy conversion tool, the project can now estimate total tonnes diverted as a result of the work done to supply starter packs and trial kits to promote real nappy use.

For more information, see full case study in Annex 1.

levels of usage between those that use starter packs and trial kits. For more information see the Highland Real Nappy Project case study in Annex 1.

9.11 Summary of chapter

This chapter has:

- defined what is meant by the term 'waste prevention' (Section 9.2);
- described how to monitor home composting, community composting and grass cycling (Sections 9.3 to 9.5);
- differentiated between monitoring of food waste prevention and food waste collection schemes (Section 9.6),
- provided advice on how to monitor a food waste prevention campaign (Section 9.6.1) while sign-posting readers to the advice in Chapters 4–8 for information on how to monitor a food waste collection;
- described how to monitor bag reuse as a waste prevention activity (Section 9.7);
- described how to monitor unwanted mail campaigns (Section 9.8);
- explained how reuse of items such as furniture, paint and scrap materials can be measured and described methods for monitoring reuse projects handling these materials (Section 9.9); and
- described how to monitor washable nappies schemes (Section 9.10).

9.12 Where do you want to go next?

Chapter 1 provides an **introduction** and helps you decide which chapters you need to look at.

Chapter 2 explains how to set **monitoring aims, objectives and KPIs**. It then explains how to use the results of monitoring to **improve a service or scheme or to measure the effects of a communications campaign**.

Chapter 3 gives details for consideration when **sampling and profiling**.

Chapter 4 deals with monitoring **awareness, claimed behaviour and satisfaction**.

Chapter 5 deals with monitoring service or scheme **usage and participation**.

Chapter 6 looks at the use of **tonnage data**.

Chapter 7 explains how to measure **capture rates**.

Chapter 8 considers monitoring of **contamination levels**.

Chapter 10 deals with monitoring **communications campaigns**.

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