

WR1204

# Household Waste Prevention Evidence Review: L2 m3 – Engaging Consumers

A report for Defra's  
Waste and Resources Evidence Programme

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## L2 m3 Consumers – *engaging*

This paper focuses on consumers and household waste prevention. More specifically it looks at how the public is *engaged* in waste prevention activities through voluntary action. The following aspects are addressed:

- Coverage of the review
- Options available to consumers
- Who participates in waste prevention activities?
- To what extent are waste prevention activities practised?
- Behaviour change theories and waste prevention
- Motivations behind waste prevention behaviours
- Barriers behind waste prevention behaviours
- Impacts of household waste prevention behaviours
- Role of external stimuli
- Discussion of policy implications and issues

Related report modules are:

L1 m1 Executive Report	L2 m1 Technical report (section 3)	L3 m3/1 (D) Extent to which waste prevention behaviours are practised L3 m3/2 (D) Motivations and barriers L3 m3/7 (T) Attitudes & behaviour – food waste L3 m3/7 (T) Attitudes & behaviour – home composting L3 m3/7 (T) Attitudes & behaviour – reuse L3 m3/7 (T) Attitudes & behaviour – everyday actions around the home L3 m3/8 (T) Consumer segmentation L3 m5/2 (D) International review L3 m7/1 (D) Stakeholder views on waste prevention
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### 1.1 Coverage of the review

A large body of evidence on consumer attitudes and behaviour to waste prevention was uncovered. In addition to academic papers and practice reports, the evidence includes a number of WREP projects which looked at consumer engagement with waste prevention from different angles:

- **WR0112 Tucker & Douglas** – a large scale review of mainly academic literature and development of a cross sectional model to explain waste prevention behaviour.
- **WR0116 Dorset** – a three year action research programme to investigate engagement tools (doorstepping, local events, information) and monitoring & evaluation (M&E) approaches.
- **WR0117 Hampshire County Council & Brook Lyndhurst** – a three action research programme running four pilot projects to investigate consumer engagement through small group working and a lifestyles approach; also to undertake a range of M&E techniques.
- **WR0114 GAP** Eco Teams with University of East Anglia – an evaluation of behavioural change through a small group approach within a theoretical framework.
- **WR0105 Waste Watch Project Reduce** – a synthesis review of M&E approaches and reported impacts, to explore the feasibility of waste prevention indicators.

## 1.2 Options available to consumers

The evidence review found that there is no standard set of behaviours which is widely accepted as comprising 'household waste prevention'. Unlike recycling, which has a more straightforward behavioural expression, prevention comprises many small, individual, behaviours. Moreover - and again unlike recycling - prevention behaviour tends to be invisible, so there is much less likelihood of a social norm effect.

Household waste prevention behaviours which consumers can practice are outlined in table 1. The list of examples is by no means an exhaustive one and a more complete list of the waste prevention behaviours assessed in the evidence review can be found in [L3 m3/1 \(D\)](#).

Behaviour domain	Behaviour category (if relevant)	Some examples of behaviour in practice
Home composting		Buying home compost bin Home composting
Junk mail		Signing up to MPS
Reuse*	Public reuse (involves a product exchange with a third party)	Donation, buying second-hand or selling -
	Private reuse (self directed behaviour)	Small behaviours around the home (e.g. reusable bags, reusable nappies)
	Service enabled private reuse (self directed behaviour dependent on service provided by third party)	Buying refillables Using self-dispensing systems Product service systems
Smart shopping/purchasing choices		Avoid single-life products Avoid offers (e.g. buy one get one free (BOGOF)) Don't buy plastic bottled water Reject over-packaged goods Buying loose produce/in bulk
Food waste prevention		Planning meals Reuse leftover food
Repair		Try to repair broken goods rather than renewing them
Other		Reduce household hazardous waste

**Table 1** Options available to consumers

\* these categories were developed for the purposes of this review based on a consideration of how the behaviour is practised and its relationship to non-household stakeholders, rather than a formal categorisation based on reported behaviours.

As an illustration of the lack of agreed standard sets of waste prevention behaviours both Tucker and Douglas (2007, WR0112) and Barr (2007) in their primary data gathering used different sets of waste reduction behaviours; neither included home composting; and while Tucker and Douglas included a couple of public reuse behaviours Barr did not.

## 1.3 Who participates in waste prevention activities?

Depicting a profile of a typical person who participates in waste prevention activities is not easy since different kinds of people undertake the different behaviours. In very broad terms, however, waste prevention behaviours tend to be more prevalent among individuals who are: older; middle to high income; female; living in detached properties; not living with children at home; and more concerned about the environment.

The following is a broad generalisation of some of the main socio-demographic difference observed in the literature. For further detail on who practises waste prevention and differences between behaviours see **L3 m3/1(D)**.

## Environmentally concerned

Tonglet et al. (2004) and Tucker and Douglas (2006a, WR0112) both noted in their literature reviews that individuals who are concerned about environmental issues are frequently reported to be more interested or engaged in waste prevention. This finding is echoed by pilot community outreach projects such as the 'What not to Waste' waste prevention initiative in four London Western Riverside boroughs and the 'Small Changes Big Difference' (SCBD) project in Hampshire (Waste Watch 2007a; Brook Lyndhurst, 2008, WR0117). In SCBD in Hampshire, already being active in the community was another characteristic of the people attracted to the pilot projects.

OVAM (2008), on the other hand, suggest that people cannot be segmented into categories of "environmentally conscious" and "environmentally less responsible" consumers<sup>1</sup>. They note that people's consumption behaviours can fluctuate, and often vary depending on the product domain (e.g. one person can be environmentally conscious on food purchases but not when it comes to holidays). This could provide a potential explanation as to how environmental concern can at times be unrelated to waste prevention behaviour, while at other times there is a clear correlation between the two.

## Presence of children

Households with no children appear to be the most likely to take part in waste prevention. Tonglet et al. (2004) investigated a range of waste minimisation/prevention behaviours, and found that households with no children were the most likely to engage in all of the behaviours considered, while households with children under 12 were the least likely to do so. Action research with targeted life stage groups in Hampshire (Hampshire County Council & Brook Lyndhurst, 2008, WR0117) found that retired groups were likely to think they were not wasteful but new parents were more receptive to adopting waste prevention behaviours.

WRAP's (2007b, 2008) research on food waste further found that households with children were no more likely than other households of a similar size to waste food – despite claiming to engage in various behaviours (such as cooking different meals for children) which might be expected to result in higher levels of food waste. Overall, larger households do waste more food, while those with children show similar levels of waste food per head.

## Gender

The evidence suggests that women are more likely than men to practice waste prevention generally (Tucker & Douglas, 2006a, WR0112; Barr, 2007). Some of the specific waste prevention behaviours suggest a similar pattern. For example, Tonglet et al. (2004) found that women were more likely than men to engage in reuse and repair behaviours and Andrew Irving Associates (2005) found that women were more likely to have bought a reusable bag. Men are more likely, though, to use commercial second hand goods channels (ACS, 2006). Watson (2008) and Barr (2007) comment that some of these differences may be due to traditional gender roles (e.g. women may be more likely to own a reusable bag because they are more likely to be in charge of shopping), rather than to any differences in attitudes and values between the genders.

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<sup>1</sup> Defra's framework for pro-environmental behaviours takes a different view, and their segmentation model incorporates environmental attitudes and beliefs. See <http://www.defra.gov.uk/evidence/social/behaviour> for details. See also 'Behavioural Segmentation' below.  
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## Age

Most of the evidence suggests that older people are overall more likely than younger people to be engaged in waste prevention behaviours (Tonglet et al., 2004; Tucker and Douglas, 2006a, WR0112). Older people, especially retired people, are thought to have more time – and, potentially, a greater need from a financial point of view – for certain waste prevention behaviours, such as home composting, planning their food shopping and sorting items for reuse (Tonglet et al., 2004; Parfitt, 2006; WRAP 2007b; Gray & Toleman 2006).

On the other hand, the younger generations (25-44 year olds) were more likely to have exchanged items on Freecycle and bought or sold eBay, as well as buying from furniture reuse organisations (ACS, 2006). The Hampshire SCBD study also noted that older people report that they are more engaged in waste prevention but on closer inspection they may not necessarily be wasting less than younger people, and some may be less receptive to change (Brook Lyndhurst, 2008, WR0117).

## Household size and type

There is less of a consensus around the role of household size and type. Generally, the literature suggests that larger households engage less in waste prevention activities. However, for certain activities, this was found not to be the case. Larger households tend to buy more in bulk, hire instead of buy and use rechargeable batteries (Tucker & Douglas, 2006b, WR0112). Tucker and Douglas also found that households in detached properties are more likely to donate to charity, hire rather than buy, reuse clothing as rags and use rechargeable batteries. Although larger households have been found to waste more food overall than smaller households, they tend to waste less food per capita (WRAP, 2008). A typical home composter would tend to live in owner-occupied accommodation and have a larger garden than average (Gray and Toleman 2006; Parfitt, 2006).

## Social class

Variations by social class may be dependent on the type of waste prevention behaviour in question. The evidence suggests that those in higher social grades are more likely to engage in home composting (Gray and Toleman 2006; Parfitt, 2006), and some donation / passing on for reuse behaviours (ACS, 2006), while those in lower social grades are more likely to engage in behaviours involving buying second-hand, as well as some involving selling for re-use (ACS, 2006).

## Behavioural segmentation

Academic research is often concerned with exploring how waste (and, often, other pro-environmental or 'resource conservation') behaviours are categorised together (e.g. Tucker and Douglas 2006b, 2007 WR0112; Barr, 2007). Authors show that (a) [private] reuse is distinct from recycling, both in its practice and motivations (Tonglet et al., 2004); and (b) tends to form a separate category within waste prevention behaviours. Tucker and Douglas further show that private reuse behaviours are distinct from reuse behaviours which involve 'valorisation' – that is either selling or donating goods to others for reuse, or buying second hand. They usefully identify five observed categories of behaviour:

- Private reuse
- Point of purchase decisions
- Minimising the purchase of new resources ('new buy')
- Valorisation of unwanted goods (e.g. selling or buying second hand)
- Use of disposable and long life products (pre-emptive shopping choice)

## Participant segmentation

Barr et al. (2005) carried out cluster analysis to identify groups of people with similar behaviours, and developed the following segmentation: 'Committed environmentalists', 'Mainstream environmentalists', 'Occasional environmentalists' and 'Non-environmentalists'. The 'Committed environmentalists' had an average aged of 55, only 35% were male and tended to live in a small owner-occupied household.

LCRN (2008) have also developed four categories of customer profiles identified by reuse organisations (on the basis of qualitative observation rather than statistical analysis):

- Traditional - referrals of people on an income related benefit
- Thrifty - elderly, students, and people unwilling to declare benefit status
- Green - people who prefer to reuse rather than buy new
- Fashion - people looking for something retro, funky, kitsch and quirky

Other studies (e.g. Watson, 2008) have broadly thought of two categories of people who engaged in reuse activities: those that have to buy second hand mainly due to economic constraint; and those that choose to buy reused but are not compelled to do so.

## Who to target in future?

OVAM (2008) suggest that the baby boomer generation (42-62 year-olds) are likely to be an important target group, because they are due to retire in the near future and will therefore have more time to devote to environmental concerns (they also note that this was the original 'mass consumer' generation, which means that there may be potential to tap into any feelings of guilt they may harbour for current environmental problems, as a motivator for action). OVAM goes on to suggest that in promoting sustainable consumption, the "consumption junction", or the moment the consumer is in the store and choosing products is the crucial time and place for steering consumers towards more sustainable purchasing choices.

Some of the assumptions underlying this view could be questioned (e.g. the impact of the pensions squeeze on the boomer generation and the credit crunch). A detailed futures scenario exercise by Brook Lyndhurst (2007, WR0104), however, concluded that the lifestyle choices of middle-aged people living in single households will be particularly important in determining the overall scale of change in waste arisings in future, because these are set to be the fastest growing type of household, are expected to have relatively high disposable incomes, and may have high waste-generating potential lifestyles.

## 1.4 To what extent are waste prevention activities practised?

The evidence suggests that the majority of the population are carrying out some (usually small) waste prevention activities at least part of the time (see discussion on frequency below). A number of surveys have investigated various waste prevention behaviours and the extent to which these are carried out. Table 2, below, summarises the data reported in the reviewed material.

### Limitations of the data

Most of the figures vary widely due to a number of factors, such as:

- Question wording – e.g. 2% of people buying second-hand items comes from a survey which asked specifically about buying "second-hand appliances all the time" (Brook Lyndhurst, cited in Watson, 2008), while the 69% comes from a survey which asked about "having bought something in a charity shop" (ACS, 2006).

- Unspecific definitions - some behaviours, such as buying refillables and private reuse, vary depending on the specific item in question. Reuse in particular is not defined in the same way across authors (e.g. reusing plastic bags may be “reuse” or “reduction”, for example).
- Open vs. closed ended questions – e.g. some surveys asked respondents directly whether they compost, while others asked them to name any ‘waste prevention behaviours’ they undertake. Over-claiming in closed ended survey or prompted questions is common, and also when questions are asked hypothetically (e.g. noted for reuse in Curran et al, 2007).

## Behaviours practised

Table 2 shows estimates for the extent to which various prevention behaviours are practised. The more detailed table in **L3 m3/1 (D)** includes the individual items that the ranges below are based upon, and their sources.

Waste prevention behaviour	Percentage	Sources
Buy refillables	10-60%	Lofthouse & Bhamra, 2006b, WR0113; Tonglet et al., 2004; Tucker & Douglas, 2006a, WR0112
Buy in bulk	<5-60%	Tucker & Douglas, 2006a, WR0112
Buy recycled	20-30%	Barr et al., 2005
Private reuse	30-80%	Andrew Irving Associates, 2005; Barr et al., 2005; Tonglet et al., 2004; Tucker & Douglas, 2006a, WR0112; Defra behaviours survey, 2007
Donate unwanted items	24-82%	ACS, 2006; Tucker & Douglas, 2006a, WR0112; Ipsos MORI 2009
Avoid packaging	10-40%	Barr et al., 2005; Tonglet et al., 2004; Tucker & Douglas, 2006a, WR0112; Defra behaviours survey, 2007
Buy loose fruit or vegetables	10-90%	Tucker & Douglas, 2006a, WR0112; WRAP, 2007b
Buy second-hand	2-69%	ACS, 2006; Watson, 2008
Repair	<5-70%	Tonglet et al., 2004; Tucker & Douglas, 2006a, WR0112; Watson, 2008
Use rechargeable batteries	38-40%	Tonglet et al., 2004; Tucker & Douglas, 2006a, WR0112
Buy long-life products (e.g. light bulbs)	40-47%	Tonglet et al., 2004; Tucker & Douglas, 2006a, WR0112
Use cloth nappies	3% of the population  3-5% (hh with children under 3)	Tucker & Douglas, 2006a, WR0112  Ipsos MORI 2009
Prevent junk mail (unspecified)	<5-33.9%	Tucker & Douglas, 2006a, WR0112; Tucker & Douglas, 2006b, WR0112
Register with MPS	15-16%	Ipsos MORI, 2008a; Tucker & Douglas, 2006a, WR0112
Share appliances	9%	Tonglet et al., 2004
Sell unwanted items	22-40%	ACS, 2006
Compost	14.1-35.3%	Barr et al., 2005; Gray & Toleman, 2006; Parfitt, 2006; Tucker & Douglas, 2006a, WR0112; University of Paisley, 2006b; WRAP, 2007a ; WRAP, 2007b
Use own shopping bag	10%-55%	Andrew Irving Associates, 2005; Barr et al., 2005; Tonglet et al., 2004; Tucker & Douglas, 2006a, WR0112; Ipsos MORI, 2008b; Defra behaviours survey, 2007
Avoid food waste – WRAP committed food waste reducer	14%	Ipsos MORI, 2008b

**Table 2** Extent to which waste prevention behaviours are practised

## Frequency

There is a body of evidence which suggests that waste prevention behaviours are carried out some of the time rather than all the time (Tucker & Douglas, 2006b, WR0112; Tucker & Douglas, 2007, WR0112; ACS, 2006; Watson, 2008).

Barr (2007) also found that waste reduction and reuse behaviours tended to be less consistent than recycling behaviours. Of the respondents to his survey (n= 673 residents of Exeter), similar numbers stated that they always recycle, across a number of material categories, while the numbers of people engaging in specific reuse or specific reduction behaviours were much more varied (e.g. many respondents stated that they buy loose fruit and vegetables, while relatively few stated that they use their own bags).

## Popularity

A number of researchers have commented on the relative popularity of different waste prevention behaviours. The range of activities considered, varies between research projects; this and the differences in methods used means that it is difficult to develop a definitive ranking of the popularity of waste prevention behaviours. The rankings discovered by the two reviewed sources which attempted this are presented below.

**Tucker and Douglas** (2006b, WR0112) found that charity donations and selling unwanted goods were the most popular activities, followed by reuse and purchasing behaviours, while minimising 'new buy' was less popular and rejection of packaging the least popular of all. Giving items to friends and family is the most common public reuse behaviour according to the ACS survey (ACS, 2006, n=997; also supported by Widdicombe & Peake, 2008).

**Barr** (2007) found that private reuse behaviours, repairing things, and buying loose fruit and vegetables (classified as a reduction behaviour) were the most popular of the waste prevention behaviours. In general, reduction behaviours (e.g. using own shopping bag and looking for products with less packaging) were less popular than what Barr defined as reuse behaviours. Recycling behaviours were most common.

Overall, then, the evidence appears to be suggesting that the most popular waste prevention behaviours are donating unwanted items for further use, and in general ensuring that unwanted or broken items which still retain some of their value are reused. Although some of the 'small things', such as rejecting junk mail and reducing plastic bag use, appear popular (Dorset County Council et al, 2008, WR0116), it seems that people are uncertain as to what they can do about these – and external measures to influence them may in fact be more popular: the research by Obara (2005) also uncovered widespread support for a plastic bag tax as an effective way of reducing waste.

## Links to recycling

Research has suggested that waste prevention behaviours are poorly correlated with recycling. The literature review carried out by Tucker and Douglas (2007, WR0112) found evidence to suggest that waste prevention was either negatively or not at all correlated with kerbside recycling, although their own primary research indicates that it may be positively correlated with bring-bank recycling. The authors suggest that highly motivated recyclers who recycle beyond their kerbside scheme may also be motivated to prevent waste, while less motivated recyclers who only take advantage of the kerbside scheme may also lack the motivation for waste prevention.

In relation to food waste, WRAP did note in its evaluation of food waste collection trials (2008) that a very small proportion of households had started new prevention behaviours after receiving a collection: 8% recognised an increased need to avoid food waste; 5% said they now think about the food they buy.

It is worth mentioning that many of the surveys and documents reviewed highlighted a degree of confusion amongst the public - as when asked about the waste reduction activities they tended to consider recycling activities part of waste prevention especially if questions were unprompted (Tucker & Douglas, 2007, WR0112). This conflation of "recycling" with "reduction" in the public mindset is widely reported (and was even apparent among some of the stakeholders involved in the dialogue events).

## Trends in waste prevention activities

Barr (2007) finds that people's willingness to undertake waste prevention behaviours is consistently greater than their actual level of engagement in those behaviours, across a range of behaviours.

The evidence suggests that the public have recently become more involved in waste prevention behaviours. For example, Tucker and Douglas (2006b, WR0112) asked their survey respondents whether they had intensified their waste prevention activities in the previous two years, and 80% claimed to have done so. The authors note, however, that the respondents may have been thinking about their recycling behaviour in answering this question, as the results also suggested that respondents tended to consider recycling to be part of waste prevention (Tucker & Douglas, 2007, WR0112).

Some of the sources reviewed also note an increase in the popularity of waste reduction activities in recent years, especially reuse (LCRN, 2008; Widdicombe and Peake (2008)). Home composting also appears to be on the increase (Gray & Toleman, 2006). Much of the evidence, however, is based on anecdote or partial data with WRAP providing the only properly reliable consumer tracking data.

## 1.5 Behaviour change theories and waste prevention

A number of authors have used behaviour change theories either to explain or try to predict waste prevention behaviour (e.g. Tonglet et al.; 2004, Barr, 2007) or have reviewed others' work in this area (Tucker and Douglas, 2006a, WR0112). One of the most widely used is the theory of planned behaviour (Ajzen & Fishbein, 1975; Ajzen, 1991), which proposes that intention to act derives from three factors: a person's attitude, whether they feel able to act (known as 'perceived behavioural control') and wider social norms. Under the right external conditions (e.g. no limiting barriers), intention is expected to translate into action.

The theory of planned behaviour is just one of the many social psychological frameworks that are being examined and applied in pro-environmental behaviour change research (including Defra's programme on sustainable consumption<sup>2 3</sup>). This body of applied theory points to the following as being important considerations at a practical level (Tucker and Douglas, 2006a, WR0112: Hampshire County Council & Brook Lyndhurst, 2008, WR01174):

- **Personal values, norms and identity** – including whether I feel the issue is important, I feel responsible, I feel I am the kind of person who does this, and I feel I am able to do it, the perceived difficulty and costs;

<sup>2</sup> Defra's programme of social research on pro-environmental behaviour can be found here <http://www.defra.gov.uk/environment/business/scp/evidence/theme3/sustain-consump.htm>

<sup>3</sup> Other key sources include various papers by Professor Tim Jackson [http://portal.surrey.ac.uk/portal/page?\\_pageid=822,512810&\\_dad=portal&\\_schema=PORTAL](http://portal.surrey.ac.uk/portal/page?_pageid=822,512810&_dad=portal&_schema=PORTAL) and Andrew Darnton's review of theories for government social researchers [http://www.gsr.gov.uk/downloads/resources/behaviour\\_change\\_review/practical\\_guide.pdf](http://www.gsr.gov.uk/downloads/resources/behaviour_change_review/practical_guide.pdf)

- **Social norms and identity** – either whether I want to act because I see others do it (descriptive norm), or I feel obliged to do it because most people do it (injunctive norm), whether I get praise from others for doing it, or it gives me a sense of social 'belonging';
- **External conditions** – whether I have access to services or products or whether there are other barriers that are out of my control;
- **Habits** – not all action is reasoned (and therefore not subject to the direct influence of values, norms and so on) but theoretical mechanisms are described for breaking into habits and 're-freezing' new ones (e.g. 'cueing' of desirable habits, learning by doing etc.)<sup>4</sup>.

One of the WREP studies (Nye & Burgess with Global Action Plan, WR0114) also used a sociological theory – Giddens' theory of structuration – as a framework for their analysis (though as far as we can tell, the design of the projects' activities was not built around this framework).

In the literature reviewed, theories were used largely to try to *explain* observed behaviour rather than to *create predictive models* (Tucker and Douglas, 2006a, WR0112), or *design intervention projects*. One exception was Hampshire County Council & Brook Lyndhurst (2008, WR0117), which took into account insights from theoretical perspectives into project design (including psychological theories and Defra's 4E's model, set out in the UK Sustainable Development Strategy, 2005). The following discussion on motivations reports on how useful authors found theoretical models in explaining prevention behaviour.

## 1.6 Motivations behind waste prevention behaviours

The evidence reviewed offered a rich source of insights into the motivations which lie behind waste prevention behaviours. As the activities under the umbrella term of 'waste prevention' are many and varied the motivations behind these are equally numerous and diverse. There is no agreed consensus in the literature as to the relative importance of different motivations, although it appears that their importance varies depending on the specific waste prevention behaviour in question. The following discussion pulls out personal responsibility, self-efficacy, costs, norms and habits as some of the most commonly identified motivators, as well as commenting on the 'unexplained' variation in behaviour. For a detailed account of the motivations for household waste prevention and motivations specifically attributable to individual waste prevention behaviours see [L3 m3/2 \(D\)](#).

### Variation in prevention behaviour is 'unexplained'

Tucker & Douglas (2006a) provide an extensive review of theories that have been used to try to explain waste prevention behaviour. They conclude that there are flaws in both the models and in the variables that have been selected for inclusion, and "*their successes in explaining real world (target) behaviours have been very modest*".

It is worth noting that the two main studies which analysed a whole host of waste prevention behaviours through consumer attitude surveys found that a majority of the motivations behind waste prevention behaviours were down to a random factor.

In their own modelling, Tucker and Douglas (2006b, 2007, WR0112) stress the random element in driving waste prevention behaviour. Despite investigating a number of potential motivators and drivers, they had to conclude that approximately 70% of variation in waste prevention behaviour could not be explained through these, and appeared to be entirely random. Barr (2007) found this to be 75% for reduction behaviours, 83% for reuse behaviours and only 45% for recycling behaviours (NB this includes recycling textiles).

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<sup>4</sup> See Defra research (forthcoming) *Unlocking habits to enable pro-environmental behaviours - EV0502*  
<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16189>  
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It may be the case that the difficulty authors have in explaining waste prevention relates to the fact that it is, in reality, not a single behaviour but many. Moreover, it is possible that there are missing inputs to the models which are drivers of behaviour but that do not relate either to waste, environmental values or world views (for example, the strength of purchase and food management drivers in WRAP's food waste research – WRAP, 2007b).

Of the documents assessed it was difficult to get a sense of the ranking or order of importance for the motivations as only two documents reviewed attempted to do this (Tucker and Douglas 2006b, 2007, WR0112, Barr 2007) and especially since the motivations often overlap. However, the following motivations were the ones most frequently mentioned across a whole host of studies.

## **Personal responsibility**

According to Tucker and Douglas (2007), the literature suggests that acceptance of personal responsibility shapes the development of personal norms that support waste prevention behaviour (e.g. "I am the kind of person who does this activity"). Their own work also emphasises this relationship, as the strongest link they discovered was between a sense of responsibility and the waste prevention behaviours considered – in particular, the more emotional aspects of responsibility such as duty, satisfaction, embarrassment and guilt. Participants in the 'Small Changes Big Difference' project in Hampshire also stated that they were motivated by a sense of personal responsibility for taking action on the environment to take part. Barr (2007) also states that an active concern and obligation is a significant motivation for reduction and reuse behaviours.

Watson (2008) gives a specific example and notes that selling or donating items for reuse is partly about feeling a sense of responsibility – for the goods sold or donated, rather than to the environment – because unwanted items are perceived as having some remaining embedded value. He calls this an 'ethic of care'. ACS (2006) surveyed waste prevention behaviours involving donating and buying second-hand items, and found that the main motivations for donating to charities or furniture reuse organisations were what could be considered moral motivations.

## **Self-efficacy**

Self-efficacy describes the personal capabilities, confidence, know-how and skills needed to carry out a particular behaviour (Tucker & Douglas, 2007, WR0112). Tucker and Douglas (2006a, WR0112) suggest that a sense of self-efficacy may be very important in first initiating a change in behaviour, and this may be achieved through self-evaluation or feedback from others.

Examples of how a sense of self-efficacy is linked to waste prevention behaviour include:

- Research has suggested that intentions to compost are in part influenced by perceived behavioural control, which encompasses self-efficacy as well as relative personal costs and convenience (Tucker & Douglas, 2006a, WR0112).
- Gray and Toleman (2006) point out that the theory of planned behaviour appears to explain composting behaviour particularly well, and within this model self-efficacy is one of the requirements for people to take up home composting.
- Repair and reuse behaviours also appear to be influenced by the ability to perform the specific behaviours (Tonglet et al., 2004).

## Costs

Costs have a complex role with respect to waste prevention behaviour, having the potential to be both a motivator (discussed here) and a barrier (discussed below). As a motivator, the lower cost of waste prevention options (or a perception thereof) compared to the cost of alternatives can drive waste prevention behaviour. In terms of purchase choices, it is worth bearing in mind that the price/quality ratio may be more important to consumers than price alone, as suggested by research in Europe (OVAM, 2008). A number of studies have suggested that cost may be one of, if not the most important motivator of waste prevention behaviour – for example on home composting (through subsidy), plastic bags (charging), buying from charity shops, switching from bottled to tap water. Specific examples and statistics are given in [L3 m3/2 \(D\)](#).

## Norms

The assurance people gain from social norms that others are taking action can motivate behaviour through creating a sense that individual contributions are not in vain (Tucker & Douglas, 2007, WR0112). Tucker and Douglas (2006a, WR0112) also point out that, importantly, for social norms to have an influence, the behaviour needs to be visible or somehow related to social interactions. Gray and Toleman (2006) note that between 5% and 10% of composters tend to say that encouragement from friends made them start composting.

## Habits

Habits are an important influencing factor on consumer behaviour in general (OVAM, 2008), and Tucker and Douglas (2007, WR0112) suggest on the basis of their literature review that habit is in fact often found to be the main causal factor of behaviour. Habits can work in two directions:

- They can help to maintain established behaviours;
- They can inhibit the uptake of new behaviours.

Examples found in the literature are given in [L3 m3/2 \(D\)](#). A large scale study of the influence of habits on behaviour is currently underway for Defra<sup>5</sup>.

## 1.7 Barriers to waste prevention behaviours

As the types of waste prevention behaviours are multiple and varied and their motivations are equally so, the barriers to waste prevention behaviours almost mirror the above mentioned motivations. For a more detailed look into the barriers highlighted by the research and specifically attributable to individual waste prevention behaviours see [L3 m3/2 \(D\)](#).

### Apathy and attribution of responsibility

This could be seen as the opposite side to personal responsibility as a motivating factor. Lack of motivation, or an apathetic attitude, towards waste prevention behaviours can create a barrier to their uptake (acknowledged e.g. by Maycox, 2003, cited in Tonglet et al., 2004). Some examples from the literature include:

- WRAP's (2007b, 2008) research suggests that many people are simply uninterested in the food waste problem and a large proportion of the population is "in denial" about the amount of food they waste.

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<sup>5</sup> AD Research and Analysis Ltd and The Social Marketing Practice (forthcoming), Unlocking habits to enable pro-environmental behaviours - EV0502.  
<http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16189>

- Ipsos MORI (2008a) found that out of those who were aware of the MPS but had not registered (n=535): 18% were not bothered by direct mail, 17% had not thought about it and 13% were considering it but had not got round to it.
- James Ross Consulting and Butcher & Gundersen (for WRAP, 2008) also point out that apathetic or 'can't be bothered' attitudes can prevent the uptake of refillables.

A common argument against engaging in certain waste prevention behaviours is that it is 'someone else's responsibility'. Ascribing responsibility to retailers and manufacturers is a common argument with respect to packaging waste (Tucker and Douglas, 2007, WR0112; Obara 2005). Furthermore, food waste is often blamed on supermarkets by consumers, for example, WRAP and the Women's Institute (2008) found that the Love Food Champions participants felt food promotions were encouraging consumer waste.

## Inconvenience

Inconvenience or perception of inconvenience can inhibit waste prevention behaviour (e.g. Tonglet et al., 2004; Tucker & Douglas, 2007, WR0112). Inconvenience as a barrier is mentioned with regards to the use of refillables and self-dispensing systems, composting, product service systems, reusable nappies and donating for reuse.

It needs to be stated that quite often barriers such as inconvenience stem from perception or misconception, so respondents who have never tried an activity think it is inconvenient. For example, Gray and Toleman (2006) report that the second most common reason given by non-composters as to why a low-cost compost bin would not motivate them to compost was that it was too much effort, cited by 32%.

## Lack of knowledge, weak self efficacy and sense of powerlessness

In response to self-efficacy as a motivation, the opposite extremes of powerlessness and lack of knowledge and skills come into play. A sense of powerlessness can discourage people from engaging in waste prevention behaviours. Many people feel that their contribution, either to the waste problem or to the solution, is marginal. In particular, the effect of a specific behaviour can seem so insignificant that it appears not to be worthwhile (Tucker & Douglas, 2007, WR0112).

Lack of knowledge of waste prevention options, lack of knowledge about how to carry them out, and lack of the necessary skills can all create barriers to the uptake of waste prevention behaviours (Tonglet et al., 2004; Tucker, 2007a, WR0112; Tucker & Douglas, 2006a, WR0112). These barriers are apparent with respect to a number of waste prevention behaviours. including food waste, composting, nappies, reuse, junk mail, product service systems and hazardous waste (see [L3 m3/2 \(D\)](#) for examples).

## Costs

Costs can be both a motivation and a barrier for different household waste prevention behaviours. Much of the evidence in the literature on cost-related barriers to uptake of waste prevention options is in the area of product service systems, refillables and food waste (see section 4).

Another example relating to cost as a barrier of preventing food waste is supermarket promotions. Offers such 'buy one get one free' and larger packs, encourages people to buy more food than they need (Brook Lyndhurst., cited in WRAP, 2007b; WRAP, 2007b; WRAP & the Women's Institute, 2008; Salhofer et al., 2008).

**Case Study Box:** WRAP's *Love Food Hate Waste* campaign has helped 1.8 million more households in the UK to save money by cutting back on throwing food away. This has resulted in an overall saving of £296 million a year and has stopped 137,000 tonnes of food being thrown away (based on the results of a tracker survey where food waste was reduced by 40%). This prevents 600,000 tonnes of greenhouse gases being emitted, which is the same carbon impact as taking 100,000 return flights to Australia. The target is to prevent 250,000 tonnes of food waste by 2011. Adapted from *Consumers save £300 million worth of food going to waste (14.01.09)*, WRAP Press Release, [http://www.wrap.org.uk/wrap\\_corporate/news/consumers\\_save\\_300.html](http://www.wrap.org.uk/wrap_corporate/news/consumers_save_300.html) Accessed on 19.03.2009

## Lack of norms/habits and forgetting

The influence of social norms has been commented on in the literature as a potential barrier to waste prevention behaviour (e.g. Maycox, 2003, cited in Tonglet et al., 2004). This can come about in two forms (a) through a lack of social norm for waste prevention and (b) a social norm which encourages behaviour that goes against waste prevention goals. Furthermore, as waste prevention behaviours tend to be undertaken in private (e.g. source reduction, purchases and packaging) there is no explicit social norm influencing them, and no social pressure to 'do the done thing' (Tucker & Douglas, 2006a, WR0112). However, if these behaviours were to be 'mainstreamed' and become more visible they run the risk of having social stigmas attached to them.

There is some evidence which suggests that one of the barriers to waste prevention behaviours is forgetting as the 'acquired' behaviours are not part of people's everyday habits (Waste Watch, 2007b, WR0105).

## Consumer identity

In the SCBD Hampshire project other barriers arose from the way people think about themselves (i.e. their identity) with respect to consumption. The pilot projects highlighted how difficult it is to promote waste prevention against the background of contemporary consumer culture in which people derive personal value from buying and owning certain 'stuff'. Barriers were as much do with lock-in to existing purchasing habits and consumer identity, as they were to practical barriers. (Brook Lyndhurst, 2008, WR0117). Some of the stakeholders and experts contributing to this work suggested that this barrier may be eroded in the current economic climate.

## Dominance of the recycling norm

The Hampshire research demonstrated that the recycling norm has become so strong that this is what people generally understand when they are asked to "reduce waste" (Brook Lyndhurst, 2008, WR0117). Not making a conceptual distinction between waste minimisation/reduction/prevention and recycling was widely observed in the literature (e.g. Tucker & Douglas, WR0112).

# 1.8 Impacts of household waste prevention behaviours

## Tonnage

From various campaigns that have been supported either by WREP, cited in the literature, or reported on by local authorities we have pieced together evidence on the impact of household level waste prevention campaigns. **It should be noted that the data presented in table 3 are drawn from a range of sources and information has been insufficient to accurately judge the level of robustness.** Therefore, the quality of the estimates is likely to be highly varied. The evidence has been pieced together from a range of literature and, while in aggregate they do provide some sense of what may be achievable, these data come with a **strong health warning** and should be treated as indicative at best.

Relatively few local authorities have so far undertaken large scale waste prevention campaigns and much of the data comes from pilot or small scale projects. As has been reported in previous studies (WR0504 & WR0105; ERM, 2007; CAG, 2007) waste prevention campaigns/projects have not often been evaluated robustly, survey and project design vary widely, and data are routinely presented in a way that makes it difficult to decipher what they refer to (including whether they include recycling). Bearing that in mind, the table below highlights some of the impacts identified in the literature. (These are discussed in further detail in **L3 m3/3 (D)**). The following are also interesting examples targeting a specific prevention activity – junk mail.

**Case Study Box: Impacts of MPS in Essex** – It is estimated that junk mail accounts for about 4% of household waste in Essex; this equates to approximately 27,500 tonnes of waste per year. The Essex County Council Waste Education Team invited two schools to take part in evaluating the effectiveness of the MPS (Mail Preference Service) scheme. 95 families took part in the project by registering for MPS and pupils collected and weighed their junk mail for 4 weeks before the initial and repeat visit conducted by the Waste Education Team. The key results were:

- Families saw a significant reduction in the amount of junk mail they received after signing up to MPS, between 70% and 83%.
- Junk mail reduced from an average of 5.6 kg/hh/pa to 1.2 kg/hh/pa, a reduction of 4.4 kg/hh/pa.
- The project costs over and above the Waste Education Team staff costs were approximately £4,000.

*For further information see WRAP (2009) Online waste prevention toolkit.  
[http://www.wrap.org.uk/applications/waste\\_prevention\\_toolkit/restricted.rm](http://www.wrap.org.uk/applications/waste_prevention_toolkit/restricted.rm)*

**Case Study Box: Impacts of 'no junk mail' sticker in Hackney** – This pack includes a leaflet about MPS, a Royal Mail opt-out card and a sticker. The aim of this specific trial was to verify and quantify the efficiency of 'no junk mail' stickers. The stickers are placed on residents' letterboxes to stop leaflets from entering the household waste stream. It is worth noting that only 13% of Hackney residents are signed up to the MPS to stop receiving unsolicited direct mail. This project had a **very small sample size** of 24 participants (originally 30 but 6 dropped out). Participants were asked to collect all junk mail received as part of the trial during the month of September 2006. Residents were then asked to place the 'no junk mail' sticker on their letterbox and to continue collecting their junk mail throughout October 2006. A voucher of £20 was offered to those that completed the two month tasks. The key facts and results were:

- During the month of September the participants received an average of 75% of the junk mail as unwanted leaflets and 30% of direct mail – this matches the national average
- In total the 24 participants received 7.33 kg of junk mail in September and 3.6 kg in October – this is an **average reduction of 51%**
- In total the 24 participants received 482 unwanted leaflets in September and 222 leaflets in October – this is an average reduction of 54%
- If this sticker is applied to the 50,000 low rise households in Hackney this would mean 187 tonnes of waste would be diverted from householders' bins but not necessarily from final disposal

*For further information see WRAP (2009) Online waste prevention toolkit.  
[http://www.wrap.org.uk/applications/waste\\_prevention\\_toolkit/restricted.rm](http://www.wrap.org.uk/applications/waste_prevention_toolkit/restricted.rm)*

**Table 3** Impacts of household waste prevention behaviours

	Project / activity	Duration	Sample size	Waste prevented	Kg/hh/wk	Source
<b>BIODEGRADABLE MUNICIPAL WASTE</b>						
	Green cones	Unknown	Not given (assume multiple studies)	1.7- 3.9kg/hh/week	1.7 – 3.9	Swabey & Harder, 2006, cited in Woodard & Harder, undated
	Home composting	Unknown	Not given	1.4-1.7kg of kitchen waste/hh/ week (plus 5 kg of garden waste/hh/week, in summer)	3.5 – 3.8 (5 months garden)	Tucker and Douglas, 2006a, WR0112
	Home composting (WRAP)	N/A	Based on WRAP's latest estimates	150kg per household per year	2.9	WRAP forthcoming
	Herefordshire and Worcestershire	Four years (between April 2004 and March 2008)	76,500 (assuming one compost bin/hh)	21,500 tonnes of biodegradeable waste diverted		Salisbury, 2008
	Community composting sector in the UK	2007	170 composting sites	21,500 tonnes composted		Slater et al , WR0211
	Food waste prevention – Committed Food Waste Reducer (CFWR)	N/A		1.46 kg of <b>total food waste</b> per week LESS than someone who is not a CFWR	1.46	WRAP, personal communication email 06.05.2009
	Love Food Champions	Four months	60-80 participants	2.5kg/hh/week	2.5	WRAP and the Women's Institute, 2008
	West Sussex	At least 5 years	74,000 (18,000 Green Johanna and Green Cones, and 56,000 home compost units - (assuming one cone or composter/hh)	20,000 tonnes of waste diverted in 2005/06	5.2	Woodard & Harder, undated

	Project / activity	Duration	Sample size	Waste prevented	Kg/hh/wk	Source
<b>BULKY WASTE</b>						
	Reuse – private giving / selling & charity collections	Unknown	Not given	15% directed for reuse by hh 269,000 tonnes diverted		Curran & Williams, 2007
	Reuse – amount dealt with through Flanders reuse system	Annual tonnage 2007	Data collected for the whole of Flanders	6.5 kg/inhabitant/yr collected 3.15kg/hh/yr reused	0.06 /person/wk	Vandenbussche, 2008 (presentation, unpublished)
	Reuse – estimated total amount reused by third sector organisations in London	Annual tonnage 2007	Data collated for the whole of London from surveys with reuse organisations	0.1 to 3.7 kg/hh/yr 3,777 tonnes for London in total	max 0.07	LCRN, 2008
	Bulky Waste – Freecycle	Unknown	Not given	100 tonnes/working day (equivalent to 25,000 tonnes/year)		Widdicombe & Peake, 2008
	Bulky Waste – Freecycle	One month	Bexley and Enfield Freecycle groups in London (sample unknown)	0.65 tonnes per 1000 members per month (if scaled across London)	0.15 per member	LCRN, 2008
<b>CROSS CUTTING WASTE PREVENTION PROJECTS*</b>						
	Aberdeen Eco-Challenge, Aberdeen Forward	Two years	92 households	63% reduction in <u>residual</u> waste Weight of waste to landfill declined from 16.11kg to 6.04kg/wk. Composting increased from 31% to 45% Recycling increased by 5.85 to 12.54 items/person (nb no k/s recycling or weighing of recyclables)	10.1	WR0504 'Establishing the behaviour change evidence base to inform community-based waste prevention & recycling' case studies
	The Waste Wise Armadale Project, Changeworks Waste Prevention Team		Target area of 1150 households	6.1% diversion from landfill equivalent to a <u>total household waste arisings</u> reduction of 0.98kg/hh/week.	0.98	Changeworks, 2008 & SISTech, 2008
	Big Lottery Transforming Waste Programme	Three years	296 projects	23,000 tonnes of furniture reused 22,000 tonnes of waste composted	-	ERM, 2007

	Project / activity	Duration	Sample size	Waste prevented	Kg/hh/wk	Source
	Dorset County Council Household Waste Prevention Activity in Dorset	Three years	Target area of 1,577 households	0.5kg per household per week (based on <u>total household waste arisings</u> )	0.5	Dorset County Council et al., 2008, WR0116
	EcoTeams, Global Action Plan	1-5 months	3,602 (the total number of households EcoTeams has worked with to date)	Average <u>total household waste arisings</u> : Before participation 9.42kg/hh/wk After participation 8.79kg/hh/wk (kg/hh/wk is based on total household waste arisings, i.e. residual waste reduced by 0.85, recycling increased by 0.23) <i>Potential to achieve 125kg reduction in residual waste in 1 year</i>	0.62	GAP, 2008
	Espace Environment (Belgian NGO) home composting and reduce packaging (combined with variable rate charging)	Unknown	Not given	Reduction of over 50% in waste from 282kg/pp to 137kg/pp	-	Enviros, 2004
	Small Change Big Difference, Hampshire County Council	2.5 years	Potential audience of 4,700 people, of which 9% (406) signed up for active involvement. 56% of participants said they reduced their waste (18% a lot). Equates to 2% - 5% of the total potential target audience reducing their waste.	7% reduction in <u>total household waste arisings</u> equivalent to 2kg/hh/wk  <i>NB this data cannot be generalised. It was robust waste composition but conducted on a trial of 4 households selected from the 406 participants</i>	2	Small Changes Big Difference WR0 117
	North London 'Watch Your Waste Week' challenge, NLWA	One week	125 participating households returned evaluation sheets	5.97kg/hh/week (nb not clear whether included recyclables)	5.97	NLWA, 2009
	Waste Free Households, RoWAN	13 months	127 households recruited (50 regularly returned monitoring forms)	22% reduction of <u>total household waste arisings</u> equivalent to 1.87kg/hh/wk	1.87	Wickens, 2005

	Project / activity	Duration	Sample size	Waste prevented	Kg/hh/wk	Source
	Waste Prevention Kit, Viikki-Latokartano, Helsinki, Finland Waste Prevention Strategy	Two years	14 households	11kg/inhabitant/year	0.53	International Review L3 m5/2 (D)
	'What not to Waste', Western Riverside	Six weeks	16 households started (14 completed the project)	<u>Total household waste arisings</u> reduced by 60kg, from (approx.) 175kg/wk to (approx.) 115kg/wk <i>It is not clear if this is based on 14 participants</i>	4.3	Waste Watch, 2007a
	Wiltshire Wildlife Trust	Three years (2005/06 – 2007/08)	Unknown	Prevented a total of 8,485 tonnes (Y1 3,168, Y2 31,156, Y3 2,161 tonnes)	-	Resources for Change et al., 2008c, WR0506
	Maldon Waste Away Challenge - working with volunteer families to undertake monthly tasks	Five months	9 families (five with 2+ children - with a pro-active attitude to waste)	Reduction in <u>total household waste arisings</u> from: (a) 127kg/hh/mth to 89kg/hh/mth or (b) 127kg/hh/mth to 109kg/hh/mth <i>The impact figures have been taken from two evidence sources and it is not clear which source is correct</i>	(a) 8.8 (b) 4.15	(a) Tucker & Douglas, 2006a, WR0112 & (b) Hampshire Small Changes Big Difference case studies

\* NB In some cases, tonnage are averaged across whole populations (e.g. Dorset); in others they relate to direct participants only, especially the small scale/small group projects where self-weighing has been used. Only 2 projects used collection round data (Dorset and Armadale).  
Also note that some of the data for cross-cutting campaigns may include recycling; reporting is not always clear.

While the estimates for cross cutting projects show a very wide range, our best judgement is that these sorts of campaigns could achieve around **0.5kg to 1kg hh/week reduction** at source. Scaled up to England, this would amount to between **0.57 million and 1 million tonnes prevention potential**<sup>6</sup>. The impacts indicated in the table above are put into comparative perspective with top-down policy measures in section 5 of the technical report (module L2 m5). In light of the caveats set out above, these aggregate figures should be treated as indicative.

It needs to be understood that the development of bespoke waste prevention campaigns and programmes with measurable impacts are in their infancy and these examples above illustrate some of the potential impact behind the waste prevention activities.

## Carbon

Only a handful of the projects reviewed suggested quantitative carbon impacts of the measures or projects proposed. Caution should be used when reviewing these numbers, but the following figures are interesting:

- Resource for Change et al. (2008b, WR0506) assessment reported carbon savings<sup>7</sup> for each case study, the ones related to waste prevention are reported below:
  - Furniture Matters, a Social Enterprise, provides bulky waste collection for Lancaster City Council : 50 tonnes a year
  - Teesdale Conservation Volunteers, a small not for profit organisation which provides a community composting service in Teesdale District: 2250 tonnes a year
- According to Watson (2008) the remanufacturing industry is estimated "to represent UK-wide savings of... 800,000 tonnes of CO<sub>2</sub>" (timescale not given).
- LCRN (2008) have calculated that the carbon savings of reuse could be as high as 9 tonnes of CO<sub>2</sub> per tonne of bulky waste reused<sup>8</sup>.
- WRAP (2007b) state that by avoiding throwing away all the food that could have been eaten, the carbon savings made would be equivalent to taking 1 in 5 cars off the roads in the UK (or 15 million tonnes carbon dioxide equivalent).
- Other studies have used standard conversion factors to estimate some of the carbon impacts of elements of their programme or campaign (e.g. home composting, nappies, refillable glass).

## 1.9 Role of external stimuli

The WREP projects, particularly Hampshire, Dorset and Waste Watch offer a great deal of insight into how best to address campaigns and engagement programmes around waste prevention (Hampshire County Council & Brook Lyndhurst, 2008, WR0117; Dorset County Council et al, 2008, WR0116; Waste Watch, 2007a/b, WR0105). The Eco-Teams project led by GAP (Global Action Plan, Nye and Burgess, 2008, WR0114, also provides insight into small group behaviour change models.

Non-WREP projects like Waste Wise Armadale project (SISTech and Changeworks, 2008) and the Waste Free Households by RoWan (Wickens, 2005) also offer particular insights into the necessary conditions

<sup>6</sup> i.e. 0.5 kg/hh/wk x number of households in England x 52 weeks = 0.57 million tonnes. This is equivalent to 2% of total household waste in June 2008 (Defra official waste statistics release).

<sup>7</sup> Carbon dioxide savings estimated by applying REAlliance CIC estimates of saving per tonne benchmarks agreed with Defra – see Appendix 4 of Resources for Change report.

<sup>8</sup> WRAP is currently undertaking research to inform its strategy on reuse, including assessment of carbon benefits which may refine these figures.

needed to achieve impact through voluntary action (GAP, 2008; Changeworks & SISTech, 2008; RoWan, 2005). The following discussion is organised around Defra's 4Es framework.

## Enabling Tools

A number of 'enabling' tools have been developed to support the delivery of household waste prevention interventions. The resources provided are designed to help keep volunteers and participants motivated. In summary these are:

Enabling tools	Support provided
Dedicated project support (acting as a first point of contact for participating households)	Dedicated project supervisor or officer or resource outreach advisor Community engagement officers or experts Volunteer mentor households
Waste prevention guidance and support	Waste prevention toolkits, personal organiser, start up packs, challenge pack Information booklets and fact sheets, a waste reduction pack (containing information on reducing junk mail, smart shopping) Directories of local reuse and recycling centres or local waste guides Home visits Installation service, e.g. food waste digesters
Challenges and action plans	Activity pack or suggestions focused on e.g. school term time, new parents, work place, home, garden, children, community
Monitoring and feedback	Diaries, feedback sheets or waste monitoring forms or charts Weighing scales Weigh sacks and pin numbers Web-based database Customised feedback (responding to participant requirements), e.g. via newsletters Consistent hand-holding
Special events – training and workshops	Workshops and training, e.g. home composting and reducing food waste. Youth workshops. Monthly or quarterly meetings with volunteers. Day out / visits to material recycling facilities and landfill sites. Guest speaker events. Drop in sessions. Fashion swap, give and take days, real nappy events, bag amnesties
Doorstep teams <sup>9</sup>	Specialist or trained advisors used to deliver messages, pledges and conduct surveys – repetitive feedback
Directories - paper and online	Signposting to local services to support waste prevention, for example, reuse centres, repair services etc.
Telephone helpline	Used to support participating households
Newsletters	Regular (monthly) project bulletins or newsletters to provide information and feedback to participants
Equipment (including freebies, cash backs schemes, samples and vouchers)	Free and subsidised equipment, e.g. home compost bins, green cones, wormeries, kitchen caddies, shared shredders, weighing scales, junk mail stickers, reusable shopping bags, soap nuts, money off and incentive vouchers

**Table 4** Enabling tools developed for campaigns and programmes

## Engagement Tools

A number of promotional activities (engagement tools) have been used to recruit and/or support intervention delivery. Recruitment of volunteer households involves a range of promotional techniques including doorstepping, community talks, and use of media. In summary the engagement tools used were:

<sup>9</sup> WRAP has recently conducted a food waste doorstep initiative for which results will be available shortly.  
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Engagement tools	Promotional activities
Branding	In some cases interventions were branded - Small Change Big Difference,
Printed literature	Branded clothing Shopping bags Pop up banners (used for events) Posters Envelope reuse labels
Events	Launch events, fashion show, local artistry, galas and fetes, local shows, supermarket open days, talks at community events, local libraries
Website	Websites and e-mail
Media and PR	National and local articles, press releases, and editorial coverage
Intermediaries	Delivery organisations, working with schools and local businesses Compost or waste minimisation champions
Community outreach or small group challenges	GAP Eco Teams, Small Changes Big Difference Specific community outreach officers either in the local authority or through a third sector partner Outreach and business development support to third sector groups (e.g. Worcestershire, WRAP/Defra REconomy programme)

**Table 5** Engaging tools developed for campaigns and programmes

The SCBD campaign in Hampshire found two aspects which were especially liked and broke into participants’ habitual thinking: drip-feeding information at regular intervals (rather than one-off contact at the start of the project); and providing specific tips on action that could be taken, supported by signposts to local services or other sources of help.

The *Small Changes Big Difference* branding also provided a common identity and call to action, which avoided a general exhortation to “reduce waste” in favour of a lifestyle message. (Hampshire County Council & Brook Lyndhurst, 2008, WR0117). Branding is similarly central to WRAP’s Love Food Hate Waste, where the call to action is clearly communicated through a brand that responds to the behavioural drivers and barriers identified through consumer research.

Positive lessons about communicating waste prevention messages included the importance of **enabling** action through practical, achievable, lifestyle tips (rather than a general exhortation to reduce waste); and **engaging** participants’ attention through repetition. Focusing on lifestyles rather than waste also conveyed a sense of helpfulness (rather than exhortation or instruction). Resources for Change et al. (2008a, WR0506) investigated a number of case studies, one of which was Wiltshire Wildlife Trust who strongly believed that promoting waste minimisation as part of a wider “package” of sustainable lifestyles increased participation and helped to reach more people than would be the case if their work simply focused on waste.<sup>10</sup> Drawbacks to the lifestyles engagement approach were also identified (e.g. in Hampshire County Council & Brook Lyndhurst, 2008, WR0117).

## Encourage

The main forms of **encouragement** identified were financial incentives. In the UK incentives focused on specific waste prevention behaviours – such as subsidised home compost bins or nappies. Other examples included a reward card (Belfast), provisions of ‘freebies’ (e.g. cloth shopping bags) or pledges, competitions and prize draws. The latter was sometimes administered by doorstep teams.

In the small group behaviour change models, group working was found to act as a means of encouraging behaviour change (e.g. GAP Eco Teams). Self-weighing of waste and reporting back to the group provides an effective tool to encourage participation (and also had the benefit of making activity visible).

<sup>10</sup> See the evaluation of Defra’s Environmental Action Fund for further discussion of the strengths and weaknesses of this kind of lifestyles approach.

[http://randd.defra.gov.uk/Document.aspx?Document=EV02004\\_7823\\_FRP.pdf](http://randd.defra.gov.uk/Document.aspx?Document=EV02004_7823_FRP.pdf)

Internationally, forms of direct household charging for the quantity of waste generated were common. Reduced VAT has been used to incentivise the reuse sector in Belgium (see section 4 of the technical report, or [L2 m4/1](#)). The review of policy measures in section 5 of the technical report (or [L2 m5](#)) provides a more extensive review of measures that encourage behavioural change.

## Exemplify

Very few examples were found. They existed mainly in the form of campaign feedback provided to households or participants in waste challenge type projects. In Hampshire (WR0117), staff in the local authority were recruited as one of the participating groups, to exemplify the county and waste officers' commitment to waste prevention to the other groups in the project.

## 1.10 Discussion of implications and issues

Cumulatively, the evidence presented in sections 1.6 and 1.7 (on motivations and barriers) suggests that if householders are to be enabled to increase waste prevention behaviours:

- there is a need to differentiate prevention from recycling when communicating<sup>11</sup> with the public because they are both seen as different activities and are based on different motivations;
- there is a need to promote greater public awareness of practical waste prevention measures that can be taken;
- waste prevention options need to be made more visible to the public;
- people need help to identify what they can do, and how to do it well;
- the importance of moral or pro-environmental motivations needs to be given careful and further consideration with respect to messaging;
- it is important to remember that environmental motivations were identified in the literature as primary drivers of recycling behaviour *before* there was mass adoption; whereas now the literature shows more diversity in motivations;
- nonetheless, the notion of 'care' – for things, the environment or the wider world - emerged as a potentially potent force (which is exemplified in the "Love Food" element of LFHW).

Information on the impact of waste prevention campaigns is patchy in both extent and quality and continuing effort (and funding) will be required to support quality evaluations of future campaigns. From the evidence gathered, our **best estimate** is that cross-cutting local campaigns can achieve waste prevention of **0.5 kg to 1 kg hh/wk** when averaged over the whole geographical area targeted.

Two key sources<sup>12</sup> had previously indicated the potential waste reduction that could be achieved through prevention campaigns: Enviro (for Defra) suggested a 10% reduction is achievable; the NRWF toolkit indicated 3.2% to 7.4%. The estimates for cross cutting projects shown above are at the lower end of this range, implying ~ 2% - 4% reduction of total household waste (making the grand assumption that performance in the locations monitored could be achieved on average across the country).

Performance from small group interventions and special challenges can be much greater than for blanket geographical campaigns but questions have been raised as to how far they can be scaled up, and at what cost ([L3 m3/9 \(T\)](#)). These measures, and other community outreach approaches, have nevertheless been shown to provide a useful supporting role to wider campaigns (e.g. Love Food Champions, Worcester's Waste Challenge Team). All of the evidence, though, points to public communication as likely to be a key lever in achieving waste prevention.

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<sup>11</sup> It is important to recall that 'communication' on its own is not enough to bring about behaviour change, and the best 'campaigns' comprise a mix of activities of which information provision is but one. See Defra's pro-environmental behaviours work for more on this - <http://www.defra.gov.uk/evidence/social/behaviour>

<sup>12</sup> Enviro (for Defra) (2004) *International Waste Prevention and Reduction Practice*; NRWF (2004) *Waste Prevention Toolkit*.  
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## 1.11 Bibliography

The bibliography for this paper is provided in two parts: for sources on consumer behaviour; and sources reviewed for impact data.

### Consumer behaviour

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## **Basis of this report**

The material in this paper is derived from a large scale evidence review of household waste prevention conducted by Brook Lyndhurst, the Social Marketing Practice and the Resource Recovery Forum for Defra's Waste and Resources Evidence Programme.