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# How Can Domestic Households Become Part of the Solution to England's Recycling Problems?

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## ABSTRACT

A waste disposal problem of looming proportions, coupled with a lack of sufficient public engagement in the preferred alternative to disposal, which is recycling, continues to perplex English policy-makers. Based on both a literature review across a wide range of disciplines and a national survey of consumer attitudes towards their own participation in recycling, this paper finds that past efforts at increasing recycling have been based on an implied model of consumer recycling behaviour that is not supported by what happens in practice. By disentangling thinking about recycling behaviour from academic thinking about green consumerism, the paper considers the waste and recycling problem from a different angle. It suggests that research on the personal values of people who recycle could be utilized in marketing communications that show these values being fulfilled by recycling. Focusing greater marketing attention on people who already claim to recycle, and helping them through better communication and improved practical help, could achieve much higher levels of reclaimed materials. Copyright © 2005 John Wiley & Sons, Ltd and ERP Environment.

*Received 29 September 2003; revised 12 May 2004; accepted 2 July 2004*

**Keywords:** recycling; waste; household; marketing; consumer behaviour; government policy; green consumers

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## Introduction

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THE LATEST OF A SERIES OF GOVERNMENT REPORTS ON A STRATEGY FOR DEALING WITH WASTE AIMS to ensure that by 2020 England has 'a world-class waste management system' (Strategy Unit, 2002, p. 6) whereby the growth in the production of waste is below the growth in GDP. The future lies in de-coupling the production of waste from economic growth (Strategy Unit, 2002). The Cabinet Office believes this can largely be achieved by much greater emphasis on waste minimization at point of production and by recycling, even though participation in recycling is still low by European standards (Strategy Unit, 2002). The government for England has accepted these recommendations (DEFRA, 2003a). To work, they will mean changing consumer attitudes towards waste and changing the behav-

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hour of the majority of households, so that recycling comes to be regarded as a waste disposal option that is preferred to landfill and incineration.

This paper focuses on the role that could be played by domestic households, and the possible solutions that better marketing of recycling could offer. It draws on evidence from a review of recent academic literature on domestic recycling and green behaviour, and on a national survey funded by the Onyx Environmental Trust, which explored the views and aspirations of people who both do and do not recycle, and the incentives and barriers to greater participation. It aims to test the extent to which the marketing assumptions that appear to underlie the policy approach described above are well founded. It argues that recycling is a different activity with different motivators from green purchasing behaviour. Building on an analysis of these motivators it suggests that it is possible to 'market' recycling as a mass activity, one that will be essential if national and European waste targets are to be achieved.

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## Background

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### Volume of Waste

Despite decades of exhortation to recycle, the volume of waste disposed of by domestic householders in England continues to rise and is growing by around 3% a year (DETR, 2000). This trend appears to be linked to rising living standards and is clearly the outcome of consumption. Thus approximately 20% of the food that is bought is thrown away and between 35 and 40% of all household waste that goes to landfill starts as a purchase from one of the top five supermarket chains (Strategy Unit, 2002). Of more than 7 million tonnes of packaging used annually, half goes into the household waste stream, and is 'the direct result of consumer-orientated marketing activity' (Davies *et al.*, 2002, p. 31). Commercial and industrial recycling or recovery of aluminium, glass, plastics and steel is already fairly high, and collection from households will become increasingly important if the mandatory packaging recycling targets are to be met. Domestic households together throw away 95% of all aluminium packaging that is not recycled, and similar figures apply to glass (84%), steel (78%) and plastics (65%) (DETR, 1999b). On current trends, by 2020 twice the waste management facilities that are currently available will be needed (DETR, 2000), which will present major financial, logistical and environmental problems.

### Landfill

Increasingly, the landfill of mixed waste, which has been the preferred method of waste disposal in the UK (77% of English municipal waste went to landfill in 2001/2, DEFRA, 2003b) has become a less socially and environmentally attractive option, though it is still cheaper than any other (Tiemstra, 2002). The fees for new and emerging technologies for sustainable waste management are three to four times the current cost of landfill sites (Greater London Authority, 2003). In parts of the country, particularly near large urban centres in SE England, however, the supply of holes in which to bury waste has started to run out (DETR, 2000). EU and national legislation restricts what can be buried and incinerated, places a legal requirement on certain UK businesses to recover and recycle packaging in order to meet European packaging recycling targets and sets tighter environmental standards on the management of wastes. In addition, there is increasing local opposition to new landfill and incineration sites, and campaigns to close old ones. Currently, 80% of the UK population live within two kilometres of a landfill site (Elliott *et al.*, 2001).

Landfill sites contribute 25% of total UK methane emissions (Strategy Unit, 2002), a potent contributor to global warming. They are also a potential source of contamination of water supplies. One major and widely reported study found a small but statistically significant link between living close to landfill

sites and the incidence of birth defects and very low birth weights (Elliott *et al.*, 2001). The burying of toxic and biodegradable waste is now recognized as bad environmental practice, and the EU Landfill Directive (EC 1999/31) set ambitious targets progressively to reduce the volume of biodegradable waste going to landfill by 2010, 2015 and 2020. Failure to meet the targets will mean huge fines of up to £180 million a year (Strategy Unit, 2002).

## Recycling

Although there appears to be no one 'best' method of waste management, avoiding or minimizing waste production, followed by re-use of surplus products, is obviously superior to disposing of waste later. Amongst possible disposal options, recycling has generally been found to be preferable to landfill or incineration environmentally, and kerbside collection of recyclables to be preferable to 'bring' schemes (Powell *et al.*, 1996). Domestic recycling in England is however 'characterised by wide-spread approval but limited participation' (McDonald and Oates, 1999). Of the 28.8 million tonnes of municipal waste produced in England only 3.9 million tonnes (13.6%) was recycled or composted in 2001/2 (DEFRA, 2003b). This compares with national recycling rates of 52% in Germany and 47% in the Netherlands (Strategy Unit, 2002).

Householders routinely dispose of domestic rubbish, with the task made more or less easy by the systems in place within the home to collect and remove it, and by the level and type of service provided by the local waste collection authority. Although rubbish disposal is in a sense a voluntary activity, clearing one's property of rubbish, especially hazardous or offensive waste, is a social obligation, particularly in a highly urbanized society. Recycling domestic rubbish is an activity that is almost wholly altruistic. It involves the recycler in some modest cost in terms of the time and effort it takes to sort and separate out the recyclable waste, to store recyclable materials, and then to transport them, though this may be only to the kerbside rather than to a recycling centre. Of the 25 million tonnes of waste collected from domestic households in England and Wales about 21% by weight is garden waste and a further 17% kitchen waste. This waste is readily biodegradable and could be composted either domestically, or, if separated by householders from other materials at source, centrally. Much of the rest of domestic waste is readily recyclable if it has not been contaminated by kitchen garbage – 18% of the weight of the average dustbin is paper and cardboard, and 7% glass, while white goods and scrap metal account for 5%, metal packaging 3% and dense plastic 4% (Parfitt, 2002). If recycling is to be considered as a serious waste disposal option, householders will have to engage in much greater separation and sorting of their domestic rubbish. The need is to persuade people to keep different types of waste separately in the home, and then to collect and dispose of it separately.

## Policy Context

The policy context is complex. In terms of its dealings with the European Union, on waste issues the UK is treated as one country, but internally the three devolved administrations have responsibility for waste issues and for waste policies, though these are put into practice through local authorities. Domestic rubbish collection is provided by local authorities who may or may not have contracted the collection of rubbish and/or its disposal to external providers, and the level of collection service varies considerably, depending on local conditions. In practice, this fragmentation of responsibility for waste collection and management creates considerable institutional barriers to change.

The main policy instruments used so far in order to try and achieve a shift in waste management from simple disposal to active recycling have been exhortation, taxation and regulation. Public information campaigns carried out both locally and nationally, and by government and by the voluntary sector,

have not succeeded in establishing an incremental shift in public effort. Nor, so far, have economic instruments, in the form of the tax on the landfill of waste which is to rise from the 2004 rate of £15 a tonne to £35 a tonne in the medium to long term (HM Treasury, 2003). Regulation has taken the form of overarching waste minimization and recycling targets for local authorities, businesses and householders first set out in 1995. Setting targets is no guarantee that they will be met, and the most recent targets (now in the form of statutory performance standards for English local authorities) are unlikely to be any more successful than those missed in the past (Department of the Environment, 1995; DETR, 1999a; Strategy Unit, 2002).

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## Research Objectives

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The discussion above indicates that, in order to achieve the shift in waste management policy demanded by legislation, English householders must become active participants in efforts to reduce the amount of waste they produce and in efforts to dispose of it. The key question is whether the combination of exhortation, taxation and regulation described above can induce this substantial behavioural change, and achieve a virtuous circle with less waste being produced, smaller volumes entering the waste disposal stream and progressively larger quantities of rubbish being diverted and recycled. The policy thinking seems to be based on an implied model of consumer recycling behaviour. It suggests that marketing campaigns stressing the merits of participating in recycling will engage consumers, particularly those who are well disposed towards the environment. These 'green consumers' will then start the whole process by increasing their participation in recycling, and they in turn will influence others to do likewise. This will divert waste from landfill towards re-processors, and the recycling market will grow, according to this model, as more people participate in it, enabling local authorities to meet their targets and these targets to be progressively raised.

Three marketing assumptions underlie this policy approach.

- The first is that 'green consumers' are a well defined and readily targeted market segment, distinct from other groups in the population, and can be reached and influenced by careful marketing communications.
- The second is that the 'green intentions' of the environmentally minded consumers will lead on to consistent recycling behaviour by them and others.
- The third assumption concerns the nature of the act of recycling. It suggests that it is or could become a social norm, so that the initial efforts of a committed few spread by example to the vast majority.

The objectives of this research were to test the extent to which the marketing assumptions that appear to underlie the policy approach described above were well founded, to try to find out what might work to boost public participation in recycling and to test possible policy solutions. Two approaches were adopted: a review of the fairly extensive academic literature on pro-environmental behaviour and why people participate in recycling, and primary research using a national public survey in Great Britain to explore the views and aspirations of people who both do and do not recycle, and the incentives and barriers to greater participation.

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## The Literature on Pro-Environmental and Recycling Behaviour

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The academic literature on pro-environmental behaviour and why people do and do not participate in recycling is extensive, but it is scattered in journals that range from those concerned with psychology

through business, marketing and environmental science to political science and sociology. It goes back to the 1970s, and by the mid-1980s a meta-analysis aiming to formulate a model of environmental behaviour could include 128 studies (Hines *et al.*, 1986). Despite this effort, the results are frequently contradictory and are bedevilled by differences in local rubbish collection systems, variations in cultural expectations, and reliance on self-reported behaviour and small or biased samples, leaving a recent study to conclude that current knowledge on recycling behaviour is 'fragmented and inconclusive' (Davies *et al.*, 2002, p. 54). Nevertheless, it is possible to tease out a number of strands of thinking which together help to shed light on the validity of the three marketing assumptions described above.

### Targeting the Green Consumer Using Marketing Communications

Marketing community recycling programmes may be analogous to marketing a product (Shrum *et al.*, 1996), though the goal is a tricky marketing proposition, that is to encourage a particular voluntary behaviour that has tangible costs but less tangible future benefits. A successful marketing campaign would aim to define the target market, and to develop a product (a waste disposal and recycling service) that appeals to domestic householders and encourages mass participation. Defining a target market that will be receptive to appeals to engage in recycling is the subject of much of the literature on green environmental behaviour and much of it is focused on an elusive group of people defined as green consumers (Dahab *et al.*, 1995). Unfortunately, understanding and predicting when pro-environmental behaviour is likely to take place has proved remarkably difficult (McCarty and Shrum, 2001); moreover, it does not necessarily equate with recycling. People who recycle do not necessarily share similar attitudes, opinions and lifestyles with those who are the most receptive to pro-environmental marketing messages, nor are keen recyclers bound to be keen consumers of green products, or to indulge in any other green behaviour (NCC, 1997). Based on a national survey specifically designed to examine what links if any exist between people's attitudes to environmental issues and their actual behaviour, the latter study found five distinct segments of the UK population. One of these segments, accounting for 19% of the population, was characterized by its zest for recycling. Another segment of similar size were also active recyclers, but were much more strongly characterized by their green purchasing activities. The study also provides some insight into the motivation of people who are heavily engaged in recycling. Although their recycling activities were comprehensive, they were no more likely than the general population to cut down on use of electricity, gas, water or car for environmental reasons. They also bought fewer green products than the average for the population (NCC, 1997). On this evidence it would seem that 'green consumers' are recyclers, but the reverse may well not be true. The authors of other studies have reached similar conclusions about householders in the USA (Roberts, 1996; McCarty and Shrum, 2001) and the UK (Tucker *et al.*, 1998).

Another classic means of defining an important market segment is by using demographic variables, and it might be possible to identify recyclers in this way. A review of mainly American literature from the 1970s and 1980s suggested that older people are more likely to recycle, as are those with higher incomes, and people living in areas with high property values (Granzin and Olsen, 1991). The 1986 meta-analysis revealed a weak relationship between income and environmentally responsible behaviour, a very weak relationship with level of education and age and none with gender (Hines *et al.*, 1986). The National Consumer Council study found recyclers in the UK tended to be older and better off – just under half did not work and many of these were retired (NCC, 1997). Another English study showed that they tended to be better educated and married, and these demographic variables did help to predict the likelihood that people would recycle (Davies *et al.*, 2002). There are some in-built demographic biases in these recycling studies, however. Most have been carried out in areas where people live in houses

occupied by one household, with the result that people living in institutions, blocks of flats, hostels, halls of residence and houses containing several households are very under-represented. By definition these forms of housing contain many poorer people who are also likely to be single and less well educated. Moreover, because of the nature of their housing, it is much more difficult for them to participate in recycling schemes. Other studies have found little relation between demographic variables and recycling (Shrum *et al.*, 1996), perhaps because, as Roberts suggests, concern for the environment has become a near universal phenomenon (Roberts, 1996). This would make a targeted marketing campaign difficult to execute.

Campaigns to encourage greater public participation in recycling also encounter the classic marketing problem of how to translate awareness of an issue into an intention to act on it, and then into regular action, and also how to influence and convert those who do not recycle into those who do. Since recycling is different from most types of consumer purchase behaviour, it is perhaps not surprising that models derived from studies of purchasers of consumer goods do not necessarily fit recycling. Consumers have no immediate level of self-interest in recycling and any benefits are likely to be longer term and to accrue to society in general, while the costs in terms of time and effort are immediate. What leads up to someone taking part in recycling may be quite a different process from normal pre-purchase activity. Psychographic profiles of those more likely to recycle may prove to be more effective than demography in identifying people who are receptive to environmental messages (Straughan and Roberts, 1999), but this is a notoriously difficult basis for targeting marketing communications and for running sustained public education campaigns, as people matching these profiles are difficult to distinguish from the general population.

Psychographic studies have attempted to identify whether people who recycle waste hold distinct values and attitudes, different from others in the population. Because the benefits of recycling are long term and relate to the future, what drives people to do it may have much more to do with their own fundamental values and beliefs than their consumption behaviour. People tend to hold a relatively stable set of universal values, which they use to evaluate experiences and to select and justify actions (Thøgersen and Grunert-Beckmann, 1997). Values found to be important to recyclers include a feeling of personal responsibility towards the environment (Hines *et al.*, 1986), altruistic values and satisfaction from living frugally (Granzin and Olsen, 1991), helpfulness and accomplishment, respect and achievement, self-actualization and aesthetics, and a collectivist as opposed to an individualist orientation (Shrum *et al.*, 1996; Tilikidou and Delistavrou, 2001). Six of the studies reviewed by Hines and his colleagues looked at personal responsibility. They found that those who felt some degree of personal responsibility towards the environment were more likely to engage in environmentally responsible activities than those who did not (Hines *et al.*, 1986). McCarty and Shrum (2001) argue that most people in affluent societies see recycling as altruistic, so values should play a crucial role in forming attitudes towards it. Thøgersen and Grunert-Beckmann (1997) measured values, beliefs, attitudes and behaviour towards recycling and waste minimization in Danish households. Their results confirmed that values are crucial to understanding environment-related behaviour and that most people classified recycling as being in the domain of moral behaviour.

National and local studies in the USA in the mid-1990s found that only a fifth to a third of consumer households participate in kerbside recycling when it is available. In England, 58% of households have some form of kerbside collection of recyclables (DEFRA, 2003b) but only around half of these households are even aware of it (MORI for Strategy Unit, 2002), so increasing awareness of this existing service is clearly important. There have been some studies into the types of marketing message that most appeal to people who are likely to take part in recycling. The level of participation in recycling might be improved by increasing consumers' perception of their personal effectiveness (Lord and Putrevu, 1998) or by using advertising showing the personal reward of recycling and positive reactions

from others who are important to the would-be recycler (Biswas *et al.*, 2000). Householders also need to be convinced of the environmental benefits and this may ensure higher participation rates (Tiemstra, 2002) and, for those who do not recycle, a message that appeals to the feel-good factor of recycling participation may be effective (Biswas *et al.*, 2000). Consumers screen out uncomfortable marketing messages or may produce counter-arguments or resentment if they do get through. When concern for the issue is already high, the message might be more effective if it bolsters the belief that individual action works (Obermiller, 1995). Marketing communications that incorporate social information and specific action suggestions can increase consumers' perceptions of their efficacy and hence their involvement in recycling. Experiments in New Zealand have used people who already recycle to deliver persuasive communications and recycling materials to their non-recycling neighbours. Other experiments in New Zealand persuaded people to write written pledges to recycle, though these may not translate very readily to other cultural contexts (Bryce *et al.*, 1997).

### 'Green' Intentions and Recycling Behaviour

It is important that people know how to recycle their rubbish. Evidence from the USA suggests that non-recyclers do not participate because of lack of information about how to do it (Granzin and Olsen, 1991). Knowledge of the problem is clearly a prerequisite to action, together with knowledge of what to do and how to do it most effectively in a given situation (Hines *et al.*, 1986). People with the knowledge about what to do and the intention to help the environment might translate their intentions into active recycling, but this is a difficult area to research.

Three theories about how people form intentions and how these translate into action have been extensively discussed and tested in the marketing and psychology literature, and applied in the environmental context (Davies *et al.*, 2002). The first two theories, the theory of reasoned action and the theory of planned behaviour (TPB), imply that individuals make behavioural decisions based on a careful consideration of available information. According to the theory of reasoned action (TRA), immediately prior to any behaviour people form the intention to do it, thus suggesting that recycling is determined largely by people's intention to recycle. To predict that someone will recycle household waste on a regular basis, beliefs, norms and intentions to recycle on a regular basis must be measured. The theory of planned behaviour adds an additional factor, perceived behavioural control, which is defined as the person's belief as to how easy or difficult it is going to be to carry out the behaviour. Schwartz's model of altruistic behaviour describes how people adopt social norms regarding moral behaviour. These become personal norms, and then become tied in to personal self-concepts. Violating these personal norms engenders guilt, and upholding them pride, but unless they are relevant and applicable to a situation they will not be activated. As a theory, this model is quite well suited to predicting recycling behaviour (Davies *et al.*, 2002).

Davies and her colleagues, in a study of recycling behaviour in one part of one local authority in England, empirically tested all three theories. The data they collected from questionnaires about attitudes and intentions and covert observation of actual recycling behaviour showed that the TRA did not predict recycling behaviour, and there was very limited support for the proposition that the TPB predicts it. The Schwartz model of altruistic behaviour was more predictive than either the TRA or the TPB, but still only moderately so. The study also supplied evidence that it is the attitudes of recyclers that influence their behaviour, not their intentions. Overall, the research showed that recycling is not a decision that people give a lot of thought to, and habits and inertia can block change. They conclude that efforts to boost recycling must therefore focus on making it convenient, visible to others and personally rewarding (Davies *et al.*, 2002).

### Could Recycling Become a Social Norm?

Social norms are the standards that society takes for granted and expects, while personal norms regulate an individual's personal standards of behaviour. In an exploratory study of the relative effects of general attitudes, personal and social norms on environmentally concerned behaviour, Minton and Rose showed that the personal norm had the primary influence on the behaviours (one of which was recycling). Their results, which were consistent with the Schwartz model of altruistic behaviour, also show that a sense of personal moral obligation is more likely than a pro-environmental attitude to lead to recycling (Minton and Rose, 1997).

Similarly, Davies *et al.* found that the strongest predictors of recycling activity appeared to be both social and personal norms (Davies *et al.*, 2002). Additional qualitative research carried out for their study showed that recyclers believe they should not waste anything that can be re-used, are open to social pressures to recycle from friends, work out a convenient way to recycle their waste so that it becomes an automatic task that involves no additional effort, and feel good about doing it. In the authors' view, the probability that an individual will recycle something also depends on his or her having a strong moral responsibility towards waste minimization, and a belief in its effectiveness.

Given that there is now a policy commitment and considerable investment in recycling schemes, Tucker *et al.* argue that there is a need to strengthen social norms in favour of recycling in order to achieve high levels of consumer participation so as to maximize the return on this investment (Tucker *et al.*, 1998). They point out that there are many factors that inhibit participation in recycling schemes, such as the extra work, the need to find domestic storage for recyclables, lack of time, the recurrence of old habits, the perceived effectiveness of the activity and lack of information. Other factors such as physical location, street layout and type, and socio-demographic factors may also influence what happens in practice. The actual amount of recycling done by each household is also a key issue that can be affected by individual forgetfulness, ignorance of what can be recycled and competing outlets for the recyclables. Long-term decays in participation rates have been observed in many schemes. This could be due to recycling fatigue but also in part to new residents unaware of a local scheme moving in. Nevertheless, given an intention to recycle, it will take place on the day if the situation permits (Tucker *et al.*, 1998), and social norms can reinforce this, as can careful marketing.

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### The Survey Data

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Some of the issues raised by the review of the literature were tested in a national telephone survey of the general public in England, Wales and Scotland. The aim was to measure current views on household waste generation and the different options and means available to dispose of household waste, and to test whether other factors could prompt people to take up recycling.

A total of 1000 interviews were conducted in April 1999 with a nationally representative quota sample of 1000 adults, using a questionnaire scripted to work with computer assisted telephone interviewing. Fieldwork was commissioned by the author, carried out by NOP and paid for by a grant from the Onyx Environmental Trust.

### Who Recycles and How Often Do They Do It?

In order to establish a basic measure of claimed participation rates, people in the survey were asked about their current recycling habits. Over half those taking part said that they are regular recyclers (35% recycle every week and 18% every two weeks), as shown in Table 1. On the other hand, more than a quarter can be described as occasional recyclers (19% around once a month and 7% less often), while a

	Yes – every week (%)	Yes – every two weeks (%)	Yes – around once a month (%)	Yes – less than once a month (%)	No (%)
Total sample	35	18	19	7	21
Aged 16–34	27	17	22	11	22
Aged 35–54	35	15	20	7	22
Aged 55+	42	21	16	4	17
Class ABC1	36	19	20	9	16
Class C2DE	33	17	19	6	25
Worried about the environment:					
Not at all	27	14	14	6	39
Not very	29	17	19	6	28
Quite	37	19	20	8	15
Very	38	17	19	8	18

**Table 1.** Frequency of recycling

fifth (21%) never recycle. The demographic analysis showed that people who claimed to recycle are more likely to be aged 35 or more (with regularity increasing by age), to be in higher income groups and to be concerned about environmental issues generally, confirming other research in the UK cited earlier. Concern about the environment does not appear to be a strongly motivating factor, however.

This data is in line with other surveys that have suggested that around half or more of the UK population claim regularly to recycle at least some of their rubbish (for example see DETR, 1998; Waste Watch, 1998, 1999), and that older people and those in the higher social grades claim higher participation rates (see above). It is difficult to reconcile these fairly high claimed participation rates with the national statistics on the tonnage of materials reclaimed and recycled, which show far lower figures (see above). There are two possible explanations. One is the problem so familiar to those conducting surveys asking about socially desirable activities, that self-reported behaviour tends to be exaggerated. This finding is worth considering in the light of the literature reviewed above. It might suggest that though the recognized social norm is to be in favour of active participation in recycling, people had not yet adopted it as a personal norm or standard of behaviour. The second explanation is that many of these people do actually recycle but it is only a small proportion of their household waste. Logically, if someone puts one bottle a week into a recycling bin, he or she can claim to be an active recycler in a survey.

### Barriers to Recycling

There are some major institutional and personal hurdles to be overcome if more people are to participate in recycling and if those who already do some are to do more. These were explored in the survey by asking people who did not do any why they did not. Although 8% gave as a reason for not recycling that they were simply not bothered about the environment, and 12% said they had never considered recycling, suggesting a significant core for whom recycling values were not in accord with their own values, most of the other reasons given were related to practical difficulties associated with recycling. For example, 26% said it was too difficult to do, or took too much organization, 24% said recycling banks were too far away and 13% said that they could not carry the materials that far and did not have a car. Leaving aside the group who may never recycle, this suggests that there is a substantial group who could be encouraged to participate with the right level of practical support.

	Occasional recyclers (%)	Non-recyclers (%)
More storage space at home	3	5
Door-to-door collection	30	30
Money back	4	5
It was made easier	31	25
Better facilities	44	33
If recycling was more effective	6	5
If recycling was more environmentally friendly	1	2
If there was a charge for the amount of waste per household	1	1
Nothing	11	11
Other	12	12
Don't know	8	10

**Table 2.** What, if anything, would persuade people to recycle?

In answer to further questions, household collection of recyclable materials was thought likely by people in the surveys to encourage greater participation in recycling, a view supported by central government (DETR, 1998). People who said that they occasionally recycled things, and people who do not recycle at all, were generally in agreement that 'better facilities' (44% of the occasional recyclers and 33% of those who do not recycle), it 'being made easier for them' (31% and 25% respectively) and door-to-door collection (30% and 30% respectively) would persuade them to recycle more often, or to start recycling, as shown in Table 2. Possible support for the view that recycling is a form of moral behaviour came from the view that financial incentives in the form of money back in return for participation, or penalties in the form of a charge for waste collection according to the amount produced, would persuade very few to recycle.

It is difficult to match these responses against the actual local facilities that were available to people taking part in the survey. The majority of kerbside schemes carry out collections on a fortnightly basis, and only 17% had a weekly collection around the time of the survey, creating problems with storage and remembering to participate. The separate collection schemes tend to concentrate on only a few materials, with paper and card accounting for about 56% of all materials collected by these schemes in 2001/02. In 2001/02, 47% of households had a paper or card kerbside recycling collection and glass was collected from 21% of households, whilst cans and compost were both collected from only 15% of households (DEFRA, 2003a).

### Other Possible Incentives to Recycle

Households are clearly customers of local-authority-organized rubbish collection services, and they meet some of the cost, about £50 a year in England (Strategy Unit, 2002), through their local taxes. It might be possible to incentivize people to recycle more by offering rebates on these charges or by penalizing them for producing excessive waste. One immediate problem with this approach is that the vast majority of people in the survey (80%) were not able to even estimate how much household waste collection and disposal costs per household per year. Among those who ventured to answer this question, the highest proportion said more than £200 (9%). In a system where charges for waste collection are not transparent, and do not increase with the amount of rubbish that is produced, there is no financial incentive for households to minimize the amount of waste they produce. Legislation to allow local authorities to vary charges according to the amount or type of waste produced together with other fiscal

incentives or taxes might make households more sensitive to the environmental impacts of their waste and encourage them to recycle more.

Opinion in the survey was fairly evenly divided on the potential merits of a system of charging households on a volume basis (per bag or per bin) in order to encourage people to recycle more and to generate less waste. Forty-five percent described it as fair and 39% as better than the present system of charging through council tax, 49% unfair and 46% worse than the present system. In truth, people were divided on the basis of complete ignorance about the current costs of waste collection, and any reasonable explanation of the pros and cons of such a change.

Few householders have any idea of the costs of waste disposal, but with these set to rise with the progressive increase in landfill tax they are likely to face increased charges. Although the research revealed that people were divided about whether charging on the basis of how much waste they produced would be fair, the research did not cover the possible scope for rewarding 'good' waste practices. One approach worth exploring in future research might be the possibility of rewarding households that recycle a high proportion of their domestic waste in the form of money back vouchers redeemable against their council tax, the use of local public transport or other pro-environmental behaviour.

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## Conclusions

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If waste policy in England is to continue to follow the three-pronged approach of exhortation to participate in recycling, regulation of the means of disposal and taxation of what is sent to landfill, domestic householders will have a key role to play. The effects of taxation and regulation are being felt primarily by the waste collection and disposal authorities and householders are largely unaware of the direct and indirect costs of domestic waste collection and disposal. Financial incentives for waste minimization and charges for excess waste production may be a policy measure worth exploring in future, but before it is considered householders will need much greater education about the waste disposal options open to them and their relative costs. Of the three policy instruments, English householders are thus likely to continue to experience only the impact of exhortations to recycle.

The evidence from the literature review suggests that for recycling to become an efficient and effective method of dealing with waste it must achieve high, habitual and regular participation in the separation, storage and separate collection of different wastes by domestic households. Evidence from the survey suggests that over half the British population do some recycling, but for waste policymakers the problem is that they do not do nearly enough of it. Past efforts at marketing recycling may not have been very effective because recycling was treated as an offshoot of green consumption, and green consumers were assumed to be the core group of active recyclers. Evidence from the literature review suggests that recycling is seen as a moral behaviour and one that people with shared values and attitudes practice. Though personal values such as frugality and collectivism may support recycling activities, they are not necessarily pro-environmental in origin. Values are shared by like-minded people and yet may be influenced by positive reinforcement, whether through the media or through practical measures, such as by making it easier for households to recycle their rubbish. Values are a key component of people's attitudes, and it is these that appear to be what most influence people to recycle, rather than their intentions.

Marketing campaigns are often directed at shifting people's intentions but changing attitudes is a much more difficult proposition, as they tend to be held long term and to alter very slowly. As it is difficult to identify those most likely to participate, recycling needs to be promoted to all householders as a socially and environmentally desirable activity. The information on the personal values of people who recycle could be utilized in marketing communications that show these values being fulfilled by recy-

cling. The evidence suggests that fostering a sense of personal moral responsibility for the growing amount of waste produced by households, together with a feeling that recycling it conforms to society's expectations, is a strong motivator. However, recycling systems need to be designed so it is as easy as possible to participate and, by implication, difficult not to do so. People also need positive feedback to reward their altruistic impulses, such as communications that focus on the benefits of recycling to the community and to the environment.

An extension of kerbside collection to most households will on its own boost recycling rates, but a greater focus on those who already do it may yield initial higher returns. Evidence from both the survey and the literature review suggests that focusing attention on people who already claim to recycle, and helping them to do more, could achieve much higher levels of reclaimed materials. If people are to be encouraged to recycle more they will also need to be supported by practical measures such as the provision of bins with separate compartments for different materials, and more frequent collections to prevent storage problems at home. People need regular reminders of how and when to do it, as it is an activity that they fit into their daily lives and not one that is in the forefront of their minds. Simple techniques such as regular communication and reminders, perhaps through leaflet drops in the recycling containers when they have been emptied, and local promotions tied in to changes or re-launches of collection arrangements, could prove highly effective. Direct communications at a local level could also encourage householders to take simple measures such as reducing the volume of junk mail they receive by signing up with the mailing preference service, and displaying notices that they do not want leaflets and free newspapers.

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