



Catherine Alexander
Reader, Department of
Anthropology, Goldsmiths College,
University of London, UK



Anthony Curran
Researcher, School of Civil
Engineering and the Environment,
University of Southampton, UK



Chris Smaje
Researcher, Department of
Anthropology, Goldsmiths College,
University of London, UK



Ian Williams
Senior Lecturer, School of Civil
Engineering and the Environment,
University of Southampton, UK

Evaluation of bulky waste and reuse schemes in England

C. Alexander PhD, A. Curran MRes, PhD, C. Smaje PhD and I. Williams PhD, CChem, MRSC

The bulky waste fraction of municipal waste arisings is under-exploited in terms of recycling and reuse. Currently, third-sector bulky waste recycling and reuse schemes (e.g. furniture reuse organisations (FROs)) redistribute approximately 2.5 million items annually, largely to needy families and individuals, thus diverting – or at least delaying – landfill disposal. At the same time, several other benefits can be derived from the actions of bulky waste recycling schemes. This paper brings together a range of studies assessing the volume of bulky waste in terms of estimated tonnages and percentage of municipal waste arisings, and possibilities for augmenting current reuse. Turning to the efficacy of existing collection and reuse services, this paper considers: the various routes available for disposal; the operational effectiveness of FROs; and key aspects of the relationship between local authorities and FROs, such as coordination in communication and collection, funding and management of partnerships. Despite the apparent availability of bulky items for redistribution, current funding and institutional constraints may prevent FROs reusing all such items.

1. INTRODUCTION

The UK government's Waste Strategy 2000¹ set what seemed to be ambitious targets for recycling and composting of municipal waste arisings: recycling or composting 25% of household waste by 2005, 30% by 2010 and 33% by 2015. Nevertheless, these have largely been achieved, albeit not uniformly across the country. Local infrastructure, service provision, geography, housing type, politics, social class and affluence all have a bearing on the extent to which local targets are met. Building on this success, Waste Strategy 2007² raised these targets still higher, presenting a continuing challenge to local authorities (LAs) and the waste sector, and began to shift the emphasis higher up the waste hierarchy towards minimisation and reuse where possible. Thus, targets for recycling and composting household waste have moved to at least 40% by 2010, 45% by 2015 and 50% by 2020, with the amount of household waste not reused, recycled or composted to be cut to 15.8 Mt by 2010.²

One response is to explore the potential for technologies to either extend the life of objects or recover energy and/or resources with respect to under-exploited fractions of household waste streams (the term 'technologies' is used here as a complex of social, technical and organisational factors). As a series of UK

government reports acknowledge,^{2–4} the community waste sector (CWS) has been, and continues to be, instrumental in developing innovative methods and niche markets for recycling and reuse. Any consideration aimed at meeting reuse targets should therefore take the unique characteristics of the CWS into account, together with its relationship with local waste collection authorities (WCAs) in formulating effective local waste strategies. In support of this approach, this paper reports on the findings of a number of studies on different aspects of England's bulky waste stream, much of which is currently diverted to landfill and where the only formal mechanism for reuse is by way of the CWS, aside from some small-scale reuse activities by a minority of household waste recycling centres (HWRCs).⁵

The principal aims of the research were to scope the bulky waste stream, to identify current approximate reuse rates, and to assess mechanisms and potential for improvement together with constraints. Thus, following a discussion of the research methods used, the paper assesses the volume of bulky waste in terms of estimated tonnages and percentage of municipal waste arisings, available and selected disposal routes and possibilities for augmenting current reuse (as explored further later, only a finite proportion of furniture and white goods that are disposed of can be considered for reuse once factors such as state of repair are accounted for). Turning to the efficacy of existing collection and reuse services, this work considers the various routes available for disposal, the operational effectiveness of furniture reuse organisations (FROs) and the key aspects of the relationship between LAs and FROs (such as coordination in communication and collection, funding and management of partnerships). The term 'furniture reuse organisation' is used to indicate all third-sector organisations that play a role in collecting and redistributing furniture and/or white goods; the term thus includes those organisations whose primary self-identity is not necessarily furniture redistribution. As appropriate collection, refurbishment and redistribution of bulky items is labour intensive and rarely amenable to profit-driven aims, the involvement in this area of commercial waste organisations is low and accordingly they are not explicitly considered here. However, an indirect impact of the commercial waste industry is increasing emphasis on large, turnkey public finance initiatives (PFIs). This may squeeze out smaller FROs from the public-sector funding on which many rely, despite the government's emphasis on disaggregated contracts.² In its 2002 spending review, the Department for Environment, Food and

Rural Affairs (Defra) allocated £355 million to fund waste PFI projects, adding a further £275 million PFI credits in 2004.

It is worth emphasising that assessing FROs' effectiveness is not as clear-cut as in the case of profit-driven commercial organisations; indeed, an evaluation of success in such narrow terms would be almost irrelevant for many FROs. The third sector, of which the CWS is part, may be defined as non-governmental organisations that reinvest profits into value-driven aims, where 'value' indicates areas of social and/or environmental concern. Thus, in this case, diversion of bulky waste from landfill is rarely the only, and often not the primary aim of FROs. This raises a certain complexity in evaluating the success and potential of FROs' operations as a whole, as opposed to simply addressing quantities diverted or profits generated – a complexity that is highlighted where inter-sector collaborations can have different, if not conflicting, aims.⁶ This mismatch of objectives and operations can become problematic in the case of funding partnerships where the diffuse benefits generated by CWS operations are not fully remunerated by LA departments driven by narrowly focused best value performance indicators (BVPIs). Indeed, in practice, fiscal policies (e.g. Landfill Allowance Trading Scheme (LATS), PFIs, landfill tax, risk avoidance) enjoined upon LAs by the government frequently contradict exhortations to support the third sector. As a contribution to ameliorating this impasse, this paper also discusses the different 'families' of evaluation methodologies, and the advantages and limitations of each, where a far more nuanced assessment of FROs' worth is required than that provided by any single methodology. Making their broader benefits explicit may contribute to improving horizontal integration across service areas in LAs, as well as the vertical integration called for in Waste Strategy 2007.

Third-sector organisations are extremely diverse in terms of size, form, ethos, location and function. Similarly, LAs are responsible for markedly different constituencies across a wide variety of urban and rural areas; politically inflected corporate objectives also differ from one LA to another. This variety is reflected in the number and range of collection and reuse schemes currently in operation. A single best-practice model for improvement is thus inappropriate for all organisations and all areas.

2. METHODS

Research methods for the various studies are described in detail in the works referenced in this paper. In summary, forms of data collection in English towns include

- (a) hand-delivered questionnaires to 1450 households in Bath, Swindon and Portsmouth to assess disposal routes chosen for bulky waste (32% response rate)⁷
- (b) two detailed ethnographic studies over a year in an inner London dense housing estate (40 households) and a small provincial town (20 households)
- (c) analysis of LA websites for bulky waste collections⁸
- (d) analysis of collected bulky waste from a 12.6 t sub-sample derived from a detailed audit of waste from three different areas (Sefton Metropolitan Borough Council, Bath and North East Somerset Unitary Authority (UA) and Southampton UA)⁹
- (e) in-depth participant observation and measurement with four FROs (two based in London; the others in Frome and Southampton)¹⁰

- (f) a further 20 visits to FROs and HWRCs to observe operations
- (g) telephone and face-to-face interviews with employees, volunteers and other workers at FROs^{11,12}
- (h) interviews with LA waste officers and staff in other LA departments who benefit from FRO activities.^{10,11}

Several variables and scales need to be accounted for in a study such as this. While attempting to redress as many methodological issues as possible with data collection and analysis, attention is drawn to the following reasons for interpreting data and findings with caution. Large-scale, aggregated, quantitative data are, at best, suggestive. Such data were collected from a range of different levels and angles and, where possible, supported with qualitative observational data to triangulate findings. There are several reasons for using these data with care. Few FROs use weighbridges to assess tonnages of bulky waste collected and redistributed. A standard list of weights for different items provided by the Furniture Re-use Network (FRN) is generally used as a proxy; this method has been followed here. It should be noted that survey data rely on reported claims from respondents which, characteristically, over-report 'good intentions'. Imputation of missing census data returns produces an appearance of more uniformity in local areas than actual data suggest; classification of super output areas according to the index of multiple deprivation (IMD) is also only broadly indicative as it homogenises local variation. Production of bulky waste is often contingent upon house moves, but churn rates are notoriously difficult to ascertain accurately: census data only provide snapshots of a given period and single moves within it so that household panel data are required to understand churn. Nationwide data on quantities of bulky waste and FROs were collated from websites, LA figures, previous studies, scaled-up surveys and umbrella organisations such as the FRN. The variety of classifications and assumptions behind these data sources are not always commensurate.

In assessing rates of reuse, the simple expedient of tracking items redistributed by FROs and through informal exchange networks was adopted. These transactions, however, do not represent absolute diversion from landfill, but only a delay (or an extension of the object's life). Indeed, interviews with recipients showed that approximately 5% of donated items were exchanged, given back to the donating FRO (or a different one) or disposed of within a year; 50% of respondents expressed the intention to replace received items as soon as possible.¹² These instances raise the methodological problems of possible double-counting redistributed items and of quantifying the actual extended lifespan of these items. Neither has been addressed here, but these issues are raised as a cautionary note in interpreting the figures. However, some of the reasons for bulky items entering and re-entering exchange and waste flows are briefly discussed.

Detailed data on specific FROs and households from prolonged ethnographic studies are illuminating, but extrapolation to larger scales can be methodologically suspect as local context disappears. Although these studies do suggest some general patterns, their main contribution is to suggest the kinds of variables that determine action and therefore the types of questions that need to be asked in different situations. Again, large-scale trends cannot be assumed from small 'snapshot'

surveys without at least an assessment of data confidence and error margins. Furthermore, as Cameron-Beaumont and Lee-Smith¹³ point out, levels of bulky waste differ significantly between LAs and between years.

Location is a significant factor in the collection of bulky waste and the operation of FROs. The survey sample for this work included FROs in London (where issues of congestion charging and competition for source materials, labour and clients come into play) and FROs that are sole players in small- and medium-sized conurbations. As ethos and aims also frame FROs' activities and strategies, the sample included faith-based FROs whose primary aim is to relieve the effects of poverty, social enterprises emphasising landfill diversion, and schemes with close links to the social housing sector. The sample covered different organisational sizes and turnovers as this factor has a significant effect on the ability of the organisation to take advantage of scale economies and engage in robust contractual partnerships with LAs.

3. BULKY WASTE STREAM

3.1. Size

The bulky waste stream is relatively small. In 2003/04 it comprised less than 5% of the 25.4 Mt of household waste collected;¹⁴ these data were collected by way of questionnaires to LAs (96% response rate). Of this small percentage, only a fraction can be reused depending on collection routes and the item's condition. From a sample of 48 authorities, approximately 680 864 collections of bulky waste were made by WCAs during 2006 (some councils' data were for 2005, others for the financial year April 2005 to March 2006 (with April–December in common)). This equates to 79 collections per 1000 people. A typical collection includes three large household items. This translates to an estimated 3.89 million collections of 11.67 million household bulky items per year across England. In terms of weight, a subset of seven WCAs was considered. The 68 339 collections made from these seven areas, comprising 1 131 899 residents, weighed 7636 t. This equates to a rough average of 16.3 kg per household per year (based on 2.422 people per household in the UK¹⁵). The average weight per collection was 112 kg. Applying this average weight to England (79 collections per 1000 people) produces an estimated council-collected bulky waste arising of 434 650 t/year.⁹ These figures exclude bulky items taken to HWRCs and other disposal mechanisms.

3.2. Available and selected disposal routes

In England, householders can either dispose of bulky waste at HWRCs (Figure 1) operated by waste disposal authorities or arrange for collection by the local WCA, usually for a small variable charge (e.g. up to £35 for four items, ten items for free, £12.50 per item, free to those on low income). As expected, collection charges affect usage of an authority's service or choice of alternative routes, although lack of private transport can also make HWRCs an unviable option for some households. The third main option is collection by a FRO. These three options, however, are often last on householders' list of choices for ridding themselves of bulky items, especially where there is some residual attachment to the object. In fieldwork undertaken in County Durham and Nottingham, Gregson *et al.*^{16,17} found that householders often try to pass such objects on to family or friends. Common findings across relatively different regions in England suggest the general importance of redirecting bulky



Figure 1. A household waste recovery centre

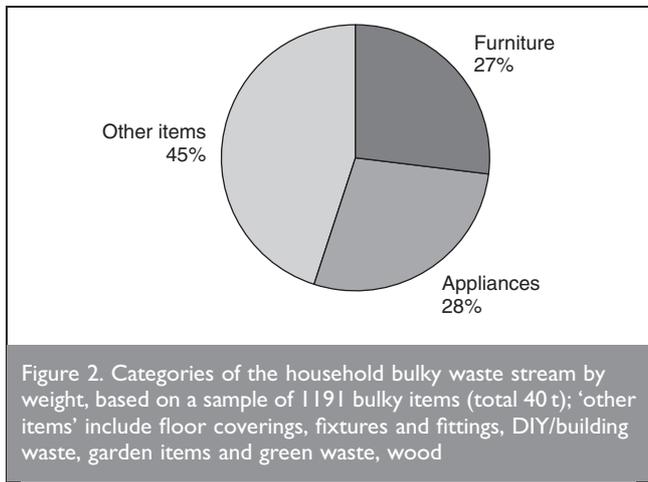
items through kin networks. Less formal means are also in operation, such as leaving objects in places where they are likely to be picked up and reused by strangers or selling items (e.g. by way of the internet or at car boot sales). However, the focus here is on the three principal routes of collection, noting that the possibility for reuse in the first two instances often depends on transference of the item to a FRO. Items taken to HWRCs or collected by WCAs are generally landfilled or incinerated; however, some HWRCs do supply FROs and some are linked to metal and wood recycling operations. There is clear capacity to extend these connections with better provision for selecting and storing items for reuse and improved material segregation bays.

An analysis of information from LA websites for bulky waste collection⁷ showed that a wide range of schemes operate across England and charges vary in amount and form; only 24% gave contact details for local FROs in 2005 (although this has subsequently increased). Inconsistent strategies between boroughs of larger cities can cause confusion to residents, particularly those who move frequently (typically private tenants). Closer coordination between LAs and FROs would result in clearer website information on possible reuse routes, with a consequent improvement in the flow of reusable items.¹⁸ Internet access is still limited, however, and coordinating information should extend well beyond websites.

3.3. Composition

A survey of households in Bath, Swindon and Portsmouth showed that 65% ($n = 304$) of 466 respondents had disposed of 1191 bulky items in the preceding 12 months.⁷ Following FRN average weights,¹⁹ this equates to an approximate total of 40 t. The spread across categories is shown in Figure 2.⁷ Approximately 75% of the items disposed of by these householders was managed by local waste collection and disposal authorities, the remainder being placed in commercial skips, given to FROs (7%), sold (1%), passed on (6%) or fly-tipped. The self-reported quantities of the 466 responses were extrapolated to national level; the throughput and destination of items is shown in Table 1.

Respondents in areas of high deprivation reported more discards of bulky items than those in more affluent areas. In all, 60% of



respondents took items to a HWRC, although this was not necessarily the only route chosen by all these respondents. The likely reason for HWRCs being a preferential option (where transport exists) is that it is free, relatively convenient and presents no significant delay to the householder. All WCA collections across the country involved delays from a couple of days to several weeks, with 7–10 days being the norm across all authorities. Poorer households and/or those lacking transport were more likely to choose a council collection or a FRO. Both these options may charge for collection, invariably impose a waiting period upon the caller, and FROs usually only take items in a reasonable state of repair. These options may also thus lead to illegal disposal of objects (fly-tipping) from households that cannot afford – or are unwilling to pay and wait for – collection (Figure 3). FROs were generally cheaper or free, had shorter waiting times and collected items from inside the home (Figure 4); however, this, in turn, results in higher unit collection costs.

3.4. Bulky waste generation

Participant observation and interviews with households and donors to FROs in London and Frome supplemented this picture of disposal routes for households in terms of causality and motivation. The bulky waste stream is closely connected with family development cycles and the house moves that abrupt changes may provoke. Thus, new partnerships, birth, adolescence, offspring leaving (and often returning) home, separation and death almost all generated a sudden surplus of items requiring disposal. It is worth noting that even though such items were excess to need in a purely utilitarian sense,



they often still possessed a sentimental value for their owners who, not classifying them as waste *per se*, would, in the first instance, try to pass them on to other family members or friends, or (on the estates where interviews were carried out) leave them close to paladins expressly because the items were likely to be picked up and reused from such places. This latter instance was understood to be different from fly-tipping because the likelihood of the items being reused was thought to be high; half of the respondents had either left or found items

Method of disposal	Estimated throughput		Primary destination of items
	Proportion: %	Quantity: t/year	
Council collection	15	274 772	Landfilled/recycled
Voluntary/charity collection	7	123 234	Reused
Commercial collection/skip	10	176 425	Landfilled/recycled
HWRC	56	1 005 057	Landfilled/recycled
Privately sold	1	21 021	Reused
Given away	6	106 606	Reused
Other means	5	81 080	Landfilled
Total	100	1 788 195	

Table 1. Estimated throughput of bulky items in England, by method of disposal

(furniture, white goods, sports equipment) in such places. The provision of appropriately monitored storage places might enhance informal swaps between strangers.

Deaths presented recipients of bequeathed goods with particularly fraught decisions as to if and how to dispose of items that embodied social relations. This was a common point of discussion with informants, who either

described difficulties in knowing what to do with a large influx of items into restricted spaces or displayed flats crowded with cardboard boxes and bulky items that they were loathe to get rid of. Sentimental attachment extended well beyond furniture. Four middle-aged informants on the estate had kept their dead parents' washing machines and refrigerators, even though the machines no longer worked, precisely because these objects evoked their parents. The example is extreme, but typical,^{16,17} and contradicts the stereotype of a 'throwaway society'. Again, as might be expected, all donors to FROs spoke of wanting to 'give something back to society' in one form or another. More surprisingly, but in line with the above, in no case was the donated item being replaced with a new one, although this should not necessarily be taken as typical.

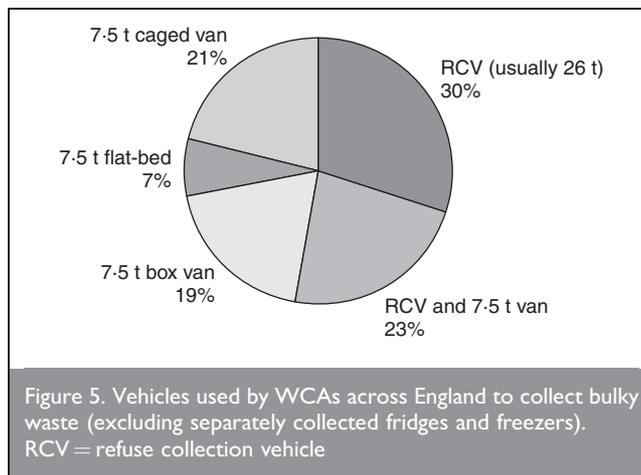
This reluctance to dispose of items was accompanied by a common predilection for hoarding – a distinctly gendered activity. Available storage spaces (sheds, corridor cupboards, attics, etc.) were full of oddments of wood, metal, etc. that might prove useful in a future DIY project, or items that similarly anticipated grandchildren or future activities (usually sport). House moves, often caused by family changes, were a key driver for many of these items finally being disposed of through one or more of the routes described earlier. The speed of house moves often necessitated objects being directed to the easiest and fastest disposal route for the householder, even if this caused some anxiety as to the 'proper' on-use of items. The relevance for understanding the sources and causes of bulky waste is that attention to house moves by way of estate agents might enable a more proactive approach to the reuse of items in good condition.

3.5. Scope for reuse

Not all items received by FROs or recovered from HWRCs can be reused. Reeve¹⁸ suggested up to 59% recovery is possible from HWRCs. Cameron-Beaumont and Lee-Smith¹³ assessed a range of FROs and discovered a wide range of reuse rates for hard (9–54% across four authorities) and soft furniture (13–20% across the same sample) and approximately 30% for electrical appliances. In this research, FROs reported approximate reuse rates of 50–96%. However, with reports of reuse rates ranging from 9 to 54% for hard furniture in one instance, the figures should be used with caution. Actual reuse rates of collected items in the London and Southampton studies¹⁰ were frequently lower than those reported because drivers often took extra objects to help out householders; these items were generally not recorded and were thrown away in a skip destined for landfill on arrival at the depot. In one case, the low actual reuse rate by a FRO resulted in a contract with the local council being terminated.

Reusability depends on a number of factors: condition, collection methods, storage facilities and aesthetics. Cameron-Smith and Lee-Smith¹³ provide a tool kit for call operators to assess the likely condition of offered items for FROs. In some cases, WCAs refer collections to FROs after determining if donated items might be reusable. More widespread and effective use of such filtering mechanisms would reduce the number of donated items not fit for reuse.

Collection methods vary. Typically, FROs offer to collect and deliver items from and to inside households, thus reducing the likelihood of damage. Conversely, WCAs generally expect householders to place items outside the property, thus



increasing the possibility of impairment from weathering. During the London fieldwork, some instances were noted where FRO operatives were reluctant to take heavy items into households, especially in the case of high-rise apartments, but these were few. A wide range of collection vehicles are used (Figure 5⁸). Compaction vehicles render collected items unfit for reuse, but lower unit collection costs; open cage vans (Figure 6) expose items to weather damage. Lack of storage can hinder FROs being able to cope with fluctuating supply and demand over the year: donations typically increase in early spring after store sales and dip in early winter (when demand often increases). Without adequate space to smooth these disparities in supply and demand, FROs have to turn away offered goods. Even with these impediments, the FRN suggests that over two million items are redistributed annually.

3.6. Redistribution

FROs participating in the study variously used open warehouses or shops to redistribute items, sometimes after minor in-house repairs. A variety of redistribution mechanisms are used, depending partly on the ethos of the organisation and partly on revenue strategies. In most cases, local welfare workers refer individuals and households in need to a FRO. Redistribution pricing methods were also found to vary and included¹²

- (a) below cost pricing
- (b) allocation of a limited number of free items or goods at reduced cost



- (c) vouchers for basic items at a nominal 'price'
- (d) ranges of prices and vouchers for the public and referred clients respectively.

The use of FRO vouchers was found to be common in this study, but it should be noted that where they are handed out by welfare workers, they effectively represent a subsidy by the third sector to local or national government – but in areas that are literally not taken into account in evaluating the effectiveness of FROs. Thus, connections between FROs and LAs are necessary, as are links between diverse service areas. In the course of working closely with two FROs in this research, redistribution mechanisms changed in each case (in response to patchy funding) to allow the public to purchase items as well as referred clients in need. In the case of furniture, the aesthetic and subjective criteria of recipients can override functional assessments of usability. Certain items of furniture such as television cabinets and sideboards are now rarely used. Large, heavy furniture is not suitable for small flats, nor does it meet a common aesthetic framed by contemporary furniture stores such as IKEA and Habitat. While most donated items relieved acute necessity, interviews with recipients indicated that 50% planned to replace such items either because they had negative associations with hardship or did not fit with the client's decorative schema or the identity they wished to project through their home.

White goods constitute a specific case as reuse depends on a technical assessment of whether or not they are fit for purpose as opposed to the more subjective judgements about the 'fitness' of furniture. Testing and reconditioning white goods is more labour and skill intensive than furniture repair. An interview with the London Community Recycling Network (LCRN) revealed that a figure as low as 2% could be attached to privately donated white goods that are fit for reuse, while a much higher percentage of white goods passed on from retailers (collected from consumers after purchase of a new appliance) were fit for purpose. These figures are significant for the future capacity of the CWS to cope with the waste electrical and electronic equipment (WEEE) directive. A certain scale of throughput is clearly necessary to make reconditioning white goods cost effective, even where labour is under-remunerated or free. Adequate stock flow of items in a satisfactory condition necessitates contracts with retailers. This (together with the high capital cost of equipment, training costs and need for 3.5t or 7.5t trucks) requires economies of scale not available to most small- or medium-sized FROs unless they join together in consortium operations, which in turn requires a considerable degree of management expertise and financial acumen across public, private and third sectors.

In summary, very broad estimates of current production and potential reuse rates of bulky items might be projected as shown in Table 2.¹¹ The next section addresses the likelihood of realising the additional potential for reuse by way of FROs as the principal means of redistributing bulky items.

4. FURNITURE REUSE ORGANISATIONS

4.1. Scoping the sector

FROs are the most significant formal mechanism to extend the lifetimes of large objects. An extensive and detailed review²⁰ highlights the importance of the CWS with respect to achieving

	Quantity: t
Total bulky waste in England	~1 800 000
Of which furniture and white goods comprise 55%	~1 000 000
Estimated current recorded reuse is 15%	~270 000
Estimated additional potential for reuse is 12.3%	~220 000
Current maximum realistic reusable fraction is 27.3%	~490 000

Table 2. Estimate of current bulky waste production and potential reuse

government targets on waste reduction and lists some of the challenges facing the sector such as appropriate management skills and adequate funding. Following the formation of Waste Watch in 1987, the CWS has been instrumental in introducing innovative and highly effective schemes for household recycling by way of kerbside schemes and composting. Many of these schemes have now been absorbed into standard WCA provision, whether provided by the authority itself or private contractors. Furniture and white goods reuse, however, remains the province of the CWS. It is unlikely that a similar move will take place whereby these operations will be taken up as mainstream options offered by LAs or industry, simply because repairing and redistributing such items is labour intensive and offers few chances for significant profit margins. Extending current service provision is not a straightforward matter of expanding the CWS. In a rapidly changing legislative and funding environment, the CWS is faced with a number of challenges to continue as it is, let alone extend its functions.

The defining feature of the CWS is that it delivers a broad range of benefits across several domains conventionally classified as environmental, economic and social, although there are problems in artificially separating linked activities and concepts.¹² Assessments of the CWS tend to focus either on environmental or economic benefits as apparently more containable and hence quantifiable. Typically, the social benefits accruing from this sector's work are briefly lauded but rarely investigated in depth. The use of social return on investment²¹ is a rare and useful instance of an attempt to quantify social benefits. As this paper argues, the importance of understanding the operational connections between all these domains is vital because, firstly, under-remuneration of one aspect of a FRO can result in its overall failure to the detriment of partnerships for waste reduction and, secondly, apparent improvements in one area may come at a cost in another. For example, higher revenues may be only achieved at the cost of distributing items to those in need. Unless, the CWS and FROs are understood as *sui generis* operations, and not as a sub-section of market or public-sector activities, the likelihood of improvement and expansion is low.

Scoping the sector is not straightforward, largely because waste diversion is a principal aim for some and a by-product of others' primary activities in areas such as education, re-skilling and alleviating the effects of poverty.²¹ Other researchers similarly point to the difficulty in scoping the sector: Williams *et al.*²⁰ suggest 1200 organisations in the CWS while Luckin and Sharp²² estimate 850–1000. Different methodologies were used in these studies; Williams *et al.* also indicate a growth in the

sector, although growth alone does not indicate stability. Revenue is typically generated from a number of sources to different degrees: sales to the public, sub-cost sales to clients in social need, capital start-up grants, grants or contracts for training, re-skilling or community service placements and contracts with LAs in a variety of forms. Sales generally account for a low proportion of income, with most being FROs dependent on public-sector funding. Income varies sharply from an annual turnover of £10 million to small operations of about £50 000.²⁰

Waste Strategy 2007² exhorts LAs to make partnerships with the CWS. Research,¹⁰ however, has found that the increasing fragmentation of LAs and the concomitant devolution of function and budgetary responsibility to the lowest levels of service areas has a detrimental effect on contracts with organisations that deliver benefits across a range of service areas. Thus, a contract with an FRO to collect and reuse bulky items will typically expect a pound-for-pound return and ignore the benefits enjoyed by other LA departments (and national government) in the areas of housing, welfare and employment. An appreciation of the full benefits and costs provided by a FRO and, by extension, the CWS, is needed to ensure equitable remuneration. This in turn requires a mechanism to account for all benefits across service areas and senior management commitment to oversee such multi-department contracts.

4.2. Evaluating benefits

Evaluating the full worth of FROs' activities in terms of positive impact and costs requires three steps

- (a) an understanding of what different methodologies variously add and fail to take into account
- (b) determination of the variables that need to be addressed
- (c) assessment of the values to be attached to those variables.

The third is largely context specific and depends on the form and location of the organisation.¹⁰ It should be emphasised that this is not presented as a model or a definitive costing, but an example of the questions that need to be asked in each case. For this reason, a brief summary is presented.

There are several 'families' of evaluation methodology, such as cost-benefit analysis (CBA), triple bottom line assessments (3BL), life cycle analysis (LCA) and environmental and social impact assessments (EIA, SIA). CBA is a popular method as it provides a common metric (monetary cost) for all variables and therefore is seen as a pragmatic solution to identifying return, not least in 'social accounting'.^{21,23} However, not all benefits can be meaningfully equated to money,¹² so such analyses tend to be weighted in favour of costs. Moreover, the underlying theoretical assumptions are perfect market conditions (which do not exist in the real world) and implicit comparison of a null case, which can be hard to delineate. Its failure to incorporate equity and gender considerations has also been sharply criticised.²⁴ LCA can provide a whole-life inventory of the environmental impact of a process or product, thus typically replacing money as the common metric with energy and/or pollutants. The advantage is the broader temporal focus of analysis; the disadvantage is that social, political and economic factors are not brought into view, and these in turn influence environmental effects as well as being worthy of attention in their own right. In other words, context disappears and only marginal impacts are assessed against an assumed steady-state

Cost	Benefit
Environmental cost of vehicle use	Landfill diversion
Environmental cost of premises	Avoided resource use
Scheme economic costs	Development of human capabilities
Contract transaction costs	Avoided collection and disposal costs
	Revenue

Table 3. Cost/benefit variables of third-sector bulky waste reuse schemes

background. 3BL assessment is a useful reminder that not all variables are tractable to monetary cost. However, attempts to produce combined environmental and social 'bottom lines' risk incoherence.²⁵ SIA studies attempt to replace utility as a cost indicator with (for example) risk, using such concepts as health²⁶ and 'sustainability'.²⁷ Operationalising these models remains problematic. They do, however, emphasise the need to combine quantitative and qualitative approaches.²⁸ This takes the positive features from each of the methodologies described above. Nevertheless, there are severe difficulties in incorporating the full range of scheme benefits into CBA, particularly in relation to social outcomes such as relief of client hardship and improvement of social housing outcomes – major objectives of many FROs but with, typically, diffuse and non-quantifiable consequences. The same is true for institutional factors such as transaction costs across the public and third sectors, which are discussed in more detail in Section 5.

The variables in Table 3 are those that can be monetised. According to CBA principles, labour has not been included. In the case of FROs, however, labour is both a cost and revenue item. Moreover, coerced and voluntary labour imposes additional supervisory costs. It is worth noting that many voluntary workers are unlikely to re-enter the formal labour market for a range of reasons.²⁹ Participation in such schemes clearly brings an enhanced sense of wellbeing; in a few instances, this could be counted in terms of reduced welfare or medical costs but the allocation of costs and benefits to different scales and agencies makes such a calculation problematic.

This research found that key factors affecting the operations and costs of the schemes studied (and, by extrapolation, all FROs) were as follows. Here scheme 1 refers to a London-based FRO and scheme 2 to the Southampton FRO.

- (a) *Location.* This factor determines competition for source materials, labour supply and premises costs (scheme 1 co-existed with 12 other large FROs; scheme 2 was a monopoly) and transport (some London FROs pay congestion charges).
- (b) *Cost schedule.* In addition to location-specific costs, each scheme's costs differ as a result of factors such as vehicle type and any benefits in kind received from statutory and voluntary organisations.
- (c) *Integration.* Scheme 1 was tightly integrated into local social housing provision, whereas scheme 2 arose out of Christian anti-poverty activism. The former resulted in contracts from local housing departments for refurbishment. The latter led to commercial partnerships being rejected as inimical to the ethos of the operation.

- (d) *Size and longevity.* Both factors allowed economies of scale and demonstrable viability when making contracts with LAs. Small- and medium-size FROs were more vulnerable. (Scheme 1 is smaller and restricts itself largely to furniture reuse, whereas scheme 2 is involved in several other reuse and poverty relief projects.)
- (e) *Revenue sources.* Scheme 1 only sold furniture to referred people in need who made their selection from its warehouse. Scheme 2 ran a parallel shop/warehouse operation, with the high-street shop selling furniture to the general public and, at a discounted price, to people in need referred by recognised agencies. The scheme 2 shop was introduced during the fieldwork period in the context of a funding crisis; it incurred a decrease in overall activity but an increase in relative remuneration.

In order to assess these factors fully, elements that can be rendered as monetised cost *and* qualitative variables both need to be taken into account. In general, costs/benefits are dominated by the economic costs of running schemes, and these in turn are highly sensitive to the local institutional arrangements affecting client base, public-sector contracts and benefits in kind. From a policy-making point of view, the question is whether these qualitatively assessed benefits are likely to outweigh costs. This is discussed more fully in Section 5.

5. FUNDING, LEGAL AND INSTITUTIONAL CONTEXT

In seeking to increase the proportion of bulky items that are reused by way of FROs, it is necessary to address the institutional context within which public- and third-sector agencies form partnerships. On the third-sector side, individual organisations have particular histories that affect their engagement with public provision. For example, in relation to the two FROs with which ethnographic fieldwork was carried out, one was a charity originating outside statutory provision by way of Christian anti-poverty activism. It grew rapidly as a result of grant funding and became a significant local player in providing furniture, white goods and emergency food and clothing relief to disadvantaged families. In so doing, it acted as a 'backstop' to statutory health, social services and social security provision, which it implicitly subsidised through below-cost redistribution. When financial crisis prompted the organisation to attempt to move towards a more explicitly costed contract-based provision, it lacked the managerial connections and some of the fiscal know-how to make a smooth transition. Statutory providers, although sympathetic to the organisation and aware of the multiple but diffuse benefits it brought to their clients, responded by way of *ad hoc* funding arrangements that did not address the institutional relationship between the LAs and the FRO in any systemic way.

The other FRO studied in depth, although originating in independent anti-poverty activism, had been subsumed within the charitable arm of a local housing association, with the result that its management and ethos was tightly integrated into the local social housing sector. This conferred several advantages in terms of access to funding streams and relevant managerial skills and knowledge, but also 'biased' the organisation's sphere of operations to the housing sector to the detriment of its

presence within, for example, environmental services. This becomes important when attention switches to the public sector, where waste management functions are split across various tiers of central and local government, and, within local government, between departments with different cost centres such as housing, social services and environment. Environmental services are primarily driven by cost and demonstrable unit performance, whereas FROs and the LA departments with which they are allied (e.g. housing and social services) are typically motivated equally by more diffuse and unquantifiable outcomes such as relief of hardship, development of labour force capabilities and so on. Therefore, unless there is high-level agreement about the synergies of the public-third sector alliance, there is a danger that certain benefits brought about by third-sector participation will be obscured, leading to the appearance of a poorer performance than is actually the case and the threat of contract termination. Both examples illustrate the need for senior LA ownership of contracts that span several departments and management skills within the CWS.

The origins of FROs also affect a range of other factors that have a considerable bearing upon their overall performance. For example, the recruitment of volunteers is often easier for faith-based organisations with church connections and grounded in a strong ethic of social activism. The higher transportation costs and difficulties in finding labour in the London-based FRO were, to a degree, offset by its receipt of the in-kind benefit of a LA warehouse at extremely low rent.

FROs grew rapidly in the early 2000s as a result of increased grant funding from a number of sources. The strongly expressed need in the sector now is to move on from this 'pump-priming' to secure sustainable income. Here, contract income with statutory service providers is key, but public-third sector contracting imposes considerable transaction costs upon both parties. FROs are forced into performance and output measurement, which diverts scarce resources from operational activity, and suffer from insecure and short-term funding, again diverting managerial attention into constant fundraising. At the same time, funding for capital projects is easier to obtain than for revenue (a problem compounded by state aid restrictions), which exacerbates the short-termism of third-sector provision. From the LA point of view, CWS organisations can be an unknown quantity, often small scale, with uncertain governance structures and sometimes a questionable commitment to statutory provision in the face of their origins within an 'oppositional' grassroots culture. All this imposes significant audit costs on LAs, faced with duty of care obligations to limit public liability. Public-sector risk avoidance prefers large-scale operations with proven histories and financial turnovers. Forming consortia of smaller schemes is one response, but one that is often undermined by an ethos of autonomy, independence and lack of management skills, although some umbrella schemes such as FRN are trying to address this. Thus, despite the fact that FROs possess the expertise, responsiveness and 'grassroots' legitimacy to act as important partners with statutory providers in improving reuse rates of the bulky waste stream, the concept of social enterprise is not a panacea for service development in the sector, which must be carefully integrated into the complex and multi-tiered institutional character of waste management provision.

6. CONCLUSIONS

The bulky fraction of the waste stream is currently under-exploited in terms of recycling and reuse. Although FROs redistribute approximately two million items per year, in theory there is scope to increase the volume of items diverted. The first means for achieving this would be to improve links between councils' bulky waste collection services (including HWRCs) and FROs, both in the sense of passing on suitable items and of explicitly directing residents to local reuse schemes. In terms of communicating the possibility of giving to an FRO rather than council collection, it should be noted that the continuing digital divide³⁰ means that internet access is limited in deprived areas; information therefore also needs to be provided through other means. Secondly, ethnographic fieldwork on a London housing estate and a provincial town demonstrated that diversion would be enhanced by proactive responses to those points in annual calendars and life cycles when bulky waste generation is likely to be maximised: Christmas, spring sales, deaths and house moves. In the last case, LA housing departments, housing associations, removal companies and estate agents are all well positioned to give advice on donations to FROs. Encouraging and formalising local swap days³¹ is an additional proven means of reducing the generation of bulky waste. The third key mechanism for improving throughput of reused items is ensuring that they are collected in vehicles that are least likely to damage them in transit.

However, the potential scope for improved diversion of bulky items from landfill is also constrained on a number of fronts, which bear attention if the community waste sector is to continue its key role in England's local waste strategies. A common systemic problem is the question of contracts between the public and third sector where the latter typically generates benefits across a number of service areas and the former requires evidence of pound-for-pound value for specific services. One effect is that statutory bodies are often implicitly subsidised by third-sector organisations. Sections 4 and 5 of this paper discussed methods for accounting for the full range of benefits produced by FROs. The last point to note is simply that not all items collected are suitable for reuse. Quite apart from whether or not items are functionally fit for purpose, the aesthetic considerations of recipients can lead to items being rejected at point of offer or after receipt.

REFERENCES

1. DEPARTMENT FOR ENVIRONMENT, TRANSPORT AND THE REGIONS. *Waste Strategy 2000: England and Wales Part 1*. DETR, London, 2000, Report No. CM4693-1.
2. DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS. *Waste Strategy for England, 2007*. Defra, London, 2007.
3. HM TREASURY. *Exploring the Role of the Third Sector in Public Service Delivery and Reform, A Discussion Document*, 2005. See http://www.hm-treasury.gov.uk/media/34C/1D/vcs_thirdsector210205.pdf for further details. Accessed 01/03/2008.
4. DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT. *Third Sector Strategy for Communities and Local Government – Discussion Paper*, 2007. See <http://www.communities.gov.uk/documents/communities/pdf/324564> for further details. Accessed 01/03/2008.
5. BRIDGWATER E., CAMERON-BEAUMONT C. and SEABROOK G. *National Assessment of Civic Amenity Sites – Maximising Recycling Rates at Civic Amenity Sites*. Future West and Network Recycling, Bristol, 2004.
6. BULKELEY H., ASKINS K., WATSON M., HUDSON R. and WEAVER P. *Governing waste sustainably: challenges and opportunity. Final Project Report*. Department of Geography and Wolfson Research Institute, University of Durham, 2005.
7. CURRAN A., WILLIAMS I. D. and HEAVEN S. Management of household bulky waste in England. *Resources, Conservation and Recycling*, 2007, 51, No. 1, 78–92.
8. CURRAN A., HEAVEN S. and WILLIAMS I. D. An evaluation of council bulky waste collection services in England. *CIWM Scientific & Technical Review*, 2006, 7, No. 1, 12–25.
9. CURRAN A., HEAVEN S. and WILLIAMS I. D. Collected bulky household waste in England – potential for reuse and recycling. In VEGH B. and ROYLE J. (eds) *Proceedings of Waste, Sustainable Waste and Resource Management*, Stratford-Upon-Avon, 19–21 September, Session 15, 603–612.
10. ALEXANDER C. and SMAJE C. Evaluating third sector re-use organisations: case-studies and analysis of furniture reuse schemes. *Resources, Conservation, Recycling*, 2008, 53, No. 5, 718–730.
11. CURRAN A. and WILLIAMS I. D. Maximising the recovery of household bulky wastes in England. *Proceedings of the 11th International Waste Management and Landfill Symposium, Sardinia*, 2007, 1–5 October, Paper No. 147.
12. ALEXANDER C. Economic valuations and environmental policy. In *A Handbook of Economic Anthropology* (CARRIER J. (ed.)). Edward Elgar, Cheltenham, 2004, pp. 455–471.
13. CAMERON-BEAUMONT C. and LEE-SMITH C. *Bulky Waste Collections – Maximising Re-use and Recycling: A Step-by-step Guide*. Network Recycling/Furniture Re-use Network, Bristol, 2005.
14. DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS. *Municipal Waste Management Survey 2003/04*. See www.defra.gov.uk/environment/statistics/wastats/archive/mwb200304.pdf for further details. Accessed 01/03/2008.
15. See www.statistics.gov.uk for further details.
16. GREGSON N., METCALFE A. and CREWE L. Identity, mobility and the throwaway society. *Environment and Planning D: Society and Space*, 2007, 25, No. 4, 682–700.
17. GREGSON N. *Living with Things: Ridding, Accommodation, Dwelling*. Sean Kingston Publishing, Oxford, 2006.
18. REEVE S. *Local Authority Good Practice Assessment in the Re-use and Recycling of Household Collection Bulky Item Waste Stream – Literature Review*. Network Recycling/Defra, Bristol, 2004.
19. FURNITURE RE-USE NETWORK. *Average Weights: Furniture, Appliances and Other Items*, 2005. See <http://www.frn.org.uk/statistics.asp> for further details. Accessed 01/03/2008.
20. WILLIAMS N., CROKER M. and BARRETT D. *Review of the Voluntary and Community Waste Sector in England*. ODPM/DTI/Defra, London, 2005, final report.
21. BROOK LYNTHURST. *Replicating Success: Social Enterprises and the Waste Sector in London*. Brook Lyndhurst, London, UK, 2005, first interim report.
22. LUCKIN D. and SHARP E. *Sustainable Development in Practice: Community Waste Projects in the UK*. University of Bradford, 2003.
23. NEW ECONOMICS FOUNDATION. *Social Return on Investment: Valuing What Matters*. NEF, London, 2004.

24. SEN A. Rational fools: a critique of the behavioural foundations of economic theory. *Philosophy and Public Affairs*, 1977, 6, No. 4, 317–344.
25. NORMAN W. and MACDONALD C. Getting to the bottom of 'triple bottom line'. *Business Ethics Quarterly*, 2004, 14, No. 2, 243–262.
26. MAHONEY M. and POTTER J. Integrating health impact assessment into the triple bottom line concept. *Environmental Impact Assessment Review*, 2003, 24, No. 2, 151–160.
27. POPE J., ANNANDALE D. and MORRISON-SAUNDERS A. Conceptualising sustainability assessment. *Environmental Impact Assessment Review*, 2004, 24, No. 6, 595–616.
28. BRADSHAW M., WOOD L. and WILLIAMSON S. Applying qualitative and quantitative research: a social impact assessment of a fishery. *Applied Geography*, 2001, 21, No. 1, 69–85.
29. ALEXANDER C. Illusions of freedom in the third sector. In *Market and Society: The Great Transformation Today* (HANN C. and HART K. (eds)). Cambridge University Press, Cambridge, 2009, 221–239.
30. NORRIS P. *Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide*. Cambridge University Press, Cambridge, 2001.
31. ALEXANDER C., SMAJE C., TIMLETT R. and WILLIAMS I. Improving social technologies for recycling. *Proceedings of the Institution of Civil Engineers, Waste and Resource Management*, 2009, 163, No. 1, 15–29.

What do you think?

To comment on this paper, please email up to 500 words to the editor at journals@ice.org.uk

Proceedings journals rely entirely on contributions sent in by civil engineers and related professionals, academics and students. Papers should be 2000–5000 words long, with adequate illustrations and references. Please visit www.thomastelford.com/journals for author guidelines and further details.