



The dirty man of Europe? Rubbish, recycling and consumption work in England

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Abstract:

England has been described as 'the dirty man of Europe'. However, the country's household recycling rate has been steadily increasing in the last decade, achieving a recycling rate of 42 per cent in 2011/12 compared to just 12 per cent in 2001/2 (DEFRA, 2012). This paper explores the combination of factors that have led to the growth of interest and participation in recycling activities by households, businesses, governments and the third sector. It charts the development of waste management policy and practice in England in order to highlight how and why recycling has become incorporated into consumers' everyday household routines. This paper has been developed as part of an ERC-funded project, 'Consumption Work and Societal Divisions of Labour', whose key aim is to demonstrate the role that consumers play in the labour process, using comparative methods. In the case of recycling, by sorting their waste, consumers play an integral role in the division of labour within waste management in England and their role differs substantially to the role of consumers in Sweden (the other country in which recycling consumption work has been explored, see Wheeler, 2013). This paper illustrates how the consumer is encouraged to perform this work, drawing attention to what the work actually comprises and the implications of its successful accomplishment for the labour processes that follow.

Keywords/tags:

Consumption Work, Division of labour, England, Environmental Policy, Moral Economy, Recycling.

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1 INTRODUCTION

England has been described as 'the dirty man of Europe'. However, the country's household recycling rate has been steadily increasing in the last decade, achieving a recycling rate of 42 per cent in 2011/12 compared to just 12 per cent in 2001/2 (DEFRA, 2012). This paper explores the combination of factors that have led to the growth of interest and participation in recycling activities by households, businesses, governments and the third sector. It charts the development of waste management policy and practice in England in order to highlight how and why recycling has become incorporated into consumers' everyday household routines. This paper has been developed as part of an ERC-funded project, 'Consumption Work and Societal Divisions of Labour',¹ whose key aim is to demonstrate the role that consumers play in the labour process, using comparative methods. In the case of recycling, by sorting their waste, consumers play an integral role in the division of labour within waste management in England and their role differs substantially to the role of consumers in Sweden (the other country in which recycling consumption work has been explored, see Wheeler, 2013). This paper illustrates how the consumer is encouraged to perform this work, drawing attention to what the work actually comprises and the implications of its successful accomplishment for the labour processes that follow.

Waste management is a devolved issue within the UK meaning that each country has its own distinctive policy for the organisation of recycling. This paper focuses on waste and recycling in England, with a specific interest in three counties/boroughs: Essex, Shropshire and Lewisham.² The data for this paper has been gathered through interviews with key informants/waste experts (policy makers, not-for-profit organisations, waste consultants and private waste management companies),³ field visits to various waste and recycling treatment sites and infrastructures⁴ in Summer 2011, and ongoing desk research to uncover the system of provision. In 2012, we conducted thirty household interviews in Essex, Shropshire and South-East London, to uncover how recycling is practically achieved and understood on an everyday basis.⁵

Recycling is a relatively new addition to the household's repertoire of domestic activities. Following pressure from the environmental lobby group, Friends of the Earth, the Household

¹ The research programme on which this paper is based ('Consumption Work and Societal Divisions of Labour' DivLab 249430) was funded by a European Research Council Advanced Investigator Grant for which I am indebted. This project is led by Professor Miriam Glucksmann who should be acknowledged for her significant contribution to the development of ideas presented in this paper.

² There are many variations in the systems of waste management within England because each local authority area decides upon and procures waste collection and treatment services. Local authorities are often split into Waste Disposal Authorities (WDA) and Waste Collection Authorities (WCA); WDAs arrange for the disposal of general waste within a county from the county council offices, whilst WCAs arrange for the collection of general waste and recyclable materials at the district level. Recyclable materials are generally not handled by the WDAs and it is up to the WCAs to find end-markets for them. Unitary authorities combine the functions of WDA and WCA. At the county-level, therefore, there can be a great deal of diversity in recycling practice with districts within the same county having different rules for sorting recyclable materials. By focusing on three distinct areas, this paper reveals variations in the systems of recycling and waste management across England (at the county and district level).

³ The author would like to express her gratitude to the representatives from the following organisations who participated in this research; Essex County Council, Rochford District Council, Chelmsford City Council, Shropshire Council, London Borough of Lewisham, London Borough of Tower Hamlets, Veolia Shropshire, DEFRA, Waste Watch, WRAP, Campaign for Real Recycling, Friends of the Earth, and three independent waste consultants.

⁴ Landfill site, incineration plant, Anaerobic Digestion plant, Materials Recovery Facility, and household recycling centres

⁵ We recruited households by placing adverts into libraries, community centres and supermarkets in each area, as well as making use of community networks (via local authority recycling officers) and snowball-sampling techniques. Those who responded were asked a simple screening questionnaire regarding their household composition and employment status and we sampled households to ensure variation between socio-economic groups and stage in the life-course. Questions sought to uncover how consumers coordinated their recycling with other household activities (such as cooking and cleaning), whether recycling tasks were assigned to different household members, and any skills that were required in order to successfully accomplish this work. Participants were shown a selection of sample packaging materials (including, a dirty peanut butter/mustard jar, a plastic packet for ham, a foil takeaway tray, a TetraPak, Pizza box, a plastic cottage-cheese pot) and asked to describe how they would prepare these items for recycling in their system, revealing wide variations in practices even within the same household.

Waste and Recycling Act was passed in 2003 making it a legal requirement that all local authorities collect at least two fractions of recyclable material at the kerbside by 2010. This law was enacted in the context of EU regulations, such as the Packaging and Waste Directive (2004/12/EC) and the Landfill Directive (1999/31/EC). English waste policy can generally be described as reactionary rather than pre-emptory. EU policy, in particular the Landfill Directive, has had a powerful influence on English waste policy because landfill has been the dominant method of disposal in England. With rising taxes, local authorities have been searching for cheaper ways to dispose of their household waste (e.g. recycling). This paper will begin by detailing the key policy contexts in which English waste management has developed.

Although local authorities have the responsibility for the collecting and treating household waste, these services are often contracted out to private companies, like the French-owned multinationals, SITA and Veolia. Private sector provision of waste services is an increasingly common feature of English waste management. Following the Environmental Protection Act 1990, local authorities in England were no longer able to own disposal/treatment facilities for household waste. Although later rescinded, this policy paved the way for private sector dominance. Following EU targets to reduce the amount of biodegradable waste sent to landfill by 35 per cent by 2020 (using 1995 figures), it was recognised that there would need to be more investment in waste infrastructure. Private Finance Initiative (PFI) funding was established for the building of treatment facilities and this has resulted in the creation of long contracts (often 25+ years) between local authorities and waste management companies. Major infrastructural projects include plans for incineration plants (which are often heavily contested by environmental groups), Mechanical Biological Treatment plants, Material Recovery Facilities, Anaerobic Digestion Plants and composting facilities. This paper considers the consequences of the division of responsibility for waste management between the public and private sectors.

In terms of the role of the consumer within the recycling process, household members are expected to sort, clean and store their recycling materials before presenting them in various bags/bins/boxes provided by their local council for collection at their kerbside. The materials that consumers are expected to recycle varies according to the local system, with plastics often causing the most difficulties. Whether the consumer has to separate their recyclable material into different fractions again depends upon the practice of the local authority and the infrastructure available. There has been a growing trend to offer consumers co-mingled collections, where all recyclable materials are placed into one receptacle before being taken to a Materials Recovery Facility (MRF) where they are sorted into their respective fractions by technological processes. The alternative is that the consumer sorts their material at the kerbside in multiple boxes which are then collected and delivered directly to the processing/materials companies. It is argued that co-mingled collections make the job of recycling less demanding for the consumer – although in this process the quality of the materials is lower and therefore returns on their sale tend to also be lower. From a local authority perspective, placing materials through a MRF costs them money in the form of a gate fee, but this is crucially lower than the Landfill Tax. The economics of waste management in England is readily apparent from our research and making the case for the role of the consumer in generating profits within this economy will be a key aim of this paper.

Consumers sort their materials for recycling for a number of different reasons. Recycling has been linked to the practice of environmental citizenship (Barr et al, 2011; Stewart, 2011), yet many of the households that participated in our research do not highlight environmental motives for their engagement. Many spoke about feeling compelled to recycle because of the threat of fines or expressed a reasoned position that to waste resources made little sense and as they had been given the infrastructure to do so they participated willingly. Interestingly, the latter position ties in with recent waste campaigns that have encouraged people to recycle to save public money. This important shift in the moral economy of waste management is explored in this article.

This paper outlines the division of responsibility for recycling between the key actors/institutions within the English system of provision, highlighting the important role that the consumer plays within the division of labour. The system relies on unpaid 'consumption work' for its successful operation. The consumer performs specific tasks (the sorting, storing

and distribution of waste materials) which are integrated and interdepend with work conducted under different socio-economic modes (within the public, not-for profit and private sectors) within specific stages in the process of waste management (from collection, to recovery and reprocessing). This paper should be read in tandem with 'The largest environmental movement: Recycling and consumption work in Sweden' (Wheeler, 2013) where the organisation of the Swedish waste management system is subjected to the same analysis and scrutiny. In this way, it will be possible to see how the key stages of recycling consumption work are shaped by the institutional system of provision in which they are conducted.

There are five key sections in this paper; the policy context in which English waste management has developed; the waste, recycling and collection statistics for England; the division of responsibility for waste management between different sectors and organisations; the moral economy of recycling in England; and recycling consumption work.

2 POLICY CONTEXT

England's history of engagement in environmental policy offers a stark contrast to Sweden. McCormick (1991) has described the government as 'environmentally lethargic' since the Second World War, being 'slow to recognize and understand the environment as a distinct policy area' (1991: 9). Environmental politics has generally been reactive to pressure placed upon it by campaigning groups and directives from the EU. Although the Department for Environment was established in the 1970s many environmental issues (such as energy) were left with other departments. It was not until 1990 that the first government White paper on the environment, 'This Common Inheritance', was released, and the environment began to form an important policy platform. Meanwhile the environmental movement was growing stronger from the 1970s onwards and becoming an important force in campaigning for change (Rootes, 2009).

Practices of waste management developed in England against this policy backdrop. Following the Second World War, although the separate collection and reuse of valuable materials had become commonplace, salvage activities soon ceased without the values of thrift and patriotism to drive household participation, as well as changes in the economic value of previously scarce raw materials (Cooper, 2008). Smog and air pollution motivated the passing of the Clean Air Act in 1956 which meant that households could no longer burn their waste at home. This, coupled with a rise in uncontrolled tipping, increased the visibility of domestic waste thus requiring a solution for its quick and hygienic disposal. It was in this context that controlled tipping or landfill became the preferred solution for dealing with household waste, given that it was a relatively cheap and safe method of disposal because of the ready-availability of suitable clay sites (Cooper, 2010).

Discussions of recycling did not emerge again until the 1970s when the environmental campaign group, Friends of the Earth, placed 1,500 non-returnable glass bottles outside of the headquarters of Schweppes, in a protest about the disposal of bottles within the countryside. In 1977, the first bottle banks for glass recycling were installed in public spaces across England by the British Glass Industry. But this did not mark the emergence of widespread engagement with recycling by consumers in England. During the 1980s, there were a number of EU directives regarding the disposal of waste which led to a target of 25 per cent for the recycling of household waste by 2000 within the first government White paper on the Environment (Waste Online, 2004) – a target they failed to meet. It was not until 2003, following pressure from Friends of the Earth, that the Household Waste and Recycling Act was passed. This legislation made it a legal requirement that local authorities collect at least two types of recyclable waste from households by 2010. Given the long lead-in time and the organisation of waste management at the local level, there has been much variation across England in the implementation of this Act.

In 1997, following EU regulations on producer responsibility, Producer Responsibility Obligations (Packaging Waste) Regulations were established. Unlike some other countries within the EU (like Germany and Sweden), producers were not made responsible for the collection of packaging but instead those producers with an annual turnover of £2 million or

above handling 50 tonnes or more of packaging had to register with the Environment Agency and recover specific tonnages of packaging according to the activity they perform. They did not have to do the recycling themselves but instead purchase Producer Responsibility Notes (PRNs) from re-processing companies to provide proof that they have met their obligations.

The legislation that has had the most impact on waste management in England has been the EU Landfill Directive because of the dominance of landfill disposal. The aim of this directive was to:

prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, and on the global environment, including the greenhouse effect, as well as any resulting risk to human health, from landfilling of waste, during the whole life-cycle of the landfill (1999/31/EC: Article 1)

The Directive set requirements for member states to implement national strategies to achieve the progressive diversion of biodegradable municipal waste from landfill. In anticipation of this legislation, the Conservative government launched the Landfill Tax in 1996 which was set at £7 per tonne. But it was the Waste and Emissions Trading Act 2003, which allocated local authorities maximum allowances for landfill disposal and penalties for those that exceeded them, and the Waste Strategy 2007, which introduced the landfill tax escalator at a rate of £8 per tonne per year, that generated the economic incentive to find alternatives to landfill disposal. The Landfill Tax stands at £72/ tonne in 2013 and will rise to £80 /tonne by 2014 (HMRC, 2012). The experts interviewed agreed that the Landfill Tax has been the key driver of recycling in England:

Recycling has actually grown from a peripheral activity to a core activity in that now the best part of half the waste stream is going through some sort of recycling process. Probably a key driver in that is the landfill tax which is pushing many of those who are running the tip and haul, when you take waste and shove it into a landfill, they are now realising that they can't continue to do that because the cost of taking it to landfill is more expensive than doing something else with it, whether it's just running it through a picking belt and then sending it off to landfill, because diversion is worth it.

[Independent UK Waste Expert]

Along with a diminishing number of suitable landfill sites and a target to reduce biodegradable landfill waste to 35 per cent of 1995 levels by 2020, there has been a growing impetus for central and local government to invest in alternative technologies.

It became clear that England would not meet the Landfill 2020 targets if they continued to rely on landfill as their method of waste disposal. The building of waste infrastructure was too costly for the government to alone fund, so a Private Finance Initiative for waste was launched in 2007 to enable this investment. The Department for Environment Food and Rural Affairs (DEFRA) initially made £2 billion available for local authorities to establish partnerships with the private sector. By entering into a partnership with local authorities, the private sector takes on the risk in return for guaranteed long-term contracts. The waste infrastructure delivery programme (WIDP) has now come to a close, with 29 waste infrastructure projects funded to the tune of £3.6 billion and grants to be paid over a 25-year period (DEFRA, 2013a). The policy has not been without its critics, with the campaign group, Friends of the Earth, arguing that the scheme encourages local authorities to procure inflexible infrastructures, such as incinerators, that rely upon a steady-stream of waste for their viability (FOE, 2009). The WIDP inevitably strengthened the dominance of private sector companies delivering waste management services, a trend that began following the Environmental Protection Act 1990 which made it difficult for local authorities in England to own and operate waste disposal facilities, unless they formed a separate municipal company. Although later revoked, this Act coupled with WIDP has paved the way for private waste management companies to become important providers of waste management services in England. There has been a subtle shift in the narrative of waste policy between 2007 and 2011, with the balance of economic messages outweighing environmental messages when it comes to encouraging society to handle waste more sustainably (DEFRA 2007; 2011a). In 2007, the key aim of the Waste Strategy was to move towards 'One Planet Living' and whilst there was an acknowledgement that effective

waste management can save money, this was not the headline message. In 2011, the emphasis shifts:

We need, as a society, to value products and care about how they are made and used, and how we deal with them when we no longer need or want them. If not, we will not only increase costs at a time when we are facing real challenges in reducing the deficit, but we will also have a negative impact on our environment. (DEFRA, 2011a: 2)

In the context of austerity, it is the need to reduce the deficit and stimulate a 'green economy' that is shaping the policies of waste management, as central government representative highlighted:

Local authorities in waste have to think about the environment, they have to think about the economic constraints and they have to think about the consumer or the householder and under previous administrations I suppose it would be fair to say that the environmental side of the triangle has been the biggest pull on waste but for this government the view of the householder is actually really very high. It's the sort of statements about what you have a right to expect from your waste collection service so those have kind of gone up the agenda and we're at a time of financial constraint, fiscal cuts, how can local authorities meet that while their financial resources are dwindling?

The capacity of recycling to save money is evident in view of the policy context and it will be important to explore how this changing narrative influences the moral economy of recycling (see section 5).

3 WASTE, RECYCLING AND COLLECTION STATISTICS

Household waste accounts for just a fraction of the waste generated within England, around 11 per cent (DEFRA, 2011b), but it is often the waste that receives the most policy attention. As indicated section 2, England has been moving away from the disposal of household waste in landfill sites and towards alternatives (see Chart 1). Rates of recycling have increased steadily, relative to landfill disposal, so that in 2012 the percentage of waste that was recycled exceeded the amount that was landfilled. England achieved a recycling rate of 41.8 per cent in 2011/12, but it is important to highlight that this figure conflates both materials and biological recycling (see Chart 2).

There is much variation across the UK in recycling rates, with the best performing council in the country sending 68.7 per cent of its rubbish for recycling or composting (Vale of White Horse District Council) and the worst performing council sending just 14 per cent of its rubbish for recycling/composting (Ashford Borough Council) in 2011/12 (DEFRA, 2012). The variations in waste and collection statistics within our three case-study areas will be explored in a later section.

Data on material recycling rates of packaging are only available at the UK level (see Table 1). The UK has met the targets for packaging recycling laid down in the EU Directive for Packaging Waste (2004/12/EC) and has set itself ambitious targets by 2017 in the hopes of meeting the 50 per cent recycling rate laid down in the EU Waste Framework Directive (2008/98/EC).

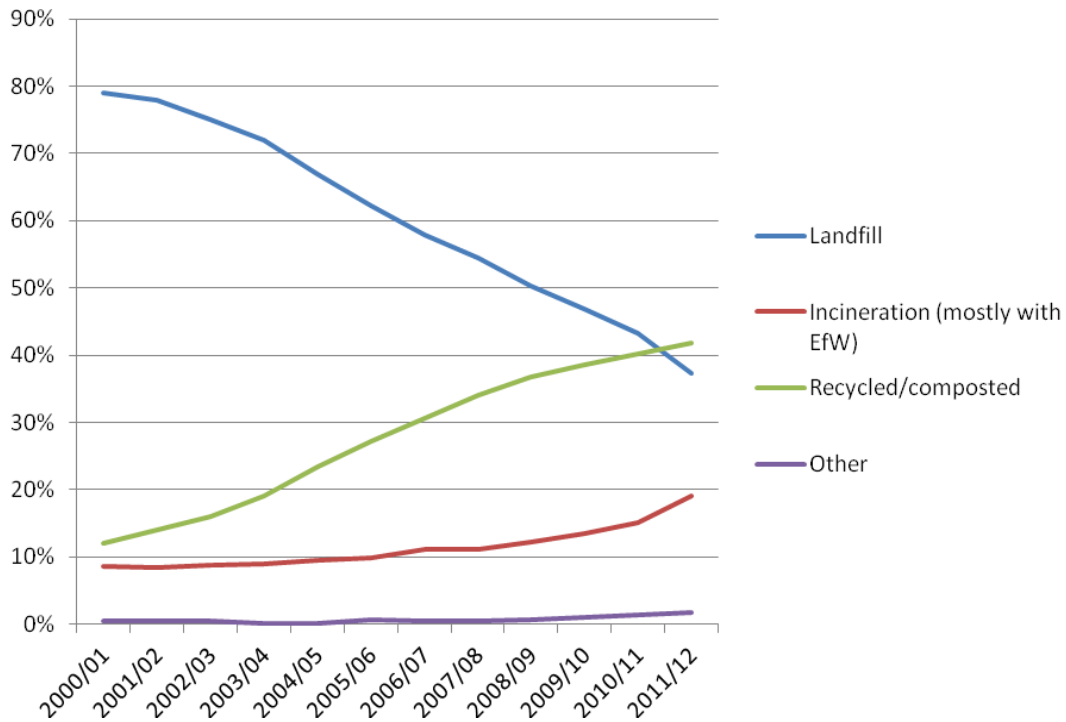


Chart 1: Management of Local Authority Collected Waste, England 2000/01 to 2011/12

Source: Defra, 2012

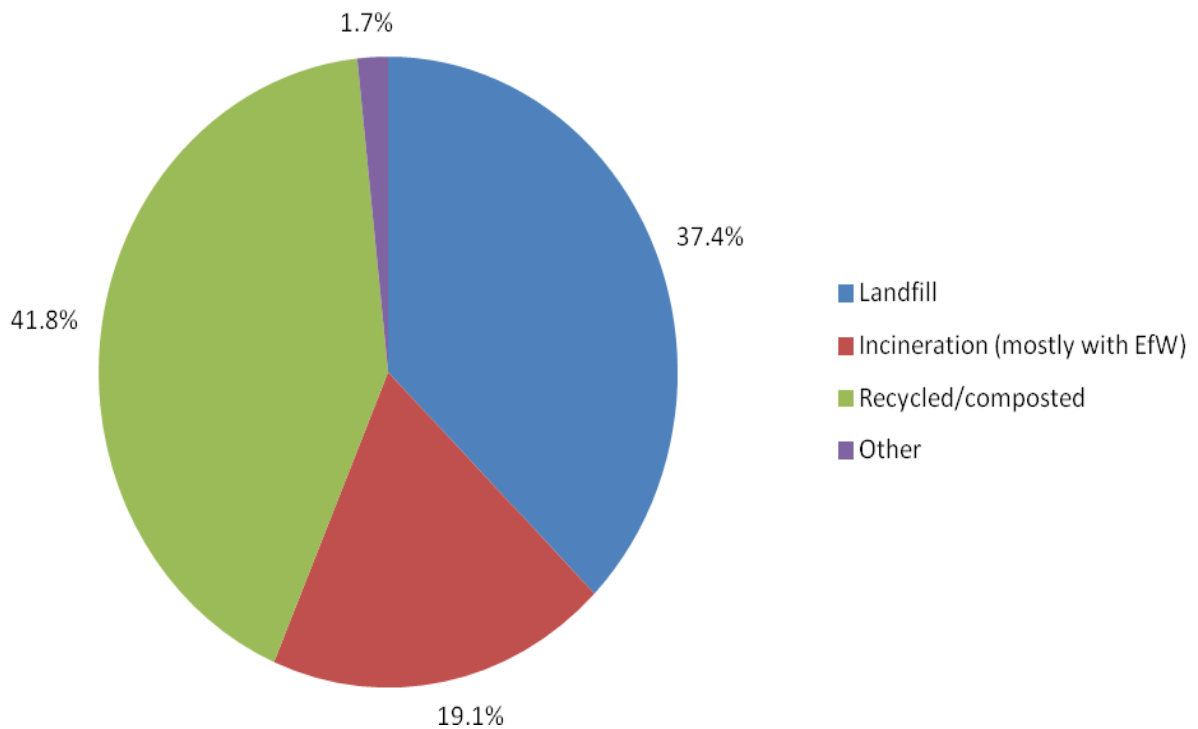


Chart 2: Treatment of Local Authority Waste in England (2011/12)

Source: DEFRA, 2012

	Total packaging waste arising (tonnes)	Total recovered/recycled (tonnes)	EU Target (%)	Recovery/recycling rate (%)
Paper	3,787,560	3,099,941	60	81.9
Paper composting		3,445		
Glass	2,712,860	1,647,917	60	60.7
Aluminium	147,500	60,304		40.9
Steel	652,000	386,621		59.3
Metal		446,925	50	55.9
Plastic	2,478,630	598,252	22.5	24.1
Wood composting		666		91
Wood	1,023,939	771,224	15	75.4
Other	22,331			
Total recycling		6,568,370	55	60.7
Energy from Waste		721,505		
Total Recovery	10,824,820	7,289,875	60	67.3

Table 1: 2010 recovery and recycling achievement data

Source: DEFRA, 2013b

Most recyclable waste is collected at the kerbside but there are a variety of collection systems in operation. In 2008, a survey was conducted by the Waste and Resources Action Group (WRAP), which identified the proportions of councils operating different collection schemes and found that 'around 44% of kerbside collection systems sort the recyclable materials at the kerbside, 35% collect the recyclables single stream co-mingled, 11% operate two stream partially co-mingled collections whilst the remaining 10% cannot be classified within these categories' (WRAP, 2008a: 4). These different systems are described and visualised in Images 1 -3 below. In addition to three collection types, the systems can also vary according to what types of materials are collected, how frequently rubbish and recycling are collected, the containers used to place recyclable materials into (bins, bags, sacks, boxes). In their report, they found that kerbside collection systems had the lowest costs for the local authority because of the income that could be generated from the sale of the materials. The net costs of co-mingled systems are affected by the MRF gate fees, whilst two stream co-mingled collections that keep paper separate from containers have similar costs to the kerbside sort. The collection systems exhibit little variation in levels of material yields but within schemes alternate weekly collection of refuse exhibits the greatest diversion rates (ibid: 1).



Image 1: Kerbside sort systems are where materials are sorted by material type at the kerbside into different compartments of a collection vehicle.



Image 2: Single stream co-mingled systems are where materials are collected in a single compartment vehicle with the sorting of the materials occurring at a MRF (Materials Recovery Facility).



Image 3: Two stream partially co-mingled systems are where residents are required to separate materials into two categories, usually fibres (paper/ card) and containers (glass, cans and plastic bottles). Separate containers are provided for each category the contents of which are loaded into separate compartments on a twin compartment collection vehicle.

There has been some debate in recent years about the practice of co-mingled waste. The adoption of the Waste Framework Directive into UK law in 2011 laid out certain provisions for the way that waste materials should be collected and transported. One of these provisions was that waste paper, metal and glass should be collected separately by 2015. The 'Campaign for Real Recycling' called for a judicial review to assess whether co-mingled collections actually fulfil the requirements of separate collection. In March 2013, it was ruled that co-mingled do meet the requirements of the Waste Framework Directive as long as it does not affect the quality of the materials to be collected.

In addition to collection from the household, local authorities provide Recycling Centres for Household Waste to which consumers must drive to dispose of bulky waste (including electrical and hazardous wastes). These centres expect waste recyclables to be separated into different fractions and deposited in the containers or bays available (see image 4). As kerbside recycling has increased, the amount of waste disposed at through civic amenity sites has fallen – from 4,234 thousand tonnes in 2000/01 to 1,470 thousand tonnes in 2011/12 (DEFRA, 2012).



Image 4: Recycling centres in Shropshire and Essex

4 DIVISION OF RESPONSIBILITY FOR WASTE MANAGEMENT

This section outlines the division of responsibility for household waste management in England between the various institutions and actors. It also outlines the key technologies in operation for the treatment of household waste. This section can be read in tandem with its corresponding counterpart (see Wheeler, 2013), where the division of responsibility within the Swedish waste management system is described. The differences between the waste management systems in the two countries are also presented in the table in Appendix 1.

4.1 Central Government

The central government agency responsible for waste management in England is the Department for Environment, Farming and Rural Affairs (DEFRA). DEFRA have the responsibility for establishing National Waste Plans and enabling 'each part of society to take responsibility' (DEFRA, 2007: 2010). However, central government plays a limited role in the practical management of waste management, believing that 'waste services are a matter for local authorities to develop fit for purpose local solutions' (DEFRA, 2011: 43). Having said this, in 2010, the Communities and Local Government Secretary, Eric Pickles, caused controversy when he demanded that weekly rubbish collection ought to be re-instated. He famously commented that:

It's a basic right for every English man and woman to be able to put the remnants of their chicken tikka masala in their bin without having to wait a fortnight for it to be collected.

(cited in Platell & Pierce, 2010)

In 2011, the Department for Communities and Local Government made £250 million available to help local authorities that wanted to re-instate weekly bin collection (DCLG, 2011)

Much of the guidance provided by central government is managed by the quango for waste, WRAP. This organisation was established in 2000 as a not-for-profit company to create markets for recycled materials. WRAP coordinates the voluntary agreements for producer responsibility with businesses, encourages local authorities to sign collection commitment agreements and has run a number of consumer campaigns to promote recycling, including the popular 'Recycle Now' campaign which was launched in 2004. They work with all sectors of society with responsibility for waste management and are funded by the governments within the UK so are in effect part central government body/part third sector organisation.

The Environment Agency (EA) is the other main government department with responsibility for waste – although they have a limited responsibility for policy on household waste (unless it involves fly-tipping) and more responsibility for monitoring waste carriers and the impact of

infrastructure for waste processing facilities, be that landfill or EfW sites, upon the environment. The EA has responsibility for the producer packaging compliance scheme and are also the regulatory body responsible for implementing the Landfill Directive (to divert municipal waste away from landfill).

4.2 Local Authorities

The Local Authority has a statutory duty to collect household waste within their principality. They must provide kerbside collections and recycling centres for household waste that include a facility for the disposal of general waste. Two-tier local councils separate responsibility for the collection and disposal of household waste. At the district-level, Waste Collection Authorities (WCAs) collect waste and recyclable material from the kerbside. The recyclable material is theirs to deal with how they chose, whereas the general waste to be landfilled/incinerated is delivered to the Waste Disposal Authority (WDA). WDAs operate at the county-level and arrange for the payment of gate fees and taxes associated with disposal costs drawing on council taxes accrued from householders in the county. WCAs get paid recycling credits according to how much waste they recycle because from the WDAs perspective, waste that has been recycled has been kept out of landfill and this saving is returned to the district councils. This system was described by a representative from Essex County Council, who are the WDA for Essex:

We pay the district and borough councils a recycling credit. Because we have to pay for the waste to be disposed of, if the district and borough councils are reducing that cost by diverting it from recycling, they're making the county council a saving and therefore, we're expected to pass that saving back to the district and borough councils. So for every tonne of material they recycle, we pay them a recycling credit unless we've had some involvement in the processing of it, like for example food waste. They collect it from the household so they've got that cost of collection, but then we pay for the haulage and then the gate fee to get it composted for the food waste, in-vessel composting. So the recycling rate we pay them is actually reduced so their level of involvement I suppose determines how much recycling credit they get for that particular material.

Some local authorities will operate the collection services themselves, others will procure the services out to a waste management company. It is estimated that around 50 per cent of local authorities run collection services in-house. Local authorities increasingly work in close partnership with waste management companies, especially in the wake of PFI waste projects. In these cases, the division of responsibility for collection, processing and other tasks such as consumer education may fall to the waste management company. It is because waste management is operated locally that there is so much variation across the country – different counties sign contracts with companies for different lengths of time; some will be making profits from sales of their recyclable materials, whilst others will use companies to sort and process materials on a not-for-profit basis; some local authorities will have access to infrastructures for the processing of complex plastics whilst others will not. With so many contingent variables shaping the character of waste management at the local level, it seems unlikely that there will ever be one uniform system that all local authorities could follow.

Local authorities have the responsibility for informing households about the recycling services in their area and providing waste education services. ACORN profiling of consumer's propensity to recycling is common with much messaging being targeted at those who are thought most likely to be convinced to engage in recycling behaviour, like families with children. This is supported by WRAP guidance which suggests the sorts of messages most likely to influence different sections of the population (WRAP, 2008b).

Acorn have just brought out, well it's been around for a couple of years now, green acorn which splits every single person into particular 7 categories, like family first, active greens, waste not want nots - so there's 7 of these categories. So we did a piece of research to create a waste prevention strategy that looked at all these different groups and identified which groups we should concentrate on. And then which areas of waste prevention, rather than doing absolutely everything at once

and confusing the public, international research has shown that you should just concentrate on one or two, and then build that up and once people have got that then build something else and something else and kind of like a drip feed rather than everything all at once.

(Representative from Essex Council)

Local authority waste officers often visit those households/flats where consumers are not recycling to encourage them to participate. Their role interacts and interdepends with the work performed by consumers. However, in the wake of government cuts to public spending, some of this waste communication work is likely to be affected.

4.3 Waste management companies

Waste management companies (WMCs) are becoming an increasingly important player, offering collection and treatment services to the local authorities. Veolia⁶ and SITA⁷ are the most dominant WMCs, but there are a number of other companies (Verdant, Biffa, WRG, Viridor) who also hold municipal waste contracts. The partnerships that local authorities form with WMCs can last for a number of years (20+) and these have been facilitated by PFI funding. In terms of division of labour, WMCs can have responsibility for the collection, the treatment, or the disposal of waste as single contracts or they can have an integrated contract in which they conduct more than one of these services. These companies often also invest in educational activities through the provision of teaching packs and public events for the whole family, promoting responsible waste management to the younger generations.

Whilst landfill disposal was an entrepreneurial sector, the number of companies able to invest in newer treatment facilities (like incineration plants) is often limited to these larger firms. Often WMCs will have preferred technological solutions and expertise in particular forms of waste treatment.

Some companies are sort of tied to particular technical solutions and there are others who are picking the right solutions for the jobs but actually they get comfortable with particular technologies so they'll tend to go particular routes. So you know that if you go to SITA it's more than likely going to be EfW (Energy from Waste) if it's going to be Shenks, it's pretty likely going to be Eco-Deco.

(Independent UK Waste Expert)

But acceptability of certain solutions will vary according to the area in which companies are operating, for example, Essex has a no-incineration policy so they procured an MBT plant as an alternative. When investing in infrastructure, WMCs take on the risk in return for long contracts from local authorities. Collection service contracts are generally for shorter periods of time and they may also incorporate waste education as an additional service, like in Tower Hamlets where Veolia have the contract for both collection and communication.

Working with waste management companies can make the service more efficient to operate, as the representatives from Shropshire council explained:

Shropshire Council 1: *I think also in some ways it brings a level of discipline to the service having it run in a contractual, formal way. You know you do this level of service for this level of payment, as opposed to in the past when the districts were running it and the county council would be like, 'oh we'd like you to roll out more recycling services, how about if we give you a bit more recycling credit or we help you buy a new vehicle or something?' Whereas, with*

⁶ Veolia Environmental Services claim to be the UK's leading recycling and waste management company. They were established in the UK in 1990 and their revenue for 2011 exceeded £1.2 billion. They employ 12,000 people, working with over 100 local authorities and serving over a third of the population (refuse collection, recycling, street cleansing and grounds maintenance). They have 3 centres for the processing of paper and card, 14 MRFs, 7 composting centres, 7 EfW plants, a Mechanical Biological Treatment (MBT) Plant, a number of composting facilities and 13 Landfill sites.

⁷ SITA UK employs more than 5,500 people and an annual turnover in excess of £750 million. They have 60 service contracts with local authorities (including recycling, waste collection, street cleaning, recycling management), and have contact with 12 million residents and 40,000 business customers. They operate 3 EfW facilities, 30 MRFs, over 100 HWRCs, and a network of landfill and composting facilities.

a contractor you can just say do it, we want it done. And they take the political side of it out of it as well, so they can just get on and run a business in a sensible way without playing political football with the service.

Shropshire Council 2: *I think it's about offsetting risk as well, the financial risks, the operational risks, legislation risks; we've transferred a lot of that onto Veolia. But also in terms of operational risk, local governments are moving into an era of discontent and strikes and so on and by having transferred all our operational staff to a private contractor, you know the council has immunised itself against strikes and those kinds of issues. I'm not saying that was the driving point but it has happened without a doubt it's a massive safeguarding for the local authority really and obviously for the administration that controls it.*

Shropshire Council 1: *It's a massive transfer of risk. Business continuity generally, I mean if a vehicle breaks down in Shrewsbury, Veolia can pick up the phone to Birmingham, Staffordshire, Wolverhampton, any of their other contracts and borrow a vehicle in 5 minutes, and if people go on strike and don't turn up to work they can go and get agency staff to replace them at a days notice. So there's a much more flexible organisation I guess.*

Working with WMCs has a number of key advantages for local authorities because big companies, like Veolia, can easily deal with various operational issues and find end-routes for materials and waste owing to their market position. The risk is transferred to the private sector for a fee. Some integrated contracts do make provisions for local authorities to benefit from material sales or from the revenue from gate fees for feedstock for incineration that does not originate from within the municipal waste stream. But it is the WMC that seeks to benefit financially from the contract.

One of the reasons that local authorities choose not to use WMCs is because of a desire for the service to remain flexible and responsive to local needs, as one of our local authority representatives explained.

I think with a waste management company you'd have to have things certainly set out in stone and you'd have to follow direct orders depending on what you've got down in that contract and things like that, things that were previously agreed on. Whereas we're much more reactionary, we can react to problems here because we are in-house.

Of course changes to long-term contracts with WMCs can be arranged, but generally these are easier to accomplish when they are done at the behest of the WMC. In Shropshire, if they want to make a change to the service, they approach Veolia informally and ask them to make a 'provider proposal' for a change in the contract which the local authority will then approve. Local authority-led changes take a lot longer and would be more expensive as it would involve legal representation. WMCs are therefore in quite a position of power once the contract has been signed and changes to contracts will depend on the working relationship between local authorities and WMCs.

4.4 Consumers

The consumer is expected to sort, store and clean their recyclable material and place it outside the front of their property ready for collection on the appropriate day of the week. The number of fractions they have to separate their recyclable waste into will depend on the local system in operation. They may also have to sort food waste separately from general waste and different streams of waste are then collected from their properties on alternating weeks. The variation in the types of materials that are collected by different authorities and the changing timetable of collection can cause uncertainty for consumers. Those that live in flats within apartment blocks will have to take their waste to communal bins – sometimes rubbish chutes are available for general waste, whilst recyclable material must be walked to the central collection point.

By sorting their waste for recycling, the consumer plays a crucial role in the overall recycling process of domestic waste, as representatives from two local authorities explained.

I would say that they [consumers] probably play the major key role, because if they didn't separate it correctly, we wouldn't have the figures that we have, because ... yes, SITA are brilliant, they do the collections, we do the information exercises, but it's actually physically the residents that separate it. I mean, they have to do it for their own benefit anyway, because, obviously, if it was very contaminated or if it was very incorrect, then there's a chance that the bin won't get collected, which is not what they want. But most of the people that I speak to and I meet are very positive about the scheme. They're happy to separate; they've got used to it now, so they know what goes where, and I would say they play a really key role, because without them putting the things in the right bin, we would just be spending all our time trying to sort out contamination. We wouldn't have anywhere near the amount of recycling that we've managed to collect, and the amount of composting, so yeah, they've done absolutely brilliantly - really, really well.

[Representative from Rochford Council]

I think they're [consumers] crucial, for me they're the main protagonist aren't they. They are the waste producer and they are the ultimate person who makes the decision, even if you're persuading them with marketing and alternate weekly collections and things, they have a choice to not do it frankly. I mean where I live there's plenty of capacity in my bin, if I wasn't into recycling I could chuck the lot in there. I wouldn't have any problems in terms of the physical capacity of the bin so it's absolutely fundamental. They're the only one that makes that decision really.

[Representative from Shropshire Council]

The need for a proficient sort by the consumer varies because of the technology that is available to process recyclable waste. In co-mingled systems, all recyclables can be placed into one receptacle to be processed at a MRF into different fractions. The consumer still has to separate and prepare materials (wash/squash etc.) but the amount of effort required to recycle is reduced, for example the need to find storage space for lots of different containers. With source separated systems, consumers are expected to sort their recyclable materials into multiple bags and boxes for direct delivery to the reprocessors.

Interviewer: *So your glass and your paper, they wouldn't go through a MRF because you've done that on the kerbside?*

Chelmsford representative: *No, it's already separate, this is what the residents do for us, they do the hard work for us which is why it's not the easiest scheme but they do the hard work for us and that's why it's the best scheme as long as we've got people participating in it.*

There is an awareness that sorting should not be too onerous for the consumer but source separation or twin-stream systems are often preferred because value can be lost when materials travel through a MRF.

I think the public should be encouraged to separate materials. It should be made clear to them what additional environmental benefits come from their effort, compared with chucking everything into a single bin. There's been absolutely no coverage of that. All we've got is news stories about some ridiculous scheme with seven boxes, and the public frustration with that, but we haven't seen anyone brave enough to say, "Keep it up", because it does actually make the materials a lot more valuable - the efforts that you make, which cannot be dealt with so effectively by a MRF.

(Independent UK Waste Expert)

So the amount of work and effort the consumer makes can relate to the amount of value that other parties can get from these materials.

Those that persistently sort their waste incorrectly can create contamination problems that affect processing technologies. Local authorities do have the power to impose penalty fines on those who do not recycle or on those who do not recycle properly. However, these have been used sparingly. Yet the threat of fines was a common reason given by consumers in our

household study for participating in recycling schemes. Local authorities tend to prefer to give feedback letters to households to tell them when they are sorting incorrectly and will visit persistent re-offenders to help them to understand why they should comply. Local authorities will also try to incentivise people to recycle by providing positive feedback on the efforts of households within an area. There has been much talk in recent government rhetoric of using incentives to encourage recycling, such as the Windsor RecycleBank scheme, where residents receive points that can be spent in local retail stores/on local services depending on how much they recycle. But it seems unlikely these will be rolled out nationwide. The use of incentives and fines shapes the moral economy of recycling in England (discussed below).

4.5 Producers

Producers of packaging play a limited role in waste management compared to their Swedish counterparts. Under producer responsibility laws, all those who fulfil the criteria of being a producer of packaging (a turnover of £2 million or more, handling 50 tonnes of packaging or more per year) must register with the Environment Agency's National Packaging Waste Database. Through this scheme, producers can purchase 'Producer Responsibility Notes' (PRNs) from reprocessors to prove that they have met their recycling responsibility. Producers can do this via a third party, such as Valpak, who manage the purchasing of responsibility notes on their members behalf, as explained below:

Following the creation of a piece of packaging, it is eventually passed to the consumer and enters the waste stream. From here the packaging could go to landfill (which is what the regulations are trying to avoid happening) or be collected by an accredited reprocessor who will recycle/recover the packaging.

For every tonne of a certain material of packaging that is recycled/ recovered the accredited reprocessor can issue evidence of recycling, which is called a packaging waste recovery note or PRN. Obligated companies are therefore not expected to recycle/recover the actual packaging that they have put into the waste stream, but to purchase enough PRNs to offset their obligation. The money that is spent on these PRNs is then re-invested back into the recycling infrastructure and collection facilities.

Valpak will ensure that enough PRNs have been acquired to offset the obligations of our entire membership, therefore providing compliance with the Packaging Waste Regulations. (Valpak, 2013)

Although the money from the PRN system is said to be invested in recycling infrastructure and collection, local authorities do not receive this money and it is unclear where the money from this system goes.

In addition to this mandatory scheme, WRAP introduced the Courthauld commitment, a voluntary agreement on the part of package producers and retailers to reduce the amount of packaging in their supply chain. This was launched in 2005, and over 40 major retailers and brands, representing 92 per cent of the UK's grocery markets, agreed to work towards the aims of the commitment, e.g. to reduce food and packaging waste. The first phase of this commitment resulted in 670,000 tonnes of food waste and 520,000 tonnes of packaging avoided across the UK between 2005 and 2009. The second phase ended in 2012 and the results have not yet been published but early evidence suggests that supply chain waste has been reduced by 8.8 per cent and packaging and household food waste have also been reduced. The third phase was launched in May 2013 and aims to 'further reduce the weight and carbon impact of household food waste, grocery product and packaging waste, both in the home and the UK grocery sector' – and more specifically 'a cumulative reduction of 1.1 million tonnes of waste, 2.9 million tonnes of CO₂e and a cost benefit of £1.6 billion to industry and consumers' (WRAP, 2013a).

4.6 Third sector

The involvement of the third sector marks a distinct contrast with Sweden, with pressure groups promoting environmental values and defending their collective rights. There are a

number of different ways in which the third sector is involved with waste management and promoting messages around waste and recycling. First, there are the grassroots and environmental organisations, like Friends of the Earth (FOE) who are lobbying against the use of particular disposal techniques (specifically incineration) because of their impact of health, local heritage and the environment and promoting recycling and re-use as alternatives. FOE played an influential role in bringing the Household Waste and Recycling Act into force, which ensured that every household had access to recycling. The opposition to incineration is probably the most dominant form of grassroots movement in relation to waste management in England, with the 'UK Without Incineration Network' (UK-WIN) offering resources and assistance to local groups that want to prevent the building of incinerators in their local communities. FOE opposes incineration because they believe that it creates incentives for the perpetuation of waste. Where long contracts are signed with EfW plants, they argue that the emphasis is moved away from recycling (FOE, 2007). The Campaign for Real Recycling is another influential lobbying organization that has been involved in challenging the practice of co-mingled collections because of the poor quality of recyclate it produces.

Second, there are charities, such as Waste Watch,⁸ who deliver educational campaigns to children and adults, sometimes on behalf of local authorities. Waste Watch were founded in 1987 and ran the first National Recycling week in the 1980s⁹ and lobbied the government to produce the first National Waste Strategy in 1990s. They are a campaigning organisation that seeks to influence policy through gathering information on a selected number of issues around which they can lobby. They are running campaigns around four major themes; managing waste, sustainable food, rethinking stuff, and the green economy.¹⁰ Waste Watch engage with a number of different groups in society, from local authorities to charities, businesses, social enterprises and schools. Education in schools is a key strategy in encouraging society to move towards more sustainable living. Keep Britain Tidy also runs recycling campaigns although they primarily focus on anti-littering. They organise the Eco-Schools campaign which promotes student-led evaluation of the environmental impact and implementation of eco-codes within the school. Action on waste forms one of the nine policy areas around which this programme campaigns.

Third, there are the professional not-for-profit organisations for waste management, such as Environmental Services Association (ESA) and the Local Authority Recycling Advisory Committee (LARAC). ESA is the trade association for the waste management industry and its role is to lobby government for a policy framework that enables its members to operate profitably and responsibly. It also prepares health and safety guidance for the industry and seeks to raise operational standards. LARAC is an association for local authority recycling officers that seeks to influence policy and share best practice.

Finally, there are community recycling networks that can offer collection services for local authorities (rarely) and organise re-use networks to prevent items ending up in landfill. Organisations such as Freecycle or local charities can provide platforms for bulky waste to be re-used or sold on.

4.7 Technology

Waste that has been sorted by the consumer and collected by the local authority or its contractor is treated in different ways depending on what it is. General waste will be landfilled, incinerated or sent to a mechanical biological treatment plant. Food waste is either composted or anaerobically digested. Recyclable material is either delivered directly to re-processors or passes through a MRF. Each of these technological processes influences the organisation of

⁸ Waste watch became part of Keep Britain Tidy in 2011

⁹ This campaigns continues but it now managed by WRAP

¹⁰ 'Managing waste' involves promoting the use of recycled materials within the UK (rather than exporting this overseas), campaigning for quality recyclate, and encouraging businesses to recycle. The sustainable food stream of their work focuses on 'reconnecting people with food' so as to reduce food waste across the supply chain and promote the consumption of green, healthy and fair food. Rethinking stuff has echoes of the simple living movement with an insistence upon people finding happiness through non-material pleasures: Finally, their work around the green economy involves the promotion of producer responsibility and encouraging industry to move away from the consumption of finite resources

waste management tasks within a system of provision, demanding differential levels of labour on the part of the consumer, collection operatives and re-processors.

4.7.1 Landfill

The dominant method of disposal for general waste remains landfill. Landfill sites are generally managed by private companies (often disused quarry sites) who charge a gate fee (that includes the Landfill Tax) for waste that is deposited. Sites are heavily controlled and monitored by the Environment Agency following EU regulation and concerns about their environmental impact.

Landfill sites are not very labour intensive for either operators or consumers, but they are regularly visited by collection operatives who dispose of black bag waste (see image 5).¹¹ If the consumer does not sort their waste for recycling in the household, it is delivered directly to the landfill site because there are no processes for sorting black-bag waste before it is tipped (see image 6). Waste is usually compacted to allow the maximum amount of waste to be dumped. Operatives to man the compactor vehicle, and someone to coordinate the collection vehicles in the tipping zone, are the key job roles on a landfill site.¹² On some sites are methane gas collection systems that generate power¹³ but as levels of gas decrease naturally over time,¹⁴ they become less cost-efficient. These sites need to be managed once they have been closed to ensure that methane gases do not cause explosions or that harmful chemicals do not leach into the environment. Once disused sites have become safe (lower levels of methane generation and the ground level of rotting rubbish is stable), they are often re-opened as nature reserves.



Image 5: Waste being dumped at the landfill site in Essex

¹¹ As part of this project, we visited a landfill site in Colchester, Essex where these images were taken.

¹² The site in Essex employed around 6 people (including a falconer whose bird kept seagulls and other scavengers away from the waste) and was the largest in operation in Essex at the time of our visit. It was operated by Cory Environmental Group

¹³ The machine at the site in Essex generates around £120,000 a year from the electricity it produces.

¹⁴ Also as households separate food waste for composting, the amount of methane generated will also decrease.



Image 6: Examples of recyclable waste at the landfill site

4.7.2 Energy from Waste (Incineration)

In 2011/12, around 19 per cent of our rubbish was incinerated at Energy from Waste (EfW) plants which generated heat and electricity in England. EfW plants reduce our reliance upon landfill but they are not without critics – environmental groups have highlighted that CO₂ emissions can be high from these plants; however emissions from these plants are controlled by the Waste Incineration Directive. Ash that is produced during this process is often sold on to the construction industry.

The SELCHP incineration plant (see image 7) is managed by Veolia and is a public/private partnership between several companies (Veolia, CNIM, London Energy, Switch 2, Laing) and local authorities (Lewisham and Greenwich Councils). This facility burns 420 tonnes of waste a year and has contracts with the London Boroughs of Lewisham, Greenwich, Westminster and Bromley. It generates electricity to power 48,000 homes. The plant needed a continual source of fuel (rubbish) in order to be able to continue to power the boilers and generate steam. After the rubbish has been burned, ash is used in construction projects and metals can be recovered for recycling (see image 8)



Image 7: SELCHP Incineration Plant



Image 8: Metals and ash from the back-end of the incineration plant

4.7.3 Mechanical biological treatment (MBT)

MBT covers a range of technologies to deal with residual municipal waste – e.g. waste left in black bags that was not separated for recycling. MBT uses both mechanical sorting technologies and biological technology (composting/anaerobic digestion). MBT plants are purpose built for particular solutions and it is argued that they are not an alternative to recycling. Local authorities still need consumers to sort their waste as recyclable material left in black bags will be very poor quality. It is estimated that around 15 local authorities in the UK use MBT solutions for their waste (CIWEM, 2006). Essex County Council had procured an MBT plant through a PFI scheme but this had not been built at the time of the study. MBT plant generate a refuse-derived fuel comprising of paper/plastics/other combustible fractions that can be burnt in EfW plants, an organic-rich fraction suitable for composting/anaerobic digestion, and the remainder, which has had the biological component removed, qualifies for the lower rate of Landfill Tax.

4.7.4 Anaerobic Digestion (AD)

This process has received much attention in recent years and the DEEC are keen to promote the biogas that is produced through this method as a renewable energy source. AD is the process where organic waste, known as biomass (such as kitchen/food waste), is converted into useful products when naturally occurring micro-organisms digest the biomass and create methane. The methane is captured and this biogas is used for electricity, heating or is cleaned for the main gas grid. The digestate (undigested material) can then be used as fertiliser or soil improver. This is a fast-growing technology, with the number of plants doubling between 2011 and 2013 (NNFCC, 2013). There are around 106 AD plants outside of the water industry in the UK, with around 12 more under construction. Until recently, the technology had been mainly used to process farm sludge, but this is changing as local authorities introduce separate food waste collections.



Image 9: AD plant in Shropshire

4.7.5 Material Recovery Facilities (MRF)

These are sites where co-mingled recyclable rubbish is sorted. As indicated in section 4.4, the growth of co-mingled collections relies on after-sorting technologies that do the work of sorting recyclable materials into separate fractions so that the consumer does not have to. The sorting process is primarily conducted by machinery; however some people are employed in the sorting process. MRFs deal with around 2.5 million tonnes of material per annum (WRAP, 2007). Local authorities who collect comingled recycling rely upon facilities to 'separate clean, dry co-mingled materials into individual material streams and prepare them for sale to commodity markets' (ibid: 4) (see Video 1 for a MRF in action). WRAP carries details of 69 MRFs that are used to handle municipal waste within England (WRAP, 2013b). These facilities need to work closely with local authorities to ensure that they have the capacity to handle the recycling material collected. If MRFs are loaded with too much material at any one time so that the picking belts are full, the quality of their sorting diminishes.



Video 1: Materials Recovery Facility

(<http://www.youtube.com/watch?v=8DAk8m7sVM4&feature=related>)

5 THE MORAL ECONOMY OF RECYCLING

As the 'Policy Context' section highlighted, waste management provision in England has been heavily shaped by policies from the EU which have stressed the need to move away from landfill disposal and towards higher rates of recycling. Recycling has generally been associated with environmental protection and has been studied as a form of pro-environmental behaviour (Barr, Gligg et al, 2011). However, the environment is not the only beneficiary when consumers recycle their rubbish. As this paper has demonstrated, by recycling their waste consumers generate profits and savings for their local council through both the sale of materials and the avoidance of Landfill Tax. The potential of recycling to save public money has become more pronounced as the Landfill Tax has increased and public sector budgets have been subject to austerity cuts. A recent review of waste policy by the Local Government Association, titled 'Wealth from Waste' (2013), opened:

This review is not an idealistic ecological take on waste and recycling. We leave it to others, for now, to mount the environmental soap box and make the moral case for recycling, or the strategic case for materials security. The simple fact is that taxpayers will be better off, the economy will benefit, and more people will have jobs if we grow our domestic market for collecting, sorting and reprocessing recycling. Landfilling waste costs a lot of money; burning it is still expensive; recycling actually brings in cash for the taxpayer and we owe it to today's hardpressed taxpayers to get as much of their money back as possible.

Although Councillor Mike Jones believes that he is not making the 'moral case' for recycling, we do find a strong moral argument running through this quotation. Recycling saves tax payer's money which in turn can be used to be spent on other vital local services. In June 2013, a council in South Wales, Monmouthshire, banned residents from disposing of more than two bags of general black bag waste every fortnight – not because of the environmental benefits but because

"Monmouthshire has said it's making a priority of education and social services, and we bluntly have got to save about £4m in this year - and we've got to find it where we can... So for us to be throwing £3m into landfill every year - it's plainly a total waste of money"

(Councillor Bryan Jones, cited on BBC Website, 2013)

In England, it is difficult to identify a coherent moral economy of recycling, owing to national variation in waste management systems. However, the dominant narratives around recycling and waste are increasingly around the responsibility on the part of the consumer to save public

money (rather than environmental protection). This contrasting moral narrative appears as a relatively recent change but nevertheless makes sense in the context of the country's history of environmental policy and waste management provision. The emergence of this moral message within such a distinct socio-political climate and its resonance with particular forms of economic organisation make it an important case study for the exploration of the constitution of moral economies.

Non-recyclable waste presents a huge environmental and economic problem and it is for this reason that recycling is promoted. The environmental case for the damaging influence of landfill disposal is easily communicated, especially in children's educational materials. For example, the Essex County Council waste team have developed a superhero-like character called 'Chuck Smart' who tells primary-school-aged children (5-12 years) about the benefits of recycling and how they must play a part in saving Essex from the evil 'Land Phil' (an unpleasant character depicted as a rubbish lorry full of waste) (see image 10). The economic case, on the other hand, is utilized in the context of austerity measures and huge cuts to public services. There has been a noticeable shift in recent years, along with the change in government, away from viewing waste as only a problem to also a potential resource. In the opening pages of the current waste review, Caroline Spellman, the minister for Environment, said we must not increase costs when 'we are facing real challenges in reducing the deficit' (Defra, 2011: 2). What once may have been justified according to environmental principles is now being challenged because of economic pressures, as a representative from the leading private management company, Veolia, confirmed.

What's focusing the mind now is the austerity measures with the Councils. You know, at one time, it was a case of, 'Yes, we can recycle anything, and we'll just keep throwing trucks at it. We'll just keep doing that. It doesn't matter if it doesn't make economical sense'. But how far do you go before that balance between the economics and the environment can balance up to something that's tangible? Where's that line?

This economic context is shaping the moral principles that underpin promotional materials about recycling. At a time when the country is making huge austerity cuts to public services, consumers are now being asked to recycle to save public money. Environmental messages are supplemented for economic ones.

We've certainly changed our messaging a bit recently in light of the recession and not so much just banging on about the environmental benefits but being a bit blunt with people and just saying 'look this is costing us a lot of money, do you want your council tax to go up or what?' And 'this could save you money' sort of thing.

[Representative from Shropshire Council]

In 2011, the Recycle for London communications programme (led by the Greater London Authority) launched a new campaign, called 'Nice Save!', making the connection between recycling and economic benefits explicit.

Last year Londoners saved £30 million by recycling. If everyone in London recycled everything they can, we would save £60 million next year (Recycle for London, 2012)

The 'Nice Save!' campaign informs residents how much they have saved their local authority by recycling their waste (calculated on the basis of savings relative to landfill or incineration disposal) and is tailored to each London borough. So in Lewisham, residents saved £250,000 by recycling over the course of a year, whilst residents in Tower Hamlets saved £1.1 million recycling between 2009 and 2011 – reflecting the fact that in Lewisham, general waste is incinerated, whereas in Tower Hamlets it is landfilled.

When you explain to them [consumers] the environmental reasons, it might sway a few people and the moral reasons might sway a few people, you know there's the legal reasons because of EU and UK law, but a lot of people don't care for EU law so that doesn't really help. But when you say effectively that by us recycling it's going to save the council money which in turn, it may not be this year or next year, but in turn it will save you money as a council tax payer, that makes people think.

(Local authority representative)

Because of the huge variation in waste management systems between local authorities, the landfill tax and austerity measures have not had a uniform influence across the country. As we have seen, the way the contracts and relationships between the local authority and the private sector are managed has an important influence on the degree to which the local authority can make financial savings on their recycling collections. These complex divisions of labour within local authority waste management systems shape how the moral economy of recycling is framed and enforced. In areas where recycling collection and processing are operated by the private sector and the local authority makes little or nothing from the sale of materials, there are fewer reasons to stress the newer moral messages of saving public money over the more entrenched messages about protecting the environment. In Islington, on the other hand, where the local authority operates the recycling collection service themselves, this investment generates a huge incentive for the borough to stress the potential of recycling to save public money. It also means they rely upon the participation of their local population for the scheme's financial success. Indeed, in 2011, compulsory recycling was introduced.

Why is Islington making recycling compulsory?

Islington is home to a lot of people on low incomes and is the London borough hardest hit by cuts from central government. To protect your services, we need to save money wherever we can. One way of doing this is by recycling.

It costs £80 for every tonne of rubbish you throw out – but just £15 for every tonne of recycling. The cost of throwing rubbish away is also going to increase far more steeply in the future than the cost of recycling.

This is your money! Recycling more means the money saved can be spent on important Islington services rather than on throwing away rubbish.

(Islington Council Website, 2011)

Residents in Islington were told they have an 'obligation to recycle' (ibid) because by doing so they will save public money which can then be spent on other important services. Those who do not recycle are liable to be fined for their failure to act. Despite the fact that fines of up to £1,000 are rarely imposed, they generate fear amongst consumers and enforce the moral economy of recycling. Attaching monetary incentives to the performance of this activity, either through fines or incentive schemes (like Recycle Bank in Windsor where consumers receive money off purchases in local stores according to how much they recycle), works to establish the relationship between recycling and economic value – something that is important when we come to examine consumer understandings of the performance of recycling.

The threat of being fined for not recycling was something that the consumers in our household study frequently mentioned. The general response to the question 'why do you recycle' was 'because we have too', suggesting that people feel compelled to participate, as demonstrated below.

Interviewer: *Why do you recycle?*

Gemma: *We've been told to*

Dave: *Because if you don't you get fined.*

Gemma: *Yeah I think there is a fine isn't there.*

Dave: *There is because I got a warning once in our bin at Hullbridge.*

Gemma: *Oh right, tell us.*

Dave: *It said if you don't start recycling you'll get a £20 fine.*

Interviewer: *Oh really?*

Gemma: *From the bin-man was it?*

Dave: *From the bin-man*

Gemma: *Oh so he must have opened it up, do they open it up and check? I don't know, maybe they do. Most people put things in a black sack and tie it up so maybe you had some things thrown on top that maybe they saw glass or something and then they probably said that to you. So yeah we generally do it cos we're kind of told to do it, if there was never any laws and we wasn't told any of this, everything would probably go in one bin.*

This feeling of compulsion was often tempered by a belief that their actions were benefitting the environment in some way. In particular, images of landfill sites and wasted resources were frequently discussed. Unlike in Sweden where waste is incinerated to generate heat and power (see Appendix and Wheeler, 2013), general waste is a real problem in the English system and most consumers imagined landfill sites as the final destination for much of the rubbish they discarded (even if the waste was not landfilled).

If you see what washes up in the sea on the beaches, it's absolutely horrendous and it's a waste if it's not recycled it's a massive waste. Landfill is grotesque, there's no need for it, there's no need for half the packaging and I don't understand why they have to package everything.

(Joan, aged 62, retired Dance-teacher, lives in Shropshire)

Well I think it's just the idea that there's enough waste out there going into things like landfill and the bits that you can recycle and use again and reduces that burden, the more that you can do the better off the planet is going to be in the future.

(Amanda, aged 27, works full-time as Clinical Research Trials Co-ordinator, lives in South-Quays, London)

The environmental benefits of recycling were frequently mentioned by respondents, but very few of those that participated in the household study were aware that recycling saved public money. This is perhaps not surprising as it has only been in the last year that we have started to see promotional campaigns and public discourses making note of the relationship between recycling and saving public money, whereas the environmental case has been dominant ever since recycling was introduced in England. Those that were aware of the money-saving potential of recycling were either based in London where the 'Nice Save!' campaign has been operational or had been made aware of the link because of recycling schemes within schools.

Interviewer: *Have you heard that recycling saves public money?*

Susan: *I think that leaflet I gave you said something about it but you know when I think about it, I don't think about it in that way. I think recycling conserves resources and otherwise there's a huge waste of materials. But I don't know how it feeds into actually it saves Islington money, I don't know what that link is really. I don't really think about it that way. I think Islington has been set some very ambitious targets and they will lose money apparently if they don't meet them so they are forever, in terms of if you complain about something or if I ring them up to say green waste box, which I have done in the past, they have it round the next day. They have it round so fast you can hardly, they say 'right would you like 2 of them', they're determined to meet whatever targets they've got so obviously there's something in it financially for them but I don't know it's not been spelled out to me.*

(Susan, aged 66, retired social researcher, lives in Islington, London)

Edward: *At school, we get big blue bags to fill up and take back; they get money for it.*

Melissa: *They get money for it the schools. School's have to be now cos they're governed by the Council's so they're into recycling and energy costs, and water is a big thing.*

Interviewer: *Do you feel that's a bit more recent?*

Melissa: *Definitely cos we have to save so much cost, you have to recycle stuff, everything has to be controlled, they're recycling furniture, stationary throughout schools and everywhere, there's no spending going on cos we've got no money, they're using the resources they've got and trying to recycle*

(Melissa is in her 40s and works full-time at the local council. Edward is her son, aged 14. They live in Shropshire)

Melissa's description of recycling opportunities at her son's school is made in the context of her awareness of austerity measures and the need to make use of all resources that are available. In general, it was a lack of knowledge of what happens after their waste leaves their properties that leaves many, like Susan, uncertain about how recycling can save money for the council. However, even if participants were unaware that recycling saves public money, there was an agreement that waste is a resource that has the potential to save/make money more generally.

Interviewer: *Have you heard that recycling saves public money?*

Sarah: *No, but I mean I kind of thought that*

Rob: *I thought it was really expensive*

Sarah: *Well no because it's like people used to collect cans and bottles and stuff and sell them, material is worth money isn't it?*

Rob: *But if you're talking about re-using coca-cola bottles or something then that doesn't have to be re-processed does it?*

Sarah: *No I'm not talking about that, I just mean you could sell a lot of cans for not very much money, but if you collect everyone's cans presumably the government gets some money for that, I suppose and also the landfill must cost to actually maintain that land. I haven't really thought about it.*

Rob: *I didn't know it saved money, does it save money?*

(Sarah and Rob are in their early 30s, work full-time in insurance and TV production, and live in Lewisham, London)

In one case, a household we interviewed decided to bypass the council recycling collection and used an alternative network to realise the economic value of the materials he was handling.

Brian: *We keep it in the garden, all the tin cans and when I pick up enough scrap, like old bike frames, and other things lying around, we get a trailer full and take it to the scrappy.*

Ivy: *That's where you got that [unclear] from the scrap, someone was getting rid of it so he thought I'll take that and I can get some money for that.*

Brian: *Well if I take it to the [name of scrap merchant], I get a fiver for it, scrap.*

Interviewer: *So you wouldn't put your tin cans out for the council then, you'd take them to the scrap?*

Ivy: *Yeah get some money out of them.*

Brian: *That's the kid's holiday fund.*

(Ivy is 29, Brian is 47, they have three children, are unemployed and live in Shropshire)

For Brian, recycling earns income that can be used to help pay for a holiday for his children. In a similar vein, the possibility of earning points via supermarket recycling banks (like the ones at Tesco stores) and the scheme in Windsor called Recycle Bank, also work to highlight to the consumer the potential economic value of the materials they put out for recycling.

Most households interviewed recycled because they thought they should and because they felt it would be a waste of resources not to.

Interviewer: *So why do you recycle?*

Claire: *I don't feel like it's because I've got this moral obligation to recycle, it's a service, it's logical, why wouldn't you. I'm not a green crusader and our cars kind of prove that but it's a logical thing to do. If you don't have to waste resources and you can do it then why not.*

Alex: *There's no need to chuck it away if it can be re-used or recycled in some way.*

(Claire and Alex are in their mid-30s, both work full-time in IT, and live in Chelmsford)

Viewing waste as a resource is quite different from viewing waste as an environmental problem – although, the two moral messages are not mutually exclusive. As the extracts from

consumers above demonstrate, both are prevalent in accounting for recycling practices and it is likely that the former will become more so as English councils struggle to save money in a period of austerity.

6 RECYCLING AND CONSUMPTION WORK¹⁵

The work consumers regularly perform in preparing their waste for recycling should be recognised as a significant and integral component of the division of labour within waste management. Household recycling represents an exemplary case of 'consumption work' (Glucksmann, 2009; 2013) because the successful operation of the system of waste management presupposes the active participation of the consumer through routine and regular consumption work. By sorting, preparing and transporting their household waste for recycling, the consumer acts as a supplier, warehouse and distributor to industry. Although this work has a non-market character, its performance underpins the global market for material re-use.

This section draws on the household study, as well as material from our expert interviews to demonstrate how this work is practically accomplished by consumers, drawing attention to what the work actually comprises and the implications of its successful accomplishment for the labour processes that follow. We highlight three distinct stages of work that consumers perform when preparing their household waste for recycling; first, waste has to be sorted into different categories (eg plastic, paper, glass, food, metal), and cleaned or readied for its onward journey; second, the different kinds of waste have to be collected together and stored in appropriate containers; and finally, consumers must leave their recycling outside their house or transport it to a bring station/collection centre. This work varies according to the type of collection system in operation; as too does the propensity to carry out this work amongst household members.

This section begins with four in-depth case studies selected to represent the diversity of practices of recycling consumption work in our study. It then draws together these key findings from the household interviews with data gathered through interviews with waste experts to demonstrate the contribution of consumers performing these three stages of work to the overall process of labour.

6.1 Consumer case studies

6.1.1 Gemma and Dave

Gemma and Dave are in their early 30s, with no children. They both work full-time; Gemma as a receptionist in London and Dave as a design engineer locally. They live in the Chelmsford (Essex) area and their system for recycling is source-separated - they have a container for glass, a sack for cardboard, a sack for paper and a container for food waste, in addition to a general and green waste collection. General and food waste is collected every week, whilst recyclable material is collected on an alternating fortnightly basis. Day-to-day sorting of materials is Gemma's domain; she had a better grasp of what materials were recyclable in their system, although, some materials caused confusion for them both.

Interviewer: *Ok I'm going to show you something now, what would you do with this?*
[Tetrapak]

Gemma: *Oh yeah we get through a lot of these.*

Dave: *That would go in the cardboard sack.*

Gemma: *That would however I have not been doing that; I've been putting that in the black bin.*

Interviewer: *I think you're right actually.*

¹⁵ A version of this section has been submitted for publication in *Sociological Review* – Wheeler, K. & Glucksmann, M. 'It's kind of saving them a job isn't it? The consumption work of household recycling'

Gemma: Really?

Dave: Why?

Interviewer: Because this is a TetraPak and it's got a plastic coating on it, but this often throws people.

Dave: It's cardboard though.

Interviewer: Yes it is

Gemma: That's really interesting with the cardboard, it's like plain cardboard isn't it? Like box-type things.

Interviewer: Like this pizza-box?

Gemma: Yes

Dave: But that's got a plastic coating as well.

Gemma: Not really has it, it's not quite the same. So yeah I put these in the black bin because we get through the orange juices don't we like that.

Dave: So that's wrong to go in there [Tetrapak] and that's right [pizza box]?

Gemma: Yeah it is quite confusing isn't it cos you could end up analysing everything, you generally think what's cardboard?

Henriksson et al (2010) identified 'uncertainty' as a key theme in their study of waste sorting in households in Sweden, noting that there was often a mismatch between professional and cultural categories of waste. Like the respondents in Henriksson et al's study, Dave does not understand why juice cartons are not recyclable, whilst cardboard pizza boxes are. The categorisation of recyclable and non-recyclable cardboard relates to the availability of local systems of recycling provision (or 'professional categories'), eg whether the local authority has access to TetraPak recycling, or a Materials Recovery Facility for sorting mixed plastics, rather than the consumer's understanding of what constitutes plastic or cardboard.

Gemma stores all her recyclable material outside her front door so she feels there is no need to wash them in preparation for storage. The transfer of these materials to the front of her property on collection day is managed by Dave because 'sometimes it's too heavy to lift it out'. The night before collection day, Dave generally will 'look out the front and see what people's bins are out' and he will copy what they have done. The propensity of one's neighbours to recycle has been found to be a powerful influence on recycling behaviour (Derksen and Gartrell, 1994; Hage et al 2009).

Gemma describes recycling as 'another job that we've got to do on top of cooking the dinner, eating dinner, clearing away, sorting out things'. She does think that this 'job' could be made easier if they had one bin for all their recyclable material, rather than separating it out into separate bags and containers. They used to have a co-mingled system when they lived in a neighbouring authority and she realises that she sorts it because this makes it easier for the council to deal with.

Gemma: It's kind of saving them a job isn't it in a way. It's a way of them probably cutting down jobs as well isn't it because they're getting us to do it? And maybe it is just easier as well for us to do it.

Dave: Easier for who?

Gemma: Easier for them that we do it so in a way yeah it's making their jobs easier isn't it, their end with us doing it otherwise they've got to sort out all the mess haven't they. That would take a lot of time, money and staff, so maybe that's why.

Gemma is clearly aware that by sorting her waste for recycling, she is performing an important job which would have been conducted by a paid worker in a different system of provision. She performs this work because she feels compelled to do so - as she says 'we do it because we're told to do it and we don't want to get fined.' But at the same time, she acknowledges that she 'feels like you're helping the environment' revealing the complex moral economy of recycling.

6.1.2 Liz and Ron

Liz and Ron are in their late 40s with three children under 11 years. They work part-time - Liz

as a family outreach worker, Ron as a carer support officer - and are both studying for a degree through the Open University having left school without any formal qualifications. They live in the Rochford (Essex) area and started recycling regularly when the council provided them with the three-bin system; a bin for general rubbish, a bin for co-mingled recycling and a bin for green and food waste.

Most of the materials they supply for the recycling system are in the form of milk bottles, cereal boxes and egg boxes and they have little trouble determining that these items are recyclable. However, other types of plastic can cause problems.

Ron: *Most of the stuff, well some of it, like the tins and the cardboard, are straight forward, it's the plastics, you look for a label and if the film's like that [plastic covering for bag of apples]*

Liz: *See I would chuck that in non-recycling*

Ron: *You think that... because that's not stretchy, I do it that way, if it's not stretchy it's not recyclable but if it does then it is.*

Liz: *Yeah I know you do, but I checked and I know that's not, I remember.*

Ron: *If it doesn't stretch then it's not recyclable, but if it does like that does, see I'd say that is!*

Liz: *No it's not, look it says 'not currently recyclable'.*

Ron: *But I'd say that is because there was a thing on the TV before that says that if it stretches and it's crinkly, but if it's like that [points to a firmer plastic packet for sugar-snap peas], it's hard then it's not.*

Liz: *See that was ready to go in the bin for me, so we're obviously doing something differently. You're gonna cause a domestic now [laughs]*

Ron: *[...]But that's the thing, there's so much variation, that's what's so infuriating about it, if it was standard then great, it would be sorted.*

Local authorities across England have different sorting requirements owing to their access to infrastructures of provision. Consumers must therefore learn what is and is not recyclable in their local system and this can be quite different from what is printed onto packaging materials. Plastics caused the most trouble amongst the respondents in our study with many relying on 'rule of thumb' heuristics, like the one described by Ron. Testing to see if the plastic was stretchy, looking for triangular symbols and codes, and automatically discarding black plastics into the general rubbish were all common practices when discerning between plastic materials. Incorrectly sorting plastics can cause problems when it comes to processing these materials at the next stage in the process.

Preparing the materials for storage is important for Liz and Ron because they keep all their recyclables in a plastic bag in the kitchen before the materials are transferred to the bins outside ready for collection. Liz describes this bag as 'ugly, unsightly and horrible' but because they do not have the space for another bin within their kitchen, they put up with it. They 'fill up pretty much a carrier bag every flippin' day' and they therefore have to squash cardboard boxes and juice cartons to make room for them within the bag. Ron outlines his procedure for dealing with a TetraPak milk carton below,

I always rip it open once it's finished with, rip it open - I know you probably could do it [wash it] through the spout but I always rip it open, wash it out and then squash it flat and chuck it, and you go through that whole kerfuffle. I know it sounds like I'm moaning but what a palaver you know, see if you had a milkman he brings it in a glass bottle, and you give them the bottle back and they wash it out and use it again.

The 'kerfuffle' to prepare material for its onward journey is contrasted with an alternative system of recycling (milk delivered to the door), which equally relies on the input of the consumer for its success but is perceived to involve less effort than the current practice.

Liz and Ron claim to share the recycling equally, although it was clearly a source of some contention because they had such different rules for handling materials. If they have a bulky item that needs disposing of at the recycling centre, this is normally Ron's responsibility. Their children are very aware of recycling but despite popular policy assumptions that children pester their parents to recycle, Liz and Ron believe they have set the example and were

unaware of any education at school specifically targeting recycling behaviour.

6.1.3 Jane and Barry

Jane and Barry are retired and living in the Shropshire town, Oswestry. They have two grown-up children and grandchildren that they regularly look after during the week. Jane used to be a teacher and Barry used to be a librarian. In Shropshire, they have an alternating fortnightly collection of general rubbish, green waste and recycling. Recycling is separated into three boxes; one for paper, one for glass and one for tins and plastic bottles.

When asked to discuss their routines for dealing with their rubbish, Barry pointed to Jane and said 'that's your speciality'. Jane is a keen recycler and has undergone training in composting through the local authority. She is the proficient sorter in the household and takes the responsibility for sorting and storing the recyclable material. Unlike Barry, she'll check all the metal she puts out for recycling with a magnet and is vigilant about only placing plastic bottles into the Shropshire recycling system. Dirty items of packaging are placed into the dishwasher for a thorough wash before they are sorted into the 'Ikea mega-drawer' in their kitchen, which allows her to store separate fractions of materials in one place out of sight. Because of limited space in this 'warehouse', she crushes down plastic bottles and asks Barry to empty the drawer on a regular basis. Cardboard that is not composted by Jane is stored in the shed¹⁶ and about once a month Barry will 'blitz it, flatten it and take it to the recycling centre' along with any garden waste they may have.

In Oates and McDonald's (2006) quantitative study of recycling in Sheffield, women were identified as the key initiators and sustainers of recycling activity within the household. However, the authors noted their surprise that recycling is not as clearly gendered as they had expected with high proportions of men participating in recycling activity alongside their female partners. Results from our study support this 'surprising' finding and suggest that the gendering of recycling activity is differentiated according to which stage of work it falls within.

Interviewer: *Who takes the bins out?*

Barry: *It tends to be me but not necessarily.*

Interviewer: *Who would you say takes the main responsibility in the house for the recycling?*

Jane: *It's joint really.*

Barry: *I mean we both do it, I probably am the one that errs on the side of not doing it, I probably put stuff in ordinary waste that shouldn't, but not much.*

Jane: *Hmm [nods in agreement]*

Interviewer: *Do you then fish it out?*

Jane: *Yes [laughs], but I'm more, I do the compost, you tend to empty the bins from here to outside, so it's 50/50 really I would say, but sort of little domains within that.*

Whilst Jane is responsible for the supply and warehousing of recyclable material, Barry takes the responsibility for distributing the household waste to its collection point, as well as driving materials to the recycling centre. Recycling consumption work appears to be coordinated with other domestic activities, such as cooking and gardening. Indeed, Jane and Barry acknowledge that sorting takes time and realise that it is more difficult for people like their daughter who is working full-time to manage recycling consumption work alongside childcare and other domestic tasks.

6.1.4 Mark

Mark is 30-years old and works full-time as a web designer for a major UK department store. He lives alone in a flat in Hackney and had only been at the property for one month at the time of the interview, having just moved from a shared house. He has a bin for general waste and

¹⁶ Shropshire council had recently ceased collecting cardboard at the kerbside

a bin for mixed recyclable materials and stores both in his kitchen cupboard under the sink. He uses a 'general rule of thumb' to decide what is recyclable, such as 'if it's tin, if it's cardboard, if it's plastic' but he does admit that he is often unsure what to do about plastic bags. Sometimes he'll put them out for recycling and other times he does not.

Mark admits that he is less likely to prepare items for recycling if they require a lot of effort - like washing used takeaway trays or a dirty peanut butter jar. He explains,

It's just for me to do things like that, it sounds a bit weird, but I have to feel really settled and that I've got the space to engage with stuff like that because I have a lot of stuff going on and that is like the upmost bottom of the list. As I'm beginning to feel more settled, it might be something that I would start to engage in. But when I've been stressed or busy, the worst stuff just gets less thought about.

Recycling consumption work requires effort and time and so must be integrated with other activities. Mark was not a keen recycler but felt he made a 'reasonable effort' given the priority he assigns this activity. He did comment that recycling had become much easier 'now you don't have to sort stuff' because he can store all the materials in one place and transfer them to the collection point in one container.

Mark waits until his bag of recyclable material is full and he 'just stick[s] it outside and it goes away'. Whilst most households interviewed were acutely aware of when their rubbish or recycling was collected and organised their domestic tasks around this weekly moment, for those living in flats, the temporal rhythm of collection was less apparent because whenever they wanted to dispose of their recycling they did so in communal bins that were, to their knowledge, frequently emptied. Mark's responsibility for the material ends at the point. When asked what he thought happened after the material was collected, Mark imagined

It goes to some sorting factory where some poor bugger's on a conveyor belt putting it in different pots and I guess it gets melted down somewhere and I don't know what happens to it after that, certainly they pick it up and then send that to recycled stuff.

Mark's consumption work does create jobs further along the waste management chain and by supplying his materials for recycling, he is generating feedstock for further processing. However, because levels of contamination are higher in co-mingled systems and Mark admits he does not have the time to make a big effort sorting and preparing his recycling, the degree to which his material will be of a high enough quality to sell for profit will vary.

6.2 The three stages of recycling consumption work

The case studies have highlighted how consumers perform three key stages of work when recycling their household waste – the supply, warehouse and distribution of materials – and how these stages of work are divided between household members and wider systems of labour within waste management (in the case of co-mingled and source separated systems). Using the data gathered through interviews with waste experts, we demonstrate the contribution of consumers performing these three stages of work to the overall process of labour.

6.2.1 Consumer as supplier

For the consumer, the work of household recycling begins when products that have entered the home are unwrapped or used up, leaving empty packaging material to be dealt with. The consumer must first decide what type of material the packaging is composed of and then judge how best to prepare it for their system of recycling. Once an item of packaging is deemed recyclable, the next stage in the process is to prepare it so it is ready to be stored. Washing, squashing and disassembling packaging into its component parts represent key tasks for the consumer to perform at this stage.

Discerning between materials is an essential skill for consumers to acquire. One expert jokingly remarked that consumers need 'a PhD in material science' to correctly recycle their household waste because packages are often made of composite materials. As we have seen, sorting requirements can cause confusion for consumers, like Gemma and Dave, and this is something that local authorities are aware of.

They've got to distinguish between what can and can't be recycled so I think now we're alright when we say just plastic bottles [...] but when we were saying 1 and 2 plastics, that's a lot of work for people - whether it's a skill or whether it's knowledge that they've already got to have or they've picked up somewhere to look at the bottom of a packet and understand what that triangle is, that's quite difficult. And you're kind of expecting people that have had no previous experience in it to be able to pick it up straight away

The recycling capacity of local authorities can vary over time depending on their access to sorting infrastructure and end markets for materials. The skills required of consumers are therefore directly shaped by the system of provision and division of labour along the waste processing chain. Likewise, if the consumer incorrectly sorts their materials, this has consequences for the labour processes that follow.

Some Authorities collect plastic bottles, but they don't collect other forms of plastic packaging, so they don't collect the yoghurt pots and the margarine tubs. But people just see plastic, and lob everything in, so you get quite high levels of contamination, so when that material goes to the MRF, then often the reject rate is quite high, because the MRF is not designed to cope with some of these materials, or the contract with the MRF operator doesn't require them to sort them out, or whatever.

(UK Waste Expert)

If the processing infrastructure is unable to deal with mixed plastics supplied by consumer, this material is unlikely to be recycled, resulting in a decrease in feedstock for processing.

The willingness of consumers to perform the work of preparing recyclable materials varies, with items that require a lot of effort being less likely to be recycled. Mark, for example, did not recycle takeaway trays because they were too difficult to clean. But if consumers do put dirty packaging out for recycling this can affect the quality of the material.

For certain industries, the cleanliness of the product is quite important, glass manufacturers and paper being the two most important because if you think about it, if you've got a small contaminant in glass once you've gone through all the smashing up so it's sand, if you've got a stone in there that suddenly becomes a thousand, each one of those little grains of non-glass will affect a thousand bottles so that's why they're quite keen about it.

(Independent Waste Consultant)

The condition in which the consumer supplies certain materials thus has consequences for the processing systems that follow, as well as potential profits from the sale of materials.

Experts interviewed agreed that it was generally 'mum' who recycles because much of the packaging materials are from food stuffs and recycling consumption work is likely to be coordinated with food preparation work. In her study of the relationship between waste separation and housework, Pettifor (2012) finds that women were generally more likely to separate their waste for recycling than men but this does depend upon who does that majority of the housework in the household, suggesting that supply of recyclable materials will depend upon already established activities and divisions of labour within the household. However, in a survey conducted by WRAP, there were no significant correlations between propensity to sort waste/attitudes to recycling and gender, and in Oates and McDonald's study, recycling is not as clearly gendered as they thought it would be. Our research suggests that, like Jane and Barry, recycling consumption work is divided according the stage at which it falls, with women were more likely to be involved in the supply of recyclable materials and men more likely to distribute the materials to the kerbside or recycling centre. In addition to the tasks being divided by gender, it is also likely that men and women sort different materials for recycling.

I think it's more the lady, the mum that recycles. With the day to day things like glass, bottles, paper, cans but then the bigger things like the grass cuttings and the logs from the garden then that will be, more people going to the recycling centres are male than female.

(Local Authority representative)

So the supply of recyclable materials may depend upon the gender of the consumer which in

turn impacts upon what materials are available for reprocessing.

But gender is not the only variable that influences the type of material supplied by the consumer. As a representative from Veolia explained, the social-economic status of the consumer is important to take account of when planning routes for collecting materials.

You'll go on to a Council estate, and you won't pick up newspapers, and you won't be picking up bottles, you'll be picking up cans. You'll go into other more affluent areas, and you'll be picking up all glass. Yeah? So your vehicles, of course, have to accommodate running into different areas, so they have to have the ability to change and the capacity to change as well, so you have to accommodate for the highest and the lowest denominator, if you like.

The interdependence between the materials supplied by consumers and the work performed by paid employees within waste management companies is readily apparent in this statement. What the consumer supplies has a direct influence on how the work of waste collection is managed, as well as the work related to processing systems and end-markets that follow.

6.2.2 Consumer as warehouse

Once the consumer has prepared the material for recycling, s/he needs to find somewhere to store it before collection. Each household can be thought of as a warehouse for recyclable material, stowing the material in a dry and/or protected space so it does not deteriorate or blow away prior to its transfer to the collection point. These storage zones (like Jane's Ikea drawer) were viewed as a convenient 'in-between' stage, saving the consumer from having to go outside (where council-provided boxes/bags were generally kept) whenever they had another item of packaging.

Recyclable material can take up a lot of domestic space and it is increasingly recognised that lack of space is a key barrier to consumer recycling. The more fractions that consumers must sort their materials into, the more space required in the storage zone.

I think that's probably the biggest problem in the flats is the storage, you know it's a lot easier for people just to wrap up their waste and chuck it in the bin than it is to separate it out and then you've got issues with how big the kitchen is, can they store different types of recycling? Even though we do it co-mingled, people still complain about not having any space in the kitchen to do it.

(Local Authority representative)

Indeed, the one household who did not recycle in our sample cited a lack of space in the kitchen of their small London flat as the key reason. The lack of sufficient warehousing space shapes the decision to offer a co-mingled or a source-separated system, the implications of which shape both the division of labour for the consumer at the next stage (consumer as distributor) and along the waste processing chain.

6.2.3 Consumer as distributor

Collection day involves a specific assemblage of tasks for the consumer, often conducted the night before. First, consumers must be aware what materials need to be left for collection on what day of the week, where there are alternating weekly collections of different recyclable materials. Second, consumers must gather up all those materials left in storage zones and transfer them to the council-provided containers and boxes. Third, those containers must then be placed at to the collection point, outside one's property by a particular time of day. In so doing, the consumer effects an act of exchange, transferring ownership of materials from the household to the local authority or waste management company.¹⁷

How the consumer presents this waste for appropriation matters – whether it is within one bag or separated into several boxes. There is a debate within England regarding the relative merits of co-mingled versus source-separated systems. On the one hand, some recognise that

¹⁷ The consumer could also transfer materials to council-run recycling centres/bring-stations, or to third-parties for cash; for example, in Shropshire, scrap merchants provide an alternative end-point for household metals, like tin cans.

Co-mingled systems make things much easier for the household and there the division of labour shifts to the technology, it shifts to the industry to say we're going to do less at this end, so you need to do more. The labour just shifts down the supply chain.

(Sher, 2011)

On the other hand, others argue that high levels of contamination within co-mingled systems reduce the value of materials and increase the likelihood of them ending up in landfill/being exported to Asia. The 'Campaign for Real Recycling' has challenged the practice of commingling for these reasons and calls for either source-separation or kerbside-sorting as a preferred solution. This debate looks set to continue as technology advances, with the continuing role of consumer labour holding centre-stage. From our study, consumers who had experienced both co-mingled and source-separated systems (like Gemma and Dave) preferred the former because it involved less work, but those with source-separated systems were generally happy with them.

Regardless of the system in operation, if consumers leave materials that are unwanted or cannot be processed by the infrastructures available, those employed in the recycling industries can provide feedback to them to improve their performance at the point of distribution.

We have certain little flyers or stickers that we put on their green boxes saying your particular material wasn't collect today because you didn't put it out before 7 o'clock, or they have contaminated it (which is the official term) where they put one material, say paper or cardboard, where they shouldn't have done then we will also notify them of that. The crew might take the material out and they'd leave it for the home occupier and then they'd give them the flyer and just say look, you left this out with this, and you can't really be doing that.

(Local Authority representative)

Part of the waste collector's job is to educate the consumer about what can be deposited into the system. If consumers consistently distribute the materials incorrectly, they may be visited by local authority waste officers or provided with educational leaflets to improve their work performance. Here, we see the interactions and interdependencies between work performed under different socio-economic bases, with paid employment tasks (in the public/private sectors) being shaped by the unpaid work of the consumer.

6.3 Recycling consumption work and Socio-economic Formations of Labour

Recycling processes rely on consumers regularly performing a range of tasks, and although these tasks may not be recognised by them as 'work', they nevertheless interdepend with work tasks conducted within the waste management labour process. This section has demonstrated how consumers act as suppliers, warehouseers, and distributors of materials which are then appropriated by local authorities/private waste management companies before being sold on to processing companies for a profit. The consumer plays an integral role in the division of labour within waste management and the materials economy depends upon and presupposes the completion of this work by consumers for its reproduction. How the consumer performs the key stages of recycling consumption work is shaped by the institutional system of provision in which they are conducted, and in turn the labour processes within each distinct system of provision adapts to deal with the performance of this work by the consumer. For example, consumer difficulties in discerning between materials can be understood in the context of huge variability in local authority practices owing to differential access to sorting technologies and end markets. Local authorities and their contractors attempt to manage poor consumer work practices with increased consumer education, changes to collection systems, and alternative processing technologies.

In terms of the three dimensions of interdependence and differentiation of labour (Glucksmann, 2009; 2013), recycling tasks are divided between a range of linked industries (from local authorities to private waste management and processing companies) and

consumers (dimension 1). This is a historically distinctive and specific division of labour which contrasts with arrangements in many countries, especially in the global south, where consumers do not sort their waste but rather this is done by waste pickers on vast waste dumps (Millar, 2012). Our research further shows that within the household, recycling consumption work tasks are differentiated by gender, with women taking responsibility for sorting materials and men taking responsibility for their distribution to the kerbside/recycling centre. This finding challenges existing research which has found that women tend to carry the burden of sustainability policies within the household. Having said this, women are likely to spend more total time sorting and storing waste, with men's contribution related to the less regular task of distribution.

The unpaid labour of consumers interacts with the paid work of those employed by the public (usually municipal) sector and the private market sector, highlighting the interdependencies between work undertaken on different socio-economic bases (dimension 2). Whether it is a local authority that collects and sells the material or a private waste management company contracted to provide their services, in either case, their work relies on, and is shaped by, the 'voluntary' contribution of the consumer. Recycling consumption work is often coordinated with existing routines within the household suggesting that other forms of unpaid domestic labour (like cooking and gardening) ought to be explored in this relational complex. Moral norms, such as environmental citizenship, and legal sanctions play an important role in encouraging consumers to participate in this work within a distinctive moral economy of recycling (see Wheeler, forthcoming).

The role of the consumer within the instituted economic process of labour (dimension 3) is readily apparent from our research. At the starting point of the process (production), the consumer acts as a supplier by transforming her/his waste into recyclable materials. After warehousing these materials, s/he then accomplishes the first stage of distribution by putting it out for kerbside collection. At this point the consumer is involved in an act of exchange where ownership of the waste changes hands and is appropriated either by the municipality or a waste management company. The waste is thus transformed from being a hitherto personal individual good into a private or municipal good, a property with potential value to the parties it has been transferred to. Crucially, the potential value of this material depends upon the successful performance of key stages of recycling consumption work by the consumer within their system of provision. For example, insufficient washing and sorting of the material can seriously challenge re-processing technologies and therefore the quality of material for sale on the market. After completion of the recycling process, the householder comes back into the picture as the consumer of recycled materials so initiating repetition of the cycle. This ever-repeating process comprises the dynamic of the economy of recycling, work undertaken at each stage presupposing and depending on that of the others.

7 CONCLUSION

The increase in England's recycling rate in the last ten years has been substantial and this paper has mapped out some of the key factors that have been responsible for this increase. England may have been described as the 'dirty man of Europe' but because of a number of important policy changes – many of which were responsive to external pressure from European Law and the environmental movement – recycling has become a routine practice within households, local authorities and businesses across England. The waste management sector may have been slow to embrace environmental principles but the escalating landfill tax and the economic value of materials have made recycling a necessary part of their operations. Unlike their Swedish counterparts, waste management did not develop against a backdrop of environmental consciousness but distinct socio-economic and political conditions have made recycling an attractive economic solution to deal with post-consumer waste, especially in the context of austerity measures.

The consumer has been given centre-stage in this report because s/he performs a vital role in the division of labour in the waste management industry. How well the consumer performs the tasks of recycling consumption work (supply, warehousing and distribution) shapes how

processes of waste management are performed and crucially the levels of profit to be made from the trading in waste materials. The work of the consumer sits in an interdependent relationship with the work of local authorities, private companies, third sector organisations and technology – each evolving and reacting to the performance of the other. Consumers do more than simply consume and this paper has provided an important case study to demonstrate why consumers need to be included within an expanded framework for understanding divisions of labour within society (Glucksmann, 2013).

Consumers are encouraged to recycle through a distinct moral economy of recycling. The moral economy of recycling is less coherent in England than in Sweden and we see this in the diverse ways that consumers in our household study were motivated to participate. The threat of fines was a common reason for recycling, although this feeling of compulsion was tempered by a belief that their actions did benefit the environment in some way. Environmental morality is only part of this moral economy, however, with a new moral message – that recycling saves public money – emerging. Although consumers have not always articulated this understanding of their actions, this message does resonate with moralities of thrift and not wasting materials that were identified through the household study.

We may be shedding our image of the dirty man of Europe but not necessarily because of our environmental consciousness – the socio-economy of waste management (its private provision, and its potential to save money relative to landfill) has provided an alternative structure for our success in the domain of recycling.

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9 APPENDIX

Features of Comparison	Sweden	England
The key actors and institutions providing waste management services	Municipalities FTI (producer responsibility organisation) Waste management companies Consumer	Local authorities Waste management companies Consumer
The role of the public and private sectors	Public sector dominance	Private sector dominance
Variations in the collection systems between and within the countries	One common system across Sweden	Much variation between and within local authority collection systems
The degree to which recycling waste is separate from other household waste	Recyclable packaging/newspaper managed in a separate system to general household waste	Recyclable waste managed through the same system as general household waste
Dominant technologies employed to deal with waste	Incineration Limited technological after-sorting	Landfill Material Recovery Facilities
Strategies for mobilising consumers to recycle	Consumer mobilised to recycle for the environment; education aimed at children; no personalised feedback to individual households.	Consumer encouraged to recycle to save public money and for the environment; targeted feedback to individual households

Table A: Waste management in Sweden and England