From Waste Management to Resource Recovery: A Developing Sector

A Report to the Department for Business, Innovation and Skills

May 2011

ekogen

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Study Purpose and Limitations

The purpose of this analysis is to identify key activities comprising waste management sector, outline key policies and regulations affecting the sector and highlight sectoral drivers and barriers to growth.

In addition the size and value of the sector is estimated both using official statistics, subject to the constraints applied by its fixed SIC classification system and a bespoke survey of the industry, conducted by Ekosgen.

Ekosgen Survey results and official statistics are not comparable due to different methodologies, industry coverage and timeframes. For example Standard industrial classification codes, used by ONS, do not capture the full range of activities in the sector.

Please note that this should not be seen as a definitive assessment of the size and value of the sector. Due to the self selecting nature of respondents, the survey data is not fully representative of the businesses involved in waste management. Therefore the survey results presented in the report should be taken as indicative and viewed with a degree of caution.

The waste management sector has been steadily increasing in size and value as waste disposal methods have changed in response to national and European legislation. Official statistics have not kept up-to-date with the evolution or diversity of the sector. This study seeks to bridge this gap. It provides a detailed definition of the sector and estimates its size and value to the UK economy. Based on the results of a survey carried out to inform this report the results show that the sector employs around 128,000 people and is currently generating GVA of £7.5 billion. Businesses within the sector have been affected by the recession but expect to experience growth after 2013. They have highlighted various ways in which the Government could help them maximise their potential. Official sources estimate 22,000 people are employed by local authorities in waste management, primarily within waste collection.

Study Background

The way in which waste is disposed has changed dramatically over the last twenty years in the UK, as have attitudes towards waste management. There has been a major decrease in waste being disposed through landfill and an increase in recycling. Attitudes towards waste are increasingly centred on waste reduction, reuse and recycling, as well as recovering energy from waste. The new Government wishes to embed these developments in order to contribute towards its overarching goal of making the transition to a ‘zero waste, green economy’.

The Government believes that there are considerable market opportunities that businesses can exploit in the transition to the zero waste, green economy, including new start-ups and established businesses operating in waste management. However, given the way in which the sector has evolved, there is limited data about its composition, size and, overall, economic contribution to the UK economy. Indeed, there is no agreed definition of sector that sets out its various constituent activities. This study was commissioned by BIS to help address this

knowledge gap and identify the types of actions the Government could take to create the conditions for sectoral growth and help businesses maximise the opportunities available to them.

Study Aims and Objectives

The study has four aims, which are to:

1. Identify the groups of economic activities comprising the waste management sector;
2. Develop a method for quantifying the size and scale of the waste management sector;
3. Quantify the numbers of companies active in the waste management sector, the size of the workforce and the sector's contribution to UK output;
4. Identify barriers to growth that prevent the waste management industry from maximising its potential and ways in which Government could help to address these.

Key Findings

An Overview of the Sector

A definition of the waste management sector is set out in the 1975 European Waste Framework Directive (revised in 2008). This was used as a starting point to define the sector and industry experts were consulted about its suitability. There was a consensus that, whilst the EU's definition captured the general remit of the sector, it could be enhanced in order to capture fully the different activities being undertaken and the organisations involved. The study also analysed the Environment Agency's databases, which keep a record of organisations issued with permits and licences for handling various types of waste and those that are exempt. Following this, the EU Directive description of the waste management sector was revised as follows: *Local authorities and businesses engaged in one or more of the following activities:*

- Re-use of products to divert waste at source;
- Collection and transport;
- Brokerage of waste
- Sorting and storing;
- Disposal through landfill;
- Disposal through incineration;
- Treatment of waste;
- Processing of recyclate;
- Composting;
- Energy recovery.

The waste management sector comprises local authorities, large employers and SMEs and the third sector[1]. Local authorities are responsible for the management of municipal waste and perform one of three functions: collection, disposal or both. Regulation has played an

[1] Their activities though important and growing are excluded from this analysis.

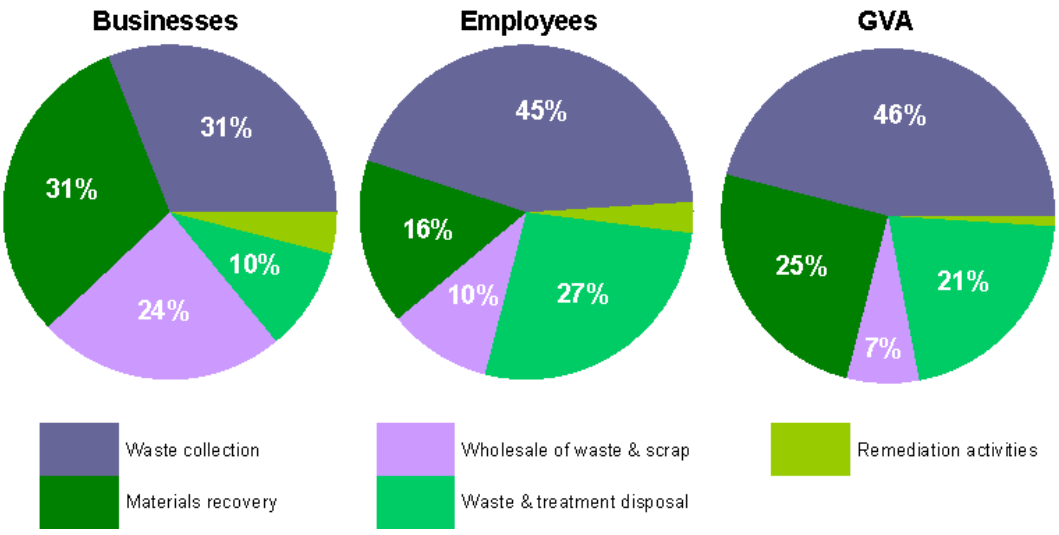
important role in the way in which they carry out these functions, most notably those related to landfill and recycling. As a result, there has been a shift in the way in which municipal waste is disposed. In essence, over the last ten years, the proportion of municipal waste that is land-filled has declined whereas the proportion that is recycled has increased.

Turning to the commercial waste management sector, official datasets provide insights about its size, although there are limitations to them. They do not fully capture the different activities within the sector, nor do they include local government employees whose jobs centre on municipal waste management. Despite these limitations, official statistics are able to provide a broad brush picture of the sector, which is viewed as comprising five core activities: (i) waste collection; (ii) waste treatment and disposal; (iii) materials recovery; (iv) remediation activities and other waste management services; (v) wholesale of waste and scrap.

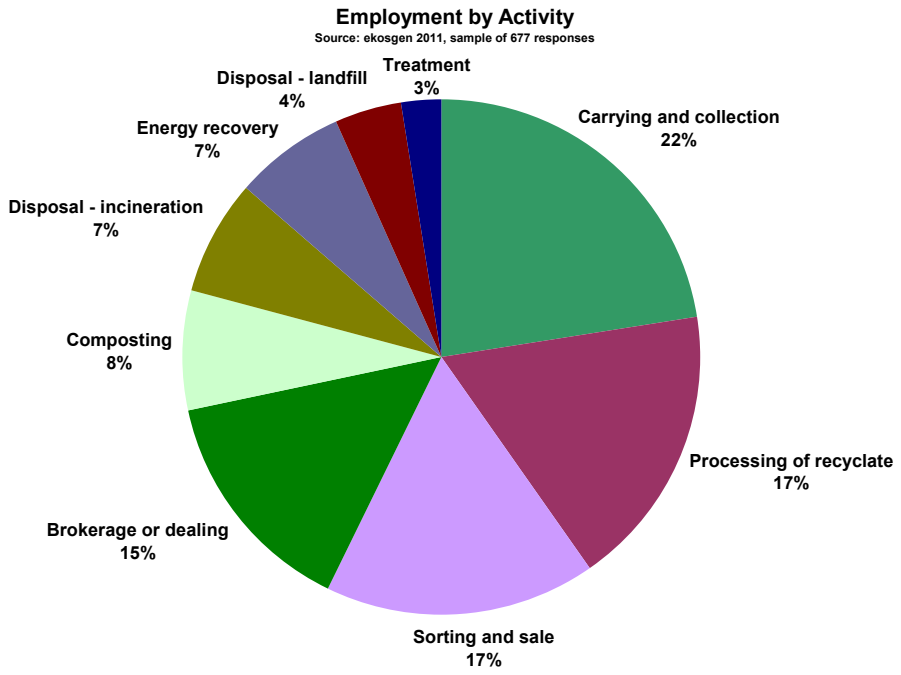
In 2009, ONS statistics show there were 5,150 businesses operating in the waste management sector (as defined in Table 2.4) in England, employing around 94,000 people and generating a GVA of nearly £5 billion. The sector has been growing steadily with the business stock, employment and GVA all higher compared to 2003. However, the sector has not been immune from the recession with employment and GVA lower than 2008 (but not the business stock). The Figure overleaf gives a breakdown of the business stock, employment and GVA by sub sector for 2009.

Waste management sub-sector share of businesses, employees and GVA 2009

Source: ABS/BRES



To present more fine grained analysis, a survey was sent to organisations involved in waste management and the sample responses aggregated to calculate the size and value of the overall sector and its sub sectors. The survey received responses from 1,251 organisations (representing 1% of companies registered listed on EA database). As shown in the Figure below, the top three activities undertaken by respondents include: waste collection; processing of recyclate; and the sorting and sale of waste.



Survey results show that sector should best be viewed as comprising a core group of organisations who generate their income from waste management activities, and a wider, peripheral group for whom waste management is a secondary or subsidiary function, most likely related to waste generated from primary activities. The most frequently handled waste streams by respondents are: (i) building waste; (ii) metals; (iii) green waste; (iv) packaging; and (v) electrical and electronic equipment. The survey results are not necessarily representative of the waste management industry.

The Size and Value of the Waste Management Sector

A combination of data from financial accounts purchased from Companies House for those large companies with over 20 sites and survey results for those under 20 sites were used to estimate the size and value of the waste management sector in the UK (using a more fine grained definition than available through official statistics). The method by which this was calculated and estimates using wider definitions of the sector (based on the proportion of the business accounted for by waste management) are set out in Appendix two. The analysis shows the following:

- There are approximately **128,000 employees** in the waste management sector, which is higher than the number estimated by official statistics for 2009 (94,000).
- The waste management sector generated approximately **£7.5 billion GVA** in 2010/11. This figure is higher than the official estimate of GVA for 2009 (£5 billion).
- The highest GVA per FTE is generated by energy recovery (£99,800) and the lowest GVA by composting (£32,800).
- Survey respondents anticipate the sector is unlikely to recover from its decline until 2013 but then expects steady growth at least until 2016.

As mentioned in the opening statements these findings should be interpreted with some caution (the caveats are detailed in full in the main report) and readers should be wary of direct comparisons between the study survey results and official figures which use different methodologies and timeframes.

Drawing on datasets supplied by Defra and the Department for Communities and Local Government (DCLG), it is estimated that there are around 22,000 people employed by local authorities to undertake waste management activities, primarily waste collection. This is in addition to the estimates of private sector employment above. It has been estimated that the value of waste management industry in the municipal sector is £3.33 billion; this excludes employment and expenditure on outsourced activities.

Drivers of Change

Industry experts and businesses were asked about changes taking place in the waste management sector, its future development and the role of the Government.

There was a consensus amongst industry experts that the sector has changed in three key ways over the last ten years: (i) moving from waste management associated with landfill disposal to waste treatment; (ii) increased use of technology to deal with or treat waste; and (iii) a growth in recycling and reuse of materials. There was universal agreement that European and national policies, legislation and directives have been, and will continue to be, the primary drivers of change. In addition, industry experts agreed that the need to divert waste away from landfill has stimulated the use of new technology.

Consultations with local authorities and industry experts identified a set of waste management issues specific to local authorities. This includes the outcomes of the National Waste Review; the moratorium on recycling targets; the operation of the two-tier system; and public opinion. They also believe that the role of local authorities within the waste management industry will change significantly, although the direction of travel will vary by authority depending on their ambitions and political will.

Turning to survey respondents, around 40% reported they had firm plans to grow their business over the next five years. The two most prominent ways in which they expect to do so are, first, introducing new waste disposal processes and, second, providing more integrated services to clients. They identified the drivers supporting growth and the top five are: (i) accessing new markets; (ii) skills of employees; (iii) technological change; (iv) environmental protection factors; and (v) changes in attitudes towards waste.

Industry experts identified several barriers preventing businesses from maximising the current opportunities arising from the waste management sector. Most notably, these included: securing planning permission for infrastructure projects, the lack of clarity about national policy relating to renewable energy, and the uncertainty created by the electricity market reforms. Finally, experts identified the difficulties facing businesses in accessing finance for infrastructure projects as another barrier to sectoral development.

The findings from the business survey tend to corroborate the views of industry experts. The top five barriers to growth cited were: the economic climate; competition in the sector; UK legislation; regulation; EU legislation.

The survey results also identified several key ways in which businesses believe Government action could help them maximise their economic potential. These are as follows:

- Simplified arrangements for acquiring permits and licences and, ideally, a reduction in the costs of doing so. Greater enforcement against those businesses perceived to be operating illegally was also highlighted as a key action.
- Balancing regulation and red tape with the volume of work undertaken by businesses as the current system appears not to differentiate between those operators dealing in large volumes of waste and those handling small amounts.
- Refining the planning system to make decisions about capital projects easier and quicker.
- The introduction of incentives to encourage recycling, particularly those directed at small businesses not operating in waste management as this would provide opportunities for those working in the sector.
- Reduction in tax and fuel duty (although the latest Budget has reduced fuel duty by 1p).
- Public procurement to be made easier for small businesses to tender for contracts.
- Improving access to finance and for banks to start lending to businesses.

About this Project

The study drew on a combination of the following primary and secondary data sources:

- **Consultations** with industry experts and local authorities on their views about what constitutes the waste management sector, the way in which it has changed, future drivers of growth and any barriers that may impede sectoral development.

- **Secondary data analysis** of national datasets to identify the size of the workforce and the number of businesses operating in the waste management sector.

- **Analysis of Environment Agency databases** which provide a record of the organisations that have been issued permits or licences for (i) acting as waste brokers or carriers; (ii) transporting, treating and disposing waste; (iii) those that are exempt. The analysis of the three databases formed a key part of calculating the size and value of the sector. They also provided the sampling frame for administering an online survey.

- **Online Survey** – An online survey was sent to all the businesses recorded on the Environment Agency's databases. In total, the survey was sent to 44,369 organisations and included businesses for whom waste management is a peripheral activity. It was necessary to include them because the Agency's databases do not make a distinction between core and peripheral waste operators. The survey sought to overcome this issue by asking respondents to specify what proportion of their business/work is related to waste management.

  The survey secured responses from 1,251, businesses representing a response rate of 2.8%. It captured the waste streams being handled, the types of activities being undertaken and the number of sites being managed by a single operator. In order to

calculate the size and value of the sector, the survey also sought to find out the number of people employed by each organisation by waste management activity, their turnover and profits, together with any plans they have for capital investment.

These results should be viewed with some degree of caution. The self selecting nature of this survey (i.e. firms chose whether or not to respond) means that the achieved sample might not be representative of the whole population.

About the Authors

The study was undertaken by ekosgen, a leading UK economic development consultancy, in association with Emma Buckman Associates.

1. INTRODUCTION

> *Waste is one of the biggest economic and environmental challenges we face. … We cannot keep putting recyclable and biodegradable material into landfill. It threatens the environment and wastes what are incredibly valuable resources. … It is time to drive forward the delivery of our zero waste economy*.
>
> Waste, New Thinking for a New Economy. Speech given by Caroline Spelman (Secretary of State for Defra) at Futuresource, 15 June 2010.[2]

Study Background

1.1 The way in which waste is disposed has changed dramatically over the last twenty years, as have attitudes towards waste management. Primarily, the shifts in practices and attitudes have been driven by legislation, most notably the landfill tax and European Union (EU) Directives. The most influential has been the European Landfill Diversion Targets[3], which bind the UK to reduce the amount of biodegradable waste it sends to landfill with penalties of up to £180 million per year for UK non-compliance.[4] Accordingly, there has been a major decrease in waste being disposed through landfill and an increase in recycling. This also reflects a wider change in attitudes towards waste, which are increasingly centred on waste reduction, reuse and recycling, as well as recovering energy from waste. The new Government wishes to embed these developments to contribute towards its overarching goal of making the transition to a 'green economy'.

1.2 In broad terms, a green economy is one that seeks to achieve economic growth without undermining the capacity of the environment to support long term quality of life. The Government is keen to introduce policies that create the conditions for the growth of the waste management sector as well as those that support action on climate change. Early on in reaching office, the Government announced a comprehensive review of waste policies in order to, amongst other things, find ways of producing less waste and, for the waste that is produced, ways in which energy can be recovered. The Waste Review will be published June 2011.

1.3 The Government believes that there are considerable market opportunities that businesses can exploit in the transition to the zero waste, green economy. Indeed, under the previous government, the Departments for Business Innovation and Skills (BIS), and the Environment Food and Rural Affairs (Defra), identified that the 'business of waste' presented major opportunities for UK companies across the entire supply chain, from product design and manufacture, through to management, recovery and reuse of materials.[5] However, given the evolution of the waste management sector, there is limited data about its composition, size and, overall, economic contribution to the UK economy. Indeed, there is no agreed definition of sector, which sets out its various constituent activities. This study was commissioned by BIS to address this gap in knowledge and to identify the types of actions the Government could take to create the conditions for sectoral growth and help businesses maximise the opportunities available to them.

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[2] http://ww2.defra.gov.uk/news/2010/06/15/caroline-spelman-waste/
[3] The Landfill Directive (1993/31/EC) was adopted by the EU in 1999.
[4] Defra (2004) Explanatory Memorandum to the Landfill Allowances and Trading Scheme (England) Regulations 2004. c.f. Audit Commission (2008) *Well Disposed: Responding to the Waste Challenge*. London: Audit Commission (page 15).
[5] BIS and Defra (March 2010) *Less is More: Business Opportunities in Waste and Resource Management.* London: Defra.

Aims of the Study

1.4 The study has four objectives, which are summarised in Table 1.1 and identifies in which part of the report each is addressed.

Table 1.1: Research Objectives	
Objective	**Report Coverage**
Identify the groups of economic activities that comprise the waste management sector.	The EU definition of the waste management sector has been used as a starting point and has been refined following consultation with industry experts. A definition of the sector is given in chapter two. This chapter also identifies the waste types handled by businesses responding to the study survey and the different types of waste management activities they undertake.
To quantify the economic activity, number of companies, and employment of those groups of activities identified on objective one.	This is undertaken in chapter three where a combination of primary and secondary data sources have been used to calculate the size of the sector in terms of the number of businesses which are operational and the size of the workforce. Estimates are given for the sector as a whole and the size of its key sub sectors. By including the contribution of local authorities, the chapter provides an estimate of the economic value of the sector and its contribution to Gross Value Added (GVA).
To develop a methodology to explain the data collected in objective two.	This is undertaken in Appendix two, a technical note which explains the way in which the calculations made in chapter two have been undertaken. The limitations of primary and data sources are outlined, as are the assumptions underlying the 'grossing up' of data, in chapter 3.
Use the data collected under the second objective to analyse the waste management sector, focusing on employment and economic output, as well as the barriers that prevent the industry from maximising its value.	This objective is addressed in two parts of the report. Chapter three presents an economic analysis of the sector, detailing its size and value across different activities and sub sectors. Chapter four draws on primary research with industry experts as well as survey respondents. It sets out the way in which the sector has changed, and identifies the drivers of, and barriers to, growth. It also summarises the actions that businesses would like the Government to undertaken to enable them to maximise their economic potential.

Research Methods

1.5 The study has drawn on a combination of primary and secondary data sources, as summarised below. Greater detail is given in Appendix two about how they were used to quantify the size and value of the economic sector. The research methods used are as follows:

- **Consultations** with industry experts and local authorities on their views about what constitutes the waste management sector, the way in which it has changed, future drivers of growth and any barriers that may impede sectoral development. Table 1.2 lists the organisations that were consulted.

Table 1.2: List of organisations consulted as part of the study	
Role	**Organisation**
Head of Market Knowledge	WRAP
Economist	Environmental Services Association
Policy Adviser	Anaerobic Digestion and Biogas Association
Director General	British Metals Recycling Association
LARAC Policy Officer	Tees Valley Unlimited
Researcher	Defra Waste Evidence Branch
Partnership Manager	Kent Waste Partnership
Data and Intelligence Team	Environment Agency
Director General	Waste Management Industry Training and Advisory Board
Chief Executive	Chartered Institution of Waste Management

- **Secondary data analysis** – The study drew on national datasets, based on Standard Industry Classifications (SIC) to identify the size of the workforce and the number of businesses operating in the waste management sector. This analysis is presented in chapter 2.

- **Analysis of Environment Agency databases** – To comply with EU and UK regulations, the Environment Agency is responsible for issuing permits and licenses to organisations transporting, treating and disposing waste. The Agency keeps a database which records those organisations that are waste carriers or brokers. Specific permits and licences are required when handling different waste streams and undertaking different activities. Organisations that have been granted permits or licence are recorded on a separate database. The Environment Agency keeps a third database of those organisations that deal with waste but are exempt from acquiring a permit or licence. Appendix three provides a brief analysis of each database. They formed a key part of the jigsaw for calculating the size and value of the sector. They also provided the sampling frame for administering an online survey.

- **Online Survey** – An online survey was sent to all the businesses with email addresses recorded on the Environment Agency's databases (44,369[6] organisations). The survey was sent to businesses for whom waste management is peripheral or one of many activities, such as those operating in the construction sector that need a licence or permit to deal with different kinds of building waste. It was necessary to include them in the survey because the Agency's databases do not specify the sector in which each business operates and there was no means of distinguishing between core and peripheral waste operators. The survey sought to overcome this issue by asking respondents to specify what proportion of their business/work is related to waste management. With duplications[7] removed, the survey was sent to all organisations recorded on the three Environment Agency databases.

  The survey secured responses from 1,251, businesses representing a response rate of 2.8%. It was designed to capture the waste streams being handled, the types of

[6] Out of a total of 128,000 companies registered on one of the three databases.

[7] It is possible that some company duplications still exist (for instance companies with misspelt names or who are subsidiaries with different names).

activities being undertaken and the number of sites being managed by a single operator. In order to calculate the size and value of the sector, the survey also sought to find out the number of people employed by each organisation and waste management activity, their turnover and profits, together with any plans they have for capital investment. Finally, to inform future Government policy, the survey examined the barriers to sectoral growth and asked respondents to identify the way in which the Government could help them maximise their economic potential.

Report Structure

1.6 The report is structured as follows:

- Chapter two defines the waste management sector and provides an overview of its composition and the types of activities undertaken based on official statistics and survey findings.
- Chapter three draws on primary and secondary data and calculates the size of the waste management sector as a whole, as well as that of its component sub sectors. The size of the workforce is calculated as well as the sector's GVA and contribution to the economy.
- Chapter four presents a qualitative analysis of the survey findings, focusing on the drivers of change, barriers to growth and the potential role of Government. Survey findings have been augmented with data gathered from consultations with industry experts.
- Chapter five sets out the study conclusions and proposes ideas to inform future policy making.
- Appendix one provides a detailed description of the activities comprising the waste management sector as defined by this study and those falling out of its scope.
- Appendix two provides a technical note of the way in which the size and value of the sector has been calculated.
- Appendix three provides a brief analysis of the datasets supplied by the Environment Agency.

2 OVERVIEW OF THE WASTE MANAGEMENT SECTOR

2.1 This chapter begins by addressing the first objective of the study, identifying the groups of activities that fall within the waste management sector. The sector is highly regulated and the second section identifies the key regulations and policies that have shaped it over the last decade or so.

2.2 Those operating in the waste management sector include local authorities, a relatively small number of large private employers, and a large number of small to medium sized enterprises (SMEs). The second section of this chapter outlines the remit of local authorities with regards to waste management and the numbers that are involved with discharging these functions. The third section draws on official statistics and provides an estimate of the number of businesses operating in the sector and the size of its workforce.

2.3 There are limitations to official statistics, which is one of the reasons why this study was commissioned. The study has been designed to provide more fine grained analysis about the types of activities being undertaking in the waste management sector and their economic value. To do so, a survey was sent to organisations involved in waste management and the sample responses aggregated to calculate the size and value of the overall sector and its sub sectors. This analysis is undertaken in chapter three, with the final section of this chapter presenting some of the data upon which it is based. Specifically, it provides a profile of respondents to the survey and outlines the extent to which it is representative of the total population.

A Definition of the Waste Management Sector

2.4 The legal definition of waste is set out in the 1975 European Waste Framework Directive and retained in the latest, revised Directive 2008 where it is defined as, *any substance or object…which the holder discards or intends or is required to discard*.[8] Within this, waste streams are employed to categorise particular types of waste which may be produced by individuals or organisations. Primarily these are:

- Municipal waste;
- Industrial and commercial waste;
- Construction and demolition waste;
- Extractive (mining) waste;
- Agricultural waste; and
- Hazardous waste.

2.5 Waste can be further classified into more specific streams which identify the particular type of waste, often with attendant regulations relating to its collection, transport, treatment and disposal.

2.6 The EU Waste Framework Directive defines waste management as: *the collection, transport, disposal and recycling of waste, including the supervision of such operations and*

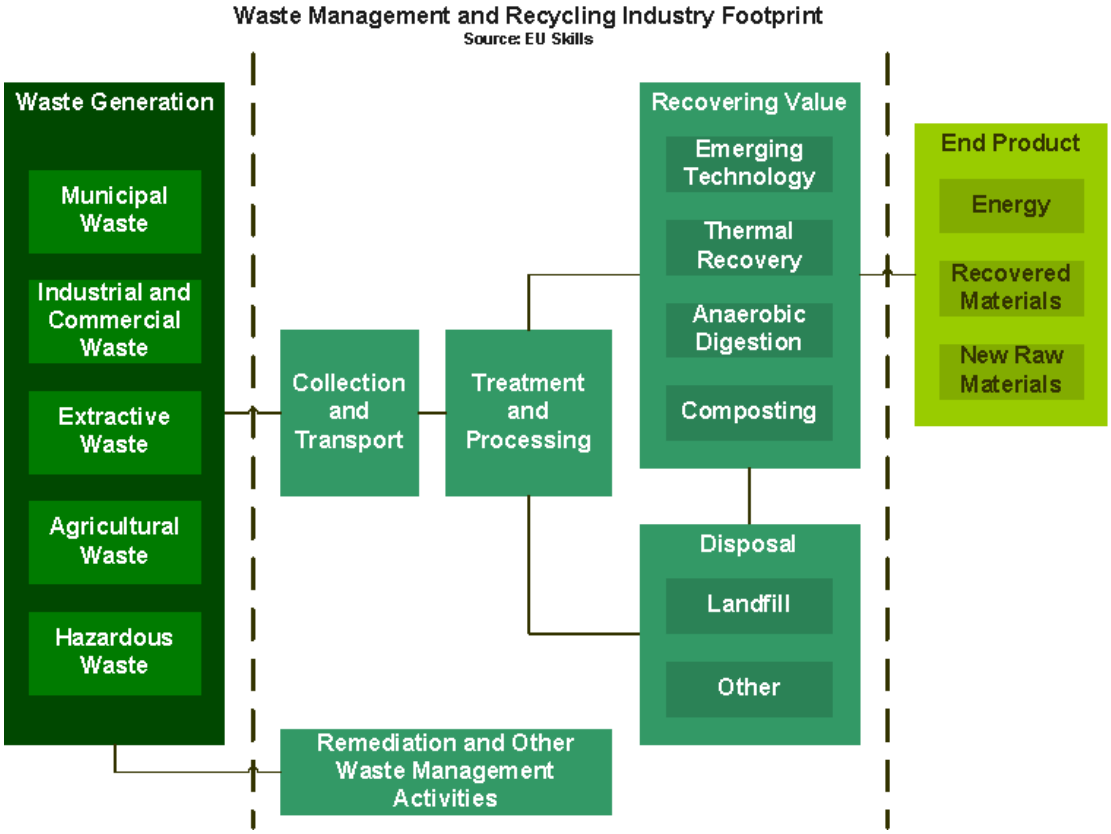
[8] C.f. EU Skills (2010) *The UK Waste Management and Recycling Industry 2010 Labour Market Investigation*. Solihull: EU Skills (page 4).

the after-care of disposal sites, and including actions taken as a dealer or broker.[9] A range of activities make up the sub sectors of the waste management and recycling industry. EU Skills identifies the following as the core operations:

- Waste collection and transport;
- Transfer stations and Household Waste Recycling Centres;
- Energy from waste (including thermal recovery processes and anaerobic digestion);
- Recycling, processing and specialist operations; and
- Landfill.

2.7 EU Skills illustrate these core activities (see Figure 2.1 below)[10]. Appendix one outlines in the activities comprising the sector in greater detail.

Figure 2.1



2.8 This study used the EU Directive's definition of the waste management sector as starting point and then consulted with a range of industry experts about its suitability. Experts were asked about the extent to which the definition captured the full range of core activities and whether there was a need to widen or narrow its scope. They were also asked about the point at which recycling becomes another non-waste management activity.

[9] C.f. EU Skills (2010) *The UK Waste Management and Recycling Industry 2010 Labour Market Investigation*. Solihull: EU Skills (page 3).

[10] Whist recognising exports of recovered material account for a not insignificant proportion of non-fossil fuel exports, the study steering group considered value from exported material to be outside of the study scope.

2.9 Respondents believed the definition captured the general remit of the sector, but most identified ways in which this could be enhanced to include integral activities and organisations. There was a consensus that waste management activities undertaken by local authorities should be included in a revised definition of the sector. There was acknowledgement that the voluntary and community sector plays a role, with some of its activities, such as textiles recycling, seen to be increasingly of high economic value. However, as the focus of this study is upon the size and scale of the commercial waste management sector, the third sector has been excluded.

2.10 Following the consultation programme, the EU Directive description of the waste management sector was revised as follows: *Local authorities and businesses engaged in one or more of the following activities:*

- Re-use of products to divert waste at source;
- Collection and transport;
- Sorting and storing;
- Recovery of value and materials and treatment of waste to remove pollutants; and
- Disposal of residual wastes.

2.11 The above definition was further refined in light of the consultation programme and analysis of the Environment Agency's database. For the purposes of this study, the waste management sector is defined as local authorities and businesses engaged in one or more of the activities detailed in Table 2.1. A brief description of each is provided.

Table 2.1: Waste Management Activity Profiles
Re-use of products to divert waste at source Activity at the top of the hierarchy to minimise the amount of material entering waste management processes. This activity is relevant across all sectors, cuts costs and can have an impact on the image of the business.
Collection and transport Much of the collection and initial transport of municipal waste is undertaken by local authorities and some is contracted out to large private companies. Short term trends in this activity may be influenced by the local authority spending reviews.
Brokerage of waste This involves arranging the collection, recycling, recovery or disposal of controlled waste on behalf of another organisation, without ever taking possession of or storing the waste. This also includes buying and selling scrap metal and other recoverable materials. There is anecdotal evidence to suggest the adverse effect of the downturn on the construction industry has affected waste brokerage activity.
Sorting and storing The sorting and segregation of waste within recycling plants and materials recovery facilities (MRFs), is expected to become an increasingly mechanised process, including the use of mechanical biological treatment (MBT) processes to separate waste streams. This is expected to reduce labour demand.
Disposal through landfill There has been a major political drive to reduce the amount of disposal through landfill. The increasing financial pressure to seek alternative means of disposal is expected to continue to drive long term change in the sector.
Disposal through incineration This involves the incineration of waste from an off-site source and the long term trends in this sub sector are as above.
Treatment of waste Is comprised largely of: • *Non-hazardous waste:* includes sorting, crushing, baling of waste plastic and paper,

Table 2.1: Waste Management Activity Profiles

treatment/recovery of packaging waste, glass recycling, wood treatment and recycling, and gypsum and plasterboard recycling.

- *Hazardous treatment:* tends to refer to oils and/or solvents or other hazardous wastes rather than a treatment method.
- *Other biological treatment:* a range of activities, including treatment of sludges, leachate and effluents.
- *Waste electrical and electronic equipment (WEEE) treatment:* treatment of WEEE for recovery purposes, including sorting, dismantling, shredding, grading, baling, crushing and compacting. Some facilities carry out metal recycling as a secondary activity.
- *End of life vehicle dismantling*: The reuse of parts and the reclamation of materials from motor vehicles
- *Battery treatment*: reprocessors of used batteries.
- *Ship dismantling:* dealing with end of life ships, recovering materials such as metals and disposing of hazardous components.
- *Clinical waste:* treatment of wastes produced by human and animal healthcare activities, some of which are considered infectious.
- *Ozone-depleting substances (ODS):* removal of ODSs for recovery, usually from waste refrigeration units.
- *Tyres:* sort, shred, crumb or otherwise treat tyres for recovery purposes.
- Other specialist treatment sub-categories are inert/construction waste treatment, container recovery and reactivation of granulated carbon.

Recycling and Processing of recyclate

- Recycling, sorting and recovering recyclable materials. This very broad definition inevitably covers a range of different activities including the recycling of textiles, plastics and so forth.

The recovery, recycling and reuse of waste using technologies, such as MBTs, has substantially increased as disposal through landfill has fallen out of favour. The drive towards more cost effective means of disposal is expected to continue.

Composting

- Treatment of organic, biodegradable waste by decomposing in the presence of oxygen to produce a soil improver or conditioner.

Social environmental awareness may increase trends in household composting. Infrastructure development for larger scale composting may be favoured in rural areas where there is greater demand for the end product.

Energy recovery

Includes:

- *Anaerobic digestion*: treatment of biodegradable waste via a process in which natural bacteria break it down in an oxygen-free atmosphere, producing biogas and digestate.
- *Burning of waste-derived fuels*: such as gas (biogas, landfill gas), biodiesel and RDF, to produce energy.
- *Other waste-to-energy technologies*: such as pyrolysis and gasification.

Development and use of energy from waste processes as an alternative to landfill have increased over recent years.

2.12 For the purposes of this study, a counterfactual test devised by WRAP is used to identify the point at which the treatment of waste is no longer part of the core sector. The primary function of the activity is examined and if a substitute material could be used instead of recycling material then it is considered to be outside the scope of the sector. For example, the primary function of a newsprint mill is to produce newsprint and not to recycle paper. If recycled paper were not available, virgin raw materials would be used instead. As a result, a paper mill is not considered to be part of the waste management sector. Table 2.2 illustrates this point for the main recycling materials.

Table 2.2: Boundary process for main recyclates		
Material	**End process**	**Out of Scope**
Paper	Baling process	• Paper mill
Glass	Cleaning and chopping the glass	• Glass manufacturers
Metals	Recovery of materials from cars, construction waste, appliances etc.	• Steelworks
Wood	Wood recyclers Waste directive compliant boiler users	• Wood panel makers • Animal bedding suppliers
Textiles	Sorting, grading and baling of textiles Mechanical Recycling/re-processing	• Mattress/upholsterers • Automotive materials • Horticultural matting • Building insulation materials • Carpets/underlay • Charity shops
Plastics	Sorting and baling Turning into pellets/flakes by plastic recyclers	• Bottle manufacturers • Manufacturer of bins • Wood replacement plastic
Source: WRAP		

Regulation and Directives

The EU Waste Framework Directive (WFD)

2.13 As noted above, the EU WFD contains the legal definition of waste as well as imposing legal requirements on member states about the way in which waste is managed. In 2008, a revised WFD was introduced, amending some articles of the preceding Directive. The UK (and other member states) had until December 2010 for implementing the new WFD.

2.14 The aim of the revised WFD is to promote waste prevention, increase recycling, and ensure better use of resources, while protecting human health and the environment. It re-enacts much of the previous Directive, and leaves the legal definition of waste unchanged. However, it also contains a number of new features. It requires all member states to:

- Apply the waste hierarchy as a priority order in waste prevention and management legislation and policy;
- Establish separate collections of waste, at least for paper, metal, plastic, and glass by 2015 where technically, environmentally and economically practicable. This applies to both household and business waste;
- Recycle 50% of waste from households by 2020;
- Recover 70% of construction and demolition waste by 2020.

WEEE: Waste Electrical and Electronic Equipment (WEEE)

2.15 The WEEE Directive was introduced into UK law in January 2007 by the Waste Electronic and Electrical Equipment Regulations 2006. It aims to reduce the environmental impact of electrical and electronic goods by increasing re-use and recycling and reducing the amount of WEEE going to landfill. Under the Directive:

- **Distributors** have an have an obligation to give householders the opportunity to return old equipment (WEEE) free of charge when they purchase a replacement or an item of new equipment which serves a similar purpose;
- **Producers** of electrical and electronic equipment have obligations to finance the collection, treatment, recovery and recycling of WEEE separately collected at designated collection facilities (DCFs). The level of producer obligation is determined by their market share and the amount of WEEE arising.

2.16 The legislation also affected business end-users, as well as those in the waste management industry that want to establish WEEE approved treatment facilities (ATFs) and export WEEE for re-use overseas. Indeed, since the legislation became operational, an infrastructure to facilitate the collection, treatment and reprocessing of WEEE has been developed. As of the end of 2010, it is estimated that over 1,100 local authority controlled designated collection facilities had been established at civic amenity sites allowing households to dispose of WEEE themselves. Other designated collection facilities are being operated by commercial or third sector organisations. In the 2010 compliance period, there were over 5,800 producers registered across the UK.[11] Revisions to the existing WEEE regulations are currently subject to negotiations in Europe.

The End of Life Vehicles Directive (ELV)

2.17 The EU ELV Directive was launched in 2000, aiming to reduce the amount of waste from vehicles (cars and light goods vehicles) when they are finally scrapped. It includes tightened environmental standards for vehicle treatment sites and requires that the last owner must be able to dispose of their vehicles free of charge. The Directive also sets rising reuse, recycling and recovery targets and restricts the use of hazardous substances in both new vehicles and replacement vehicle parts

2.18 The UK transposed some of the Directive's requirements through its 2003 ELV Regulations. This included setting the improved standards for vehicle treatment sites, some new technical standards applicable to new vehicles and the establishment of a Certificate of Destruction system. The remaining, largely producer responsibility, provisions were the subject of the 2005 Regulations, which set out the requirements for vehicle producers to have available networks of facilities where last owners of their brands of vehicles may take them for treatment at the end of product life. These facilities were required to be provided free of charge from 1st January 2007 (where vehicles are largely complete and have not had extra waste added). The 2010 Regulations make some amendments to the 2003 and 2005 Regulations.

The Batteries Directive

2.19 The EU Batteries Directive aims to reduce the impact on the environment of the manufacture, distribution, use, disposal and recovery of batteries. The Directive has been implemented in the UK by the Batteries and Accumulators (Placing on the Market) Regulations 2008 and the Waste Batteries and Accumulators Regulations 2009. The 2009 Regulations set out the rules for collecting, treating and recycling all types of batteries in the UK. A distinction is made between *primary (single use)* and *secondary (rechargeable, accumulators)* battery cells, and industrial, automotive and portable batteries. Industrial and

[11] http://www.environment-agency.gov.uk/business/topics/waste/32086.aspx

automotive batteries are subject to a landfill disposal ban while portable batteries are subject to rising reuse, recycling and recovery targets.

2.20 The Regulations place certain responsibilities on producers, distributors, waste battery treatment sites and waste battery exporters. The Directive states that batteries must be marked appropriately and can be readily removed from appliances for end of life disposal. The Regulations apply to all types of batteries with the following requirements imposed on those placing batteries on the market:

- Batteries placed on the market must not contain the hazardous substances at above the maximum permitted concentration values;
- Products must be designed in such a way that the battery can be readily removed when it comes to the end of its life allowing it to be easily and appropriately recycled;
- The battery or accumulator must be marked with the crossed out wheeled bin symbol which should be printed clearly, visibly and indelibly.

The Packaging Directive

2.21 The European Parliament and Council Directive on packaging and packaging waste was introduced in December 1994 in response to diverging national legislation in several Member States that threatened to collapse the secondary raw material market. The Directive aims to prevent or reduce the impact of packaging and packaging waste on the environment and to ensure the functioning of the secondary raw material market. It contains provisions on the prevention of packaging waste, on the re-use of packaging and on the recovery and recycling of packaging waste. The Directive has helped driven the UK Packaging Waste Recovery Note (PRN) system, whereby companies that are unable to meet their recycling obligation pay for the recovery and recycling of an equivalent amount of packaging to offset their obligation.

The Municipal Sector

2.22 Local authorities are responsible for the management of municipal waste. Much of the collection and initial transport of municipal waste is carried out by them, although some is contracted out to large private companies. Depending on their status, local authorities fall into one of three categories with regards to municipal waste management:

- Collection authorities responsible for the collection of municipal waste within their area;
- Disposal authorities responsible for providing disposal sites, which are used by the waste collection authorities;
- Unitary authorities responsible for both collection and disposal.

2.23 The number of local authorities within each category, by region, is summarised in Table 2.3. Overall, there are 394 authorities in England employing individuals in waste management roles.

Table 2.3: Waste Collection, Disposal and Unitary Local Authorities				
	Waste Collection	**Waste Disposal**	**Unitary**	**Total**
North East	13	2	10	25
North West	38	5	5	48
Y&H	7	1	14	22
East Midlands	36	5	4	45
West Midlands	24	4	10	38
Eastern	44	6	4	54
London	21	4	12	37
South East	55	7	12	74
South West	35	6	10	51
England	**273**	**40**	**81**	**394**
UK	**273**	**43**	**161**	**477**
c.f. EU Skills (2010) *The UK Waste Management and Recycling Industry 2010 Labour Market Investigation* (page 7).				

2.24 Regulation has played an important role in influencing the way in which local authorities deliver services with the two most significant pieces of legislation comprising the 2002 Landfill Directive and the 2003 Household Waste Recycling Act. The Landfill Directive set targets to reduce the level of biodegradable municipal waste that is landfilled. The Directive has been implemented through the Waste Emissions Trading (WET) Act 2003 via the following mechanisms:

- Specifying the maximum amount of biodegradable municipal waste that can be sent to landfill from each country in the UK;
- The preparation of strategies by each UK nation state for reducing the amount of biodegradable waste going to landfills;
- The allocation of landfill allowances to waste disposal authorities, which can be tradable; and
- Details of the landfill allowances scheme being established in subordinate legislation by the appropriate authority in each country of the UK.

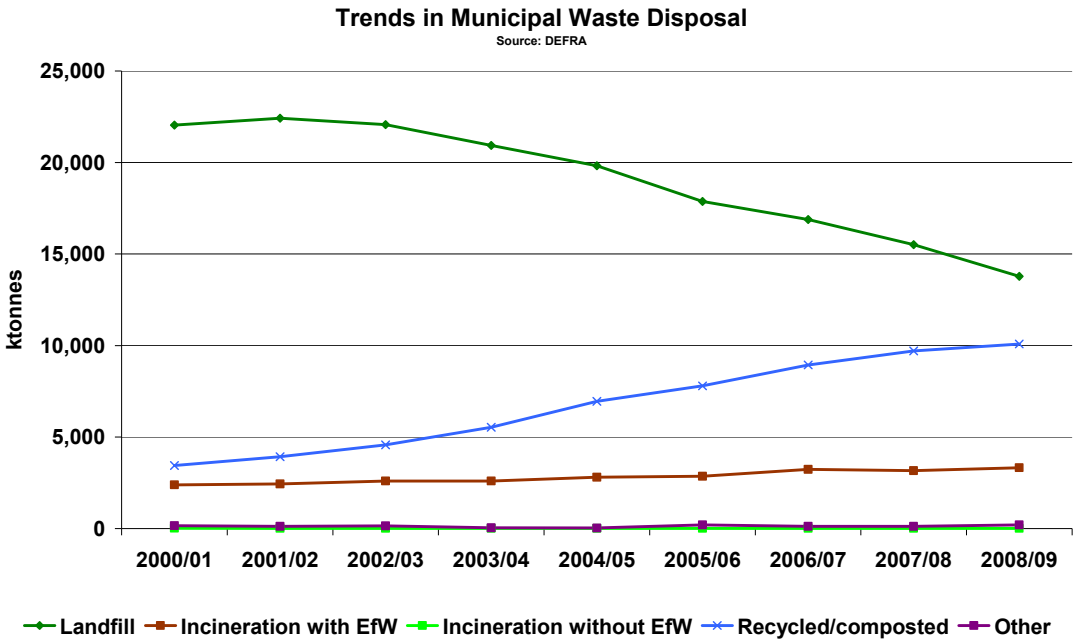
2.25 The Household Waste Recycling Act requires authorities in England to collect at least two separate recyclable fractions of household waste by 2010.

2.26 As shown in Figure 2.2, partly as a result of legislation requirements and partly as a result of pressure from the public to act on environmental concerns, there has been a shift in the way in which municipal waste is disposed. It can be seen that over the last ten years, the proportion of municipal waste that is sent to landfill has declined whereas the proportion that is recycled has increased. In 2001/02, 79% of all municipal waste was land-filled and by 2008/09 this had declined to 50%. Conversely, recycling increased from 12% to 37% over the same period.

2.27 Similarly, incineration with energy recovery has also seen a growth as waste disposal authorities have sought alternatives to landfill driven by both the Landfill Directive and economic incentives for renewable energy. Augmenting this has been the Waste Infrastructure Delivery Programme, which supports the procurement of waste treatment infrastructure by local authorities. Its objective is to ensure sufficient capacity is delivered to meet the landfill diversion targets set by the EU Landfill Directive.

2.28 One of the consequences of the Waste Infrastructure Delivery Programme is that it has been necessary to issue long term contracts (e.g. 25 years) to support some large infrastructure projects such as incinerators, which require a long pay back. PFI was an important funding mechanism for some of those waste infrastructure projects. However as part of the 2010 Spending Review, Defra withdrew PFI credit from seven projects, on the basis that they will no longer be needed in order to meet the 2020 landfill diversion targets set by the European Union. Stakeholders suggest that the absence of PFI credits for waste infrastructure and concerns over committing waste streams for such long periods will make smaller energy from waste facilities more popular in future years.

Figure 2.2



Commercial and Industrial Waste Arisings

2.29 Total commercial and industrial (C&I) waste generation in England, in 2009, is estimated to be 48.0 million tones. This is a decrease of 29% from 67.9 million tonnes since the last national survey of business waste in 2002/03. Fiscal measures such as the Landfill Tax have been a key driver of this downward trend. The industrial sector accounts for 24.2 million tonnes and the commercial sector 23.8 million tonnes.

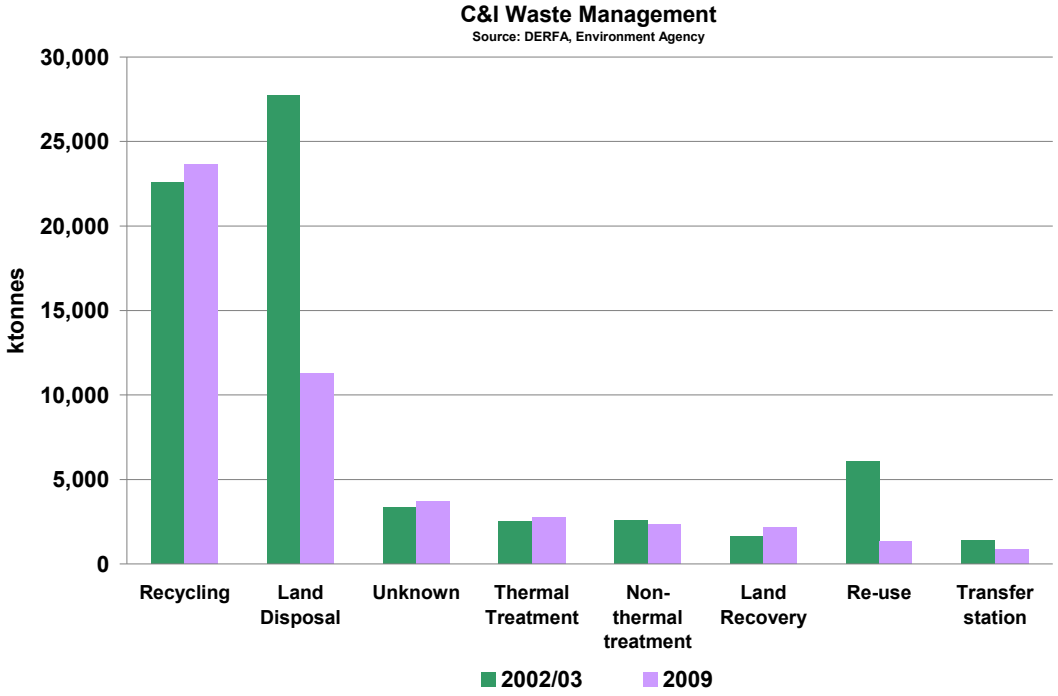
2.30 Figure 2.3 illustrates the method by which C&I is managed and the way in which it has changed since 2002/03. Clearly, there has been significant decrease in waste going to landfill and overall reduction on volume of waste. Partially, this may reflect the reclassification of some waste streams as by-products rather than waste, specifically blast furnace slag and virgin timber), but this is only believed to account for 2.5 million tonnes.[12].

2.31 Industrial wastes have declined by 13.4 million tones (36%) since 2002/03 and commercial waste has declined by 6.5 million tones (21%) in the same period. There has been an increase in the proportion of C&I waste being recycled or reused in England and a

[12] Defra (December 2010) *Survey of Industrial and Commercial Waste Arisings 2010: Final results*. Defra.

decrease in the proportion being sent to landfill.[13] In 2002/03, 41% of C&I industrial waste was landfill compared to 23% in 2009. Conversely, whereas 42% of C&I waste was recycled and reused in 2002/03, this had increased to 52% in 2009.

Figure 2.3



2.32 The commercial and industrial sector is a competitive market, with waste management companies providing services to industry to collect and dispose of their waste. In some areas, local authorities operate a trade waste service, but they are not required to do so. Contracts between waste management companies and businesses are very different to those with the local authorities because they have a different remit and scope. Waste management companies collecting waste from the commercial and industrial sector take waste to treatment facilities, which have the relevant permits and permissions to accept trade/industrial waste. Similarly, local authorities provide Household Waste Recycling Facilities which businesses are not permitted to use by law.

Official Statistics and the Size and Composition of the Sector

2.33 Existing secondary data provides an insight into the size of the waste management sector in England. This section draws on the Annual Business Inquiry (ABI) dataset and the Business Register and Employment Survey (BRES) to identify the number of businesses operating in the sector and the size of its workforce. These datasets are based on Standard Industrial Classifications (SIC), which are periodically changed to reflect changes in economic activities. The most recent change in codes occurred in 2007 and the one previous to this in 2003. Although the 2007 SIC codes do not fully capture the different activities within the waste management and recycling industry, they are generally regarded to provide a clearer definition than 2003. To present a profile of the sector's composition using 2007 codes over

[13] Defra (December 2010) *Survey of Industrial and Commercial Waste Arisings 2010: Final results*. Defra.

time, it has been necessary to reclassify data from 2003–2006. Table 2.4 presents the 2003 SIC codes and their corresponding codes in 2007.

2.34 There are two other limitations to official datasets. First, any information marked as disclosive is removed from the data in order to be compliant with requirements of the Statistics of Trade Act. Second, they do not include local government employees working within the sector.

Table 2.4: Description of SIC Codes for the Waste Management Sector

SIC 2003	SIC 2003 Description	SIC 2007	SIC 2007 Description
9002	Collection and treatment of other waste	3810	Waste collection
		3820	Waste treatment and disposal
3710	Recycling of metal waste and scrap	3830	Materials recovery
3720	Recycling of non-metal waste and scrap		
9003	Sanitation, remediation & similar activities	3900	Remediation activities and other waste management services
5157	Wholesale of waste and scrap	4677	Wholesale of waste and scrap
Source: ONS			

2.35 Alongside the periodic changes to SIC codes, in 2010, the ABI was replaced by the BRES and this data is used to identify the size of the workforce for 2008 and 2009, the latest available. Given the changes in the way in which BRES data is collected, it is necessary to apportion the latest data to enable the two datasets to be compared.

Official Statistics – The Number of Businesses

2.36 ABI data shows there were 5,152[14] businesses operating in the waste management sector in 2009 in England. This represented a 42% increase from 2003 when the sector comprised around 3,600 businesses. The largest annual increase in the number of businesses took place between 2004 and 2005, where the stock grew by 9% from 3,900 to 4,300. See Figure 2.4.

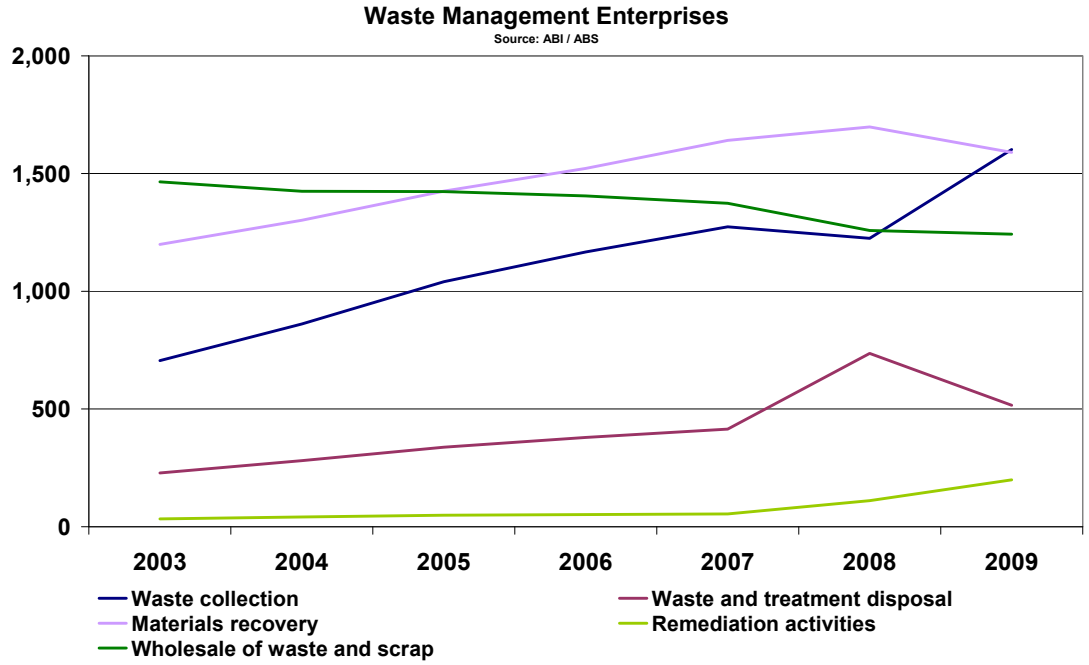
2.37 Not all sub sectors have experienced growth. Notably, the wholesale of waste and scrap sub sector decline by 15% over the 2003–2009 period, although it continues to make up 24% of the total sector (1,300 businesses).

2.38 In percentage terms, the sub sector that has benefited from the biggest increase is remediation activities, which grew by 502%. In 2003, there were only 33 businesses working in this sub sector and by 2009, this had increased to 200. Nonetheless, remediation activities continue to comprise a very small share of the total sector (4%).

2.39 The waste collection and the waste treatment sub sectors both experienced 125% growth in business numbers over the last six years. Whereas the former represents a third of the sector (1,600 businesses), the latter accounts for a tenth (500 businesses).

[14] UK data shows there are 6,150 waste management businesses. Equivalent data for England is not available at the four digit SIC level required to define the sector and so the UK figure has been apportioned.

Figure 2.4



Official Statistics – The Number of Businesses by Size-band

2.40 As shown in Table 2.5, the waste management sector is predominately made up of micro businesses (80%) with large employers comprising less than 1% of the business stock. This pattern is evident across all sub sectors, with a couple of notable observations. The waste treatment and disposal sector has the highest (sub sectoral) proportion of large employers (3%) and the lowest (sub sectoral) proportion of micro enterprise (65%). By contrast, with a very narrow margin, the wholesale of scrap and waste has the highest sub sectoral proportion of micro employers (85%) and the smallest share of large employers (0.3%). That said, by far the highest share of enterprises with less than five employees can be found in remediation activities (73%).

Table 2.5: The number of UK businesses by size-band in the waste management sector, 2009		
0–4	3,910	63.8%
5–9	1,025	16.7%
10–19	615	10.0%
20–49	395	6.4%
50–99	105	1.7%
100–249	40	0.7%
250+	35	0.6%
Total	**6,125**	**100%**
Source: ABI. Note: Data for England is not available at the four digit SIC level required to define the sector.		

2.41 Typically, large private sector employers offer comprehensive waste management services, which include collection, transport, sorting and treatment of most waste streams, although some have a specialised focus on certain treatment and disposal methods. These organisations tend to operate nationally or internationally. They have the greatest interest in securing and delivering large scale contracts for the collection and treatment of waste, particularly for local authorities and larger businesses producing high volumes of commercial

and industrial waste. The large commercial operations also develop and manage the majority of waste treatment facilities in the UK.

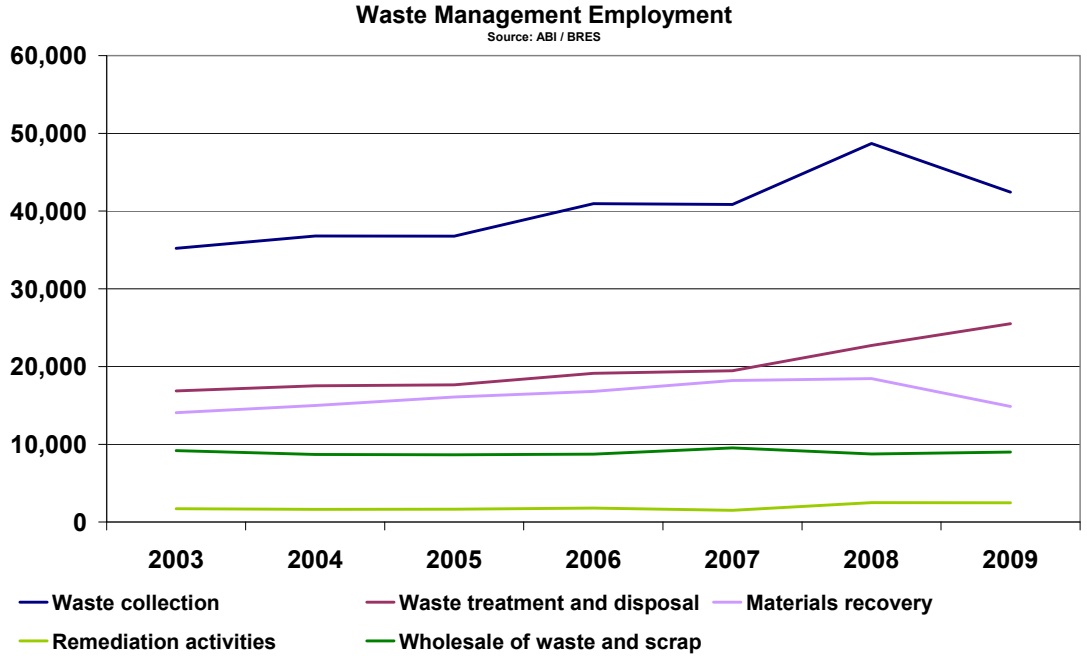
2.42 SMEs tend to deliver more localised services in the collection and, to some extent, treatment of waste. Relatively low overheads mean that they can compete on price with larger companies in more localised markets. However, in general, they do not have the capacity to deliver large scale contracts for big commercial waste producers or local authorities. Instead, they deliver contracts and ad-hoc services for small businesses and households. Some of them also provide services treating specialist waste streams, such as waste electrical and electronic equipment (WEEE), or they offer innovative treatment and recycling solutions, including those which pioneer new technologies. Overall, the majority of SMEs provide services for the collection and preliminary sorting of waste, which they will contract larger operators for treatment or disposal.

Official Statistics – The Number of Employees

2.43 In 2003, there were nearly 78,000 people working in the waste management sector. The number of employees steadily increased over the next five years, reaching a peak of 77,000 in 2008 – an increase of just over 31%. However, the economic recession has had a significant impact on the sector, not least because many businesses deal with building waste and the construction sector, which itself was severely affected. As a result employment fell to 94,000 in 2009, although this remains much higher than 2003.

2.44 As shown in Figure 2.5, the highest number of employees work in the waste collection sub sector, on average accounting for 46% of the sector's workforce. There has been a small amount of the fluctuation in the sub sector's proportion of the total workforce each year with the lowest in 2003 (44%) and the highest in 2008 (48%).

Figure 2.5



2.45 There has been an ongoing increase in the number and proportion of people working in waste treatment and a decline in those employed in the wholesale of waste and scrap. For

instance, in 2003, 22% of the sector's workforce was employed in waste treatment and disposal and by 2009 this had increased to 27%. The comparable figures for those employed in wholesale of waste and scrap are 14% and 10% respectively.

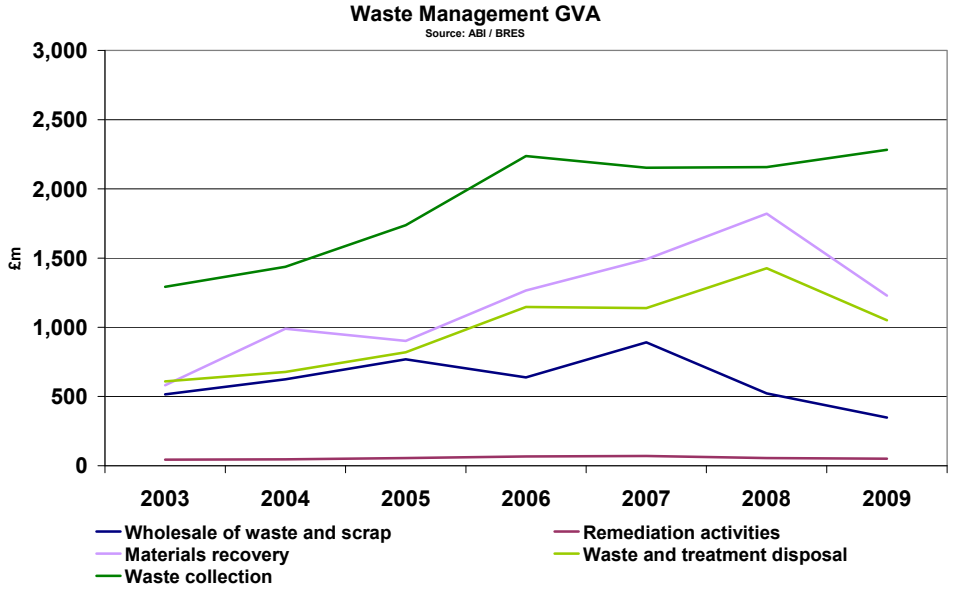
2.46 The number and proportion of people employed in materials recovery increased each year until 2008 and then the sub sector experienced a significant decline. In 2009, the number employed in the sub sector was only marginally higher than 2003.

Official Statistics – Gross Value Added

2.47 Figure 2.6 shows the GVA generated by the waste management sector for the UK. Annual ABI data shows that the sector's GVA virtually doubled between 2003–2008 from £3.042 billion to £5.745 billion. Following the economic downturn, GVA fell in 2009 to £4.962 billion.

2.48 By far the largest proportion of GVA is generated from waste collection. In 2009, it accounted for nearly half of the sector's GVA (46%). Two other sub sectors, materials recovery and waste treatment and disposal, generate a substantial proportion of GVA. The former has experienced significant fluctuations in GVA levels, ranging from 19% in 2003 to a high of 30% in 2008.

Figure 2.6



Official Statistics – 2009 Overview

2.49 Figure 2.7 compares the sub sectoral split of businesses, employment and GVA in the waste management sector in 2009 (the latest available data). It is evident that the relationship between the number of businesses, employees and GVA is not directly proportional.

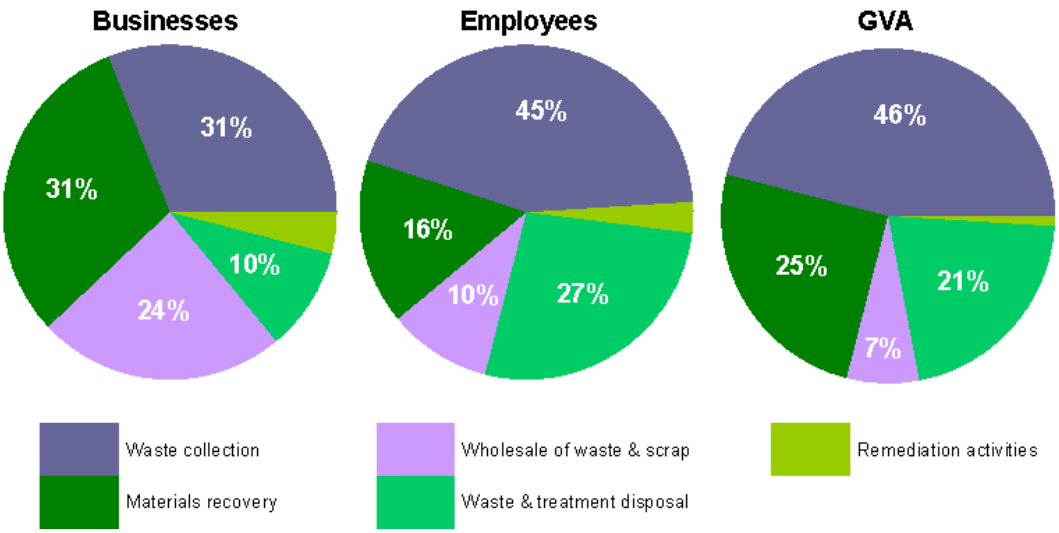
2.50 Waste collection comprises the highest proportion of businesses and employees. As with other sub sectors there is variation in the share of employment and workplaces. Notably, whereas waste and treatment disposal accounts for 10% of businesses, it employs over 25% of the sector's workforce. Virtually the reverse is evident for wholesale of waste and scrap.

2.51 A quarter of the sector's GVA is derived from materials recovery, yet accounts for less than a fifth of the workforce. This indicates a (relatively) a high number of businesses, employing probably no more than five people, are engaged in fairly high value activities. Similarly, whilst the wholesale of waste and scrap comprises a quarter of the sector's businesses, again, they appear to employ little more than five people in low value activities. Waste and treatment disposal is notable because is seems that a relatively small number of businesses employ over a quarter of the sector's workforce, generating a fifth of its GVA[15].

Figure: 2.7

Waste management sub-sector share of businesses, employees and GVA 2009

Source: ABS/BRES

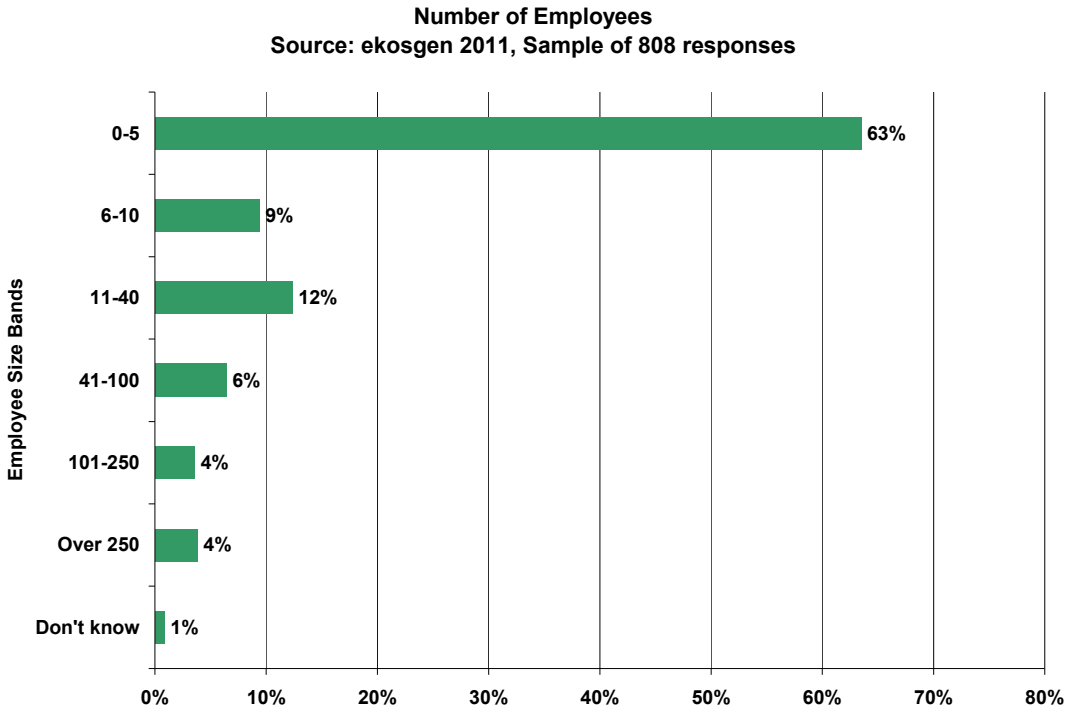


A Profile of Survey Respondents

2.52 The survey findings highlight that the sector comprises a large number of micro businesses, mostly managing a single site. As shown in Figure 2.8, the majority of organisations responding to the survey are small employers (85%) employing up to 40 people with micro employers comprising the largest cohort (63%). Indeed, 31% of respondents operate as sole traders, although nearly 60% operate as limited companies. Primarily, respondents manage a single site (41%) and only a small proportion (9%) manage six sites or more.

[15] This suggests the sub sector is characterised by a small number of large employers undertaking low value added activity.

Figure 2.8



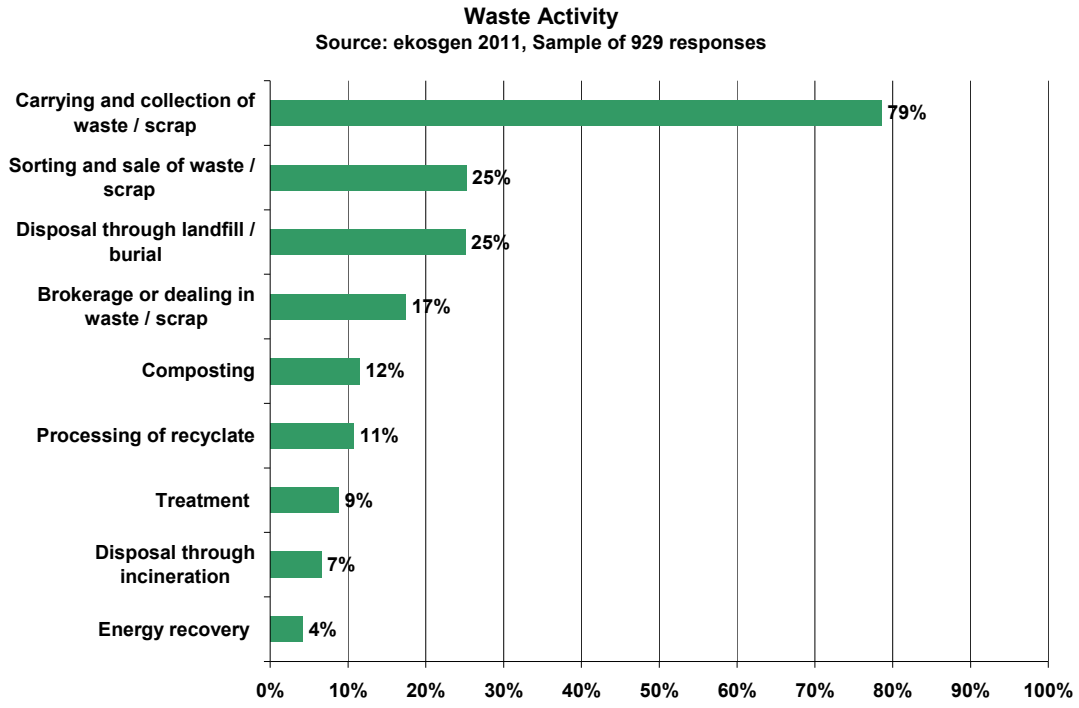
2.53 The profile of survey respondents in terms of workforce size is fairly similar to ABI data results. The size bands used in the survey vary slightly from ABI data and so exact comparisons are difficult to make, but Table 2.6 still gives a fairly good indication about the level of representation. The survey has received fewer responses from micro employers in proportion to their composition as determined by ABI data. The survey received a notably higher proportion of responses from medium sized and large employers. This will affect the employment extrapolations.

Table 2.6: Employee Sizeband – Dataset Comparison

ABI Data, 2009		**Survey Results**	
Size band	**% of sector**	**Size band**	**% of sector**
0–9	80.5%	0–10	73.5%
10–49	16.4%	11–40	12.5%
50–249	2.4%	41–250	10.1%
250+	0.6%	250+	3.9%
Total	**100%**	**Total**	**100%**
Source ABI 2009, ekosgen 2011, based on 801 respondents.			

2.54 As shown in Figure 2.9, almost fourth fifths of respondents are involved in the collection of waste. The two other most frequently cited activities include: the sorting and sale of waste, and disposal through landfill. A small proportion of respondents, less than 10%, are involved in various other waste activities such as recovering energy through waste, incineration and waste treatment. Many respondents are involved in multiple waste activities.

Figure 2.9



2.55 Table 2.7 compares the activities of the waste management sector as recorded by ABI with those reported by survey respondents. Exact comparisons are difficult to make because the survey provided a more detailed breakdown of activities than ABI and, also, respondents were able to identify all activities they engage in.

2.56 The survey respondents included a greater proportion of business engaged in waste collection. The survey has received proportionately fewer responses from those involved in the wholesale of waste and scrap compared to the sub sector's share of the sector as whole as indicated by ABI data.

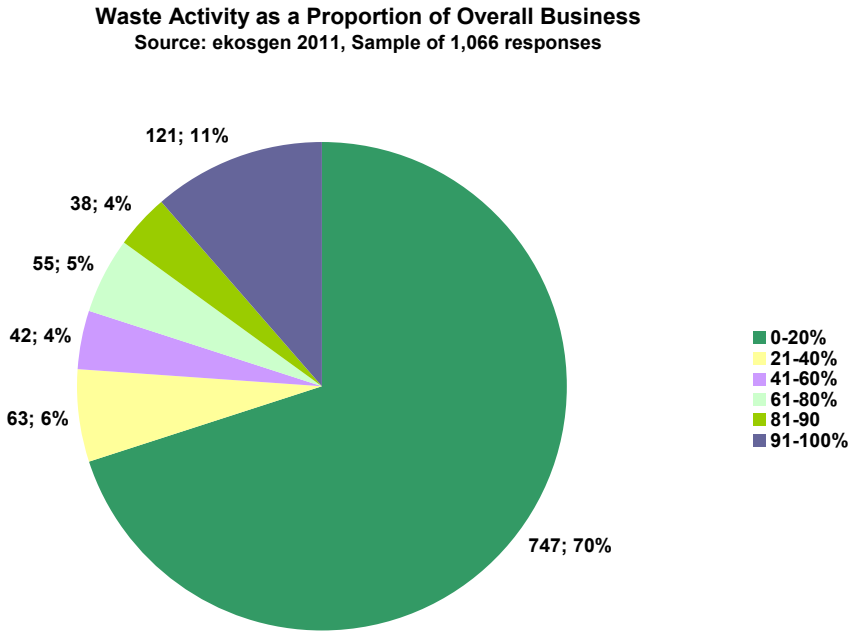
Table 2.7: Comparing Waste Activities

ABI Data 2009		Survey Results	
Activities	**%**	**Activities**	**%**
Waste collection	31%	Brokerage, dealing in waste	17%
		Carrying and collection of waste	79%
Wholesale of waste & scrap	24%	Sorting and sale of waste scrap	25%
Materials recovery	31%	Processing of recyclate	11%
		Composting	12%
		Energy Recovery	4%
Waste & treatment disposal	10%	Treatment	9%
		Disposal through landfill	25%
		Disposal through incineration	7%
Remediation activities	4%	Survey percentages sum to greater than 100% because firms can state they are involved in more than one sector in the survey.	
Total	**100%**		

Source ABI 2009, ekosgen 2011, sample of 929 respondents.

2.57 Figure 2.10 shows waste activity as a proportion of total business operations. For a small cohort of respondents (15%) waste management comprises their core activity, accounting for 81–100% of their operation. However, for the vast majority of respondents (70%), waste management comprises a relatively small component of their business, accounting for up to 20% of their overall functions[16]. This is a notable observation, highlighting that, like ICT, waste management 'bleeds' into many sub sectors including haulage, health, farming, food and drink; manufacturing and construction. It suggests that the sector should best be viewed as comprising a core group of organisations who generate their income from waste management activities, and a wider, peripheral group for whom waste management is a secondary or subsidiary function, most likely related waste generated from primary activities (in some of these instances waste management is a 'cost' rather than a wealth generating part of their business).

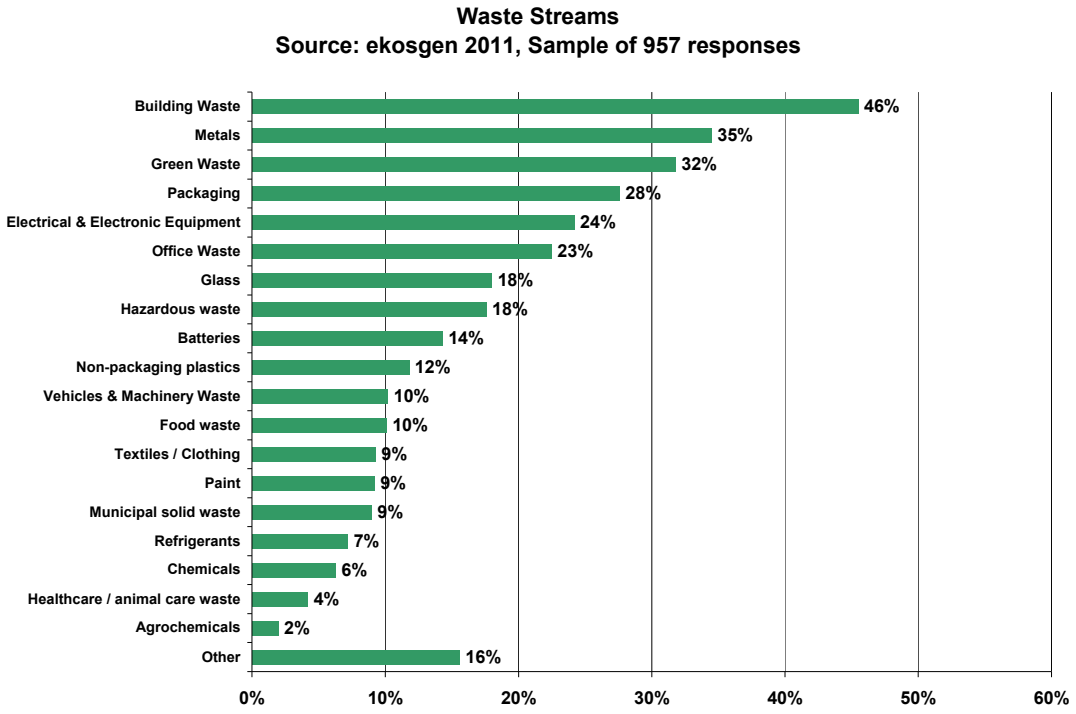
Figure 2.10



2.58 Figure 2.11 shows the different waste streams handled by respondents. The five types that are most frequently handled are: i) building waste; ii) metals; iii) green waste; iv) packaging; and v) electrical and electronic equipment. Again many respondents handle multiple waste streams.

[16] They are included in the Environment Agency databases as they are required to register as a carrier or broker of waste or for the treatment and storage of waste (or simply they had registered voluntarily even though they were exempt).

Figure 2.11



2.59 Respondents reported handling other types of waste not captured in the categories listed in Figure 2.11. The most prominent of these included furniture, wood and paper, as well as liquid and sewage.

Summary

2.60 This study defines the waste management sector as: *Local authorities and businesses engaged in one or more of the following activities:*

- Re-use of products to divert waste at source;
- Collection and transport;
- Brokerage of waste;
- Sorting and storing;
- Preparing for re-use;
- Disposal through landfill;
- Disposal through incineration;
- Treatment of waste;
- Processing of recyclate;
- Composting; and
- Energy recovery.

2.61 The waste management sector comprises local authorities, a relatively small number of large private employers, and a large number of small to medium sized enterprises (SMEs) who often offer specialist services in local markets.

2.62 Local authorities are responsible for the collection and disposal of municipal waste. Over the last ten years or so, they have been under pressure to reduce the level of waste being landfiled and have made significant progress in doing so. Partly as a result of this, the level of waste being recycled has increased.

2.63 Turning to the commercial waste management sector, official datasets provide insights about its size, although there are limitations to them. They do not fully capture the different activities within the sector, nor do they include local government employees whose jobs centre on municipal waste management.

2.64 Official statistics view the sector as comprising five core activities: i) waste collection; (ii) waste treatment and disposal; iii) materials recovery; iv) remediation activities and other waste management services; v) wholesale of waste and scrap.

2.65 The data shows that, in 2009, there were 5,150 businesses operating in the sector, the largest being waste collection, and materials recovery (31% respectively). The sector is predominately made up of micro businesses (80%) with large employers comprising less than 1% of the business stock. In 2009, it was estimated that there were nearly 94,000 people working in the waste management sector, somewhat lower than 2008, although higher than the number in 2003 (77,000). Official data estimates that the sector generated £5 billion of GVA in 2009.

2.66 The majority of organisations responding to the survey are sole traders and micro employers. Unsurprising then, most of them operate a single site, primarily for the purposes of collecting waste, the sorting and sale of waste, and disposal through landfill. Only a small proportion are involved in activities such as recovering energy through waste, incineration and waste treatment. There are five types that are most frequently handled by survey respondents. In order of frequency, these are: (i) building waste; (ii) metals; (iii) green waste; (iv) packaging; and (v) electrical and electronic equipment.

2.67 Survey results show that sector should best be viewed as comprising a core group of organisations who generate their income from waste management activities, and a wider, peripheral group for whom waste management is a secondary or subsidiary function. Hence, a small cohort of respondents reported that waste management comprises 81–100% of their business activity.

2.68 The profile of survey respondents in terms of workforce size is fairly similar to official statistics. The survey received fewer responses from micro employers in proportion to their composition as determined by official data. Conversely, it received a notably higher proportion of responses from medium sized and large employers.

3 THE SIZE AND VALUE OF THE SECTOR

3.1 The size and value of the waste management sector in terms of employment and GVA as estimated by the survey are presented in this chapter. Private sector employment and GVA data is presented in two parts: companies with more than 20 sites; and companies with less than 20 sites. These findings are aggregated to present a total size and value for the sector. The supporting methodological notes, caveats and assumptions are presented in Appendix 2. The size and value of public sector waste management activities are presented in the later sections of the chapter.

Companies – More than 20 Sites

Sixteen companies were identified with 20 or more permitted sites registered on the Environment Agency database. To ensure the greatest degree of accuracy, company employment and financial data was accessed from accounts purchased from Companies House, see Table 3.2. A total of 28,700 employees were reported in the accounts, equating to some 27,500 full time equivalent (FTE) jobs and an average of 1,660 FTEs per company. Using the GVA per FTE approach, this equates to some £1.5 billion GVA.[

Table 3.1: Company Analysis – More than 20 Sites

	Principle Activity	Group Turnover (£000)	No. of employees*	GVA (£m)**
Company 1	Metal recycling	1,853,046	1,438	80
Company 2	Waste management	797,800	10,596	581
Company 3	Waste management, recycling	788,400	4,772	261
Company 4	Waste management	552,723	1,189	64
Company 5	Recycling, renewable energy, resource efficiency	528,000	2,216	122
Company 6	Metal recycling	405,000	1,085	58
Company 7	Waste management, renewable energy	270,422	3,496	192
Company 8	Recycling, waste management, energy recovery	187,700	1,020	50
Company 9	Public services group	81,749	605	30
Company 10	Workplace services	52,442	659	30
Company 11	Waste management	39,931	288	10
Company 12	Waste management	35,447	164	8
Company 13	Waste infrastructure	33,116	62	2
Company 14	Waste collection /management, recycling	26,220	575	32
Company 15	Waste management	25,121	139	7
Company 16	Waste management, recycling	24,787	425	23
	Total	**5,701,904**	**28,729**	**1,550**

Source: Companies House
*This is an average number of employees, i.e. taking into account variations during the year.
**Based on GVA per FTE.

Companies – Less than 20 Sites

3.2 An online business survey was distributed to companies registered on one of three Environment Agency databases. There are some 128,000 companies registered on these databases (of which 41,000 had email addresses). The types of activities that require

organisations to register with the Environment Agency are broad ranging and for the majority of registered companies waste management will not comprise their core operations. This proportion of the database has been used to scale up the survey findings and present an approximate size and value for the sector nationally.

3.3 To ensure only the core sector is captured, the data presented below is drawn from survey respondents that stated 90% or more of business activity was waste management[17]. An estimate of average employment per company was taken for small, medium and large companies. This stratification reduced the influence of large companies in the survey sample (of which there was a higher proportion compared to ABI figures) inflating employment estimates. Using ABI data to weight the number of large, medium and small firms in the sector, the average number of employees for each size band (based on survey results) has been applied to the respective proportion of the Environment Agency database. Table 3.2 details the national size and value of the sector of companies with less than 20 sites.

Table 3.2: Companies – Less than 20 Sites	
Employment	101,000
GVA	£5.9 billion
Companies	5,500
Source: ekosgen/Environment Agency	

Aggregate Analysis – Total Size and Value of the Sector

Employment

3.4 There are approximately **128,000 employees** in the private waste management sector[18] when data is included from those with and without 20 sites. This is a greater than the most recent ABI statistics, which recorded around 94,000 employed in the sector. These figures are not directly comparable for a number of reasons, factors to consider include:

Methodological differences

- The sector SIC definition used to gather ABI data does not capture the full range of activity in the sector. By comparison, the survey is more comprehensive, including a wider range of activities as comprising the sector (for example energy from waste and composting).
- The ABI survey does not capture employment in companies operating below the VAT threshold, which would increase the ONS employment estimates. As the VAT threshold is around £70,000 these will be micro businesses, most likely sole traders.
- The data relates to different times, in 2009 (the latest available ABI data) the economy was still emerging from recession.
- Estimates were derived only for those firms whose activity is 90% or more waste management. This threshold is nearer 50% in the official statistics estimates.

[17] Appendix 2 presents employment and GVA estimates based on responses from companies that stated lower proportions of their overall activity was accounted for by waste management.
[18] This includes only private sector jobs and so excludes those employed directly by local authorities.

Sampling and extrapolating

- As with many surveys, there may be an element of bias amongst respondents and the sample may not be entirely representative of the whole population. For instance, it is possible that those more heavily involved in waste are more inclined to respond. This would result in the survey yielding an overestimate. Given the diverse range of businesses registered on the Environment Agency database from which the sample was drawn, we suggest readers exercise caution when interpreting the data.

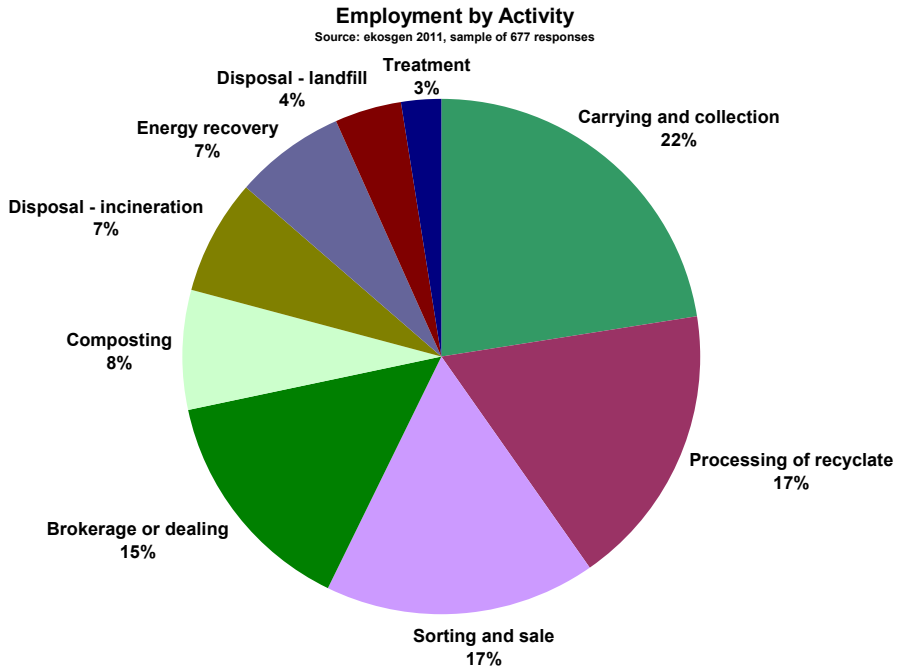
  That said, we received many responses from those for whom waste management only constitutes a small proportion of their activity (69% of respondents claimed less that 20% of their activity was in waste management).

- The survey is over representative of medium and large employers compared to ONS statistics. This partly account for the difference in employment estimates. To mitigate against the influence of large firms inflating the figures average employment was weighted using ABI size band data during the extrapolation process.

- Where companies have registered sites under a different company name there may be a few instances of double counting.

3.5 Figure 3.1 shows the proportion of employment by activity. The survey found over half of employment is accounted for: carrying and collection (22%); processing of recyclate (17%); and sorting and sale of waste or scrap (17%).

Figure 3.1

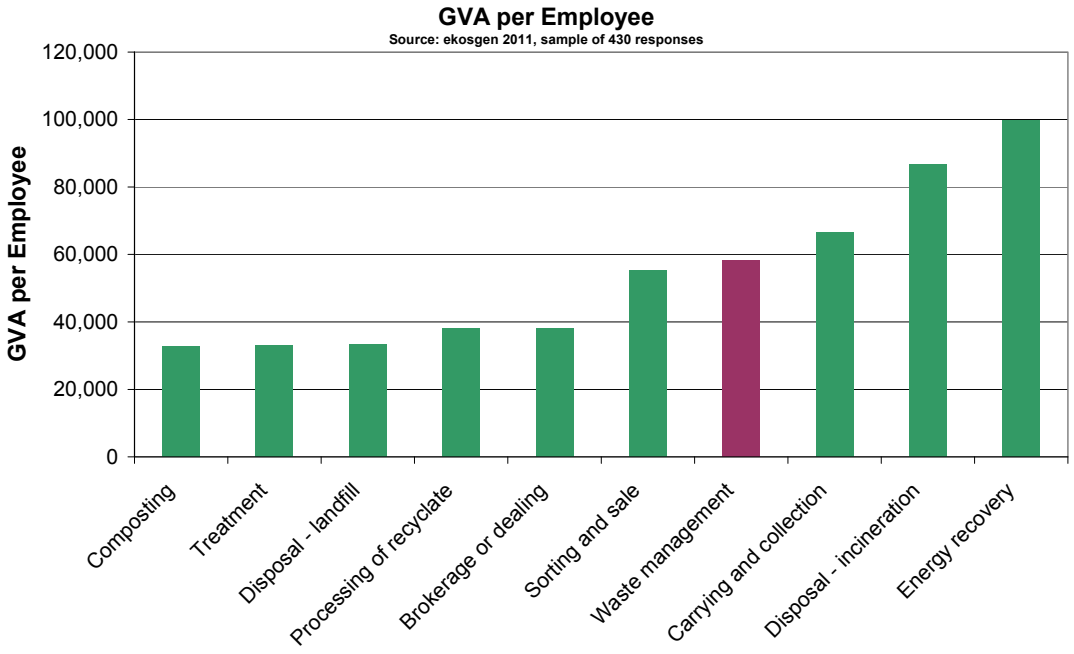


Gross Value Added

3.6 The private waste management sector generated approximately **£7.5 billion GVA** in 2010/11. This is based on GVA per FTE calculated from the survey findings and employment data from companies with more than 20 sites (see Appendix 2 for the technical note and wider estimations). This figure is higher than the official (ABI) estimate of GVA for 2009 (£5 billion). GVA per employee ranges from £32,800 (composting) to £99,800 (energy recovery),

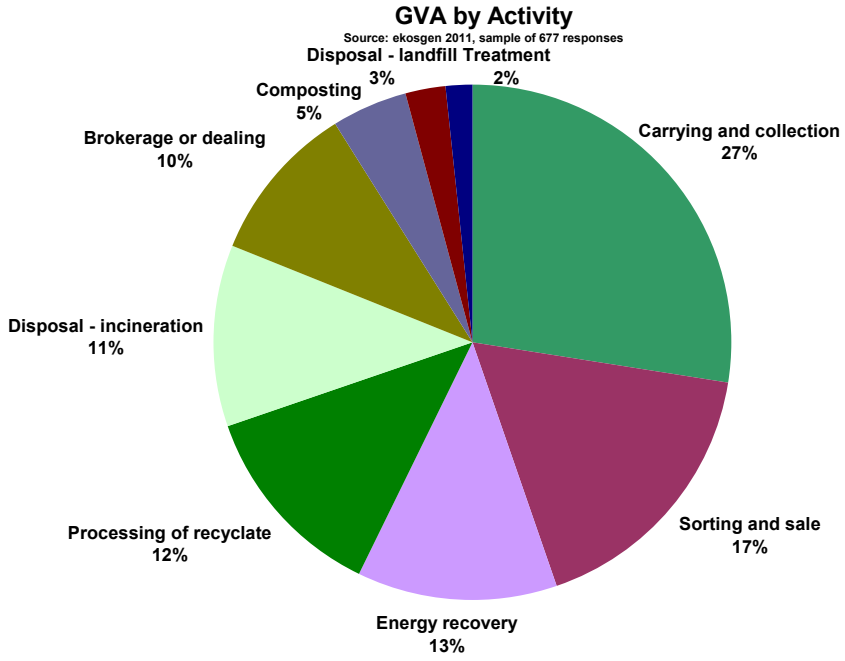
see Figure 3.2. The highest GVA per employee is generated by energy recovery and disposal through incineration activities. The capital, knowledge and infrastructure intensity of activities help explain variations in GVA per employee.

Figure 3.2



3.7 The variation in GVA by activity is illustrated in Figure 3.3 below. The three activities that contributed the greatest value to the economy are carrying and collection (27%), sorting and sale (17%) and energy recovery (13%).

Figure 3.3



Trends over Time

3.8 The pilot survey found companies could not easily say how they had performed over a ten year period. Instead the survey asked how they had fared (in terms of turnover growth/decline) over the last five years and how they anticipate the next five years performance in very broad terms. The survey asked businesses for an approximate percentage per annum growth/decline (for example, marginal growth – up to 10% per annum) and reported turnover growth/decline is taken as representative of the growth/decline in waste management activity. These figures are only indicative as they are based on respondent views/perceptions at one point in time and should be interpreted with caution. They should not used as a basis for projections.

3.9 Using the survey findings it was possible to apply these predictions for the sector as whole and by activity (see Figure 3.4). It can be seen that respondents anticipate the sector is unlikely to recover from its decline until 2013 but then, businesses predict steady growth to 2016.

Figure 3.4

The Municipal Sector

3.10 Defra requires local authorities to collect and submit data on their waste data flows, detailing tonnages collected and disposed of via the main disposal routes. This is used by Defra to track progress against recycling targets and statistics are presented in Waste DataFlow. DCLG also requires local authorities to submit revenue returns on an annual basis. This covers expenditure and income against a common set of service areas. For waste, authorities are expect to submit returns relating to waste collection, waste disposal, trade waste, recycling, waste minimization and climate change costs.

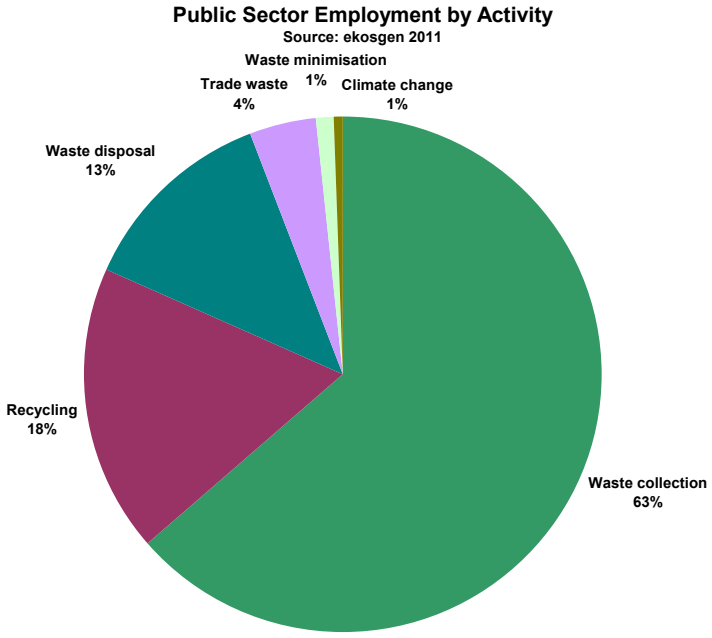
Employment Expenditure on Waste

3.11 All local authorities in England have a statutory duty in relation to waste management. However, not all of them discharge their responsibilities directly and many choose to

outsource the collection and disposal of waste. WRAP conducts an annual survey of local authorities and its latest data shows that, out of the 329 English waste collection authorities, 187 authorities continue to collect waste in house.

3.12 The General Fund Revenue Account data shows that local authorities spent £521m on employment costs in 2009/2010[19]. The 2010 Annual Survey of Hours and Earnings shows median annual gross pay in the sector[20] is £23,483. Assuming that this is similar to pay levels in the public sector, it can be estimated that local authorities employ an estimated 22,175 to undertake waste management activities in England. This compares to 46,650 estimated by EU Skills for the whole of the UK. Figure 3.5 provides a breakdown of these jobs by principal municipal waste service areas. Most of them fall within the area of waste collection, followed by recycling.

Figure 3.5



Scale of Economic Activity

3.13 Table 3.3 summarises the total income gained and expenditure incurred by local authorities related to waste management.

[19] Employee costs include – 1) **Direct Employee Expenses** which include: Salaries, Employer's Ni Contribution, Employer's Retirement Benefit Costs, Agency Staff, Employee Allowances; 2) **Indirect Employee Expenses** which include Relocation, Interview, Training, Advertising, Severance Payments, Employee related schemes (e.g. welfare schemes, discount schemes); 3) **Contributions to employee-related provisions.** As a result this calculation may over-estimate the number of jobs associated with the public sector.

[20] Defined as *waste collection, treatment and disposal activities, materials recovery*.

Table 3.3: General Fund Revenue Account Outturn Statistics (£'000), 2009/10							
	Employment costs	**Running Expenses**	**Total Expenditure**	**Total Income***	**Net Current Expenditure**	**Capital Charges**	**Net Total Cost**
Waste collection	331,037	941,235	1,272,268	235,190	1,037,079	52,534	1,089,613
Waste disposal	66,414	1,721,668	1,788,081	214,453	1,573,628	79,647	1,653,275
Trade waste	21,230	115,754	136,984	143,261	-6,278	1,398	-4,879
Recycling	93,607	531,779	625,386	148,994	476,392	26,242	502,634
Waste minimisation	5,745	18,602	24,347	5,219	19,128	131	19,259
Climate change costs	2,693	3,324	6,017	638	5,379	13	5,392
Total	**520,726**	**3,332,362**	**3,853,083**	**747,755**	**3,105,328**	**159,965**	**3,265,294**
Source: DCLG * Includes Sales, Fees and Charges, as well as Other Income.							

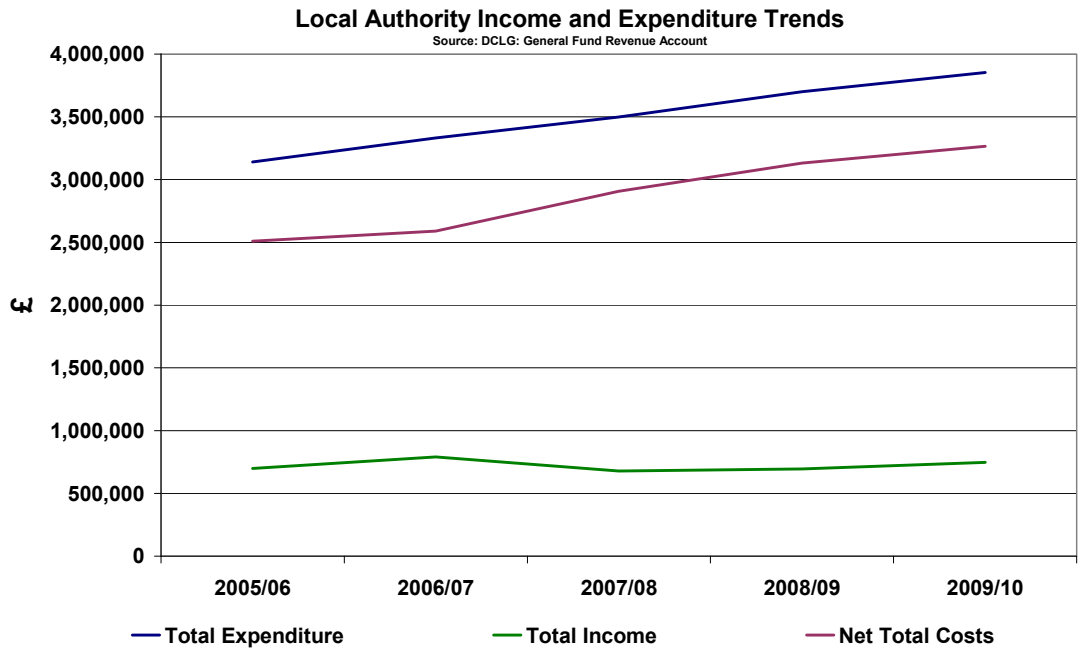
3.14 The overall scale of economic activity generated by local authorities could be measured by their total inputs, that is, the quantity of labour, materials and capital assets used in production. This equates to £4.01 billion. However, much of this input is used to sub-contract services to the private sector and is therefore counted elsewhere in this study. Outsourcing is recorded under running expenses (alongside any other expenses to deliver the services, such as materials). Extracting the outsourced element is difficult as outsourcing occurs across all waste activities and at different scales.

Table 3.4: Average Statistics for Authorities Collecting In House or Outsourcing (£'000)							
Collection	**Employment costs**	**Running Expenses**	**Total Expenditure**	**Total Income***	**Net Current Expenditure**	**Capital Charges**	**Net Total Cost**
In house	1626	2,283	3,909	841	3,068	198	3,266
Out sourced	210	3,604	3,813	553	3,261	109	3,370
Source: DCLG							

3.15 WRAP has provided a list of local authorities that outsource their waste collection. Cross tabulating the two data sources shows that average running expenses are £2.28m. From this data, it is estimated that approximately 20% of waste collection 'running expenses' are outsourced. Assuming that a similar level of outsourcing occurs in the other service areas, the total value of outsourcing represents £0.679 billion. The resultant value of public sector inputs (i.e. the quantity of labour, materials and capital assets used in production) is therefore £3.33 billion. This provides a reasonable approximation to turnover in the private sector sense.

3.16 Local authorities can earn income from waste through the sale of recyclates, fines and penalties, and sale of energy from waste initiatives. However, this is likely to vary considerably by authority depending on their remit (waste collection authority or waste disposal authority), how they dispose of waste and the nature of the contracts. A key issue for waste collection authorities is that they often bear the cost of collection without necessarily seeing the benefit from the sale of recovered materials. The nature of contracts means that the beneficiary is often the waste disposal authority or private sector. The risk averse nature of local authorities is thought to diminish their ability to achieve income from their waste operations. In part, this explains why, as shown in Figure 3.6, local authority net costs on waste has been increasing since 2005/06 from £2,509m to £3,265m in 2009/10.

Figure 3.6



Efficiency

3.17 The ONS is currently undertaking a study examining productivity of waste services within the public sector. This report draws on both the DCLG and Defra's waste data flow statistics. The ONS is comparing costs per tonnage of waste over time and adjusting for inflationary influences. This will provide a more fie grained analysis than conducted during this study which has focused on the commercial sector.

Summary

3.18 There are approximately 5,500 companies undertaking waste management activities as recorded by the Environment Agency. Extrapolating up from the survey results, it is estimated that there are currently 128,000 people employed in the sector. Again, this figure is higher than that recorded by the ONS where the latest available figures indicate that employment is around 94,000. A number of methodological, sampling and extrapolation factors account for the difference. However, both the survey results and official statistics show that waste collection employs the highest number of people compared to other sub sectors.

3.19 Extrapolated up from the survey results, the waste management sector is calculated to generate approximately £7.5 billion of GVA in 2010/11. There are large variations in GVA per head for different types of activities with energy recovery recording the highest at £99,800 per head. The total GVA calculated by this study is higher than the official estimate of GVA for 2009, which is assessed to be £5 billion. The survey results indicate that businesses do not expect to experience significant growth until 2013.

3.20 Drawing on datasets supplied by Defra and DCLG, it is estimated that there are around 22,000 people employed by local authorities to undertake waste management activities, primarily waste collection. It has been estimated that the value of waste

management industry in the municipal sector is £3.33 billion; this excludes employment and expenditure on outsourced activities.

4 THE DRIVERS OF CHANGE

4.1 This chapter brings together findings from interviews undertaken with industry experts and the business survey, focusing on the changes taking place in the waste management sector, its future development and the role of Government. The first section focuses on the perspective of industry experts, identifying the key ways in which they perceive the sector to have changed over the last ten years and the way in which it will change in the future. The second section draws on the business survey findings and sets out the drivers that are supporting the development of the sector and the type of growth plans that businesses are expecting to implement in the near future. The third section identifies the barriers to business growth as reported by both industry experts and businesses responding to the survey. The final section summarises the actions that businesses would like the Government to undertake to support their growth and development.

Sectoral Changes

4.2 There was a consensus amongst industry experts that the waste management sector has undergone major changes over the last ten years. The main ways in which it has changed are:

- Moving from waste management associated with landfill disposal to waste treatment;
- Increased use of technology to deal with or treat waste;
- Growth in recycling and reuse of materials.

4.3 There was universal agreement that European and national policies, legislation and directives have been, and will continue to be, the primary drivers of change within the waste management sector. Experts identified two pieces of legislation that have had the most influence and these were the European Landfill Diversion Targets and the Landfill Tax Escalator.[21] Respondents stated that, historically, waste management in the UK was dominated by the use of landfill for both municipal and commercial waste. However, EU targets and the landfill tax have encouraged local authorities and businesses to seek alternative means of managing waste. Respondents suggested that, as a result of developments such as renewable tariffs, waste operators are "*moving away from being back door collectors to working with companies to manage their resources*" as landfill is no longer an "easy" option for waste producers.

4.4 In light of EU Directives and because the landfill tax is making this form of waste disposal commercially unattractive, respondents stated there had been a commensurate increase in the development and use of alternative waste treatment processes. In particular, they noted that there is greater awareness that waste has an economic value because as it can be used or turned into a raw material and/or it can be used to recover energy.

[21] To further encourage local authorities to use alternative means of disposing waste other than landfill, a landfill tax was introduced under the Finance Act 1996. It was payable at a flat rate for all municipal (and commercial) waste. In 2002, the landfill tax escalator was introduced whereby the standard rate of landfill tax increased by £8 per tonne each year and was originally set to do so until 2013. In the latest Budget, the Chancellor has announced that the landfill tax escalator will be extended for another year until 2014 and will continue to increase by £8 per tonne. This means that landfill tax will be £56 in 2011, £64 in 2012, £72 in 2013, and £80 in 2014.

4.5 Several experts reported that the sector will become increasingly driven by technology and that this raises implications for the skills and competencies of the workforce. One respondent was concerned that SMEs, who comprise the vast majority of the sector, may not be aware of ongoing technological developments and nor will they have the resources to train themselves and their staff on how to use new technology. The EU Skills report also states that technology is key driver of sectoral growth. However, it further states that there is evidence of a shortage of individuals with the skills necessary to design and develop treatment facilities that use new technologies and well as those who can supervise and manage such facilities. At present, skills shortages are perceived to be particularly evident for facilities for energy from waste technologies. Such technology is currently in its infancy and the number of job roles requiring these skills is relatively small. EU Skills, however, stresses the importance of filing these skills gaps because there is likely to be an increase in demand for such roles.[22] In addition it has been reported that there are skill gaps outside the sector; notably, manufacturing and packaging technologists are not sufficiently skilled to make use of material generated from the waste stream.

4.6 Industry experts agreed that the need to divert waste away from landfill has stimulated the use of new technology. The use of new technology is seen to have become fundamental to the future of waste management in the UK. They identified two ways in which technology was driving forward change in the industry: (a) using new technology to process waste, such as mechanical and biological treatments; (b) using technology to recover energy from waste, such as anaerobic digestion, gasification etc.

Market Opportunities and Future Trends

4.7 In light of the findings reported above, it is unsurprising that industry experts expected activities associated with recovery and reuse of household, commercial and industrial waste to increase in future years. The main factors seen to be supporting their growth are economic and political. These include:

- **Energy security** – The prices of oil and gas will increase market opportunities for new entrants and existing businesses to become involved in waste energy recovery activities, particularly those involved with incineration, anaerobic digestion, and turning bio methane into fuel.

- **Shortage of waste streams** – Increased demand for materials to serve recyclate markets means that there is a shortage of many waste streams (e.g. wood). As with any commodity, shortages lead to increased prices which threaten the viability of some recovery/treatment operations.

- **Regulatory drivers** (such as the Renewables Obligation, Renewable Heat Incentives and Renewable Transport Fuels) are creating national markets for bio waste streams.

- **The Landfill Tax Escalator** will continue to make non-landfill options more economically attractive.

4.8 Respondents expected these pressures will lead to increased collaboration between the waste management industry, energy producers, primary producers and retailers. These relationships have the potential to be symbiotic with producers benefitting from security of

[22] EU Skills (2010) *The UK Waste Management and Recycling Industry 2010 Labour Market Investigation.*

supply and the waste management industry benefitting from the creation of broader markets for discarded materials. From a local authority perspective, the authority's role may evolve to be one which co-ordinates and facilitates strategic partnerships in their local area, allowing them to recover maximum value from the waste rather than simply processing the waste and selling it on open markets. This approach is currently being pioneered by Kent Waste Management Partnership.

4.9 Experts also expected the increase in recycling as a means of producing substitute raw materials to continue. The commercial availability of sophisticated technologies such as gasification were identified as being additional factors supporting the growth of waste recovery activities.

Key Issues facing the Municipal Sector

4.10 Consultations with local authorities and industry experts identified a set of waste management issues specific to local authorities. These are as follows:

- **National Waste Review** – Local authorities are awaiting the outcomes of the National Waste Review, which will inform future Government policy. This is creating a hiatus as authorities are reluctant to make investments in new technologies or equipment until national policy is known.

- **Moratorium on Local Authority Recycling Targets** – The abolition of national performance indicators for waste gives local authorities the freedom to decide a level of recycling appropriate to their circumstances. However, national targets for recycling arising from the European Waste Framework Directive remain in force. Consultees reported that if the UK fails to meet its recycling targets it becomes subject to penalties, which will be passed down to local authorities. It is not clear what the impact of these changes will be on recycling rates.

- **Two-Tier System** – The current two-tier system of waste collection and waste disposal authorities can work well, but it is reported that is can also be disconnected and inefficient. Waste collection and waste disposal authorities in each area may not always share the same aspirations and objectives. Further, financial incentives and costs are not always borne equally, which can lead to sub-optimal solutions.

- **Public Opinion –** Public knowledge of the waste industry and its role in the economy is limited and attitudes can sometimes be contradictory. Whilst the public may demand the provision of recycling services, they can also object to plans for recycling sorting centres in their area. Local authority cuts are likely to lead to reduced levels of public engagement and education in this area.

4.11 Over the next ten years consultees believe that the role of local authorities within the waste management industry will change significantly. The main drivers of change are as follows:

- **Localism:** The rapid advance of technologies and ways of managing waste *may* mean that local authorities are less likely to introduce large capital projects (such as large scale incinerators). There is a possibility that there may be more likely to invest in small scale local projects that can be planned holistically to match needs in terms of: (i) the supply of local waste materials; and (ii) demand for heat or other by products

from local industry. Small scale projects do not require a long term capital commitment or waste streams. In addition, there is a perception that small projects are easier to secure community buy-in, as communities realise the facilities process locally generated waste. The increasing autonomy for local authorities under the localism agenda is expected to result in more small scale locally integrated plans.

- **Risks/Rewards:** The market for recyclate and other waste products is global, fluctuates like any other commodities market and therefore presents both risks and opportunities for local authorities. Local authorities tend to prefer sharing risk with the private sector or removing the element of risk altogether. This means they are unable to benefit from financial gains associated with sales of recyclates.

- **Carbon Targets:** The multiple ways to treat and process various waste streams raise different implications for greenhouse gas emissions. As carbon targets and markets become more active and stringent, the implications for the management of waste will be significant.

Commercial Growth Plans and the Drivers of Growth

4.12 Respondents were asked about their plans for growth. They were also given a list of factors and asked to assess the extent to which they perceived them to be supporting the growth of their business and the sector, or the extent which they considered them to be barrier to this. Depending on sub sector of operation a factor may be a barrier for one company, yet supporting growth in another.

Growth Plans

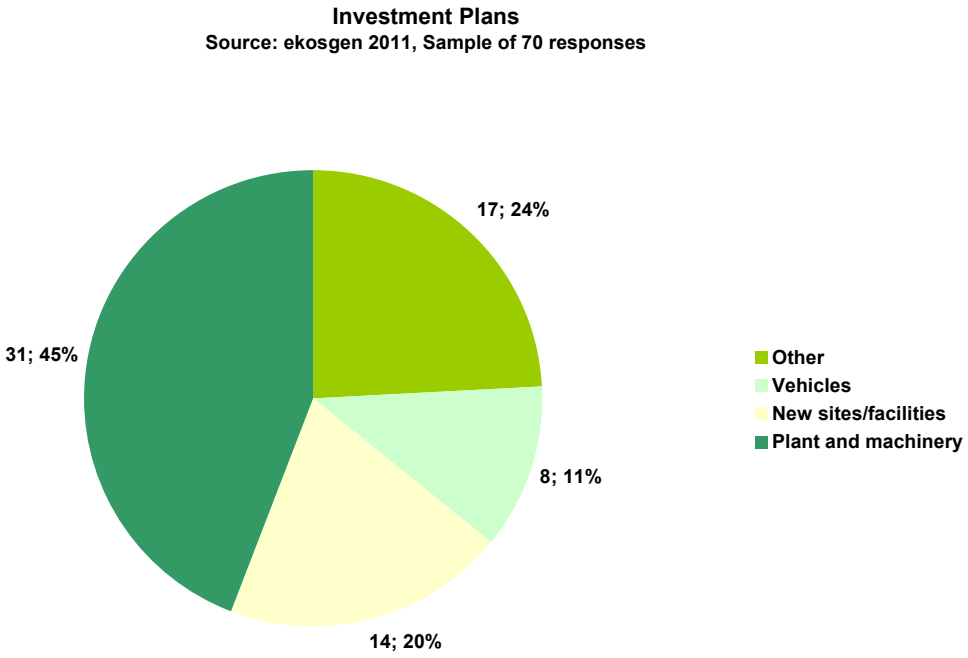
4.13 Around 40% of survey respondents reported they had firm plans to grow their business over the next five years. As show in Figure 4.1, the two most prominent ways in which they expect to do so are, first, introducing new waste disposal processes and, second, providing more integrated services to clients. Several respondents indicated they are seeking to expand in international markets, with one business reporting it will be opening new plants in the USA and Japan. Of the sample with growth plans and who have examples of this, several respondents indicated they would diversify by treating different types of waste, whilst others expected to use new technology. For example, one business will be introducing new technologies for land remediation, whilst another expects to recover energy from waste.

Figure 4.1

4.14 Around 10% of respondents reported that they anticipate making capital investments in waste management or resource recovery projects. Some respondents stated how much they are seeking to invest and the sums are fairly considerable, ranging from £100,000 to £20 million, with a small proportion indicating investments of at least £1 million. Businesses also identified the types of capital projects they are planning on undertaking. Figure 4.2 illustrates the main types of capital projects being taken forward; the following are examples of these:

- Plant and machinery - For example, one company will be investing up to £1 million in a pyrolosis, waste fuel sorting and segregation site. Another company is buying new and ex-situ rapid soil hydrocarbon contaminant remediation equipment. Several respondents are purchasing equipment to segregate waste and recycling equipment.
- New facilities - with a number of respondents investing in anaerobic digestion, and MRF. One respondent expects to spend £15 million on a new anaerobic digestion plant.
- Relocation or increasing the capacity of existing sites to undertake a higher volume of work - for example, one company has set aside a budget of £1.2 million to find new premises and buy new machinery.
- Conveyors and shredders - emerged as popular items of investment.
- Lorries and vehicles - were also frequently cited as items of investment, particularly to ensure compliance with European emission standards.

Figure 4.2



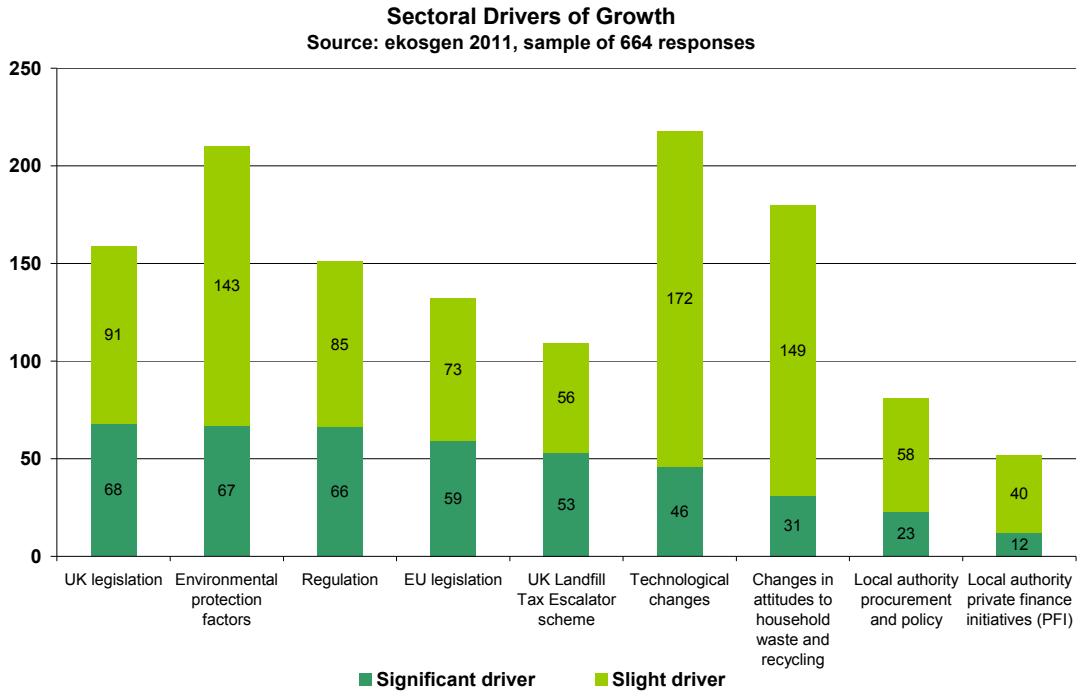
The Drivers of Growth

4.15 The survey results indicate that there are five key drivers supporting the current and future growth of the waste management sector. The top two drivers are commercial factors and the other three are sector specific. In order of importance, these are:

- Accessing new markets;
- Skills of employees;
- Technological change;
- Environmental protection factors;
- Changes in attitudes towards waste.

4.16 Figure 4.3 illustrates the significance of various sectoral factors driving forward growth and Figure 4.4 illustrates the importance of various commercial factors.

Figure 4.3



4.17 The survey results endorse the views of industry experts that the need to divert waste away from landfill is stimulating the use of new technology. It can be surmised from the survey results that respondents are probably more likely to be using technology to separate materials rather than recovering energy from them. This may explain why a fairly high proportion would like new facilities to help with the segregation of waste, either at the collection point or at treatment sites (see below).

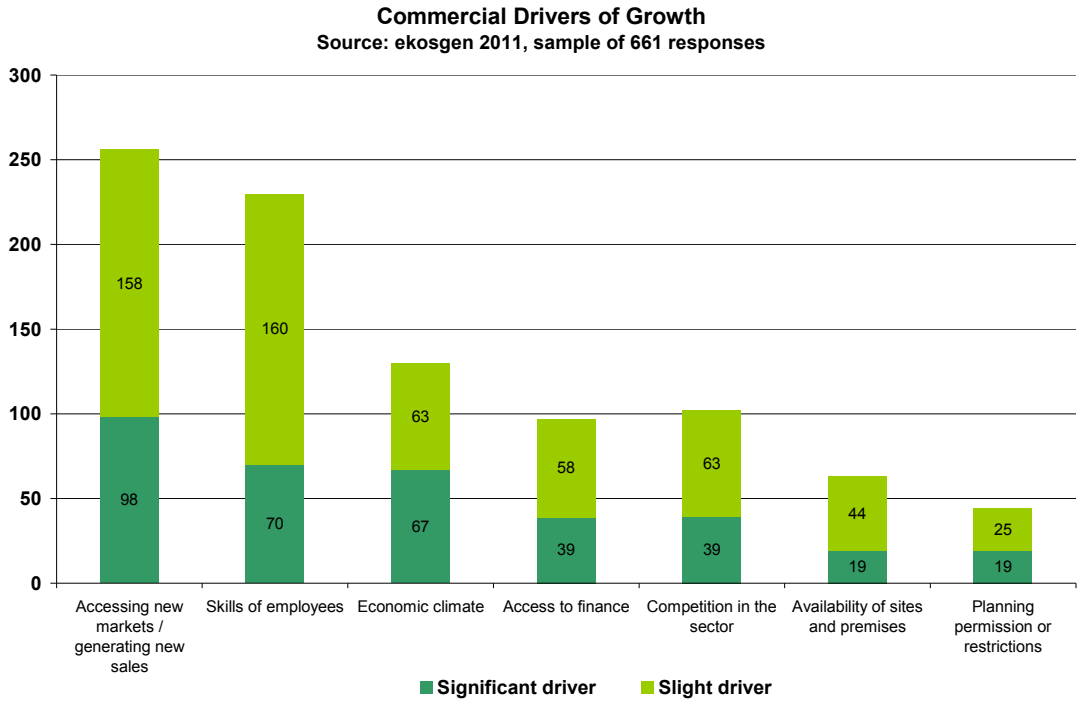
4.18 The survey results show that businesses believe skills are a driver for growth. These results are slight at odds with the EU Skills report, which identifies existing skills shortages and those in the future as the use of technology increases. The quantitative nature of the survey makes it difficult to put forward an explanation as to why or in which way businesses regard skills as a driver for growth. It may be that as they are not directly experiencing skills gaps or skills shortages, they have not identified this to be a barrier.

4.19 The survey results indicate that environmental factors have been playing a key role in driving change within the waste management sector. Concern about the human impact on climate change and the environment precipitated a raft of EU targets and national policies. Qualitative responses to the survey suggest that the Landfill Tax escalator and the EU Diversion targets for the reduction in landfill disposal have been the key drivers of change, although these have not been welcomed by all because they are seen as too high.

4.20 Improved awareness of the environmental impact of waste has changed attitudes amongst the public and the wider business community. The statistics show that there has been an increase in recycling and re-use facilities and, accordingly, it is unsurprising that respondents identified environmental protection factors as a key driver of growth. Nonetheless, as reported below, some respondents suggested the Government should incentivise small businesses to recycle more of their waste on the basis that this is likely to

create market opportunities for those within the sector and help meet environmental objectives.

Figure 4.4



Barriers to Growth

4.21 Industry experts identified several barriers preventing businesses from maximising the current opportunities arising from the waste management sector and those in the near future. Notably, there was agreement that securing planning permission for infrastructure projects was one of the biggest constraints. Several respondents identified the lack of clarity about national policy relating to renewable energy, and the uncertainty created by the electricity market reforms. Finally, experts identified the difficulties facing businesses in accessing finance for particular infrastructure projects as another barrier to sectoral development.

4.22 The findings from the business survey tend to corroborate the views of industry experts. The survey results indicate that businesses are slightly more likely to be experiencing barriers impeding their growth than benefiting from the factors driving forward growth. For instance, comparing the results in Figures 4.5 and with Figures 4.3 and 4.4, it can be seen that a higher number of respondents reported that the economic climate and competition in the sector were constraints to growth than the number who reported that accessing new markets and the skills of employees were stimulating business development.

4.23 Taking the top five barriers to growth, three relate to commercial constraints and two are sectorally specific. In order of importance, these are:

- Economic climate;
- Competition in the sector;

- UK and EU legislation/regulation;

4.24 It is perhaps not surprising that the economic climate is the most significant barrier to growth for businesses operating in the waste management sector. The qualitative responses indicate that some respondents have been affected by the decline of the construction sector and, accordingly, suggested the Government should provide support or help stimulate it. In a climate of fiscal austerity several respondents were concerned about the implications of reduced local authority budgets for waste and recycling activities.

4.25 The survey results indicate that competition within the sector is fierce. Qualitative responses further suggest that, for some, legislation and regulation have exacerbated the effects of competition with profit margins being reduced. This is because of the increased costs associated with compliance, the difficulties in passing this to their clients, and the challenges of competing with larger organisations.

Figure 4.5

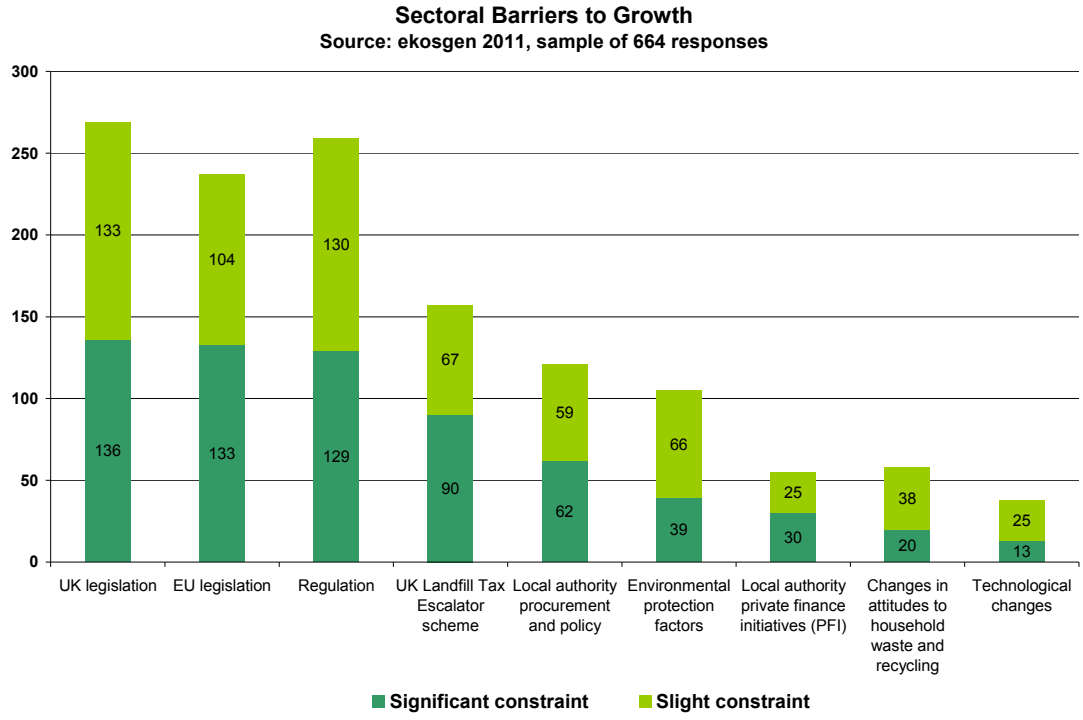
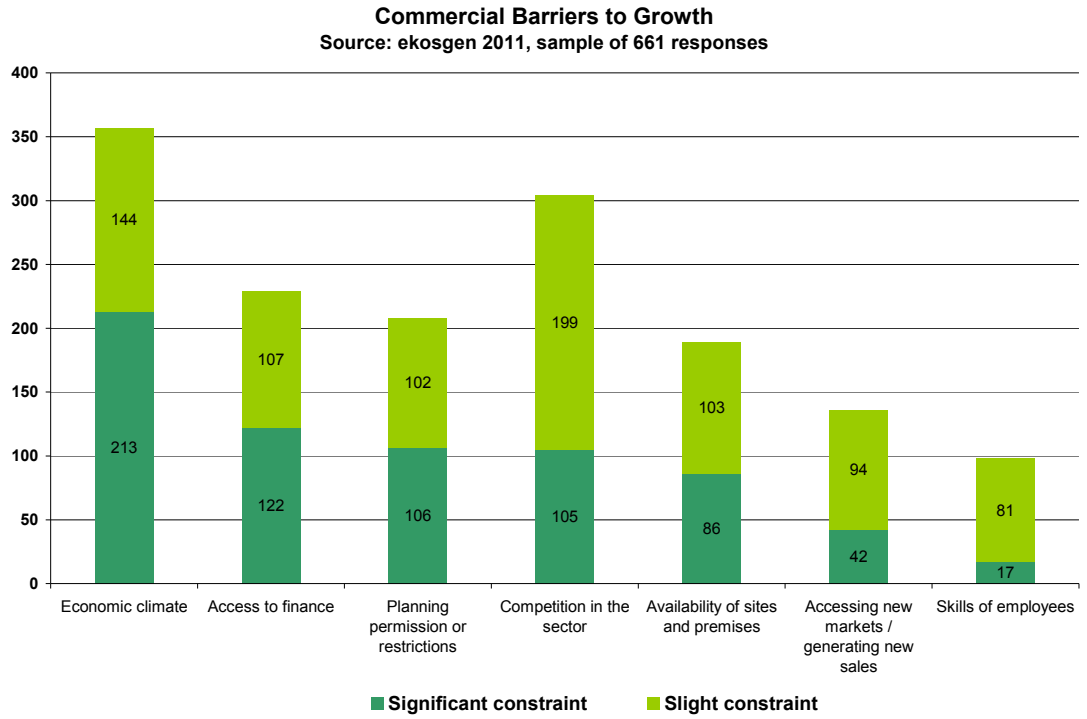


Figure 4.6



Role of Government

4.26 Respondents identified various ways in which the Government could support the development of their business and the sector more widely. The key areas in which Government actions fall into are summarised in Table 4.1 and are explored in more detail in turn.

Table 4.1: Areas for Government Actions
Permits, Licensing and Illegal Activities
Reducing Red Tape and Regulation
Planning
Incentives and Facilitates
Reducing Tax and Fuel Duty
Employment Legislation
Procurement
Access to Finance and Grants

Permits, Licensing and Illegal Activities

4.27 One of the most common frustrations reported by businesses relates to permits and licenses. Businesses identified three ways in which these were acting as a barrier to growth. First, they reported that the cost and time associated with acquiring permits and licenses placed a burden on them. They suggested that the Environment Agency should issue permits quicker than it currently does and, also, the costs of acquiring them should be reduced.

Issuing permits and licenses
Speed up EA when issuing permits / changes.
Reduce the time and costs for issuing environmental permits.

4.28 Second, more importantly, there were many respondents who felt that the level of waste they were dealing with was too small to justify the costs of acquiring a permit or licence. Whilst this appears to include businesses dealing with a variety of waste streams, garden waste seems to be the most prominent. Many respondents are sole traders or micro businesses undertaking small volumes of work, which makes it difficult for them to generate sufficient revenue and profits given the costs of compliance. These costs are seen to be hampering their development because they are either passing on charges to clients and therefore cannot offer competitive prices, or they are turning away work. In addition, a few indicated that it would be helpful to have clearer guidelines as to who produces garden waste. Respondents suggested that either they should not have to acquire licences and/or they should be able to use domestic sites for disposing a modest amount of green waste.

Green Waste
As a small private gardener looking after 20 properties, I carry such a small amount of green waste (less than one tonne per month) that I feel that I should not have to pay for a permit to carry and dispose of my waste. The legal description of who produces the waste needs to be made clearer as this determines if I need to have a permit or not: is it me because i prune the tree or is it the client who grew and owns the tree? …
As a landscape gardening business, I must have a waste carriage licence in order to legally carry green waste from a client's property. All my garden waste must be disposed of at a recognised commercial waste site at a significant cost to myself, which must be passed on to my clients. If my client cuts their hedge they can take the clippings to a domestic waste site free of charge, whereas if I cut the same hedge and take the clippings away I cannot use the same domestic site, instead I have to pay upwards of £90 per tonne (or part tonne) to dispose of it. This makes it very difficult to secure contracts involving the disposal of waste. Why not allow small businesses access to domestic sites – a limit to the amount disposed of annually could be incorporated to prevent large-scale use of domestic sites.
I am a sole trade gardener working for private households using a pushbike and trailer taking away small amounts of lawn mowings, weeds and prunings which I put in a compost bin in my garden. It is a pain getting my customers to sign the forms and keep records of the part sacks collected.

4.29 A number of respondents identified specific licences they are somewhat dissatisfied with. For example, one respondent believes that the introduction of the new PAS 100 registration scheme for compost is inflexible, deters businesses from registering their compost, is costly and undermines sales opportunities: "*…the inflexibility of the PSA 100 registration schemes leads to a system of EA regulation for using compost that is based on what paperwork you have and it is not risk based. I have to turn away enquires for compost due to the costs of regulating small amounts of non PAS 100 compost".* Given that a high proportion of respondents deal with building waste, it is unsurprising that a number of them stated that it would be helpful if the Construction Industry Scheme (CIS) could be simplified.

4.30 Finally and, of far greater concern to respondents, was the perception that whilst they were operating within the legal parameters and acquiring the necessary documentation to undertake their activities, there were many businesses who were undertaking similar activities without the correct documentation and could, therefore, charge lower prices. It is evident from the survey results that this is a major frustration experienced by the majority of respondents. They tended to propose one of two solutions, the first being somewhat drastic

and not really viable whereby permits and licensing should be significantly curtailed. Alternatively, they suggested that the Environment Agency should intensify its efforts to find and fine illegal operators.

Enforcement and Illegal Activities
We are a small company, yet have had to acquire a trade waste carrier licence and purchase a card to allow us to take our private waste to our local tip by van. This also means that our pricing is less competitive as the cost of a skip is sometimes required … Overall, by complying with regulations and trading ethically we are placed at a pricing disadvantage. As times become tougher, I fear good companies will suffer most while 'cowboy' companies will thrive.
The EA must spend more time and resources targeting illegal activities.
It would assist our growth if there are improved levels of enforcement of regulations. The current low levels of visible enforcement, particularly with respect to the segregation of waste, does not encourage producers to comply with the requirements of the legislation.
Give the Environment Agency power to act on unlawful trading of waste.
Better regulation and inspection of landfill sites and higher fines for non compliance.
Stop unregistered waste carriers undercutting on prices.
Crackdown on the thousands of people without environment licenses.
The industry needs better policing to stamp out illegal operators.
The EA needs to be proactive and prosecute companies and operators that are not adhering to the WEEE regulations.

Reducing Red Tape and Regulation Alignment

4.31 'Reducing red tape' was another dominant theme that emerged from the survey results. Although it is not evident in which areas businesses would like this to be reduced, there is call for the current framework to be "*simplified*". There is a strong sense in which businesses feel that the amount of paperwork and compliance work they undertake is a constraint on their growth. Linked to this, the level of regulation was also identified as a barrier to growth with one respondent noting that it makes UK businesses less competitive than their international counterparts. More broadly, a number of respondents indicated that the current regulatory system is not evenly balanced and there appears to be two aspects to this. First, businesses dealing with a small level of waste need to obtain the same permits as those dealing with the same waste in higher volumes. Second, there is a perception amongst a small number of businesses that the interpretation of licensing guidelines is not always consistent.

Cutting Red Tape
Highly restrictive regulations, which are broad brush in their approach are not relevant to the small nature of our business, yet we have to comply with them and pay very high fees that are entirely disproportionate to the (relatively small) income we will receive from that particular waste stream. The result is that we do not handle all the types of waste we are asked to handle because the fees required by the Environment Agency are unlikely to be recovered by us in a sensible period of time.
Ability to compete on an even footing across the sector. Some sites are regulated unevenly, as a leader in the industry we have to be compliant with all legislation. There are other companies not nearly as compliant who gain a competitive advantage by not fulfilling their obligations.
UK and EU legislation is a joke there is little chance of competing in a global market with the level of legislation we have to put up with.
Less red tape, more vision.
Reduce excessive legislation for small businesses with up to 20 employees.

Simplify regulation...
Reduce the volume of paperwork that needs to be completed for every minor job
Overall there is too much 'Red-Tape' and this holds back and does not incentivise investment
Reduce levels of administration required to mange waste.
Make legislation simpler - too much paperwork.
Reduce bureaucracy and stealth taxes such as waste carrier licences.
Simplify waste management, the legislation is very cumbersome and there are too many loopholes.
Making the regulations easier to apply; they are currently in a real muddle, particularly for the Construction sector; nor is there any helpful guidance.
Less legislation and green tape, I found it harder than anticipated to set up my business in 2010. I did everything "by the book", and found I hit problems all the time.

4.32 A couple of respondents recommended that regulation for the same activities should be harmonised across the UK as this comprises a key barrier to growth. Companies found it difficult to put in place the same procedures and systems because regulations in England, Wales, Scotland and Northern Ireland are different. Respondents expressed frustration that the practical interpretation of EU directives varied between the UK nation states.

4.33 It was also suggested that the role of industry regulators should be shifted towards working with businesses to improve overall environmental performance rather than enforcement. Some respondents valued initiatives such as WEEE and reported they should be increased to enable an *"…efficient, highly skilled and centralised team to manage the UK system*", which lead to clearer lines of communication and consistent interpretation of regulation or guidance. As an aside, it should be acknowledged that some respondents reported they found it difficult to interpret WEEE rules.

Planning

4.34 Respondents to the business survey emphasised that development of waste management infrastructure has been hampered by local opposition and that obtaining planning permission (in their view) is difficult, slow and, ultimately, a barrier to growth. As indicated in the quotations below, they suggest that the planning system should be reformed to make it easier to obtain permission for new facilities or infrastructure projects.

Planning Permission
The public have the opportunity to complain during the planning process about tractors accessing fields and it makes gaining consent difficult. We have to turn down requests from farmers to have compost due to our assessment of the planning difficulty i.e. if tractors would have to drive past more than say 5 houses planning is unlikely to be gained or would be so restricted as to make the site inoperable.
Speed up the planning process and get planners to actually help rather than hinder the formation of new businesses.
I want to build a 2 Megawatt Watt energy plant….i was told by a planning consultant I was wasting my time with a planning application [because] the councillors will not support the application because they're scared they won't get re-elected. This is the trouble with the planning system.
Change local planning laws to remove modest processes from, being included.

Incentives and Facilities

4.35 The survey results indicate that there is disagreement between respondents regarding landfill taxes. A high number of them want the tax to be reduced, but nearly as many want the tax to be increased and, commensurately, incentives put in place to encourage greater recycling. Respondents indicated there were opportunities for both the municipal sector and small businesses to recycle more of their waste. Indeed, a few respondents stated that the Government should offer incentives to small companies to recycle their waste, thereby providing opportunities to businesses within the sector.

4.36 Other respondents focused on waste types and suggested, in particular, food and organic should be recycled much more. It was also suggested that recycling should be measured in terms of the materials recovered and recycled rather than the total waste entering the recycling process.

Incentives for Recycling
Increase landfill taxes thereby forcing Councils, commercial companies and individuals to recycle.
All recycling made attractive with bigger incentives to small companies who can not afford to have specialist staff and end up paying more to have their rubbish etc removed
Investment and funding for new recycling sites to enable more varied materials to be recycled, as at present specific recycling sites are so far away it makes it too expensive to transport materials to them.
There needs to be further imperative for both the municipal and commercial sector to recycle food waste / organics. Whilst the landfill tax escalator is having some limited effect, a ban on organics from landfill would accelerate this move considerably. Other incentives could be tax breaks. It is also questionable whether with recent significant budget cuts local authorities are going to have the monies to introduce new recycling services.
Grants and funding available for smaller businesses and not just the big companies to enble us to better recycle and sort waste streams.

4.37 Linked to the call for greater incentives for recycling, respondents suggested the Government should invest and encourage more recycling sites. They indicated that travel distances to sites made it expensive to transport recycling materials and therefore presented a constraint on their growth. Respondents also identified the development of other facilities that would help their growth and these were: more waste disposal, and energy recovery sites.

Facilities
Better waste disposal facilities for small traders, especially for separated waste. At present, I can't take cardboard packaging to the tip in my van!
Make it easier to access waste transfer sites with facilities to accept all items from traders they allow householders to take in to same sites and to price realistically for this service
There is a need for medium size plants capable of burning household refuse at high temperatures and creating electricity to sell back to the electricity grid.
A higher amount of construction waste is being tipped than necessary because of planning restrictions and environmental controls. Small recycling sites would improve the flow of materials re used in the industry.

Reducing Tax and Fuel Duty

4.38 It is evident from the survey results that the level of tax is regarded as a major burden by businesses and a barrier to growth. A high number of respondents indicated that VAT,

business rates, corporation tax, national insurance and income tax should be reduced. In addition, a significant cohort also reported that fuel duty should be reduced because it represents a major cost to their business, reduces profitability, and places them at a competitive disadvantage with European counterparts.

Reducing Tax
Less tax on employing people
Reduced business rates.
Reduce taxes
Cut income tax so that we can pay people a decent wage. Cut employers national insurance, it is a tax against jobs; cut fuel duty, cut VAT.
Reduce VAT to 5% on home improvements & repairs.
Reduction in VAT back to 15%
Reduce Corporation Tax charge.
Cut road fuel duty to a minimum e.g. 10% rather than 80%. Cut VAT back to 15%. Cut RFL to HGV's. Reduce taxes. My business has suffered dramatically with rising costs and rates for the work not increasing
Reduce tax / fuel duty to compete with foreign, notably Eastern European hauliers. Road tax should be introduced on all foreign trucks in UK.
Reduce tax on fuel because fuel costs are approx 30%/40% of my outgoings.
Reduce fuel tax. This has made a significant difference to my competivity. I am involved with grounds maintenance in schools and all jobs need fuel.
Reduce the tax on fuel and/or increase the taxable mileage allowance to be claimed on my tax return for business mileage. It is the biggest expense in my business as a waste carrier and is reducing my profit margin, offsetting any increase in new clients I may find. Small business needs incentives not dis-incentives.
Reduction or subsidised diesel to lower the transport costs and general running costs of vehicles.
Reduce landfill tax and reduce fuel duty; these are the biggest expenses in waste haulage/disposal neither of which are recoverable.
The cost of fuel needs to be addressed with possibly some sort of essential user rebate for haulage companies and other significant users.

Employment Legislation

4.39 EU Skills noted that employment legislation and regulation are important drivers of change in the industry. Only a few respondents appear to be finding difficult to accommodate recent changes such as the Working Time Directive. However, many more appear to be struggling with general employment law and some have reported that it has or is deterring them from employing more people. There is a sense in which employers believe that recruitment is too bureaucratic and too costly. The areas they find difficult to manage are national insurance, heath and safety, and pensions.

Employment
Change employment legislation. The two year probation rule for all new staff is the biggest barrier to taking on new staff.

Recently we have been restricted by the Working Time Directive; we cannot afford or are we big enough to need human resources, or health and safety managers. However to try and keep compliant with the legislation, we need them. We are being pushed against the wall, [because of] the lack of resolution to employment law (tribunals etc.), and with forth coming pensions legislation, we are doing even more administration on behalf of the government.
Relaxation within the present stringent employment laws. They make us nervous about employing staff in case we pick the wrong type who ends up struggling to cope.
We are a small business and work with other small businesses what is very common during discussion is that nearly all us would expand, employ and train young people but for the considerable red tape, employment laws, insurances, health and safety extremes being enforced. This is all making us say one thing "its not worth the hassle "; stay small, make some money and get out before it gets worse. *I have been in business 30 years have another company that employs 33 people, and I could easily expand – money is no object – but I don't like the thought of having to deal with more employees and the baggage that they bring. It feels like they run the company with all the laws now in force! To get this country moving, get rid of the red tape and restrictions put on employers.*
Reducing the cost of employing staff, this is our biggest cost and makes us wary of employing more staff.

Procurement

4.40 A number of respondents indicated that the Government could make it easier for small businesses to compete for public contracts. There is a perception that existing procurement processes favour large organisations. Small businesses feel they are disadvantaged because they do not always have in place all the policies required by the public sector to qualify for tendering (e.g. equal opportunities). The cost associated with tendering is also seen as prohibitive, especially since there is no guarantee that the business would win the contract. One company suggested costs could be reduced by companies not having to resubmit information that has already been presented.

Procurement
Sort out government procurement, it favours large organisations.
Change procurement law to allow companies that may not have every management system under the sun to compete with those who are virtually embedded in the procurement industry.
Balance the requirement to advertise and procure project resources with a reduction of the number of tenderers for a project. It is not unusual for us to spend £2-£5k on a tender to find that there are 80 bidders. Standardise pre-qualification questionnaire formats and allow historical accreditations to be used. We have to complete a very lengthy questionnaire for each job, even for the same client, which is very expensive.

Access to finance

4.41 The final area in which respondents wanted the Government to act was to improve access to finance. In line with businesses in all sectors, it is evident form the survey results that respondents are finding it difficult to secure lending from banks and raise investment and this was cited as a key barrier to growth.

Access to Finance

The UK government need to put more pressure on banks to enable access to lending for SME's. As an SME I have been unable to raise finance to grow my business.
Sort out access to finance lots of hot air but at the end of the day banks/finance companies are still not lending if there is any risk attached (as per norm banks say one thing to the public/government and then very quietly say no behind closed doors).
Improve access to funding for SME's.
Grants and funding available for smaller businesses and not just the big companies to enable us to better recycle and sort waste streams

Summary

4.42 There was universal agreement amongst industry experts that European and national policies, legislation and directives have been, and will continue to be, the primary drivers of change within the waste management sector. There was a consensus that the decline in waste being land-filled and an increase in recycling were the main ways in which the sector had changed. They also agreed that the need to divert waste away from landfill had stimulated the use of new technology and it is now integral to the future of waste management in the UK. Increasingly, technology is being used to process waste and to recover energy. In future, industry experts expect activities associated with recovery and reuse of household, commercial and industrial waste to increase as a result of a combination of economic and political factors. These include concerns with energy security, a shortage of some waste streams, industry regulations, and the ongoing impact of the Landfill Tax Escalator.

4.43 Consultations with local authorities and industry experts identified a set of waste management issues specific to local authorities. Primarily, this relates to the outcomes of the National Waste Review and the impact of reduced council budgets. It is possible that their role will change in future to one where they co-ordinated recycling services on behalf of waste producers rather than a deliverer of services to households. The localism agenda, carbon targets and their attitude towards risk were identified as further drivers of change in the municipal sector.

4.44 Turning to the survey findings, it is encouraging that despite the recession, around 10% of businesses have plans for major capital projects. Those that are expecting their business to grow expect that this will occur through increasing the volume of waste treated and providing more integrated services to clients. Respondents identified five key factors stimulating growth, including opportunities to access new markets, employee skills, technological change, environmental protection factors and changes in attitudes towards waste. It is also evident from the survey results, however, that businesses have been struggling to deal with the impact of recession. They identified several other factors constraining their growth including competition within the industry, legislation and regulation. The survey results also identified several key ways in which businesses believe Government action could help them maximise their economic potential. These are as follows:

- Simplified arrangements for acquiring permits and licences and, ideally, a reduction in the costs of doing so. Greater enforcement against those businesses perceived to be operating illegally was also highlighted as a key action.
- Balancing regulation and red tape with the volume of work undertaken by businesses as the current system appears not to differentiate between those operators dealing in large volumes of waste and those handling small amounts.

- Refining the planning system to make decisions about capital projects easier and quicker.
- The introduction of incentives to encourage recycling, particularly those directed at non-industry small businesses as this would provide opportunities for those working in the sector.
- Reduction in tax and fuel duty (although the latest Budget has reduced fuel duty by 1p).
- Public procurement to be made easier for small businesses to tender for contracts.
- Improving access to finance and for banks to start lending to businesses.

5 CONCLUSIONS

Background - A Developing Sector

5.1 The waste sector has experienced dramatic change over the last two decades with shifts in practices and attitudes mainly driven by legislation. The Government position has also changed with an increasing focus on waste reduction, reuse and recycling, as well as energy recovery. The Government believes there are considerable market opportunities that businesses can exploit in the transition to a zero waste, green economy. However, there is limited data about the composition and size of the waste management sector and its economic contribution to the UK economy. This study was commissioned by BIS to help address this gap and identify the types of actions the Government could take to create the conditions for growth. It is within this context that this review has taken place.

Toward a Definition for the Sector

5.2 One aspect of this study has involved developing a more refined definition of the waste sector than available through official means (standard industrial classifications or EC directives). The study definition gives more precision to identifying individual groups of economic activities related to different methods of waste treatment and disposal and the key processes involved. It includes the following ten activities:

- Re-use of products to divert waste at source;
- Collection and transport;
- Brokerage of waste;
- Sorting and storing;
- Disposal through landfill;
- Disposal through incineration;
- Treatment of waste;
- Processing of recyclate;
- Composting;
- Energy recovery.

5.3 For the purposes of this study, the waste management sector is seen to comprise local authorities, a relatively small number of large private employers, and a large number of small to medium sized enterprises (SMEs). The third sector has been excluded from the study, although it is acknowledged that it plays a role within the sector.

5.4 A large proportion of survey respondents are sole traders and micro employers. Unsurprising then, most of them operate a single site, primarily for the purposes of collecting waste, the sorting and sale of waste, and disposal through landfill. Only a small proportion are involved in activities such as recovering energy through waste, incineration and waste treatment. There are five types of waste that are most frequently handled by survey respondents. These are: (i) building waste; (ii) metals; (iii) green waste; (iv) packaging; and (v) electrical and electronic equipment. It is interesting to note that, like ICT, waste management 'bleeds' into many sub sectors including haulage, health, food and drink, construction and manufacturing. This suggests that the sector should best be viewed as comprising a core group of organisations who generate their primary income from waste

management activities, and a wider, peripheral group for whom waste management is a secondary or subsidiary function, most likely related to the type of waste there are generating from their primary activity.

The Size and Value of the Sector

5.5 The results from the survey indicate:

- There are a total of **128,000 FTEs**[23] in the core[24] waste management sector (more than official statistics which suggest some 94,000 employees in 2009).
- Waste management generated approximately **£7.5 billion GVA** (including the 16 largest companies) - higher than ABI2 data which suggests around £5 billion.
- Over half of the sector's employment is within three sub sectors: (i): carrying and collection (22%); (ii) processing of recyclate (17%); and (iii) sorting and sale of waste or scrap (17%).
- The sector generates an average **GVA per employee of £58,200**. This ranges from £32,800-£99,800 across ten main activities, from low intensity activities (composting) to those with considerable infrastructural investment/capital intensity (energy recovery).
- The sixteen largest waste management companies generate a **GVA of £1.55 billion**. They employ **27,500 FTEs** (18% of the core workforce).
- Over the ten year period from 2006-2016 the sector is predicting steady growth recovering to 2006 levels in 2013 with steady growth to the 2016 period.

5.6 Turning to local authorities, they employ approximately **22,175** people within the area of waste management (64% in waste collection, 18% in recycling). The resultant value of public sector 'turnover' is an estimated **£3.33 billion**.

Drivers of Change

5.7 There was universal agreement that European and national policies, legislation and directives have been, and will continue to be, the primary drivers of change. The decline in waste going to landfill and an increase in recycling is transforming the sector and stimulating the use of new technology, which increasingly is being used to recover energy. The activities associated with recovery and reuse of household, commercial and industrial waste are likely to increase as a result of a combination of economic and political factors. These include concerns with energy security, a shortage of some waste streams, industry regulations, and the ongoing impact of the Landfill Tax Escalator. The localism agenda, carbon targets and their attitude towards risk were identified as further drivers of change in the municipal sector.

5.8 It is encouraging that around one in ten businesses have plans for major capital projects. Those that are expecting their business to grow expect that this will occur through increasing the volume of waste treated and providing more integrated services to clients.

[23] Including large companies, excluding local authorities and the third sector.

[24] Those who claim 90% or more of the activity is in waste management.

Respondents identified five key factors stimulating growth, including opportunities to access new markets, employee skills, technological change, environmental protection factors and changes in attitudes towards waste. However businesses have been struggling to deal with the impact of recession, and other factors constraining growth include competition, legislation and regulation.

Support Stability and Growth within the Waste Management Sector

5.9 The survey results also identified several key ways in which businesses believe Government action could help them maximise their economic potential and remove barriers to growth. These are as follows:

- Simplifying arrangements for acquiring permits and licences and, ideally, a reduction in the costs of doing so, coupled with greater enforcement against illegal operators.
- Balancing regulation and red tape with the volume of work undertaken in the context of BIS's better regulation ambitions.
- Removing barriers to employment within the sector.
- Refining the planning system to make decisions about capital projects easier and quicker (clearly this needs to be within the context of appropriate checks and balances and the Government's desire for a planning regime which supports growth and sustainable development[25] via measures such as the Major Infrastructural Planning Unit).
- The introduction of incentives to encourage recycling, particularly those directed at small businesses not operating in waste management as this would provide opportunities for those working in the sector.
- Reducing tax and fuel duty (although the latest Budget has reduced fuel duty by 1p) and offering a tax regime that gives fiscal stability to the waste sector.
- Making it easier through the government's own activities (notably unlocking barriers to public procurement, promoting service development/shared services or construction for instance) for small businesses and others to tender.
- Improving access to finance and encouraging banks and others to continue lending to waste businesses to give businesses greater stability to plan and invest (through various government and industry led measures such as the Green Investment Bank).

5.10 In addition the government, through its shift to a zero waste, green economy may wish support those parts of the sector that add considerable value to UK productivity through its business improvement infrastructure by:

- Incentivising innovation for waste (through the network of technology and innovation centres).

25 http://www.bis.gov.uk/assets/biscore/corporate/docs/p/10-1296-path-to-strong-sustainable-and-balanced-growth.pdf see page 12

- Ensuring the sector gets its fair share of advice through the forthcoming business portal (perhaps by promoting the new service through intermediaries).

Appendix 1: Detailed Description of Waste Management Activities

	Production	Re-use/Diversion of waste by producer	Collection	Sorting/Storage	Recovery/Recycling	Disposal	Use
Description	Generation of waste by households, commerce, industry and agriculture	Activities that divert materials from the waste stream by the producer.	Collection of waste from households, commerce and industry.	Sorting of waste into material streams for recycling, and residual for disposal.	Recycling and recovery of material waste streams.	Disposal of residual waste to landfill/incineration	**Use of recovered materials to make new products**

Activities	**In-Scope**	**In-Scope**
		• Anaerobic Digestion
		• Energy from waste
		• Producer Compliance Schemes (WEEE)/Battery Compliance Schemes
			In-Scope
			• Civic Amenity Site
			• Commercial waste collection
			• Industrial waste collection
			• Kerbside/municipal Collection
			• Skip Hire
			• Building/Construction waste
			• Liquid waste collection
			• Special waste collection
			• Clinical waste collection
			• Tyre collection/treatment
			• PCBs Collection/Disposal
			• Street Cleaning
			• Charity/voluntary sector collection schemes (e.g. community composting, red-cross bags etc.)
				In Scope
				• Materials Recovery Facilities
				• Transfer station
					In Scope
					• Composting
					• Anaerobic Digestion
					• Incineration with Energy recovery
					• Energy from Waste through combustion
					• Gasification, pyrolysis
					• Waste oil recovery
					• Battery Treatment Operators
					• Battery Exporters
					• WEEE Treatment
					• ELV Authorized Treatment Facilities
					• Recycling
					  • Wood
					  • Glass
					  • Metals
					  • Paper
					  • Textiles
					  • Tyres
						In Scope
						• Landfill
						• Incineration (without energy recovery)
							In Scope

					• Plastics • End of Life Vehicles • Waste Electronics • Repair/refurbishment for re-use		
	Out of Scope • Sorting, storing and segregation of waste materials by the waste producer	**Out of Scope** • Charity shop donations • Re-use of waste materials within the construction industry • Farm slurry as fertilizer • Small scale energy from waste (e.g. domestic/small commercial woodchip boilers/stoves)	**Out of Scope** • Businesses that carry waste not for profit but in the course of their business (e.g. construction companies)	**Out of Scope** • Sorting and storage of waste by the producer	**Out of Scope**	**Out of Scope**	**Out of Scope** Production of: • Paper • Plastic bottles/products • Glass products • Textile products • Construction products • Agricultural/horticularual products • Fuel

Appendix 2: Technical Note

Methodological Approach

The approach to quantifying the sector uses two strands of analysis. This is based on the number of company sites using the Environment Agency permitted sites database:

- Companies – More than 20 Sites: Uses financial and employment information from company accounts posted on Companies House.
- Companies – Less than 20 Sites: Uses financial and employment information reported through the company online survey.

This approach was taken to ensure a high degree of accuracy in data for large employers (that will commonly have more than 20 permitted sites). Further explanation of each strand is detailed below.

Company Analysis – More than 20 Sites

Using the Environment Agency database permitted sites database all companies with over 20 sites were identified (excluding local authorities and water companies). Sixteen companies were identified (mainly national waste management and recycling company/groups). Their recent accounts were then downloaded from Companies House. Not every company had accounts posted for 2010 so the team focused on accounts for 2009. The employment figures are based on the assumption that this level of employment has been maintained to 2011.[26]

The companies included in the analysis are detailed (alphabetically) in Table A2.1. Data presented in the main section of the report is ranked in descending order by turnover and annonymised to ensure a degree of confidentiality.

[26] It should be noted that accountings period do vary - some end at the end of the financial year and some at the end of the calendar year.

Table A2.1: Companies – More than 20 Sites
Biffa
Cory Environmental
Durham County Waste Management Co
Environmental Waste Controls
European Metal Recycling
Focsa Service
H W Martin Waste
Lincwaste
May Guerney
Mercia Waste Management
Personnel Hygiene Services
Simms Group
SITA UK
Veolia
Viridor
Waste Recycling Group
Source: Environment Agency

The total number of employees have been discounted to allow for part-time workers and present a full time equivalent figure (the proportions of part-time workers are quite small in this sector). The figures should be read with caution for several reasons:

- The figures do not claim to contain every large waste management company (just those identifiable from the database with over 20 sites). For instance, not all of the waste management companies that appear elsewhere in 'top waste management company lists' operate primarily in the sector[27]. For this reason they are not included in the 'over 20 sites' analysis as once you strip out these activities the companies are no larger than many others registered on the database (and therefore will be included as part of that analysis). There will also still be some large waste companies that are not registered with over 20 sites as their activities are not all site based;

- Some of the accounting periods overlap;

- Finally, 2009 was a year of recession so may not reflect a 'typical' year (two companies posted a loss).

A GVA estimate was calculated by using the number of full time equivalent employees applied to the GVA per FTE value obtained from the survey.

The Company online Survey

The sample from the survey was compiled from three Environment Agency sources: the permitted waste facilities database; the carrier and broker database and the exemption database. The database was cleaned and duplicates removed, water companies removed (not with the terms of reference for this study) and local authorities (a separate analysis of their activity was undertaken). The survey was piloted with 500 businesses. The team

[27] For instance the HW Martin Group does employ 400 people but its activities include activities are recycling, waste management, aggregates, ready-mixed concrete and new homes and may have less that 20 site.

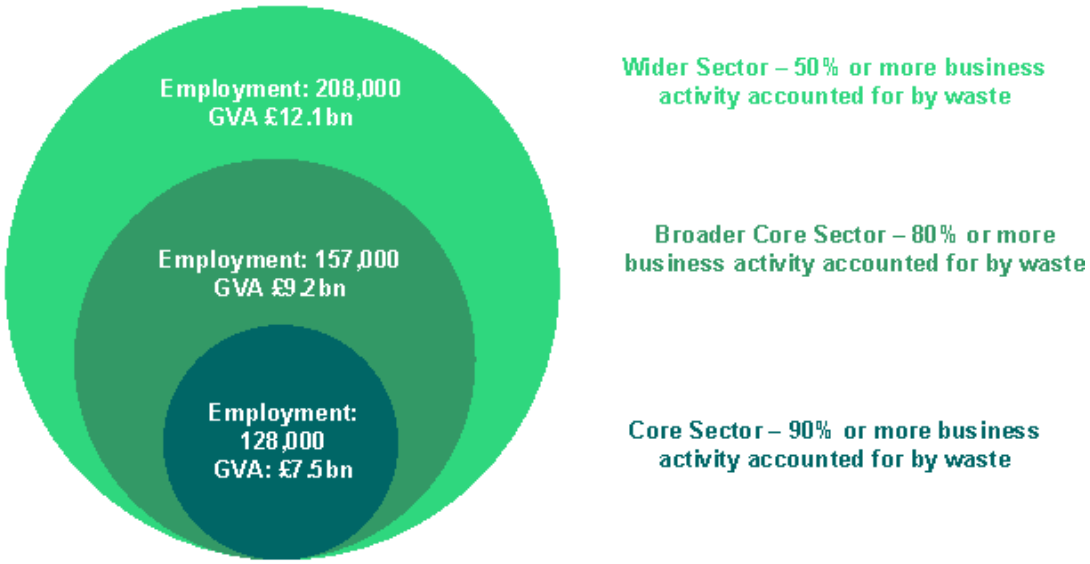
modified the survey in light of the response (inserting more tick box options and simplifying some of the questioning). As a result response and completion rates improved. The survey was sent to 50,759 potential respondents with email addresses (there were 3,195 bounce backs). Our survey software automatically filters out any duplicate email addresses. There were 1,251 responses to the survey.

Company Analysis – Less than 20 Sites

Defining the core sector: The Environment Agency databases used to compile the survey sample contain a broad range of industries. To provide a profile of the core sector the data presented in the report is drawn from respondents that stated 90% or more of business activity is accounted for by waste management. Figure A2.1 below details employment and GVA estimates based on three sector definitions (reflecting increasing proportions of activity accounted for by waste management).

Figure A2.1

Employment and GVA Estimates – Sector Definition Variations



Source: ekosgen 2011

Estimating Employment: An average number of employees was estimated for small, medium and large employers. This stratification reduced the influence of large companies in the survey sample (of which there was a higher proportion compared to ABI figures) inflating employment estimates.

Extrapolating survey responses: The survey responses have been extrapolated using the company data in the Environment Agency databases. This provides an estimate of the value of the sector nationally.

The method for extrapolation is based on applying the proportion of survey respondents who stated that 90% or more of their activity is waste management to the total number of businesses in the database (accounting for businesses registered across multiple databases and the public sector registrations).

The database was then stratified using ABI data by employment size band, which means in the database:

- 96.9% of businesses are assumed to be small
- 2.4% - medium
- 0.6% - large

The average number of employees for each size band (based on survey results) was applied to the respective proportion of the database to reach an overall total employment estimate.

GVA per activity: A GVA figure for each respondent is calculated using the method below. GVA is apportioned by activity using the split of employment across activities. The total is then expressed as GVA per employee. A key assumption in this calculation is that the proportion of company activity in waste management is equal to the proportion of turnover and profits accounted for by waste management.

Turnover * proportion of total business activity accounted for by waste management
Multiplied by
Proportion of turnover spent on employment costs
Plus
Profits * proportion of total business activity accounted for by waste management
Equals
GVA

Growth analysis: Growth trends for the sector are based on responses to the survey regarding current turnover, previous turnover growth/decline (rate per annum over the past five years) and forecast turnover growth/decline (rate per annum over the next five years).

The proportion of total business activity accounted for by waste management is applied to the current turnover. The reported current and future annual growth rates are applied to this turnover figure. This is expressed as an index with 2006 taken as the baseline.

Growth by activity: For each survey response, the proportion of total business activity accounted for by waste management is applied to the current turnover. This is the apportioned between the reported activities and the reported current and future growth trends are applied to the turnover figure. This is expressed as an index with 2006 taken as the baseline.

Standard Industrial Classifications

Existing secondary data provides an insight into the size of waste management sector in England. This section draws on the Annual Business Inquiry (ABI) dataset and the Business Register and Employment Survey (BRES) to identify the number of businesses operating in the sector and the size of its workforce. These datasets are based on Standard Industrial Classifications (SIC), which are periodically changed to reflect changes in economic activities. The most recent change in codes occurred in 2007 and the one previous to this in 2003. Although the 2007 SIC codes to not fully capture the different activities within the waste management and recycling industry, they are generally regarded to provide a clearer definition than 2003. To present a profile of the sector's composition using 2007 codes over

time, it has been necessary to reclassify data from 2003–2006. The table presents the 2003 SIC codes and their corresponding codes in 2007.

There are two other limitations to official datasets. First, any information marked as disclosive is removed from the data in order to be compliant with requirements of the Statistics of Trade Act. Second, they do not include local government employees working within the sector.

Description of SIC Codes for the Waste Management Sector			
SIC 2003	**SIC 2003 Description**	**SIC 2007**	**SIC 2007 Description**
9002	Collection and treatment of other waste	3810	Waste collection
		3820	Waste treatment and disposal
3710	Recycling of metal waste and scrap	3830	Materials recovery
3720	Recycling of non-metal waste and scrap		
9003	Sanitation, remediation & similar activities	3900	Remediation activities and other waste management services
5157	Wholesale of waste and scrap	4677	Wholesale of waste and scrap
Source: ONS			

Alongside the periodic changes to SIC codes, in 2010, the ABI was replaced by the BRES and this data is used to identify the size of the workforce for 2008 and 2009, the latest available. Given the changes in the way in which BRES data is collected, it is necessary to apportion the latest data to enable the two datasets to be compared.

Appendix 3: Analysis of the Environment Agency Databases

An Overview of the Waste Management Permits Database

The Environment Agency holds a database of sites that have been granted permits to operate landfill, waste transfer, waste treatment and other waste management activity. The details of each permit are shown in Table A3.1 below.

Table A3.1: Permit Definitions	
Landfill	
Landfills - Installations	These are non-inert landfills sites that were formerly re-permitted under the PPC regime as installations to meet the requirements of the Landfill Directive to carry on operations. They are deemed installations under the Environmental Permitting Regulations.
Landfills - Inerts Waste Operations	These are inert landfill sites that were formerly re-permitted under the PPC regime as installations to meet the requirements of the Landfill Directive to carry on operations, but were then subsequently de-regulated to waste operations under the Environmental Permitting Regulations. It includes new inert sites permitted under EPR.
Landfills - appeal sites	These are landfills that applied to be re-permitted under the PPC regime but were refused and subsequently appealed. They continue to be allowed to operate until their appeal is resolved.
Transfer and Treatment	
Transfer - Waste Operations	Sites that are permitted for waste transfer activities, formerly waste management licences that are deemed as waste operations under the Environmental Permitting Regulations.
Treatment - Waste Operations	Sites that are permitted for waste treatment activities, formerly waste management licences that are deemed as waste operations under the Environmental Permitting Regulations. Note some of these sites will have been superseded by new permits for installations. Sites that are permitted for more than 10 tonnes per day (hazardous waste) and 50 tonnes per day (non hazardous) waste are permitted as installations. This category includes MRFs (Material Recycling Facilities), Metal Recycling Sites, Physical/Chemical Treatment Facilities. Composting and Biological Treatment Sites.
Treatment - Installations	Sites that were re-permitted under the PPC regime that are deemed as waste installations under the Environmental Permitting Regulations. Note some of these sites will have superseded permits for waste operations. Sites that are permitted for more than 10 tonnes per day (hazardous waste) and 50 tonnes per day (non hazardous waste) are permitted as installations and waste recovery installations.
Other operations	
Standard Rules Permits	Sites that were previously exemptions but are now permits under the Environmental Permitting Regulations since April 2010.
Other waste operations	These include all other site types not included in the list above.
Incineration	Sites that are permitted as waste installations under the Environmental Permitting Regulations. It includes only those facilities that accept waste from off-site sources. It does not include facilities that burn their own in-house process waste. Latest data is for operational facilities up to the end of 2009.

There are a total of 5,922 companies that have a permitted site and Table A3.2 shows the number they operate. The vast majority have a permit for a single site, although just over 10% companies hold permits for up to five sites. A very small, five companies, have permits for more than 51 sites.

Table A3.2: Number of Permitted Sites per Company		
	Number of permitted sites	**%**
Single site	5,144	87%
2 – 5	778	11%
6 – 10	69	1%
11 – 20	29	0.5%
20 – 30	12	0.2%
30 – 50	7	0.1%
51 – 100	2	0.03%
More than 100 sites	3	0.1%
Total	**5,922**	**100%**
Source: Environment Agency		

Table A3.3 presents an analysis of site activity by permit type, detailing permitted sites and the number of companies. Overall, the 5,922 companies registered on the Environment Agency's database operate across 8,858 permitted sites. By far the largest activity is Transfer and Treatment, accounting for 7,780 permits issued to just over 5,600 companies. Within this area, the Treatment of Waste Operation is the most significant activity, accounting for nearly 3,900 permits issued to 3,211 companies.

Reflecting recent policy and legislation, landfill activities comprise a small proportion of waste management and recovery sector. There are currently estimated to be nearly 270 companies operating across 495 sites. There are virtually an equal number of companies involved in Landfill Installations and Inert Waste Operations, although the number of permitted sites is significantly higher for Landfill Installations.

Table A3.3: Sites and Companies by Permit Type			
	Permitted sites		**Companies**
	Number	**%**	**Number**
Landfill			
Landfill Installations	303	3%	132
Landfill - Inert Waste Operations	187	2%	131
Landfill Appeal Sites	5	0.1%	4
Transfer and treatment			
Transfer Waste Operations	3,609	41%	2,217
Treatment Waste Operations	3,872	44%	3,211
Treatment Installations	299	3%	181
Other activity			
Operational Incinerators	80	1%	55
Other Waste Operations	356	4%	306
Standards Rules Permits	147	2%	140
Total	**8,858**	**100%**	*
Source: Environment Agency * The figure for the total number of companies is not presented because 778 of them have a permit for two or more sites.			

Table A3.4 shows the balance of ownership of permitted sites between the public and private sectors. Primarily, they are owed by the private sector, with less than 10% of permitted sites in public ownership. Virtually all of these are owned by local authorities with a tiny number under the control of the NHS or other public sector agencies. The highest proportion of local authority sites relate to the Transfer of Waste Operations.

Table A3.4: The Ownership of Permitted Sites				
	Private sector	**Municipal**	**NHS**	**Other agency**
Landfill Installations	98%	2%	0%	0%
Landfill - Inert Waste Operations	99%	1%	0%	0%
Landfill Appeal Sites	100%	0%	0%	0%
Transfer Waste Operations	85%	13%	1%	1%
Treatment Waste Operations	99%	1%	0%	0%
Treatment Installations	99%	1%	0%	0.3%
Operational Incinerators	94%	1%	3%	3%
Other Waste Operations	98%	1%	1%	1%
Standards Rules Permits	99%	1%	0%	0%
Total	**93%**	**6%**	**0.3%**	**0.3%**

The permitted sites database details the activity carried out at each site under the permit type. This is detailed in Table A3.5 to A3.10 below.

Table A3.5: Landfill Site Activity – Number of sites	
Landfill Installations	
L04 - Non Hazardous	227
L02 - Non Hazardous Landfill With SNRHW cell	51
L01 - Hazardous Merchant Landfill	17
L06 - Hazardous Restricted Landfill	8
Landfill - Inert Waste Ops	
L05 - Inert Landfill	187
Source: Environment Agency	

Table A3.6: Transfer Site Activity – Number of sites	
Transfer Waste Ops	
A11 : Household, Commercial & Industrial Waste T Stn	2,073
A13 : Household Waste Amenity Site	650
A9 : Special Waste Transfer Station	477
A14 : Transfer Station taking Non-Biodegradable Wastes	162
A12 : Clinical Waste Transfer Station	113
S0801 : HCI Waste Transfer Station	49
S0813 : Non-hazardous & hazardous HWA Site	36
S0809 : Asbestos Waste Transfer Station	20
S0805 : HCI Waste TS + asbestos	11
S0824 : Clinical Waste Transfer Station	11
S0802 : HCI Waste TS (no building)	3
S0810 : Inert & Excavation Waste TS	2
S0812 : Non-hazardous household waste amenity site	1
S0905 : Inert & Excavation WTS	1
Source: Environment Agency	

Table A3.7: Treatment Site Activity – Number of sites	
Treatment Waste Ops	
A20 : Metal Recycling Site (mixed MRS's)	818
A19a : ELV Facility	812
A19 : Metal Recycling Site (Vehicle Dismantler)	788
A16 : Physical Treatment Facility	324
A15 : Material Recycling Treatment Facility	257
A22 : Composting Facility	214
A23 : Biological Treatment Facility	127
S0803 : HCI Waste TS + treatment	123
S0820 : Vehicle depollution facility	114
A17 : Physico-Chemical Treatment Facility	92
S0823 : WEEE treatment facility	47
S0807 : HCI Waste TS + treatment + asbestos	31
S0814 : Materials Recycling Facility	28
A21 : Chemical Treatment Facility	21
S0811 : Inert & excavation Waste TS + treatment	19
S0821 : Metal recycling site	14
S0819 : Sewage sludge treatment	12
S0816 : Composting in open windrows	9
S0906 : Inert & Excavation WTS with treatment	8
S0817 : Composting in closed vessels	5
S0825 : Clinical Waste Transfer Station + treatment	3
S0904 : Combustion of Bio Gas	3
S0804 : HCI Waste TS + treatment (no building)	2
S0818 : Mechanical biological treatment	2
S0808 : HCI Waste TS + treatment + asbestos (no building)	1
Treatment Installations	
Other waste disposal; hazardous waste >10T/D	92
Other waste disposal; waste oils >10 T/D	74
Other waste disposal; non-hazardous waste >50T/D by physico-chemical treatment	45
Other waste disposal; non-hazardous waste >50T/D by biological treatment	40
Recovery of waste; by distillation of oil/organic solvent	21
Other waste disposal; non-hazardous waste >50T/D by biological treatment	8
Recovery of waste; hazardous waste >10T/D by recycling inorganics (not metals)	6
Recovery of waste; cleaning/regenerating carbon etc by removing scheduled substances	6
Recovery of waste; hazardous waste >10T/D by use as a fuel	2
Other waste disposal; hazardous waste >10T/D; waste oils >10 T/D	1
Other waste disposal; non-hazardous waste >50T/D by biological treatment; non-hazardous waste >50T/D by physico-chemical treatment	1
Other waste disposal; hazardous waste >10T/D; non-hazardous waste >50T/D by biological treatment	1
Other waste disposal; waste oils >10 T/D; non-hazardous waste >50T/D by physico-chemical treatment	1
Source: Environment Agency	

Table A3.8: Incineration Site Activity – Number of sites	
Operational Incinerators	
Clinical	22
Municipal	21
Co-Incineration of non hazardous waste	9
Hazardous	8
Co-Incineration of hazardous waste	7
Sewage Sludge	7
Animal By-Products	5
Animal Carcasses	1
Source: Environment Agency	

Table A3.9: Other Operations Site Activity – Number of sites	
Other Waste Operations	
A24 : Mobile Plant	151
A18 : Incinerator	72
A10 : In-House Storage Facility	36
S0827 : Mobile Plant for remediation of land	32
A25 : Deposit of waste to land as a recovery operation	24
S0826 : Animal carcass incinerator (Pet Crematorium)	20
S0901 : Pet Cemetery	11
S0907 : Storage of furnace ready scrap metal for recovery	4
S0904 : Combustion of Bio Gas	3
S0822 : Storage of furnace-ready scrap for recovery	2
S0908 : Management of inert or extractive waste at mine	2
Source: Environment Agency	

Table A3.10: Standard Rules Permitted Site Activity – Number of sites	
Standards Rules Permits	
SR2010 No4: Mobile plant for land spreading	110
SR2010 No5: Mobile plant for reclamation, restoration	9
SR2010 No9: Use of waste for reclamation etc <50,000 tps	7
SR2010 No7: Use of waste in construction <50,000 tps	6
SR2010 No12: Treatment of waste to produce soil <75,000 tpy	4
SR2010 No8: Use of waste in construction <100,000 tps	4
SR2010 No16: On-farm anaerobic digestion <75,000 tpy	3
SR2010 No6: Mobile Plant for landspreading sewage sludge	2
SR2010 No10: Use of waste for reclamation etc <100,000 tps	1
SR2010 No15: Anaerobic digestion facility <75,000 tpy	1
Source: Environment Agency	

An Overview of the Carrier and Broker Database

The Environment Agencies requires companies that transport controlled waste to register as a waste carrier. It also requires those that arrange waste disposal or recovery to register as waste brokers. As shown in Table A3.5, there are nearly 122,000 organisations registered as waste carriers and brokers, of which 0.2% are from the public sector. There are, however, some activities exempt from registration and these are summarised in Table A3.6.

Table A3.5: Carriers and Brokers	
Total number of registered carriers and brokers	121,848
Public sector organisations	281
Source: Environment Agency	

Table A3.6: Carrier and Broker Registration Exemptions
Carriers
Carrying waste that the company has produced (excluding building or demolition waste);
Moving waste between different places within the same premises
Transporting waste from outside Great Britain to a place within it and the waste is not landed in Great Britain until it arrives at that place
Waste is being transported by sea or air from a place in Great Britain to a place outside Great Britain
Ferry operators in carrying vehicles carried on the ferry
Operators of a vessel, aircraft, hovercraft, marine structure, floating container or vessel being used to dispose of waste at sea in accordance with the Food and Environmental Protection Act (FEPA) 1985
Brokers
Companies arranging for their own waste to be disposed of or recovered
Companies arranging the disposal or recovery of someone else's waste who will also transport it as a registered carrier
Arranging for someone else's waste to be disposed of or recovered if the company is the operator of the authorised site where the waste is going to
A Waste Collection Authority, Waste Disposal Authority or Waste Regulation Authority under Part II of the Environmental Protection Act 1990
Charities
Voluntary organisations under section 48(11) of the Local Government Act 1985
A carrier or broker of agricultural waste or mines or quarries waste only
A carrier or broker of animal by-products only
Source: Environment Agency

An Overview of the Exemption Database

The Environment Agency requires organisations than handle specific types of low risk waste that do not require a permit to register for a waste exemption license. There are 14 exemptions that are of relevance to this study as they form an integral component of the core waste management sector. As shown in Table A3.7, there are nearly 2,000 companies which, between them, are registered for 3,800 exemptions across 14 different types of activities.

Table A3.7: Exemptions	
Total number of registered exemptions	3,806
Total number of companies with exempt site	1,957
Source: Environment Agency	

Table A3.8 shows the number of exemptions by activity type and the number of companies who have been granted an exemption against each activity. Companies are concentrating their activities in three key areas that do not require a permit and these are: (i) prepatory treatment of waste; (ii) the treatment of waste wood and plant matter; (iii) the recovery of scrap metal. Between them, they account for 45% of all exemptions.

Table A3.8: Exemptions by Type				
Description		**Exemptions**		**Comp.**
		No.	**%**	**No.**
T4	Preparatory treatments (baling, sorting, shredding)	917	24%	658
T6	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising	773	20%	535
T9	Recovery of scrap metal	563	15%	501
T11	Repair or refurbishment of Waste Electrical and Electronic Equipment)	354	9%	307
T12	Manual treatment of waste	261	7%	169
T10	Sorting mixed waste	256	7%	208
T1	Cleaning, washing, spraying or coating relevant waste	193	5%	157
T8	Mechanical treatment of end-of-life tyres	134	4%	89
T16	Treatment of waste toner cartridges by sorting, dismantling, cleaning or refilling	84	2%	68
T2	Recovery of textiles	76	2%	65
T24	Anaerobic digestion at premises used for agriculture and burning of resultant biogas	66	2%	57
D5	Depositing samples of waste for the purposes of testing or analysing them	57	1%	36
T25	Anaerobic digestion at premises not used for agriculture and burning of resultant biogas	52	1%	40
T19	Physical treatment of waste edible oil and fat to produce biodiesel	20	1%	20
		3,806	100%	

Source: Environment Agency
Note: The figure for the total number of companies is not presented because some hold multiple exemptions.