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Our work across local government, health, housing, community safety and fire and rescue services means that we have a unique perspective. We promote value for money for taxpayers, covering the £180 billion spent by 11,000 local public bodies.

As a force for improvement, we work in partnership to assess local public services and make practical recommendations for promoting a better quality of life for local people.
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1 Reducing the amount of waste sent to landfill is an urgent environmental and financial priority for the UK.

- Methane emissions from landfill sites account for 3 per cent of total UK greenhouse gas emissions.
- The UK still sends more waste to landfill than many other western European countries.
- At the current rate of use, the UK’s landfill sites will accommodate only seven more years of landfilling waste.
- The EU has set targets for diverting biodegradable waste from landfill by 2010, 2013 and 2020 and will impose fines if these are not met.

2 English councils with waste disposal responsibilities are under pressure to act to reduce the volume of municipal waste sent to landfill.

- If these councils exceed their landfill allowances they face penalties of £150 per tonne.
- Although these councils have the opportunity to trade allowances, there has been very little trading so far.
- Landfill tax costs councils £32 per tonne of waste landfilled today (around £25 per household per year), rising to £48 per tonne in 2010, with the possibility of future increases.
- Nearly all local area agreements include at least one waste indicator that depends on diverting waste from landfill.
- Councils feel pressure from the public to act on environmental concerns, including waste management and climate change issues.
Summary

3 Councils are planning to spend billions of pounds on new waste disposal infrastructure.

- Private finance initiative (PFI) credits of £2 billion are available between 2008 and 2010.
- By 2020, councils plan to introduce enough recycling and treatment capacity to divert ten million tonnes of biodegradable waste per year from landfill.
- Procuring a major new waste treatment facility typically takes seven years or more.

4 Diverting waste from landfill will substantially increase the amount of waste that is incinerated to generate energy.

- The amount of waste recycled or composted should increase by half and the capacity of treatment plants to deal with residual waste will double.
- By 2020, a minority of councils with waste disposal responsibilities expect to be able to recycle more than half their biodegradable waste.
- Most council plans involve generating energy by burning waste or its by-products.
- Few councils expect waste minimisation to reduce total waste significantly.
- Cost considerations discourage landfill, but may not help councils to choose the most environmentally sustainable alternative.
5 **Short term landfill diversion targets are likely to be met, but the medium and longer term picture is less certain.**

- A combination of improved recycling and more waste treatment means that the 2010 target is likely to be met.
- Unless plans are delayed, we would expect the 2013 target to be met by a small margin.
- Targets are most likely to be missed if waste treatment infrastructure is not operational in time.
- If those plans are delayed by a year, English councils will landfill slightly above the 2013 target.
- The 2020 target is achievable if councils’ plans are delivered without significant delays.

6 **Councils face significant financial risks if targets are not met.**

- Councils could face costs of up to £7 million (£30 per household) if the 2013 national target is missed.
- Councils that have put facilities in place could benefit by up to £5 million in 2013.
- Even if the national target is met, councils that miss their own targets risk facing bills of up to £2 million.
- Additional costs resulting from new facilities, or the burden of penalties, will need to be met by local taxpayers.
7 New waste disposal facilities may not secure good value for money.

- Few councils generate enough waste alone to justify building an incinerator with energy recovery of the most efficient scale; and few partnerships are able to achieve the maximum benefits of coordination and scale.
- Business cases for new investment are based on uncertain future values of landfill allowances and levels of landfill tax.
- Long term investment decisions may be proved obsolete by adoption of more advanced technologies or by changes in regulation or public opinion.
- The amount of new infrastructure that is needed in a relatively short timescale may result in higher prices.

This report will help councils identify and manage these risks.
Questions for councillors to ask

- How much municipal waste do we expect to be collecting over the next five years? What are we doing to reduce that? What effect do we expect our efforts to have on the amount we collect, its composition or the cost of disposing of it?

- How much of our municipal waste do we expect to be recycled over the next five years? How are we going to achieve that? What will we need to spend on new facilities or collection arrangements?

- What will be left (that we can’t recycle) beyond what our landfill allowance permits us to landfill? What are we going to do with that waste?

- Do our arrangements for disposing of waste complement what neighbouring councils are doing? Do they take account of developments in local commercial waste markets?

- Would our arrangements still look efficient if viewed from a regional perspective? From a national perspective?

- How do we know we are getting good value for the money we spend on waste disposal arrangements (right scale of facilities, right balance of technologies, right contract structure and funding arrangements)? What will we do with any treatment capacity we don’t need for our own waste?
Questions for councillors to ask

- Who bears the cost of our waste management arrangements? Do those arrangements represent good value for money for local and national taxpayers?

- What are the risks that any new waste treatment facilities we need will not be ready on time? What will the consequences be if they are not? How are we managing those risks?

- What will we do if we landfill more than we expect? Do we have a strategy for trading landfill allowances and are we equipped to implement it?

- Do we know what landfill allowances might cost if we had to buy some unexpectedly? How would we pay for them?

- How are we engaging the public in the challenges of disposing of waste in the most efficient and environmentally desirable way?

- Do we have adequate arrangements for considering options and for making and scrutinising decisions on waste disposal?
Recommendations

Authorities with waste disposal responsibilities should...

1. Forecast the amount and composition of waste arising in their area based on past trends and sound data on household and population growth.

2. Actively test the Landfill Allowance Trading Scheme (LATS) market, including trading in future allowances, to realise its full potential to manage the financial risks of landfilling more or less than the authority’s initial allocation of landfill allowances for biodegradable municipal waste.

3. Apply common, objective approaches to assessing the environmental impact of waste treatment.

4. Weigh the relative costs of investment in waste disposal infrastructure and buying LATS allowances, ensuring they have thoroughly investigated the alternatives to investing in waste infrastructure, such as LATS trading and partnering with other authorities.

5. Consider the role of smaller scale projects, possibly financed through prudential borrowing, as a complement or alternative to larger PFI projects.

6. Ensure that senior officers and members (especially cabinet members, portfolio holders and those involved in scrutiny), understand the dimensions of value for money in waste disposal and scrutinise decisions effectively.

7. Integrate their communication of their waste disposal strategy with other aspects of their approach to communications with the public, and consider using a broad variety of communication approaches.

8. Ensure public consultation includes clear communication of the financial impact on council budgets and on taxpayers of different options for dealing with waste.

9. Ensure that they understand the local market for collection and disposal of commercial and industrial waste, and explore opportunities for coordinating across waste streams in partnership across sub-regions and with waste collection authorities (WCAs) where relevant.
Recommendations

10 Explore opportunities to coordinate infrastructure commissioning and disposal activity with neighbours, bilaterally or through regional or sub regional arrangements.

11 Work in partnership with WCAs where relevant, to ensure that waste management performance is optimised across the local area. This may involve supporting investment in new collection infrastructure in WCAs, where this could improve cost-effectiveness for council taxpayers in the long term.

12 Prepare for future opportunities and challenges. These include changes in the market value of outputs from waste treatment, opportunities in the medium term to maximise the benefits of landfill allowance trading, and challenges in the longer term to further improve environmental performance.

Central Government should...

13 Provide as much long term certainty as possible in fiscal (landfill tax) and trading (LATS) regimes to enable sensible planning and investment appraisal.

14 At the next review of landfill tax policy consider options for setting long term objectives for the landfill tax regime and harmonising it more closely with the LATS regime.

15 Work with the municipal waste sector to collect and publicise reliable data on the combined effect of local waste management strategies to enable more accurate estimation of the future demand for landfill allowances.

16 Continue to look for new ways to stimulate the LATS market and promote its proper use, for example by working with Regional Improvement and Efficiency Partnerships to introduce a new trading platform, to improve the functionality and transparency of the LATS system.

17 Explore other ways to encourage or incentivise regional or sub-regional coordination, for example through multi area agreements.

18 Develop methods to take account of waste minimisation for waste planning purposes.
19 Monitor the impact of the New Technologies Demonstrator Programme and assess the need for future government support, to promote the use of more efficient or cost-effective new technologies.

20 Ensure the lessons learnt from the LATS are applied appropriately to other trading schemes such as carbon trading proposals, to ensure these schemes are consistent with each other and as effective as possible.

The Audit Commission will...

21 Develop and publicise a guide to waste scrutiny, based on the findings of this report.

22 Provide materials to help local authority members understand the challenges of securing value for money in waste disposal.

23 Use the lessons from this study to inform and update its guidance to auditors.
Box 1.1
What is municipal waste?
The definition of municipal waste is not straightforward and is approached differently by different member states of the European Union. The government will amend the definition in the Waste and Emissions Trading (WET) Act 2003, with effect from 2008/09:

‘Municipal waste encompasses all waste that comes into the possession or under the control of waste disposal or waste collection authorities, with the exception of construction and demolition waste.’

The WET Act contains measures that are designed to control the amount of biodegradable municipal waste (BMW) that is landfilled.

The challenge of diverting waste from landfill
1 Disposing of waste is one of the biggest and most urgent challenges facing English councils. In 2006/07 English councils dealt with over 29 million tonnes of waste, almost 26 million tonnes of which was generated by households (Ref. 1). Around a third of it was recycled or composted, but over half was sent to landfill. This is a relatively high proportion in comparison with other European countries, but recent increases in recycling rates have closed the gap somewhat, and if the recycling targets set out in the government’s waste strategy are met, that gap will narrow still further by 2020 (Ref. 2).

2 About two-thirds of municipal waste is biodegradable and produces methane as it decomposes underground in landfill sites. Methane is a potent greenhouse gas, and in 2006 almost 1 million tonnes of methane was released from UK landfill sites. This was about 3 per cent of the total UK greenhouse gas emissions. Waste management practices affect greenhouse gas emissions in other ways too. For example, reducing the amount of waste generated and recycling more of it has the potential to reduce CO₂ emissions. Where energy can be generated from waste this can reduce the need for more carbon-intensive power generation technologies.

3 Other aspects of waste management also have an impact on the environment. Transporting waste over long distances generates CO₂ emissions. Transporting and some ways of processing waste need to be carefully managed to avoid giving rise to air and noise pollution and soil or groundwater contamination. In broad terms, it is environmentally best not to generate waste at all, but once it exists it is better to recycle it than to treat it, and better to treat it than to landfill it. Box 1.2 describes the generally accepted order of environmental desirability of waste disposal techniques (known as the waste hierarchy).
Box 1.2

The waste hierarchy

Avoidance/minimisation – making more efficient use of material to generate less waste.

Reuse – using products more than once instead of disposing of them.

Recycling – reprocessing material so it can be used again. Material may be collected separately at source (kerbside collections, at bring sites and household waste recycling centres (HWRCs)), separated from mixed recyclables at materials recovery facilities (MRFs) or recovered from the first stage of waste treatment.

Composting – decomposing organic waste so it can be used again as compost. Garden waste can be composted in the open air, while food waste must be composted in an enclosed process such as in-vessel composting or anaerobic digestion (AD).


- All forms of energy from waste use combustion to generate electricity. The efficiency of the process is increased if heat is utilised alongside electricity generation (combined heat and power (CHP)). Plants are subject to rigorous controls on the release of atmospheric emissions.
- The forms of energy from waste differ depending on whether they burn unsorted waste or only one element of it, and on whether they burn waste directly or convert it into gas which is then burned (Ref. 3).
- AD is a form of energy recovery since it produces a gas. AD of source-separated food or garden waste is classed as composting by Defra but AD of mixed waste is not.

These plants are also known as materials recycling facilities and materials reclamation facilities, slightly different names for the same thing.
Box 1.2
The waste hierarchy (continued)

- MBT processes involve separating residual waste into different elements. Some recyclable material can be extracted. Energy can be generated from part of the waste using the processes mentioned above, or a fuel can be produced for use in industry. Some versions of MBT produce a low grade compost-like output (CLO), a material for which there are limited uses.

Landfill – disposing of material by burying it underground. Material that is not diverted through any of the above processes is typically landfilled. In common with all waste facilities, landfill sites are subject to environmental controls. A proportion of the methane emitted as landfill gas is captured and used to generate electricity.

4 Disposing of waste is both a national and a local problem. The EU Landfill Directive I binds the UK to reduce the amount of waste it sends to landfill markedly (with penalties of up to £180 million per year for UK non-compliance) (Ref. 4). But the responsibility for disposing of waste lies with single and upper tier councils, which are designated waste disposal authorities (WDAs). II The Department for Environment, Food and Rural Affairs (Defra) has adopted a waste strategy for England that relies on WDAs reducing the amount of waste landfilled in line with the EU directive targets, and passes on the financial consequences of not doing so. So the financial implications for some councils could be severe.

5 Moreover, waste collection and disposal are emotive local issues, and environmental and waste collection services have a high public profile. Decisions on rubbish collection, and planning decisions relating to waste disposal infrastructure, can be intensely controversial.
1 National problem, local solutions

6 Collecting municipal waste cost councils £1.15 billion (£53 per household) in 2006/07. Waste disposal cost a further £1.46 billion (£68 per household), and those costs are increasing. Landfill capacity is declining because of planning and licensing restrictions, and because the industry, fearful of more restrictive regulation in future, is reluctant to invest in new void space. The remaining capacity at permitted sites in England and Wales at the end of 2006 was only sufficient for seven more years at the current rate of use, although more investment in recycling and other forms of diversion would extend its remaining life (Ref. 6). Though there is no consistently available data on the cost of landfill, WDAs report that costs are rising now and expect them to continue to do so.

7 The biggest single component of the cost of landfill is the level of landfill tax, which is levied on each tonne of waste landfilled. This has increased from £7 per tonne when it was introduced in 1996 to £32 per tonne with effect from 1 April 2008, and will rise further to £48 per tonne in 2010.

8 Councils in England are investing heavily in a variety of measures to divert waste from landfill. This often involves capital investment in major waste disposal infrastructure projects, and usually also increased revenue expenditure. Councils that have recently moved to low levels of landfill usage have seen increases of 50 per cent or more in their spending on waste disposal. Councils planning to move to low levels of landfill usage are anticipating increases of a similar order. Many councils are entering into disposal contracts lasting over 20 years; the largest are worth over £4 billion over that period, covering both capital investment and enhanced services.

9 So there are both environmental and financial reasons to be concerned about waste disposal. This study has focused on what councils are doing to meet the challenge of reducing the amount of waste sent to landfill. It draws on a survey of WDAs, an analysis of published waste strategies and fieldwork in selected WDAs. Details of the methodology can be found at Appendix 1. This report has four main purposes:

- it describes and comments on the structure of policies and incentives that Defra has put in place and within which WDAs have to work;
- it presents the results of a detailed survey of local authorities’ plans for waste disposal and forecasts future patterns in waste disposal and the consequences for WDAs’ finances;

The figures are for net expenditure, including capital charges (Ref. 5).
• it presents a guide for members and officers in WDAs to the challenges of securing value for money (VFM) and engaging their communities in reducing the amount of waste sent to landfill; and

• it provides an introduction to the subject for non-experts (including elected members coming to the subject for the first time), and an aide-memoire for those more familiar with the issues.

10 The report is structured in seven chapters:

• Chapter 2 describes the delivery chain for the landfill directive.

• Chapter 3 assesses the policy and institutional framework and its impact on local authorities and local communities.

• Chapter 4 describes how English WDAs have responded collectively to the incentives and pressures described in the previous chapter; it includes forecasts to 2020 both of the destination of waste and of the financial consequences for WDAs.

• Chapter 5 explores the VFM issues that arise at the individual WDA or waste partnership level, and assesses the risks that they face.

• Chapter 6 looks at the community leadership role of councils: how they are working in partnership, building vision and direction for the local area, engaging with the public and effecting behaviour change.

• Chapter 7 summarises our conclusions.

11 Alongside this report we are publishing the following additional products to help councils in their role:

• a slide pack providing an introduction to the issues for new portfolio holders and others; and

• a guide to help councils with scrutiny of major waste disposal infrastructure procurement.
The delivery chain for the landfill directive

12 WDAs are the central players in a delivery chain for meeting the requirements of the Landfill Directive (Figure 2.1). They are subject to policies and funding mechanisms laid down by other tiers of government, which leave them facing complex and difficult decisions with serious financial implications. This chapter describes the components of the delivery chain and the next chapter comments on the impact of this delivery chain on WDAs.

13 Other key players not included in Figure 2.1 are the regulators including the Environment Agency (EA) and the Audit Commission. The EA, in particular, is the lead regulator for waste, and is a source of expertise and assistance for councils. It is the competent authority responsible for tracking, monitoring and reviewing the performance of local authorities within LATS, calculating the biodegradability of municipal waste landfilled, managing the electronic trading registry and monitoring weighed waste deposited in landfill sites. Its responsibilities extend beyond municipal waste, for example it regulates most waste treatment and disposal sites, waste carriers and waste exports. The Agency’s general activities to improve waste data will also be relevant to authorities, as will its work with the Waste and Resources Action Programme (WRAP) to support markets for outputs and products derived from waste (the Quality Protocols Programme).

Councils have to work within the Landfill Directive delivery chain

14 The European Union Landfill Directive requires the UK to: ‘reduce the amount of biodegradable municipal waste landfilled to 75 per cent, 50 per cent and 35 per cent of its 1995 level by 2010, 2013 and 2020 respectively.’

15 If the UK does not meet these targets, the government and therefore taxpayers face the threat of fines at the national level. The UK government has chosen to pass on the risk of incurring financial penalties to local authorities. If the national target was exceeded by 10 per cent, penalties of around £100 million would be imposed by the government on English local authorities. The government has also decided to use other financial incentives including landfill tax, landfill allowances and the Landfill Allowance Trading Scheme (LATS), which affect distribution. These are designed to put an economic cost on the environmental impacts of landfill, to encourage WDAs to reduce the amount of waste going to landfill and to ensure that landfill reductions are achieved in a cost effective way. These policies are described in more detail below.

16 In addition to these actual and potential penalties, the government provides incentives in the form of funding available for waste disposal.
Councils are central to the Landfill Directive delivery chain and are subject to penalties and incentives.

Source: Audit Commission

### Figure 2.1
Councils are central to the Landfill Directive delivery chain and are subject to penalties and incentives

- **European Commission**
  - Fines for non-compliance
  - Directives and regulations
    - eg Landfill Directive, procurement regulations
    - Waste hierarchy principles

- **National government**
  - Landfill allowance, LATS
  - Landfill tax
  - Waste Infrastructure Delivery Programme
  - Waste PFI, Waste Infrastructure Capital Fund
  - Waste strategy guidance
  - Regional tier (RA, RDA, GOs)
  - Regional planning policy
  - Commercial and municipal waste planning
  - Strategic planning
  - Economical development

- **Waste disposal authorities**
  - Mainstream funding
  - Recycling credits system
  - Precept or levy
  - Waste strategy
  - Waste development framework
  - Voluntary partnerships

- **Waste collection authorities**
  - Council tax
  - Charging policy
  - Recycling infrastructure
  - Encouragement/enforcement

- **Public**
  - Charges for certain types/amounts of waste
  - Participation in recycling, reuse and waste minimisation schemes

(Diagram excludes non-departmental public bodies, professional and membership organisations)

Source: Audit Commission
A proportion of the revenue support grant is determined according to an authority’s waste expenditure needs but is not ring-fenced for specific services.

Infrastructure through the private finance initiative (PFI) programme. It has allocated £2 billion of PFI credits for the three-year period from 2008/09 to 2010/11. These credits represent the amount of capital investment within local authority waste PFI projects that will be supported by central government grants after the projects become operational (see Box 2.1). This funding is on top of local authorities’ main source of government funding, the revenue support grant, and non-ringfenced capital grants from the waste infrastructure capital fund, worth £101 million in 2008/09.

However, the delivery chain goes beyond councils and beyond the reach of targets, penalties and incentives. Reducing the proportion of waste going to landfill depends, to a large degree, on changing public behaviour. Councils must find ways to influence their communities to recycle and reduce waste. But they have limited ability to pass on the financial incentives or penalties to which they are subject, because charging for household waste is constrained by legislation. Service users bear the cost collectively through taxation, not as individuals. Also, it is difficult to predict householders’ future behaviour in relation to waste, particularly as councils do not have a major influence on supply side factors such as consumption and packaging design.

The European Union introduced the Landfill Directive in July 1999 with the deadline for implementation of the legislation in the member states in July 2001. The UK obtained a four-year derogation (that is, its targets are four years later than most other European countries) because it had such a high proportion (80 per cent) of BMW being landfilled in 1995. If the UK as a whole missed the Landfill Directive targets in any of the target years, the level of EU fines would be decided by the European Court of Justice, and the cost could be passed on to local authorities in some form.

The UK government responded by introducing the WET Act (2003). This required local authorities to produce a municipal waste strategy covering collection and disposal by 2005. In two-tier areas, councils are required to produce a joint municipal waste strategy. The strategies should ideally be joined up with other relevant strategies and policies, for example in planning and procurement. Where these are at different stages of development, WDAs’ options for responding to the challenges of the Landfill Directive can be limited.
Although the long term goal of the landfill tax is to apply the external or environmental costs of landfill to the operators of landfill sites (who then pass it on in gate fees), the tax rate does not necessarily correspond with the environmental damage done by landfill. Further, HM Treasury held the view in 2002 that the Landfill Directive targets were more ambitious than was justifiable on the basis of the external costs (Ref. 7).

WET also provided the statutory basis for the LATS. The government allocated landfill allowances to each WDA, based on its past performance, to limit the amount of BMW that may be landfilled. The annual allowances progressively decline in future, in line with the EU targets for the UK as a whole. Allowances are tradable so WDAs that landfill more than their own allowances are allowed to buy from other authorities that are in surplus. This allows a WDA a degree of flexibility in responding to the Landfill Directive. It can choose either to invest in disposal facilities that enable it to avoid landfilling, or it can choose to continue landfilling and buy other authorities’ surplus allowances. If an individual WDA exceeds its allowances (including traded, borrowed and banked allowances), the excess is subject to a penalty of £150 per tonne of BMW. To date, most landfill allowance trading has been taking place at a relatively low price, around £10 to £30 per tonne, because most WDAs have been able to divert sufficient waste from landfill to remain within their initial allocation of allowances.

The financial incentives acting on municipal waste are increased further by the landfill tax, which the government introduced under the Finance Act 1996. Landfill tax is payable at a flat rate for all municipal and commercial waste, with a reduced rate for inert waste such as rubble. The regime is designed to apply a cost to reflect the environmental impact of landfill, and thereby make non-landfill disposal more attractive financially.¹

²² The government announced a steep increase in the landfill tax escalator in the 2007 budget. The purpose of a tax escalator is to signal a sustained increase in the price of a service or good, which gives people or organisations an opportunity over time to adjust their purchasing decisions. For the landfill tax escalator, the rate of increase is specified for a three-year period, and the most recent increases were higher than previously. At £32 per tonne in 2008/09, landfill tax is the largest single component of the cost of landfill and has been sufficient to encourage the commercial waste sector to invest in recycling and materials recovery facilities. As it continues to increase, it could ultimately encourage private sector investment in a range of treatment plants, including Energy from Waste (EfW) plants, which could be used to divert municipal waste from landfill. These merchant facilities would be proposed, built and operated by private sector companies in anticipation of waste being supplied from a variety of sources, and may provide some

¹ Although the long term goal of the landfill tax is to apply the external or environmental costs of landfill to the operators of landfill sites (who then pass it on in gate fees), the tax rate does not necessarily correspond with the environmental damage done by landfill. Further, HM Treasury held the view in 2002 that the Landfill Directive targets were more ambitious than was justifiable on the basis of the external costs (Ref. 7).
2 National framework, local responses

Box 2.1
PFI in brief
A PFI contract is made between a public body (for example a WDA) and a private company. The private company makes the capital investment in the assets required to deliver the new services, and it recovers the cost over the life of the contract through a charge made to the council, which is called a unitary charge. Waste PFI is only available for large projects with capital investment of over £20 million. Even so, the revenue costs of waste services typically make up a much higher proportion of the unitary charge than the cost of financing the capital investment.

A successful procurement has to comply with certain conditions to attract revenue support from the government in the form of PFI credits. These conditions include performance such as minimum recycling levels, VFM and affordability. PFI credits support an element of the capital cost of a project, for example, £50 million of a £100 million capital investment. They represent a commitment by central government to make grant payments to cover this part of the unitary charge. The PFI places other restrictions on the contract such as the use of standard contract terms and the requirement to create a new stand-alone company to operate the contract called a special purpose vehicle.

additional capacity to the municipal sector in future. However, Efw plants rely on a secure supply of waste in order to operate cost-effectively. Investors in merchant facilities would therefore expect a higher rate of return than for a municipal waste contract, where the supply is secure.

Funding and technical assistance

23 The funding available through the PFI is allocated by Defra through a process of bidding rounds (Box 2.1). The procedures for procurement and financing under PFI are tightly prescribed and well established, although individual councils may not be familiar with them if they have no previous experience of PFI projects. Some WDAs have received help with their PFI bids from Defra’s Waste Infrastructure Delivery Programme (WIDP), which they found indispensable in navigating the complex process (see Box 2.2 for details of WIDP’s role). Importantly, PFI is the only source of financial assistance available from the government for large scale infrastructure and the conditions attached to PFI influence the type of projects that are proposed.

24 The introduction in 2004 of prudential borrowing, in accordance with the Prudential Borrowing Code, has given WDAs an alternative financing
WIDP is one of the programmes that sit within the government’s Waste Infrastructure Programme. Its action plan published in November 2006 describes its aim: to accelerate the building of the infrastructure needed to treat residual waste without compromising efforts to minimise waste and support increasing recycling levels, in a timely, value for money and affordable manner (Ref. 8).

WIDP’s activities include managing the pipeline of projects coming forward; encouraging collaboration between local authorities; providing funding and guidance (PFI credit and grant funding allocation framework); promoting market development in treatment and disposal, recyclate and product offtake markets; and encouraging markets for outputs. The programme also provides practical support to local authorities through skills development and support with the Public Private Partnerships Programme (4Ps) and Partnerships UK.

WIDP estimated that £5-6 billion of capital expenditure would be required to meet the 2013 diversion targets, of which £3-4 billion may be through PFI procurements. A further £4-5 billion would be needed to meet the 2020 target, of which £2-4 billion may be through PFI procurements.

Using prudential borrowing instead of PFI to finance a waste project could, however, have advantages for a WDA, and would increase the range of possible options available. For example, the WDA could specify an innovative technological solution of the sort that would not normally be proposed under the PFI. And a project financed using prudential borrowing does not require all of the special features of PFI such as a special purpose delivery vehicle, so a more traditional form of contract could be used. However, the authority would face a different set of risks using a prudential borrowing approach. For example, a new technological solution may cost more, or perform less well, than expected. Defra recommends that private finance should be used for large residual
In these responsibilities did not change when the EU directive came into force: the WDA remains the main body responsible for delivery.

This is not true of the six joint waste disposal authorities, where the constituent metropolitan or London boroughs retain the waste planning functions alongside responsibility for waste collection.

Regional planning bodies

WDAs’ responses to the national and international requirements on waste management practices are influenced at regional level by the regional planning bodies (RPBs). Currently this role is played by the regional assemblies, but it is due to pass to the regional development agencies by 2010. The RPBs do not have an operational role in municipal waste: their input is mainly in formulating policy and monitoring. However, they make an important strategic contribution through the delivery of the regional spatial strategy, which sets out the waste strategy for the region. The RPB is responsible for providing waste planning policy based on forecasts of future waste generated – waste arisings – for their region. Technical advice is also delivered to authorities by the Regional Technical Advisory Bodies and the Regional Improvement and Efficiency Partnerships.

Planning at the regional level covers all types of waste. This poses challenges for the RPBs as commercial and industrial waste arisings are much more difficult to predict than household waste, which is the major component of municipal waste.

The value of involving a regional tier is primarily in providing a policy framework to support the councils in managing their waste. Given that waste facilities are likely to attract public opposition, particularly at the development control stage, it is important that the need for them is well established as the basis of regional planning policy, and from a sound evidence base.

Waste disposal authority role

WDAs, including unitary authorities, have two distinct roles’ relevant to the landfill directive:

- as a disposal authority: responsible for disposing of its own municipal waste. This role resides in top tier councils (county councils and unitary authorities); and
- as the planning authority: responsible for considering planning applications for waste disposal facilities for all types of waste. II

These responsibilities did not change when the EU directive came into force: the WDA remains the main body responsible for delivery.

This is not true of the six joint waste disposal authorities, where the constituent metropolitan or London boroughs retain the waste planning functions alongside responsibility for waste collection.
Box 2.3
Sub-regional waste partnerships

The introduction of non-landfill disposal methods is encouraging WDAs to form voluntary partnerships for the procurement of large scale integrated waste management contracts. Assuming these contracts go ahead as planned, around 40 per cent of municipal waste will be managed by voluntary partnerships between councils of one sort or another.

Six of the largest WDAs are statutory joint waste disposal authorities (JWDAs). There are another 22 voluntary partnerships involving 56 disposal authorities in total, most of which are involved in the waste PFI programme.

30 There are, at least in theory, benefits to having these two functions reside in one body, or at least being in close contact.¹ For example, planning information on future development activity can be fed into the waste department to inform their predictions of future waste growth (domestic and trade). And the waste department can ensure that future planning documents take into account the WDA’s priorities for waste management.

31 But achieving mutual benefits between planning and waste disposal functions is very difficult. Often the timescales, legal obligations and priorities do not fit. For example, consultations on waste strategies and local development frameworks (LDF) happen at different times and in different ways in order to meet different statutory processes. In some WDAs, key decisions about the provision of individual waste facilities that would be required to meet the Landfill Directive targets had been taken well before consultation on the waste strategy or LDF. And, occasionally, the functions can work against each other, for example where planning committees have refused planning permission for new facilities required for the WDA’s municipal waste.

32 In short, there appears to be no particular advantage or disadvantage in having the strategic functions of planning and waste disposal in the same place. There are, however, clear benefits to WDAs working in partnership with their neighbours on operational aspects of waste disposal, especially where a WDA’s local population is too small on its own to justify investment in the waste disposal facilities required, or where flexibility over the location of facilities

¹ Traditionally it made sense to have minerals and waste disposal responsibilities residing in the same authority, as the location of landfill sites was dictated to some extent by local geology. With non-landfill disposal methods, the waste disposal system can be designed to suit the population distribution, and the existing organisation boundaries can be an impediment.
offers potential economies of scale (Box 2.3). Chapter 5 discusses the potential VFM gains of such arrangements.

**Collection authority role**

33 In two-tier areas, responsibilities for collection and disposal are split with district councils taking responsibility for collecting waste and the counties for disposing of it. Responsibilities are also split in areas with JWDAs. Where this is the case, waste collection authorities’ (WCAs’) performance in encouraging recycling and waste reduction can have a significant bearing on the success of the WDAs in meeting their landfill targets.

34 Coordination of services across authorities, whether formal or informal, is reinforced by the government’s performance management regime, which encourages collection authorities to achieve high recycling and composting rates. The new national target for recycling and composting of household waste is to reach 50 per cent by 2020.

35 There are different financial arrangements for different types of authority. In areas covered by JWDAs, the cost of waste disposal is passed on to WCAs as a levy, which is apportioned in accordance with the amount of waste supplied, or by local agreement. In two-tier areas, the county council’s precept is charged to all householders as part of their council tax bill. In neither case does the cost to individual households relate to the amount of waste they produce individually, so any individual’s action on waste is for collective benefit or harm.

36 Councils are required to provide a free waste collection and disposal service to households, subject to regulations which specify the amount and type of waste that must be collected free of charge from different types of premises (Ref. 10). Most councils provide a higher level of service than the legal minimum, but cost pressures are encouraging them to tighten up their procedures. The regulations have not changed, but councils are making more use of their existing powers to limit the amount of waste that is collected for free, and impose fines on people who do not follow the rules. While acknowledging that different methods may be appropriate in different areas, a more consistent approach to waste collection would have advantages, and this is being promoted by the Local Government Association.
The cost of landfill tax to authorities depends on how much waste is landfilled, which in turn depends largely on how much waste is incinerated.

Local variation depends on:
- kg of waste per household;
- recycling rates; and
- other waste treatments.

The graph shows the approximate distribution of landfill tax per head of population with landfill tax at £32/tonne, based on 2006/07 landfill levels (Ref. 1).
The government has considered the use of financial mechanisms in waste collection to encourage more recycling, but to date proposals have proved controversial and therefore will be limited to a pilot scheme with up to five councils. But our previous work on charging for local public services has shown that in some circumstances, judicious use of charging regimes can change people’s behaviour and that with a proper approach to consultation and engagement, a sceptical public can be won round to the concept of charging (Ref. 11). This evidence and some overseas experience suggest that it is possible that charging for waste can play a part in encouraging waste reduction and recycling.

Impact on service users

The landfill directive delivery chain affects citizens in three ways: it has financial implications, it influences the quality and design of services and it has consequences for the environment.

The cost of waste collection and disposal services provided by councils and their contractors is borne by taxpayers as a whole. If waste disposal costs continue to rise faster than revenues, councils are faced with either cutting service budgets or raising council tax. If local government chose to raise the additional revenue from local taxation, the extra cost would lead to a pound for pound increase in council tax overall.

The main driver of increasing waste disposal cost is the landfill tax. The recent £8 increase in landfill tax increases the cost of landfill disposal by around 15 per cent, which is much higher than inflation generally, so some additional cost would be passed on to local taxpayers in high landfilling councils if savings could not be made elsewhere. The current rate of landfill tax is equivalent to approximately £10 per head or £25 per household per year overall, which is equivalent to about 2 per cent of the average council tax bill. The amount of landfill tax revenue raised from municipal waste in a local area depends largely on how much waste is incinerated (Figure 2.2). WDAs that incinerate less than 1 per cent of their rubbish are typically contributing over £10 per head towards landfill tax. WDAs that incinerate more than 1 per cent of their rubbish are contributing progressively less for tax but they are likely to pay higher fees to their contractors, reflecting the higher cost of incineration.

The design of the collection system has a significant impact on householders in terms of the time and effort it takes to separate recyclable waste, the amount of space taken up and visual impact of the various bins. Diverting waste by source-separated recycling is often considered to be most environmentally friendly, and a cost-effective, solution for the council, but it requires people to separate the materials themselves. This
can be a challenge for communities which have previously enjoyed a service requiring little involvement from users. But while recycling is unpopular with some people, it has become widely accepted practice and provides individuals with a relatively easy way to reduce their own environmental impact. No significant increase in recycling levels can be achieved without changes in behaviour by individuals. But councils that try to influence household waste indirectly through the use of new waste collection systems have a sensitive task. New collection arrangements can seem more burdensome, may be perceived by householders as a deterioration in the level of service and are often controversial.

The changes brought about by the Landfill Directive should make a difference to the UK’s greenhouse gas emissions. This is largely because landfilling untreated waste is the worst option in terms of greenhouse gas emissions, and because most new technologies can recover materials, energy and heat from the waste. So the European and national policies on waste disposal will help individuals and councils to reduce their carbon footprint and will contribute to wider policy objectives such as mitigating future climate change and improving the sustainability of the economy. Both of these outcomes are growing concerns for many residents.

This chapter has suggested that the penalties, incentives and organisations involved in implementing the Landfill Directive can be usefully viewed as a delivery chain. The delivery of the Directive is dependent on councils deciding to enter into long-term financial commitments, on the basis of a set of imposed penalties and incentives which may change in future, as the environmental agenda develops. In addition to this risk, councils may pay a financial penalty if they fail to change consumer behaviour, over which many feel they have relatively little influence. The next chapter assesses how this delivery chain is affecting local authorities.

The most common alternative to source separated recycling is to collect co-mingled (mixed) recyclables for separation at a materials recovery facility (MRF), which can be more effective in some areas. The Local Government Association’s Packaging Recycling Action Group is promoting more consistency in recycling collections across the country, and is investigating whether it would be possible to rationalise collection systems into five to six basic options.
Chapter summary

- The regime that government has put in place seeks to put a price on the environmental harm done by landfilling waste.
- It has delivered a simple message to councils – reduce the amount of waste you send to landfill or face potentially serious financial consequences.
- WDAs have responded; most have chosen to spend money building new waste disposal infrastructure rather than to continue landfilling, buying allowances and paying landfill tax.
- Although the regime has not worked quite as expected, there is no case for substantially changing it (and WDAs are keen that government should maintain a stable regime to enable them to plan); and it is more important that government delivers on its commitments to provide PFI funding with a clear focus on VFM.
- Some smaller scale changes could be made:
  - aligning landfill tax better with LATS would improve the coherence of the regime; and
  - government should continue to encourage transparency and liquidity in the LATS system.

Local implications of the delivery chain

The landfill directive delivery chain is designed to ensure that national and European targets for diverting biodegradable waste from landfill are met. Together with non-financial instruments (including recycling targets) these create a complex set of incentives within which councils have to work. This chapter looks at how authorities are responding.

‘Consistency from central government would certainly be helpful: some sort of commitment that the policy landscape isn’t going to change again, with another right-angled change of direction.’

Local authority finance director
Financial incentives drive local investment decisions

Landfill tax and LATS are different regimes that overlap at the local authority level. Landfill tax creates additional cost for those WDAs which still use landfill, and raises around £500 million per annum in revenue for central government from the municipal waste sector. A typical medium-sized WDA, if it landfilled the majority of its residual waste (around 80,000 tonnes), would pay approximately £2.5 million in landfill tax in 2008/09.

The LATS system will also represent a cost if the targets are not met. The system places a financial burden on the minority of WDAs which landfill more than their current allocation. It also poses a significant financial risk for the majority of WDAs that are currently landfilling above their future allocations. Additionally there is some administrative cost of trading between authorities, but few regard this as significant.

The impact of both LATS and landfill tax on individual councils could therefore be very significant. A WDA that exceeds its landfill allowance holdings could be liable to pay as much as £150 per tonne of waste when both landfill tax and penalties are taken into account, although this could be lower depending on the price of traded landfill allowances (Box 3.1).

Box 3.1
Relationship between demand for landfill allowances and price

There is no established relationship between the price and demand for landfill allowances, but it is likely to take the general form shown below, where the price remains quite low until the amount landfilled begins to approach the national target. This pattern is consistent with the trading to date, which has only been at relatively low prices because the national target is comfortably being exceeded. At the other end of the scale, the shape of the curve can only be an assumption. First, nobody knows how steeply prices will rise as the amount approaches the limit. Secondly, it has been suggested that some authorities may be prepared to pay a small premium above the penalty rate of £150/tonne to avoid the stigma of penalties.

Ultimately the price is likely to be determined by WDAs’ views on whether the overall landfill target will be met, and by their degree of confidence in their own ability to meet their obligations. A WDA needing to buy landfill allowances at short notice will have to pay a high price, if other WDAs expect the national landfill diversion target to be missed and demand for allowances is therefore high. WDAs that are unsure whether they will need to use all of their own allowances themselves may also be unwilling to sell.

One tonne of municipal waste is around 70 per cent biodegradable so the maximum conceivable premium (in 2010) would be 70 per cent x £150 + £48 landfill tax = £150 approx.
Predicting the future price of landfill allowances is imprecise because it is sensitive to the shape of the assumed price/demand relationship, which cannot (yet) be validated in practice. This assumed relationship should not be taken as a prediction either of a detailed relationship or of a particular level of price at any stage, but as a guide to understanding the mechanisms at work.
The potential cost to a WDA of exceeding its allowance, especially if the LATS price is high, is substantially higher than the cost of non-landfill disposal of the waste over the allowance. And as landfill tax and projections of LATS prices rise, more expensive disposal technologies become economic. So there is a powerful financial incentive for authorities to reduce their exposure to LATS risk by investing in new waste disposal systems. They may consider investing in facilities that, in the absence of the tax and allowance structure, would not have previously represented good VFM but which will now provide greater certainty about future liabilities.

Figure 3.1
Many factors affect the price of landfill allowances which in turn influence local investment decisions

Source: Audit Commission
Whether we are actually going to be able to fulfil our LATS obligations is a real worry. It is a thing that makes the hairs stand up on the back of your neck, or wakes you up at 5.00am to be honest. Because the financial consequences of that are going to be quite severe aren’t they? It focuses the mind.’

Local authority officer

The way these two systems work in relation to other factors to shape local investment decisions is illustrated in Figure 3.1. Few of the factors determining investment decisions are within the control, or even influence, of WDAs.

Figure 3.1 also indicates that a further encouragement to invest in disposal infrastructure comes from Defra’s PFI programme for waste disposal infrastructure projects. The availability of subsidy improves the affordability of a project at the local level, irrespective of whether the project offers good VFM to taxpayers as a whole. It is therefore most important that government ensures that VFM considerations are properly taken into account in decisions to award PFI credits to projects. This study did not look at this issue in detail, as it is covered in a forthcoming NAO study on waste PFI (Ref. 12).

The total capacity of new waste treatment and disposal facilities under WDA contracts is largely determined by the allocation of PFI credits by the government through Defra. PFI credits are allocated through a bidding process, and the overall supply of credits is limited by Defra at a level designed to ensure that there is sufficient diversion capacity for England as a whole in relation to the landfill directive targets. This means that not all local strategies that rely on them are likely to come to fruition unless those WDAs whose bids are unsuccessful choose to fund new disposal infrastructure from their own resources. There might be additional capacity available to WDAs in future at merchant facilities, but since this would depend on a high market price to justify the investment, it is likely to be expensive.

Different systems for dealing with waste with similar composition

The system of incentives is further complicated by the different arrangements governing municipal and commercial waste. The two streams are similar in composition and are disposed of in similar ways, but most commercial waste is collected and disposed of by private contractors with no direct involvement of the WDA (Figure 3.2).

The incentives bearing on WDAs in relation to commercial waste are mixed. As a matter of policy, some councils handle a substantial proportion of commercial waste, for example to control the standard of cleanliness in town centres or as part of their service...
to local businesses. It might also be logical for WDAs to seek to handle commercial waste to use up spare capacity in a waste disposal contract, or to ensure sufficient scale in waste disposal (see Chapter 5), or because they can charge for it at cost, which contributes to overheads. Some councils are introducing trade waste recycling collections, which provide a valued service to local businesses as well as increasing the materials recovery rate of the local authority.¹

‘In small, more rural communities you regard commercial waste collection as a service. You know that the traders are a crucial part of the local scene, the local community.’

Councillor

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**Figure 3.2**

The majority of commercial waste is handled outside the municipal sector and is therefore outside the LATS system

![Pie chart showing source of commercial waste](chart)

- **Demolition and construction**: 32%
- **Mining and quarrying**: 30%
- **Household**: 9%
- **Commercial**: 11%
- **Industrial**: 13%
- **Sewage sludge**: <1%
- **Dredged material**: 5%
- **Agriculture**: <1%

**Municipal waste = 11 %**

Includes all household (9%) + 2% from commercial and industrial

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¹ Trade waste recycling should not affect performance against the national indicator for recycling (NI 192) because this refers to household waste. But the type of materials collected for recycling can affect the calculation of the biodegradable content of residual waste.
However, commercial waste becomes an unattractive proposition if councils have to landfill either the waste or the products of it following MBT pre-treatment, and have to incur landfill tax and potentially buy landfill allowances. Thus the risk of incurring additional costs tends to encourage authorities to avoid handling commercial waste, although it would be logical, cost effective and often less environmentally damaging to dispose of both in the same facility. The extent to which authorities have deliberately avoided commercial waste as a matter of policy is not clear, but some have included explicit objectives to reduce the amount of commercial waste they handle as part of their municipal waste strategy.

This issue is further complicated by differing local interpretations of councils’ responsibilities for Schedule 2 waste from premises such as schools and hospitals (Ref. 10). Many of these institutions had previously arranged their own waste collection and disposal in the private sector, but this is becoming more expensive due to landfill tax and other factors. According to Defra’s interpretation of the law, these institutions are entitled to have the local authority dispose of their waste free of charge, so there is a possibility that some councils will find they have more municipal waste to deal with in future.

The situation is different with incineration, where there is a financial incentive to collect commercial waste to achieve economies of scale which reduces the cost per tonne of all waste treated and produces no biodegradable residual waste.

Assessment of the regime bearing on councils

‘I think LATS was a tool that needed to be there to force authorities and the contractors who work with them to actually meet the targets as quickly as possible. It concentrates people’s minds to actually get on with it; otherwise we might think about it but take no action.’

LA contractor

‘LATS is like a cosh isn’t it? It is a blunt tool but effective if applied to the back of your head.’

Finance officer, local authority

The combination of incentives and pressures that has been brought to bear on WDAs has had a powerful effect on their approach to waste disposal. Most have put strategies in place designed to bring them within their landfill allowance. The consequences for the national picture are considered in Chapter 4 and the risks to VFM associated with councils’ responses are considered in Chapter 5. In this section we consider whether the mechanisms have worked as intended and conclude with the lessons for government policy.
There has been relatively little trading in landfill allowances to date because there are relatively few WDAs that need to buy landfill allowances to top up their initial allocation (Figure 3.3). And there is little evidence of WDAs using future trading in long-term plans. But as the expected future performance against the landfill target becomes clearer over time (and especially if it becomes less likely that it will be met – see Chapter 4), there will be opportunities for WDAs to trade more than they have done to date. The difficulty with this is that many will already have begun the process of procuring new

Figure 3.3
Few WDAs currently need extra landfill allowances

Note: The value of trades might include an element of payment in kind so the true value is not necessarily shown. It is assumed that the majority of trades in the range £5-25 do not include any payments in kind.
waste disposal infrastructure and such large scale projects are difficult to change once they have gathered momentum because of the time and money that has been invested.

58 WDAs have a variety of other reasons for having been reluctant to trade LATS allowances to date (Box 3.2). A significant barrier is councils’ approach to risk. While some councils are experienced in managing long-term external risks, they naturally try to prevent them wherever possible. The most obvious way for councils to avoid exposure to LATS risks is therefore to stay within their own landfill allowances and many have that as an objective. It makes sense for councils to set up new contracts to be slightly over capacity because the marginal cost of an extra tonne is very small compared with the potential penalty. Since waste arisings are hard to predict, purchasing spare capacity is therefore a common strategy.

‘Buying permits [in other words landfill allowances] is too much of a risk to contemplate as a long-term solution. We have done it in the short term and been quite surprised at how little it has cost. But in the long term I would imagine permits will become far more expensive.’

Councillor

59 WDAs’ strategies imply that, if they use LATS trading at all, it will be as a fallback should their investment plans suffer unexpected setbacks, rather than as a considered approach to securing VFM. It is still possible for trading strategies to ‘catch on’ as a viable alternative to investing in non-landfill disposal, but this appears not to be the preferred approach for most WDAs.

60 The operation of the market is another factor determining WDAs’ approaches to LATS trading. At present the system lacks some of the attributes of an effective market, notably transparency and liquidity. And it is not clear how well the LATS system could work in future if trading became more prevalent. Given that there is a maximum of only 121 possible trading parties (WDAs), there may never be enough transactions for a meaningful market to develop. Moreover, an efficient LATS market would require a range of different strategies to create enough buyers and sellers of allowances. The fact that most WDAs are adopting the same strategy, investing in the infrastructure they need to stay within their allowances, casts doubt on whether that is ever likely.

61 Publication of a forecast for landfill based on WDAs’ plans may help inform the market. It might also help an efficient market to develop if information from local WDA plans were to be published regularly to allow WDAs to gain an accurate picture of the future price of landfill allowances and the likely pressures on the waste market.

I There are plans to introduce an improved trading platform, which should offer benefits such as improved price transparency and future trading (Ref. 13).
Box 3.2

Many councils are reluctant to trade landfill allowances

- **Approach to risk**
  - Councils are reluctant to run the risk of incurring substantial and unpredictable financial penalties if they were a forced buyer of allowances.
  - Keeping to their own allocations protects councils from the effects of landfill allowance price fluctuations.

- **Access to funds**
  - Councils have limited ability to raise extra resources at short notice to meet penalties or unexpectedly high costs of allowances, which typically have to be managed by disruptive cost cutting.
  - Building up reserves is a possibility but there are usually more pressing demands on finances and, since the long term price of landfill allowances is uncertain, it is not seen as a practical option.
  - WDAs have insurance or reserves to cover for emergencies, but it would not be appropriate to use emergency reserves to cover unexpectedly high costs of landfill which might be seen as a problem of the WDA's own making.

- **Environmental reasons**
  - WDAs are reluctant to be seen to not be dealing with their own waste problem.
  - Councils may have ambitious recycling targets.
  - Residents expect councils to improve environmental impact.

- **Culture**
  - A market-based trading system may not fit well with the culture and values of a local authority.
  - LATS trading does not solve the problem on a permanent basis.
Consequences for policy: LATS

62 The above assessment would suggest that there is scope to improve the policy framework. But even if LATS is not working as planned, that does not imply that it should be abandoned or changed, for four reasons:

• it has clearly contributed helpfully to encouraging WDAs to reduce the amount of waste sent to landfill;

• it has not yet been tested by a situation where allowances might trade at a higher price;

• WDAs are clear that, if it is to work, it is necessary for it to operate consistently, without significant unpredictable changes to the rules or ways of operating it; and

• any change would risk imposing a financial penalty on those who have used (or planned to use) the system prudently.

63 There is therefore no strong argument for significant change to the LATS regime at this point. There is a case both for keeping its effects under review and for seeking to learn lessons from the operation of a trading scheme and from the way in which it interacts with other mechanisms. Lessons may be particularly relevant for the proposed introduction of a carbon trading regime for large private and public sector organisations in 2010, enabled by the Climate Change Bill.

Combined effects of LATS and landfill tax

64 The government should, however, carefully monitor the combined effects of the landfill tax and LATS. They both have potentially major redistributive implications. Councils’ liability for landfill tax will vary according to their success in reducing the amount of waste sent to landfill. Some WDAs will find this much easier than others. Some will find it easy to recycle a high proportion of their waste due to the nature of the housing stock and waste arising in their local areas. Others will incinerate their waste. Even if the proceeds of landfill tax are ploughed back into the system through PFI credits, there are distributional effects because the beneficiary authorities may not be the same as the ones paying the most in landfill tax. HM Treasury, Defra and CLG will need to continue to monitor the effect of this. The redistributive effects of LATS are potentially even more dramatic, and are discussed in more detail in Chapter 4.

65 There is also a case for harmonising the two regimes more closely. The landfill tax and LATS regimes have a broadly similar effect by increasing the cost of landfill and thereby encouraging investment in new waste disposal methods. But the precise financial liability depends on the type of disposal method, which can influence investment decisions. Under the current arrangements, incineration with energy recovery has a lower liability than
MBT irrespective of its environmental impact in carbon reduction terms (more detail on environmental impacts is provided in Appendix 2).  

There are different ways the financial framework could be more closely aligned with environmental outcomes. Recently the government has placed more emphasis on Combined Heat and Power (CHP). This has better environmental performance than facilities that only generate power, but authorities may face practical difficulties in finding applications which can make use of the heat. Another alternative would be to harmonise LATS and landfill tax more closely in future, for example, by adjusting the landfill tax escalator to reflect more closely the environmental costs of the substance being landfilled. This would improve the choice of cost effective waste treatment options available to WDAs and would still allow any solid recovered fuel produced to be used if markets were available.

The environmental impact of all types of energy recovery depends on factors such as the efficiency of energy production, and whether the waste heat can be used to reduce the demand for energy from other sources.

The case for a reduced rate of landfill tax for bio--stabilised waste by--products from MBT plants was considered by Eunomia Consulting (Ref. 14).

The new National Indicators (NI) are:
- NI 191 Residual household waste per household (adopted by 38 LAAs, 25 per cent)
- NI 192 Percentage of household waste sent for reuse, recycling and composting (68 LAAs, 45 per cent)
- NI 193 Percentage of municipal waste landfilled (32 LAAs, 21 per cent)

The percentages do not add up to 100 per cent because there are 26 LAAs that have not adopted any of the waste indicators, while the remainder have adopted one or more. The majority of the 150 LAAs are coterminous with WDAs, except where there are JWDAs, which cover more than one LAA area.

### Targets

Recycling targets have previously played a key role in influencing council behaviour. National targets are no longer binding for councils and the regime has been recently changed to allow more local flexibility. Local partners choose targets to prioritise for improvement as part of their Local Area Agreements. An analysis of the Local Area Agreement indicators relevant to waste management shows that 42 per cent of councils have adopted a focus on reuse, recycling and composting, 23 per cent are focusing on the residual waste per household measure and 20 per cent of councils have opted for percentage of municipal waste landfilled.
Although the focus of the target regime has changed, waste authorities are still required to measure and report on the same range of waste statistics through the Waste Data Flow system, and they are still accountable for their performance as before. But targets are expected to be achieved collectively not individually, and LATS allows a more differentiated approach at the local level.

This chapter has explored the combined impact of trading schemes, targets and availability of PFI credits on authorities. This has encouraged WDAs to seek to optimise VFM at their own level, which does not necessarily represent best value for the taxpayer as a whole. Having already introduced the LATS system there is no realistic alternative but to continue with it. The next chapter assesses whether the European Union Landfill Directive targets will be met and Chapter 5 discusses factors that affect local VFM.
Chapter summary

• Action taken by the public and by WCAs and WDAs has dramatically improved England’s recycling performance – recycling rates have quadrupled since 1999. As a result, the amount of waste landfilled has fallen by a fifth in that time.
• The landfill reduction target for 2010 is likely to be met.
• This will be achieved by further increases in recycling and significant investment in non-landfill disposal infrastructure; over half of the plans developed by WDAs’ include facilities to burn waste.
• While most councils are putting effort into waste minimisation, few expect it to have a great effect on the expected growth in waste arising.
• The targets for 2013 and 2020 are also achievable, even if waste grows by more than councils anticipate or recycling improves less, as long as WDAs can deliver their plans for developing new infrastructure within the timescales planned.
• This will be challenging, as planning and procuring waste disposal infrastructure is a long and unpredictable process.
• Even if England as a whole meets its landfill targets, WDAs that do not achieve theirs face bills of up to £2 million to buy landfill allowances.
• If England misses its landfill targets, the bill for WDAs failing to achieve theirs could reach £7 million, which would need to be met by local taxpayers.

What local action can achieve

70. Chapter 2 described the delivery arrangements for the Landfill Directive, and Chapter 3 the way they have worked in practice. Most WDAs have plans for disposing of the waste they expect to be generated between now and 2020. This chapter describes the likely impact of all local WDAs’ plans taken together, and assesses some of the risks that the EU Landfill Directive targets will be missed.

The target for landfill by 2010 is likely to be met

71 The last NAO study to consider this topic expressed concern that the targets for reducing waste to landfill might not be met: ‘at the current rate of progress, there is a significant risk of local authorities failing to divert sufficient biodegradable municipal waste from landfill to meet European Union targets’ (Ref. 15). Defra’s waste strategy for England, published in 2007, reaffirmed the importance of meeting the Landfill Directive targets by making them one of the strategy’s five key objectives (Ref. 2).
4 Local achievement, national success

Figure 4.1
Most of the progress to date has been achieved through recycling and composting

Source: Defra
Figure 4.2

English authorities are likely to keep within their landfill allowances for the first target year

Source: Audit Commission
The amount landfilled has declined by 5.5 million tonnes per year since 2001/02. This is a significant achievement that has resulted largely from increasing recycling and composting rates (Figure 4.1). These have risen from under 8 per cent in 1998 to 12 per cent in 2001 and 31 per cent in 2006/07. The total amount of waste arising has been relatively stable over this period at around 29 million tonnes per year.

Looking to the future, combining WDAs’ local forecasts together suggests that the landfill diversion target for 2009/10 (the first target year) will be met. The forecast shown in Figure 4.2 is derived primarily from a survey of English WDAs conducted as part of this study. WDAs’ forecasts of their own waste flows suggest that English authorities as a whole are likely to keep within their landfill allowances in the first target year (2009/10). This prediction is supported by the low volume of trading and low current price of LATS allowances, which suggests that WDAs do not expect demand for allowances to be high in the period running up to the first target year. The price might rise in the target year (2010) because WDAs are not allowed to carry forward unused allowances into this period.

It would be surprising if the 2009/10 target were not met, given that the level is not far below that achieved in 2006/07. Around a third of WDAs will be landfilling above their initial allocation of allowances, but there should be enough traded landfill allowances available to cover this. This amount of landfill is still fairly high by western European standards because the target is set relative to past performance, and Britain has always been heavily reliant on landfill. Maintaining the current rate of progress will become progressively more difficult and expensive as limits to the potential for cost-effective recycling are reached. To achieve further progress, more investment in new plants to process the residual (non-recycled) waste will be needed. This will require significant financial commitment by WDAs.

The longer term targets are also achievable...

According to our research, WDAs predict that the 2012/13 target will also be achieved, but by a smaller margin than the 2010 target. Most have plans in place to increase recycling rates and procure waste treatment facilities sufficient to meet their own landfill allowances. While this forecast is subject to more uncertainty than the 2009/2010 forecast, most of the local

— We received substantive responses from just under half of all WDAs, accounting themselves for 51 per cent, and with their partners for over 60 per cent, of the municipal waste stream; we supplemented this data with published information on WDAs’ plans.
decisions that can be expected to have a significant effect on the proportion of waste landfilled in 2013 have already been taken. This is because commissioning and delivering waste disposal infrastructure is a lengthy and uncertain process. Figure 4.3 shows the time taken from the tender process starting to infrastructure becoming operational in fieldwork authorities. It is not uncommon for it to take a decade from concept to operation, and some developments have taken even longer. The impact on the reliability of forward projections of the long and unpredictable lead times between decisions being made and their effect being seen is discussed further below. The associated risks to VFM for WDAs are discussed further in Chapter 5.

Figure 4.3
Commissioning waste infrastructure is a lengthy process

Time taken by selected waste treatment procurements
- Major facilities operational
- Major facilities not yet operational

Major delays due to changes in requirements, planning decisions and so on.

Typical delivery times without delay

Source: Audit Commission fieldwork
Major projects financed by PFI credits from the 2007 Comprehensive Spending Review period will come on stream towards the end of the Landfill Directive period

Source: Audit Commission

Figure 4.4

- Waste minimisation
- BMW arisings
- BMW recycling and composting
- Landfill
- BMW landfill
- BMW treatment
- Target years

Source: Audit Commission
76 Figure 4.4 indicates the impact of this time lag on projections for waste landfilled in the longer term. The unpredictability of lead times increases the error in forecasting more than a few years ahead, but if the historic pattern of long drawn out procurement continues, there is limited scope for further decisions which will influence the position in 2020.

77 The likelihood that the 2020 target will be met is more difficult to assess because it is more sensitive to assumptions about long-term waste growth, and because there is still time for WDAs to take steps to reduce further the proportion of waste being landfilled (although as Figure 4.4 indicates, the time they have to influence this is now quite limited). The precision of WDAs’ long-term forecasts only allows us to conclude that it should be possible to meet the national target. If the 2020 target is exceeded as indicated, England would be in a good position to respond to further landfill reduction measures that might be introduced when the present directive comes to an end (in 2016 outside the UK).

78 Four high-level insights emerge from the forecast to 2019/20:

- WDAs are assuming that waste arising will continue to grow (typically around 1 per cent per year). In the past, increasing amounts of waste were assumed to be associated with rising prosperity. The government claims this is no longer the case, but prediction is particularly difficult in this area for reasons set out in Paragraphs 83 to 86.
- WDAs are not able to quantify the overall impact of waste minimisation efforts, but most estimate they make a relatively small contribution to reducing landfill (typically less than 5 per cent).
- A significant contribution to landfill diversion is being made by increases in recycling and composting. Collectively WDAs expect the tonnage of waste recycled to increase by a further 50 per cent above the 2006/07 level.
- The largest single contribution to diversion of biodegradable waste is the investment in non-landfill disposal infrastructure using technologies such as MBT and incineration to recover energy and materials. The tonnage diverted from landfill in this way is expected to increase from just over 2 million tonnes to around 8 million tonnes. This will need around 30 new plants of varying sizes to be built.

79 As indicated above, councils have three broad options for reducing the volume of waste going to landfill:

- reducing the amount of waste collected;
- increasing the proportion of collected waste that is recycled or composted; or
### Box 4.1
**Definition of waste minimumisation.**

There are different terms in common use to describe waste minimisation; this ambiguity can cause confusion. The important types of waste minimisation are:

- minimisation of municipal waste (in other words all waste handled by councils); and
- minimisation of residual municipal waste (in other words the waste that has to be disposed of after materials have been removed by recycling).

Authorities have more influence over the latter objective because they have more control over recycling rates than the amount of waste generated at source. The diagram below illustrates the difference between these two definitions.

This report refers to waste minimisation as a reduction in the amount of waste generated at source by householders, resulting from councils’ schemes (see Box 4.2 for examples).

The volume of municipal waste can also be affected by administrative changes, but this would not normally be referred to as waste minimisation. For example, tighter control of access to HWRCs would prevent non-residents using the facilities. This would reduce the amount of waste entering the system at this point, but it probably would not affect the total amount of household waste produced overall.

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Note that the subject of NI 191 is the quantity of residual household waste rather than residual municipal waste.
• increasing the proportion of residual waste disposed of using methods other than landfill (different forms of materials and energy recovery).

This section discusses each of these issues in turn.

Councillors’ expectations for waste minimisation are modest

Waste minimisation is a general term and the activity can be defined in different ways (Box 4.1). It plays an important role: if the amount of waste produced could be stabilised at its current level or reduced, this would have a big impact on landfill diversion performance by 2020 relative to current expectations. Stabilising the amount of

Figure 4.5
Most WDAs have waste minimisation measures in place

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency of selected waste minimisation activities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home composting promotion</td>
<td>100</td>
</tr>
<tr>
<td>Real Nappy Campaign</td>
<td>70</td>
</tr>
<tr>
<td>Supporting reuse organisations</td>
<td>60</td>
</tr>
<tr>
<td>Local publicity and education</td>
<td>60</td>
</tr>
<tr>
<td>Engaging with private sector</td>
<td>50</td>
</tr>
<tr>
<td>Supporting charity shops</td>
<td>30</td>
</tr>
<tr>
<td>Promoting mail preference service</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: SLR Consulting analysis of municipal waste strategies
4 | Local achievement, national success

Box 4.2
Council’s ambitions for waste minimisation activity

West Sussex’s joint materials resource management strategy sets a goal of increasing waste minimisation by 57,000 tonnes to 80,000 tonnes per year by 2015, by investing at least £500,000 per year in waste minimisation activities. This is the equivalent of 12 per cent of 2006/07 municipal waste. Specific targets include 40 per cent of newborn babies using reusable nappies, 60 per cent of homes with gardens using home composters, and 50 per cent of homes with gardens using food waste digesters.

Worcestershire county council and its partner Herefordshire Council have set a challenging target of reducing the quantity of waste per head to 485 kilograms per year in 2008/09. They no longer collect garden waste in order to encourage home composting, which is more environmentally friendly, and instead run a shredding service to help people to compost a wider range of material at home. Worcestershire also promotes the installation of food waste disposers. Food waste disposed of in this way helps to generate renewable energy at the waste water treatment plant using an anaerobic digestion process.

Source: West Sussex County Council, Audit Commission fieldwork

81 Most councils recognise the benefits of waste minimisation and see it both as an environmentally desirable objective in its own right and an effective means of reducing the amount of residual waste sent to landfill. All of the waste strategies the Commission analysed referred to specific measures that the councils had taken to minimise waste, although in most places the main focus was still on improving recycling and composting, which has the most immediate impact.

82 Each of the mainstream waste minimisation measures (promoting home composting, encouraging use of reusable nappies, supporting community reuse organisations and working to change public behaviour) was cited in a clear majority of the waste strategies the Commission analysed, and every strategy examined cited at least one of these measures (Figure 4.5).

83 The fact that different methods are used in different places demonstrates that a standard set of methods...
for waste minimisation has yet to become established, and that some approaches (for example to green waste) are more likely to be effective in some areas than others. Some councils had very ambitious plans for waste minimisation (Box 4.2).
However, the effect of waste minimisation is not predictable enough for officers to be confident in building the effects into projections. The effects of waste minimisation policies are sometimes difficult to distinguish from changes in the wider economy and changing lifestyle trends, and some officers are not clear how much impact they can realistically expect to have.

‘I think that now we’ve rolled out our initiatives fully, the scope for further improvement is limited. But there is a scope then for the national initiatives to kick in as well, literally stopping waste at source.’

Council officer

The growth in waste has historically been associated with expansion of the economy. Authorities are assuming continued waste growth, of around 1 per cent per year on average, but at a lower level than (predicted) economic growth. This is a low growth rate by historical standards, but higher than the rate experienced more recently when the amount of waste produced has stabilised, as Figure 4.6 illustrates.

The recent divergence from the long-term waste growth trend could be attributable to the success of national and local waste reduction initiatives. It could, however, also be a function of redefinition rather than a real reduction. While the effect of the latter might have been small, it introduces an element of uncertainty into waste growth projections.

Understanding the size and composition of the waste stream is important to local waste planners who have to base substantial spending decisions on predictions of the levels and composition of waste. There is currently no national base planning assumption for household waste that could be used by WDAs as the basis of their local forecasts, which could be adjusted to take account of local circumstances. Currently, waste planning is often based, at best, on a local interpretation of recent trends in waste growth and predictions about future population. Analysis of waste strategies showed that two-thirds of waste strategies either made no reference to historic trends in waste or did not seek to explain them, and only a third made good use of proxy data (for example household or population growth) for forecasting; one third made no use of such data at all. There is clearly scope for improvement in this area.

Decoupling waste growth from economic growth is one of the government’s waste strategy objectives (Ref. 2).

Some authorities had been incorrectly classifying some waste, for example from schools or council housing repairs, and correcting these administrative issues has led to changes in the amount of waste designated as municipal waste. It is not clear how far recorded municipal waste growth has been affected by reclassifying waste or shifting waste management between the private and public sectors.
Figure 4.7
Councills expect rapid improvements in recycling rates

Source: Defra, Statistical Office of the European Communities and Audit Commission Survey
Recycling and composting have increased dramatically

There is a limit to the amount of waste that can be avoided by waste minimisation efforts, and in order of environmental benefit, recycling or composting is generally accepted as the next best way that WDAs can deal with household waste. The terms recycling and composting cover a variety of different collection methods. These include source separated collection at the kerbside and at HWRCs, as well as mechanised separation of mixed recyclables at Materials Recovery Facilities. Recycling and composting has grown dramatically in recent years in England, and is responsible for most of the progress to date against the landfill directive targets. Recycling and composting rates for individual WDAs varied substantially from around 5 per cent to 47 per cent of municipal waste in 2006/07 (Ref. 1). Councils expect rapid improvement to continue until around 2012/13, when they expect the rate of increase to slow. Figure 4.7 shows that WDAs’ forecasts of the proportion of biodegradable municipal waste recycled in this way vary widely, from about a quarter to about two-thirds. The average recycling rate obtained from councils’ own forecasts about biodegradable waste is expected to level out at 45 per cent, which is close to the government’s waste strategy target of 50 per cent for all municipal waste.

If the target is met in 2020, just under half of England’s biodegradable municipal waste will be recycled or composted and just over one eighth is still expected to be landfilled. This would be a significant achievement by comparison with the recent past.

Future performance of recycling and composting is difficult to predict because it relies on councils’ willingness to put appropriate collection systems in place, and on acceptance and participation by residents. Councils’ interest in particular collection systems depends on their cost, and their effectiveness as well as their public acceptability. The Waste and Resources Action Programme (WRAP) has published an analysis of the effectiveness and cost of the main recycling collection systems, which councils can use in conjunction with their local knowledge to inform their decisions (Ref. 16).

Recycling collection systems can be adapted to changing needs over time because contracts tend to be relatively short as the capital investment required is fairly small in comparison with the operating costs. Therefore it is possible to commit to an ambitious...
long-term target without knowing precisely how it will be achieved. With a capital intensive technology-based waste disposal contract, the collection service has to commit to supplying a certain amount of waste (within limits), with significant cost implications arising at disposal if it is not met.

93 Putting new collection systems in place may not be sufficient to deliver the required level of improvement firstly because recycling relies on a degree of public participation and secondly because authorities may collect more material than the reprocessing market

Figure 4.8
A substantial increase in recycling and residual waste treatment is needed to achieve sufficient diversion of waste from landfill

Source: Audit Commission survey
can cope with. Once the collection systems are in place, the ability to achieve higher recycling rates will depend on people sorting more of their waste and also buying more goods that are made from recycled materials.

'We have a pretty elaborate model that we have worked up to predict waste growth, and it has been quite accurate to date. As we introduce particular collection schemes we see change in the waste so we have had three lots of waste analysis done. This then allows us to target campaign messages at certain elements of the waste not being recycled very much.'

Council officer

Councils’ reasons for believing that recycling would continue to improve but only to a point, varied:

- Fifty per cent is the government’s target in the national waste strategy, and Defra requires that a target be set for infrastructure projects to deliver 50 per cent recycling in order for PFI credits to be granted. Some authorities are using this figure as a default assumption where they have yet to make specific plans.

- Waste composition, and hence the potential for recycling, may change, for example due to changes in consumption habits or packaging.

- The markets for recovered materials are volatile. Prices of recovered materials also vary according to their quality and level of contamination. In some cases recovered materials have to be disposed of to landfill because they do not meet the agreed standard. So there are limits to the cost-effectiveness of recycling.

The projected levels of recycling for England are around the same as the better performing countries in Europe have achieved. Few countries in Europe recycle more than half of their waste, according to the most recent official statistics. Some European countries have used policy instruments, like direct charging for waste collection, which may help to encourage recycling but have little acceptability in this country.

Most WDAs have planned to increase recycling rates relatively quickly, and before developing infrastructure to deal with residual waste. It is generally cheaper and quicker to install recycling capacity than treatment capacity, and the former often meets with less resistance in the planning process. Figure 4.8 shows that at an aggregate level, WDAs are expecting to increase recycling by around half a million tonnes in each of the three years from 2006/07, more than double the amount of treatment capacity. Thereafter the growth in recycling levels off and more investment in mixed waste treatment
Box 4.3
Budget impacts of different approaches

When signed, the contracts for some of the largest WDAs may be £3-4 billion in value. Any long-term contract rolling up 25 years or more of ‘baseline’ waste disposal costs will be large. However new contracts also include big increases in annual expenditure due to the cost of changing to more environmentally beneficial waste disposal methods (including the capital cost of new facilities).

To isolate the increase in annual expenditure, we examined the percentage increases above inflation of waste disposal budgets for 14 WDAs introducing new comprehensive solutions. For comparison, we also examined budget increases over a similar period for a smaller number of authorities that are not introducing new comprehensive solutions.

The range of cost increases among comprehensive new solutions was very wide: from 34 per cent to 95 per cent. A number of factors can be identified that influence this range:

- Size
- Construction start date
- Destination of MBT outputs
- Geographical isolation

These factors do not interact in simple ways. Large authorities have the advantage of economies of scale but some small authorities have taken advantage of particular local opportunities, for example by signing contracts to utilise spare capacity. Large authorities are better able to secure long-term contracts for refuse-derived fuel (RDF) produced by MBT, but some authorities, large and small, have deliberately chosen MBT processes that do not produce RDF.

Authorities that have an interim or no solution are facing lower cost increases in the short term. However they still face substantial increases that overlap with the lower end of the range of comprehensive solutions (27 per cent to 38 per cent). Moreover they risk much larger cost increases in the long term. This is discussed further in Paragraphs 115-118.

The lowest cost increase was from an authority that has already put a comprehensive solution in place.

These rises in spending typically take place over three years, but may be spread over two to six years. This may be for a number of reasons: they are not taking action yet, they are only introducing a partial solution, or they introduced a comprehensive solution some time ago.
infrastructure is planned. Note that the size of the peak in additional treatment capacity could be reduced by rescheduling some projects after the 2013 target year without affecting the achievement of the 2020 target.

Most WDAs have chosen to procure non-landfill means of disposing of residual waste

Residual waste that cannot be recycled or composted must be treated and/or landfilled. If WDAs’ projections that no more than 50 per cent of a growing waste stream will be recycled are correct, then the amount of biodegradable waste diverted by treatment processes needs to double from the present 2.5 million tonnes by 2012/13 and potentially triple by 2019/20 to meet the landfill directive targets. This is one of the main objectives of government policy, described in the 2007 waste strategy.

The scale of activity is considerable:

- Seventy-three councils have already procured, or are looking to procure, new waste contracts using PFI. These cover about 14 million tonnes of waste using current volumes for each authority represented.
- There are 46 confirmed or possible projects, 19 of which are partnerships. Fifty-seven per cent of projects are likely to include construction of a facility to burn waste.\(^1\)
- £1.6 billion of PFI credits have been awarded to date, covering about eight million tonnes of waste.
- Some of the contracts under negotiation are very large (some in excess of £1 billion) and long lasting (see Box 4.3).

The fact that most, if not all, authorities are working on long-term strategies with landfill diversion as a central objective could be seen as one of the successes of current policy. Most are looking to new contracts which will enable them to manage biodegradable waste within their own landfill allowances, as existing contracts come to an end. If they are successful, the landfill diversion targets will be exceeded and there will be no penalties for England as a whole or for individual authorities.

This has a variety of implications for WDAs’ finances. Avoiding penalties for exceeding the target at a national level is obviously good both environmentally and financially. Meeting landfill diversion targets will also keep LATS prices low. That is good news for WDAs who have to use more landfill than their allowance, but it means that WDAs with surplus allowances to sell will get less for them. Some councils have had difficulties as a consequence.

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\(^1\) This percentage covers facilities to burn refuse derived fuel as well as mass–burn incinerators. It does not include projects where MBT outputs are disposed of through the market, so outputs may be burned but this is not certain.
of predicting the value of landfill allowances incorrectly, and are now more cautious about their expectations as a result. If the net expenditure on waste is more than anticipated, cost savings have to be made somewhere else to balance the budget.

101 Further ahead, the price of landfill allowances becomes more difficult to predict accurately. This would not affect detailed financial planning which is typically carried out over a one to three year horizon. But a long contract will commit the council to a certain level of expenditure on waste, and other services (including different areas of waste management) will be subject to greater short-term budget risk as a result. Current practice is not to use expected future revenues from selling landfill allowances as part of the justification for investment in landfill diversion contracts, but the windfall income from selling landfill allowances could still have a significant impact on service budgets.

102 The fact that councils are investing heavily in waste management infrastructure also implies that few have chosen to continue landfilling and buy surplus allowances from others to cover the excess over their own allowance. In Chapter 3 (Box 3.2) we identified a number of reasons for this. One of those reasons is that a market-based trading system may not fit in well with the culture and values of a local authority. WDAs may worry that trading in landfill allowances to avoid financial risks could be interpreted as speculation. Others either dislike the idea of one council maximising its profits at the expense of another or think the idea of extensive trading unrealistic.

‘When Defra set LATS up they sent out mail shots about it, saying “you have got to nominate a trading officer”. It was like there would be some kind of city slicker wearing red braces sat at a computer buying dollars and selling yen. Every day. Which always seemed a complete nonsense, completely detached from reality. As if people had had too much Tizer or something.

‘We did trade: buying allowances from another council who were very good and didn’t seek to exploit their position. But we did one trade at one point in a year. We weren’t sat there all the time thinking, oh god what is today’s position? Would you really want councils, within this incredibly speculative, uncertain set-up, wasting a lot of time and potentially wasting real cash money doing trades?’

Local authority finance officer

103 Instead, most WDAs have chosen to use LATS trading as a backstop financial risk management mechanism (which they hope will enable them to buy allowances in the event that local landfill allocations are exceeded) rather than as an alternative strategy to building waste disposal infrastructure.
Uncertainties and risks in the national picture

At a national level there are two sorts of financial risk associated with these forecasts. The first is the risk that the forecasts are too optimistic, the targets will not be achieved, and the UK will incur fines. The second is that WDAs’ efforts to divert waste from landfill are successful and the targets are met or even exceeded, but at a cost which does not represent VFM for the public purse or in a way which does not achieve the best available environmental outcome. Charting a course between these two risks is the general intent of the waste strategy, but is far from straightforward given the uncertainties.

We assess each sort of risk at the national level in turn, and then (in Chapter 5) look at the risks for WDAs and how they can be managed.

Risks to achievement of the landfill target

The forecast showing that the landfill diversion targets are likely to be met is very sensitive to the assumptions authorities have made about the most important variables. These are:

- the extent to which waste minimisation and other efforts can reduce the level of waste collected;
- the increase in the proportion of waste recycled; and
- the speed at which disposal infrastructure can be brought on line.

Waste growth

The forecast shows an overall surplus of landfill allowances for the entire period to 2020. During the years 2010 to 2013, the amount landfilled comes closest to the national allowance with 87 per cent of the national allowance used. The forecast is based on an average waste growth of 1 per cent (see Appendix 4). But if waste growth were 2 per cent, 98 per cent of the national allowance would be used, so although no penalties would be incurred nationally, landfill allowances might trade at a high price, say £130 per tonne. If there were no waste growth, the national target would be met comfortably, and only a third of the available landfill allowances would be used in 2020.

Recycling and composting

The central forecast relies on recycling and composting rising from its current level of 30 per cent to 45 per cent of BMW by 2020. The fact that some authorities already recycle more than 45 per cent of their municipal waste gives some degree of reassurance that this level is achievable as an average, but improving performance this much will still be a challenge to many authorities. It will require new collection systems, new infrastructure such as anaerobic digestion to deal

Clearly this depends also on the performance of the devolved administrations.
with food waste, expanded markets for reprocessing materials, and a higher degree of participation by householders.

But if the improvement in the total amount of BMW recycled is lower than expected, reaching only 42 per cent by 2020, then in 2013 we would use 94 per cent of the total landfill allowance. Landfill allowances would trade at a relatively high price in this scenario, at around £90 per tonne of BMW.

Table 4.1
Sensitivity of forecasts to changes in assumptions

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Performance in 2013</th>
<th>BMW landfilled (‘000 t BMW)</th>
<th>Approx surplus (+) or deficit (-)</th>
<th>Penalty (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base case</td>
<td>As planned by WDAs:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 1% growth</td>
<td>6,100</td>
<td>+900</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>• 45% recycling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Treatment as per plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste growth</td>
<td>I) 2% growth</td>
<td>6,900</td>
<td>+200</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>II) No growth</td>
<td>5,500</td>
<td>+1,500</td>
<td>0</td>
</tr>
<tr>
<td>Recycling and composting</td>
<td>I) Rising to 50% by 2020</td>
<td>6,100</td>
<td>+1,000</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>II) Rising to 42% by 2020</td>
<td>6,600</td>
<td>+500</td>
<td>0</td>
</tr>
<tr>
<td>Treatment infrastructure</td>
<td>I) Plans delayed by 1 year</td>
<td>7,100</td>
<td>-50</td>
<td>£10</td>
</tr>
<tr>
<td></td>
<td>II) Plans delayed by 2 years</td>
<td>8,000</td>
<td>-900</td>
<td>£140</td>
</tr>
<tr>
<td>Combination of the above</td>
<td>• 2% waste growth</td>
<td>9,200</td>
<td>-2,200</td>
<td>£330</td>
</tr>
<tr>
<td></td>
<td>• 42% recycling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 2 year delay</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Treatment

The forecast relies on around 6 million tonnes of additional treatment capacity, measured in terms of the amount of biodegradable waste diverted by the treatment plants. (Source separated food and garden waste which requires treatment has been counted as recycling and composting). All of this is planned by WDAs, but there are many potential risks to the new treatment capacity being implemented according to the prediction in the model:
• Local plans are not absolute commitments, so the intention to enter into a new contract does not guarantee that it will happen. Some officers found it difficult to tell us about their plans with confidence because the plans were still subject to approval by the council.

• WDAs seeking tenders do not know what bids are likely to come forward, and their intended course of action may not be practicable because of limitations in the waste market.

• Some WDAs have still not firmly decided on a course of action.

Note this is a simplification of the true picture because there is the facility, except in target years, to bank (carry forward) unused allowances to the following year and borrow up to 5 per cent of the allowances from a subsequent year allowances.
although they may have several practicable options open to them and believe that one or more of them can deliver their aspirations.

- Some WDAs have run into difficulties during procurement, and others are likely to do so in future. The typical difficulties include finding sites for treatment plants, gaining planning permission, finding markets for by-products of MBT treatment processes and technical difficulties with the plant leading to lower performance than expected.

In practice, some projects will be delayed by a year or two, and some others will deliver less diversion capacity than expected. Of course there is a possibility that some WDAs will be pleasantly surprised by projects that work out better than expected, but given the nature and urgency of the task, this is unlikely. The delay to infrastructure projects has the biggest impact on national performance of all the variables tested. If all projects were delayed by just a year, England would use 1 per cent more than its national landfill allocation in 2013, WDAs would incur collective penalties of around £10 million, and allowances would be expected to trade at a very high price, say £150 per tonne of BMW. A two-year delay would see the figure rise to 13 per cent over the total English allocation and the collective penalties to authorities reach £140 million.

If all the above risks (higher than expected waste growth, lower than expected improvements in recycling and delays in procurement) were to materialise simultaneously, the English landfill allocation would be exceeded by about 20 per cent in 2013. The collective penalties to those WDAs who had not been able to buy enough allowances to cover the amount of waste they landfilled would be around £330 million. These sensitivities and the likely consequences are summarised in Table 4.1.

Three broad conclusions emerge:
- The biggest single financial risk in aggregate is the delay to the installation of new waste treatment infrastructure, which is known to be problematic.
- WDAs’ plans rely on improving recycling rates very quickly, which is the only practical option in the short term due to the length of time it takes to introduce new treatment plants.
- The key to improving the situation in the longer term would be to reduce the amount of waste generated in the first place, but WDAs currently believe their ability to influence this is small.

The 2020 target is not as sensitive to delays as the 2013 target, and there is still time to adopt strategies to cover the main risks in this time period. The longer time horizon gives more weight to the assumption about annual
waste growth. Two per cent growth in waste to 2020 would reduce the predicted surplus from the base case scenario from 2,000 to 200 tonnes, and clearly any further problems such as delayed infrastructure would risk the UK going into deficit nationally.

Distributional effects

The national picture is therefore reasonably optimistic in the short and long term about performance against the Landfill Directive targets and the risk of fines. In the medium term there are risks, and optimism relies on ambitious recycling rates and the timely delivery of capital projects for treatment plants.

But the overall picture conceals the financial effects on individual WDAs, which may be severe. Figure 4.9 shows that even in the base case scenario, there is likely to be a wide variety of...
experiences among WDAs. At no point will all WDAs have surplus landfill allowances, and by the 2013 target year, nearly half will need to buy allowances to top up their initial allocation.

The financial impact of the surpluses and deficits on individual WDAs will depend on the LATS trading price. In the base case, the trading price is assumed to be quite low (around £50/tonne) with the maximum cost of traded allowances for an individual WDA occurring in 2012/13. For most of the WDAs in deficit, the cost of traded allowances would be less than £2 million, though it is not possible for us to predict the likely cost to a given WDA with any accuracy. For the small proportion of WDAs at the extremes of surplus and deficit, the costs or benefits could be substantially greater. Authorities with deficits of more than 60,000 tonnes would incur penalties of nearly £7 million between them.

In the most pessimistic scenario in Table 4.1, the results look considerably more unfavourable for those authorities in deficit (Figure 4.10). A majority of WDAs are in deficit in 5 of the next 14 years, including the critical target years of 2013 and 2020. Not only are they likely to exceed their own allowances by a greater extent (and are thus likely to incur penalties), but the price of allowances they buy would be much higher (we have assumed £150/tonne). The maximum cost of traded allowances and penalties to any individual WDA covered by the analysis is now around £7 million. This is more than three times the figure in the more favourable scenario, and again does not include the few WDAs at the very extremes of the distribution. Correspondingly, some WDAs stand to gain up to around £5 million by selling allowances.

The consequences of this pattern would inevitably be felt by local taxpayers or service users as councils sought to raise revenue or reduce expenditure to meet financial deficits, or reaped the benefit of windfall surpluses. It is not clear how either central or local government would respond to such a degree of redistribution, which would be determined by a combination of circumstances, WDAs’ starting points, good management and good fortune.
Securing VFM in waste disposal

120 Chapter 4 indicates that a WDA risks having to pay penalties and/or a high price for LATS allowances if it does not achieve its own landfill diversion target. This risk is dramatically increased if England as a whole does not reach its landfill diversion target.

121 It is therefore not surprising that most WDAs are putting measures in place to meet their obligations. Nor is it surprising that those WDAs’ priority is, and should be, to ensure that those plans can come to fruition in time. This study did not look in detail at procurement arrangements, but some contractors have observed that while a waste procurement is always a protracted exercise, some WDAs have made it longer still by not streamlining their procurement processes. Guidance on effective waste procurement is available and WDAs should follow it in the interests of speeding the process (Ref. 17).

122 However, there are risks to the public purse even if the landfill diversion targets are achieved, if that achievement comes at a high cost. Chapter 2 showed the complexity and the power of the financial and non-financial incentives bearing on WDAs. Chapter 4 showed that their responses to these incentives include significant collective expenditure and in some cases involves entering into some of the largest and most valuable long-term contracts in the history of those authorities. The sheer scale of expenditure and the fact that WDAs feel under pressure to bring new disposal facilities on line in a short period of time means that the risks to VFM are significant.

123 This chapter describes the risks to VFM identified over the course of the study, and discusses how WDAs can manage them in the light of the experience of WDAs that participated in our research. The actions taken by WDAs to achieve better VFM fall broadly into the following categories:

- Setting clear environmental objectives that are well founded in good analysis of the available information, including authoritative scientific judgements about the relative environmental desirability of different approaches.

- Balancing service objectives against the costs of achieving them, negotiating a path between practical barriers to delivery of the necessary facilities and thinking about VFM more broadly than simply as affordability to that council.

- Judging the quantity, and timing of new processing capacity correctly in the light of well founded projections of the amount and composition of residual waste arising in future years.
Organising the procurement to achieve the best possible price for a new waste management contract, working with others wherever possible to improve their position in relation to the local market.

VFM in waste procurement

124 All the authorities the Commission visited cited securing VFM as a principal objective, but it is not easy to identify what they meant. None of the waste strategies reviewed provided a quantitative or robust definition. A third of strategies made no reference to VFM at all.

125 This may not be surprising given the complex nature of the task, the variety of different objectives to meet (financial, social and environmental) and the range of stakeholders to satisfy. Moreover, VFM considerations will change at different stages of strategy development and procurement. Broadly, all WDAs face the same challenge: to find the most affordable and deliverable way to comply with (or exceed) minimum regulatory standards, meet local environmental priorities and minimise financial risks in future.

126 However they define them, WDAs face risks in pursuing their VFM objectives. VFM can be compromised if poor decisions are taken or if well founded decisions are poorly implemented. There is extensive guidance available from Defra on developing waste strategies (Ref. 18) but some strategies we reviewed pre-dated the latest guidance and only around half of the strategies we reviewed conformed with it. Three quarters of WDAs identified a wide range of options for reducing and recycling waste and a similar number identified a wide range of options for residual waste treatment. But fewer than half adopted the recommended approach of assessing options in order of environmental desirability.

127 Our review of waste strategies also found weaknesses in coordination between waste strategies and other elements of WDAs’ activity. Less than a quarter of strategies showed clear links between waste strategies and councils’ broader aspirations to reduce greenhouse gas emissions.1 And while two-thirds of strategies were well linked to regional waste and spatial development strategies, less than a third were coordinated with the council’s own procurement strategy or its medium-term financial plan. Action plan development was a further area of relative weakness.

The definition of national indicator 185 (percentage CO₂ reduction from local authority operations) includes emissions from the vehicles and buildings belonging to the waste management service and its contractors. It excludes greenhouse gas emissions directly from the waste itself (eg methane emissions from landfill) and any CO₂ savings from recycling.
Risks to VFM

The main risks to VFM for an authority considering how best to meet its future waste management and landfill reduction obligations are listed below, along with the various actions taken by authorities to avoid these risks. WDAs are most likely to obtain good VFM where they:

- Choose technical solutions that deliver the best environmental impact. This implies:
  - understanding the different environmental outcomes from different options, and choosing between them objectively;
  - coordinating collection and disposal;
  - balancing the relative costs of increased recycling against residual treatment;
  - choosing the best local solutions rather than being driven by market or funding pressures; and
  - striking an appropriate balance between short- and long-term objectives.

- Buy the right amount of treatment infrastructure. This implies:
  - making the most of landfill allowance trading opportunities;
  - estimating waste volumes accurately;
  - considering the benefits of a partnership approach rather than optimising treatment capacity at the WDA level;
  - making evidence based judgements of the potential to deal with other authorities’ waste or commercial and industrial waste; and
  - maintaining their financial incentive to pursue waste reduction in the longer term.

- Pay the right price for the infrastructure they buy. This implies:
  - resisting cost pressures where possible, and not paying over the odds because of the need to move quickly;
  - recognising where waste markets may be inefficient because of lack of capacity and/or uncompetitiveness and responding accordingly;
  - achieving economies of scale where available and efficient configuration where possible;
  - managing waste procurement effectively; and
  - allocating risks and managing contracts well.

Choosing the most effective technical solutions

WDAs may not choose the technology with the best environmental outcome

Calculating the environmental costs of different waste disposal options is not simple, nor is there a single established method. All assessments require assumptions to be made. But
evaluating the social costs of different options is a vital part of the strategy process. These costs typically include:

- impact on air quality from gaseous emissions such as carbon dioxide, methane and nitrogen dioxide, and particulates;
- transport-related effects including energy costs, traffic movements, and road safety issues; and
- issues such as odour, health risks, visual amenity and noise.
Figure 5.1 shows the approximate effect on greenhouse gas emissions of different waste management methods. It corresponds broadly with the waste hierarchy, indicating that landfill is the worst option, followed by energy recovery (or MBT treatment) then recycling and composting. But it also illustrates the wide range of performance of different types of process within each category. For example, the most efficient forms of incineration compare favourably with other methods in terms of greenhouse gas emissions. And the value of recycling and composting varies widely with the nature and quality of the recycled materials and what can be done with them. So while it is clear that landfill of untreated waste is by far the worst option, it is not possible to generalise about the

| Source: WRAP (Ref. 20) | LATS costs apply to biodegradable waste landfilled in excess of initial allocations |

Figure 5.2
Indicative costs of different waste management processes

Environmental desirability

-4 20 33 36 65 69 70

-20 0 20 40 60 80 100 120 140 160

Approximate cost per tonne of material (£)

Recycling

In-Vessel Composting (food waste)

Open-air Composting (green waste)

Landfill (excluding tax)

Landfill (including tax)

EPW (modern facilities post 2000)

EPW (all facilities)

MRF (co-mingled recyclables)

LATS costs apply to biodegradable waste landfilled in excess of initial allocations

Well disposed | Local risks, local solutions | 5
best methods without conducting a thorough evaluation of a specific local system. More detail on the greenhouse gas impact of particular technologies is in Appendix 2.

131 Likewise, Figure 5.2 shows the approximate costs of different waste recycling and treatment processes. These vary according to the design of the treatment plant, the quality and price of recyclate material, the plant performance, energy costs and so on. These variations are hard to predict. Recent rises in the price of oil obviously affect the costs of fuel for transporting waste. But oil price rises have also contributed to rises in demand for, and consequently the price of, products of recycling and composting processes. It is unclear how far or for how long these increases may be sustained. Accordingly the economics of different treatment processes can be expected to change unpredictably over time.

132 The differences in the environmental impacts of different waste treatment processes are not fully reflected in the national performance indicator framework, which is inevitably a relatively crude proxy for the real environmental costs and benefits of different actions. A WDA pursuing improved performance against a particular performance indicator risks making a less environmentally desirable decision if it does not recognise this. For example, collecting more green waste can increase the overall proportion of the waste stream recycled and composted, but is less environmentally desirable than composting it at source.

133 Although treating mixed waste is the most expensive and least environmentally friendly option other than landfill, not all household waste can be recycled. No WDA expects to be able to recycle more than around two-thirds of its waste, so some form of residual waste treatment will be required for a WDA to stay within its initial allocation of landfill allowances.

134 The principles of calculating environmental costs are common everywhere, but the impact of a given scheme will depend on detailed design issues and the relative importance local decision makers place on different features. Much of the technical work to inform option appraisals and prepare for contracts is undertaken separately for each WDA by specialist consultants. WDAs rely on external support because they lack up-to-date technical expertise and staffing to deal with the substantial amount of extra work required. In our fieldwork authorities, expenditure on consultants’ fees varied from as little as £50,000, to £9 million and above. At most, consultants’ fees came to 10 per cent of one year’s expenditure under the contract, or 0.4 per cent of the total contract value.
Our analysis of waste strategies identified that the use of tools that enabled WDAs to understand the relative merits of different approaches and choose between them was an area of weakness. There are advantages of using a standard modelling technique such as the Environment Agency’s Waste and Resources Assessment Tool (WRATE). This is used for all the large-scale PFI funded projects and can also be used for smaller schemes. Operators in the waste industry have reported some limitations in using WRATE in certain local applications, so there could be benefits in continuing to develop the program to address users’ concerns.

Moreover, WDAs’ choice of solution is not entirely objective, as it is influenced by factors such as perceived public preferences for certain technologies, the potential location of facilities and so on. We found WDAs that appeared to have ruled options involving combustion out of consideration because they expected public opposition and others where proposals for EfW plants have been the cause of political controversy. It was not clear whether concern about local public opinion was well founded or whether the public would be aware of potential costs and benefits. Chapter 6 discusses engagement with public opinion in more detail.

WDAs need to apply common, objective approaches to assessing the environmental costs and benefits of different disposal technologies.

The need to coordinate collection and disposal arrangements constrains WDAs’ choice of technology

Upper tier WDAs need to cooperate with WCAs because of the need to achieve high and predictable recycling and composting rates, and because waste treatment plants need to be sized to match the amount and type of waste produced over the long term.

Most WDAs claim to work well in partnership with their respective WCAs. But the latter are independent and make their own decisions. While WDAs have powers of direction over collection authorities, most would use these powers only as a last resort, preferring to negotiate mutually-acceptable solutions. Where local WCAs agree common collection methods or output standards, the WDA will not incur additional costs in separating materials or managing different streams of waste. It may also secure a better price for a larger or more consistent volume of recyclates of a given standard. Where they do not, additional costs may be incurred by the WDA.

‘I find this an incredibly frustrating area in terms of value. We have got one contract for each authority in this county. We are inherently between 10 and 15 per cent inefficient, in terms of waste management, by virtue of having to operate in a two-tier world.’

Chief executive, county council
There are disincentives to WCAs cooperating with WDAs on approaches to recycling. If a WDA or its contractor takes over the marketing of recovered materials for reprocessing, the WCA may lose revenue. Alternatively, a new waste disposal arrangement may require the WCA to invest capital to introduce new collection systems to increase the recycling rate. Both of these problems have been addressed in some instances by WDAs providing funding for loss of revenue or capital investment.

WDAs in two-tier areas need to be alert to the implications of different collections mechanisms, and need to be creative in reaching solutions that enable WCAs to cooperate in new disposal arrangements.

WDAs need to balance the cost of increased recycling against residual treatment

Around 70 per cent of household waste is readily recyclable but the nearer to that limit councils get, the greater the marginal costs of further increasing recycling rates. The value of the additional material recovered may also be less. There will be a point where promoting further recycling becomes less cost effective than residual treatment, especially where the disposal method recovers energy that can be sold.

WDAs’ plans for balancing recycling and residual treatment should be informed by forecasts of recycling rates and a cost benefit analysis of the different options. But our analysis of waste strategies found that some recycling and composting plans lacked sufficient detail to provide confidence that they would deliver their objectives. Fewer than half of all strategies had a clear view of their likely impact on residual waste volumes.

WDAs need to recognise that the marginal cost of increasing recycling rates rises with the recycling rate, and set their ambitions for recycling accordingly.

WDAs may be driven to invest in particular waste disposal technologies by market or funding pressures

Where a strategy forms the basis of a new integrated waste contract with substantial value, WDAs have attracted high quality bids from contractors that have developed plans specifically to meet the WDA’s range of requirements. Some smaller councils have found it less easy to attract a range of good quality bids. Two of our fieldwork authorities ultimately attracted only one compliant bid each, limiting both their choice of technologies and the competitive pressure on price.
Where affordability is an important consideration for a WDA, PFI is an attractive funding route. Because PFI is designed for large projects with over £20 million capital investment, it is most often used for Mechanical Biological Treatment (MBT), incineration or other technologies which can process municipal waste of any composition. However, depending on the local situation, less capital-intensive infrastructure (Materials Recovery Facilities (MRFs), composting facilities, and so on) can still be of great importance to the delivery of waste strategies.

PFI contractors need to be able to borrow to incur the up-front capital costs, and banks have been reluctant to lend to projects reliant on technology which is not yet proven in the UK. PFI contracts are often for 25 years or more. There are emerging new technologies in development which may be more environmentally friendly and may be better able to operate affordably at small scales. This can lead to some public pressure on councils not to sign a long-term PFI contract as this means foregoing potential opportunities to use newer technologies.

However, sticking to proven technologies for major plants is a prudent approach whatever the source of finance. Even if technology is proven overseas, adapting it to UK municipal waste does run real risks of the project underperforming or even failing outright. Some new technologies have spent twenty years or more being potentially a few years away from being proven in the UK for municipal waste.

Defra’s New Technology Demonstrator Programme started in 2003 and has already played a role in proving anaerobic digestion and in-vessel composting of municipal waste. Information on four further projects involving gasification, pyrolysis and mechanical heat treatment (autoclaving) should be available in 2009. However it is not possible to predict the impact of this information on market confidence in particular types of facility.

WDAs should be aware of the restrictions that their scale in the market or their choice of funding mechanism impose on their choice of disposal technology.

WDAs may not balance long- and short-term objectives well

The pressures to stay within their LATS allowance and the attractions of PFI funding have encouraged many WDAs to seek large scale, long-term contracts, which may also provide the opportunity to sell surplus allowances on the market. But given the uncertainty about future composition of the waste stream and levels of recycling and composting, this approach incurs the risk that WDAs may be tied into contracts that no longer match their needs. Some early
MBT plants did not perform as well as WDAs had expected because they had not accurately predicted the volumes and composition of the waste stream.

Some WDAs have pursued twin-track strategies, introducing relatively low cost short-term measures to tide them over until they have determined and secured a suitable long-term solution. This allows more time to plan and deliver what may be a more capital intensive long-term solution and allows them to learn from other authorities’ experience. It may provide more flexibility to meet changing and uncertain future requirements, and if procurement and contract management is more continuous, this allows the WDA to develop its own client side capability, with less reliance on outside specialists. The main risks of this approach are that tender prices for waste disposal services will rise while the authority is waiting, and for some it may expose them to the need to buy LATS allowances.

WDAs that have adopted varieties of this approach include:

- Hertfordshire and Staffordshire, which have installed food waste composting as a temporary measure;
- Darlington, which has signed a conventional service contract until 2020 rather than using a 25 year PFI contract (partnership opportunities will open up with neighbouring authorities in 2020 but the latter are currently tied into contracts of their own until then); and
- Greater Manchester, which is procuring a PFI contract with multiple different facilities, and has invested in organic waste diversion in the short term.

WDAs should consider carefully the scheduling of their waste disposal facilities procurement and the potential advantages of smaller scale plants.

Buying the right amount of waste disposal infrastructure

As Chapter 3 indicates, most WDAs have chosen to build enough disposal infrastructure to meet their own landfill reduction target, with a bit of extra capacity to allow for errors in forecasting and to anticipate the falling landfill allocation for future years. While this is rational for every individual authority, it carries the risk that collectively, more infrastructure may be planned for a given year than is needed to meet the national targets. (It is unlikely there will be an excess of diversion capacity in the long term if environmental regulation continues to become more stringent).

WDAs might buy too much disposal infrastructure if they:

- do not make the most of LATS trading opportunities;
• look to the best solution for themselves with a small margin for error; or
• overestimate future volumes of waste arising (including other authorities’ waste or trade waste).

They may also achieve a worse environmental solution if, by building large disposal facilities, they reduce their own financial incentive to pursue waste reduction or recycling initiatives.

WDAs are not making the most of LATS trading opportunities

If, as forecasts suggest, England is likely to meet its landfill diversion target overall, then for many WDAs, buying allowances might be a better strategy than building new infrastructure (at least in the short term). This is most likely to be the case where waste disposal infrastructure is likely to be difficult or expensive to build.

Most WDAs have put in place a LATS trading strategy, but few have chosen to use the LATS trading system proactively. One rare example of the latter is Northamptonshire County Council, which has a future option on allowances from the London Borough of Greenwich, having prepared a detailed strategy and contacted other WDAs to find the right partner. Futures trading appears not to be widespread, though it is impossible to assess this accurately because authorities may make arrangements outside the formal trading system without publicising them. A more transparent futures market would enable more certainty and better planning, and this is one of the features that is being promoted through an enhanced user interface to the trading system.¹

WDAs should consider actively where they would be better placed buying allowances than investing in infrastructure.

WDAs are encouraged to build facilities which meet their needs rather than the broader needs of a wider area

The natural objective for WDAs or partnerships is to optimise the performance of the waste management system for their own area. But this may give rise to inefficiencies. Waste treatment facilities may be sited in locations most appropriate when viewed from the perspective of the commissioning WDA, but not from a broader regional or sub-regional perspective. This consideration is unlikely to weigh heavily with any individual WDA alongside the many other considerations bearing on location of facilities.

¹ An improved trading platform is expected to be operational by the beginning of the 2009/10 LATS trading period. This is a new initiative by Improvement and Efficiency South East, formerly the Regional Centre of Excellence (Ref. 13).
'The way we are being driven at the moment is that the only catchment area you can work on with any degree of certainty is the local authority area. But I believe that is damaging both economically and environmentally. Because we are ending up with sub optimal solutions.'

Contractor

‘There is a site which is not ideal for this county alone, because it is not centrally located. However it would be ideal for a regional waste facility because it has both canal and rail connections to [regional population centres], it’s in a very run down industrial area, with a low residential population. You could make an incredibly strong case for it. But our chances of getting planning permission on a facility for somebody else’s waste would be very low. It is possible to sell unpleasant facilities for your own customers’ use. It is rather different becoming the receiver for other people’s waste.’

Chief executive, county council

155 The case for trying to impose more regional or sub-regional coordination to avoid this problem seems poor, and although WDAs were frustrated by the lack of coordination and the challenges of making it happen on a voluntary basis, none suggested any alternative. There are examples of WDAs coming together voluntarily to ensure that the waste disposal arrangements avoid duplication and configurations of facilities that are environmentally undesirable. For example, the West Midlands Regional Improvement and Efficiency Partnership (formerly the West Midlands Centre of Excellence) has supported and encouraged cooperation between authorities in the region. A group of all 14 WDAs has commissioned a regional mapping exercise to provide the basis for a debate over options for collaboration in procurement and sharing facilities.

156 A number of the authorities are already developing partnerships to share capacity, for example Walsall, Sandwell and Warwickshire are planning to send some of their residual waste for treatment in a plant being procured by Staffordshire. There are currently five facilities for incineration with energy recovery in the region, with plans to procure up to five more by 2020. The research and subsequent debate may lead to a reduction in the number of separate procurements and the total number of facilities. Arrangements like these should be encouraged where possible.

WDAs should cooperate regionally and sub-regionally and organise their waste systems in the most environmentally friendly way possible.

WDAs may overestimate future waste volumes

157 The shift to non-landfill waste disposal methods requires an accurate forecast of waste volume and composition in
order to size the materials recovery
and treatment contracts correctly. The
principal determinant of the cost of a
waste facility is the amount of waste it is
expected to process, and any variance
from the planned tonnage outside
agreed limits would normally be charged
at a higher rate per tonne. So WDAs
have an incentive not to underestimate
the required scale of new infrastructure.

WDAs have struggled to understand
both how the underlying drivers
of waste arising are changing and
what effect their and others’ waste
minimisation initiatives will have. WDAs
need to develop evidence based
projections to inform their infrastructure
requirements. Detailed guidance on
forecasting is available from CLG (Ref.
21), but data quality and realism of
projections was the weakest area in our
desktop assessment of strategies, and
sensitivity analysis was particularly weak.

If WDAs overestimate the amount of
waste they will need to process, both
the overall cost and the cost per tonne
of waste processed are likely to be
higher than they would have been
had estimates proved accurate. One
possible solution to this is to make
the facility available to other sources
of waste, either commercial waste
or waste from other authorities. This
may be restricted by the planning
permission for the facility. Many WDAs
face planning conditions constraints
that limit the amount of waste from
other areas. These may have been
concessions deemed essential to
secure the permission. While WDAs
can point to a legal requirement on
them to dispose of their own waste, it is
harder to get public support for a facility
dealing with other people’s waste, even
if it might be advantageous financially.

WDAs should base their estimates
of future waste flows on good
evidence, and be cautious about
purchasing surplus capacity without
firm agreements for its use.

WDAs may reduce their own
financial incentives to pursue
waste reduction at a later stage

One of the common objections to
Energy from Waste (EfW) facilities is
that after they have been built they
will discourge further improvements
to recycling because the facility is
designed to process a fixed amount
of waste (between an upper and lower
limit). WDAs therefore need to build
ambitious forecasts for recycling and
waste minimisation into business cases
for disposal infrastructure if they are
to avoid creating such a disincentive.
Where possible they should design
facilities and contractual terms to be
flexible to changes that might occur
in future. Defra insists that a WDA
has a recycling target of 50 per cent
before it awards PFI credits. While
WDAs seeking credits have adopted
that ambition, it is not clear from
published waste strategies that all have detailed plans in place to achieve it.

In procuring waste disposal infrastructure, WDAs should avoid creating disincentives to pursuing waste minimisation and recycling initiatives.

Paying the right price for waste disposal facilities

161 Several factors combine to make this a serious risk to VFM. Specifically, WDAs may overpay because:

- the financial pressures on them make even high prices look like good VFM by comparison;
- the pressure to deliver new infrastructure quickly weakens WDAs’ negotiating position in the market;
- the market for waste infrastructure may lack capacity and/or may not be competitive enough to deliver keen pricing;
- they fail to achieve economies of scale or efficient configuration;
- procurement problems lead to delays and cost overruns; or
- they do not allocate risks effectively.

WDAs may see even high prices for infrastructure as preferable to incurring high LATS costs or penalties

162 The costs of landfilling have been rising in recent years with increasingly strict environmental regulation (resulting in higher management costs) and a gradual decline in remaining landfill capacity (Ref. 22). Recent efforts to divert waste from landfill should reduce the demand and help to moderate further price increases from operators, but the most significant cost to authorities is the landfill tax, which will have risen to £48 per tonne by 2010.

163 Landfill allowances and landfill tax place a financial value on the environmental impacts of landfill, which local authorities might otherwise not respond to. But their combined effect may overstate the environmental damage caused by landfiling. This means that from an environmental perspective, there may be an overemphasis on waste disposal relative to other forms of environmental protection.

164 In theory, the imposition of artificially high cost pressures on waste disposal should not affect the price paid for new facilities and contracts, which are set in the market. But where authorities have been shocked into taking action, there is a risk that they become desensitised to costs by the scale of the task and the huge sums of money involved. For example, the cost of professional advisors may run into millions of pounds but it may not be considered important because it is small in relation to the cost of the contract. WDAs may not attribute their own staff costs in procurement or contract
management to individual projects, so may not control those costs closely.

**WDAs need to apply the same discipline to assessing the price they pay for waste infrastructure as for other major investments, regardless of the need to avoid landfill tax or LATS costs**

**WDAs’ desire to install new infrastructure quickly presents risks to VFM**

165 Many new waste disposal contracts represent a significant change of practice to some WDAs, and some are novel from a technical point of view. Some of the early projects encountered problems that others have learned from. Some of this learning has been captured formally, for example being incorporated into guidance, specifications and procedures adopted by Defra and the Environment Agency, and by consultants.

166 Figure 4.3 reported our fieldwork WDAs’ experience that waste disposal procurement generally takes around seven years. Large, novel or contentious projects have been longer, some over ten years. Very straightforward ones may be deliverable in a shorter time. For example, a new facility on an existing site is likely to be much less contentious. Although it may be tempting to go for a novel solution that promises better performance, every feature of the project which is new to the council compounds the risk of something going wrong.

167 The first WDAs in this field were more exposed to risks that others have learnt from. Some of the features that have gone wrong in new waste treatment and disposal contracts include the following:

- planning permission refused after contracts had been signed, leaving the authority in a difficult negotiating position with respect to revised facilities;
- delays leading to cost escalation and problems with affordability;
- plants which did not meet the agreed specification (for example on quality of outputs or power generation), delaying sign-off and leading to lost income from sale of landfill allowances;
- output from MBT process not able to be marketed as intended or not licensed for intended disposal method;
- project terminated or radically altered following a change in political priorities; and
- income from selling landfill allowances significantly lower than expected.

168 For many WDAs, it is important to have their own facilities in place in order to divert waste from landfill by 2010 or 2013. Although almost any price for infrastructure is likely to be preferable to paying a high price for LATS allowance...
Figure 5.3
A typical WDA will increase recycling before treatment

Source: Audit Commission
or paying fines, WDAs need to be alert to the risk that a compelling need for a solution of some kind can leave them in a very weak negotiating position.

WDAs need to be realistic about what can be achieved in time to achieve their targets, and should not allow the urgency of achieving a diversion solution to outweigh value for money considerations.

The market may not deliver a competitive price

Chapter 4 indicated that many WDAs are seeking first to improve recycling rates before introducing new facilities to treat the residual waste. Figure 5.3 illustrates this pattern.

This common pattern implies an increase in recycling capacity followed by new treatment facilities, in a relatively short time. Our estimate of the new capacity needed, based on WDAs’ projections, is shown in Figure 4.8.

Although we have heard no suggestion that the industry will be unable to cope with this pressure, it would be surprising if such a dramatic increase in capacity (over half a million tonnes additional capacity in each of the seven years from 2010) could be achieved without an increase in unit cost. And if the industry finds it difficult to increase capacity, increases in cost or further delays to commissioning of facilities, or both, seem likely.

Fieldwork authorities were concerned that, even where the industry had the capacity to meet their needs, it was not obvious that there was sufficient competition among waste infrastructure providers to assure them that they were paying a competitive price. The Office of Fair Trading reported in 2006 that some companies have strong market positions in particular regions which give them operational advantages such as access to landfill sites (Ref. 23). Contractors confirmed this general picture, and admitted that they have a limited capacity to bid for major waste contracts, and therefore target the contracts that seem most attractive. Fieldwork authorities reported new overseas providers seeking to enter the market, some successfully, in response to the volume of tenders being issued, but it is too early to tell what impact that might have on the competitiveness of the market. Recent tenders for large contracts have attracted enough bids for the authority to choose from for its shortlist.

WDAs need to be alert to the implications of their proposed schedule for building new waste treatment facilities for the prospects for timely and cost effective completion, and also to the risk that limited competition in the market may mean there is little downward pressure on the prices quoted.
WDAs may find it hard to achieve economies of scale and efficient configuration

Achieving economies of scale in mixed waste treatment plants is challenging because the optimum size of facilities used may be larger than that required by a single authority. This is illustrated by Figure 5.4. Few WDAs, and relatively few partnerships, generate enough waste to justify an incinerator of the most efficient scale. And some partnerships, such as in Hampshire, have had to build a number of smaller scale plants in order to gain planning permission.

Figure 5.4 includes the 22 partnerships between WDAs that are working together to procure (or have already procured) treatment facilities for residual waste. These partnerships can enable WDAs to share modelling and procurement costs as well as treatment facilities and enable discussion of the

Figure 5.4
Few authorities and partnerships generate enough waste to justify EfW plants of the economical scale

Partitions and unpartnered WDAs ranked by quantity of waste

Source: Defra (ref 24) and Audit Commission
most efficient configuration of plants for a broader area, balancing economies of scale with distances travelled.

But partnerships bring their own challenges. Governance and management arrangements have proved difficult, particularly during the planning and procurement stages. Most of the partnerships that currently exist either have obvious benefits for one party, such as a small unitary partnering with its county, or are in areas where there has been long-standing cooperation between neighbouring authorities. Many face the difficulty that local people are unwilling to accept responsibility for others’ waste, even if that would be the most efficient arrangement.

WDAs should cooperate with neighbours to the extent necessary to capture available economies of scale.

WDAs may not manage the procurement process effectively

Authorities place a great deal of emphasis on the procurement process to deliver good value, and have adopted different tactics in different market circumstances to get the best from the market. For example, some authorities have specified an integrated contract (collection, recycling, treatment and disposal) to achieve economies of scale and attract a wider range of bids with more interest from the larger companies. But these advantages must be set against the possible drawbacks such as the strong position this gives the contractor and the fact that not all waste services make a good fit when bundled together in one contract. For example, the less capital intensive elements of the contract do not need to be financed by a 25 year PFI deal, and some elements of the contract such as collection would need to be soft market tested periodically in order to maintain competitiveness.

As well as the overall contract specification, local authorities can enhance their position in other ways such as better organisation and governance arrangements. The quality of the contract specification, the underlying modelling work, and organisation of the client side and the pace of decision making all play a part in attracting (or putting off) contractors.

‘[Authority X] …has just commenced a third procurement process with a project team meeting. They’ve got a project structure that looks like a spider’s web, with everybody and anybody in it, often the same people on the different sub-groups. It makes it difficult to get clarity about what the strategy is, and what they want out of the procurement process.’

Contractor

WDAs should follow guidance on good practice in waste procurement to ensure that the procurement delivers value for money.
WDAs may incur costs if they do not allocate risk well in contracts

Where circumstances change in the life of a waste contract, costs are often incurred. This might occur if the pattern of waste growth or the regulatory regime governing a particular technology changed, for example. Whether the WDA or contractor bears those costs is determined by the initial agreement they reach on risk allocation. Where an authority asks a contractor to bear a risk, the contractor will reflect that in the price offered. A large long-term waste management contract needs to have some flexibility designed into it in case forecasts turn out to be inaccurate, unless the authority has other contingency plans outside the main contract.

Some WDAs have found that they continued to bear risks they thought they had allocated to a contractor. Such risks include planning delays and technology failures – contractors were able to ensure the WDA bore the risk by threatening to walk away from the contract, leaving the WDA without waste disposal infrastructure. These risks are not unique to waste PFI, but have been highlighted by recent experience in other sectors.

WDAs need to follow guidance on risk allocation and management available from Defra and 4Ps, and also learn from others’ experience.

This chapter has discussed the practical issues local authorities need to take into account when considering how best to achieve VFM in waste disposal. Box 5.1 summarises how councils can manage the risks.
Box 5.1
To maximise the prospects of securing VFM WDAs need to:

- apply common, objective approaches to assessing the environmental costs and benefits of different disposal technologies;
- be alert to the implications of different collections mechanisms in two-tier areas, and need to be creative in reaching solutions which enable WCAs to cooperate in new disposal arrangements;
- recognise that the marginal cost of increasing recycling rises with the recycling rate, and set ambitions for recycling accordingly;
- be aware of the restrictions that their scale in the market or their choice of funding mechanism imposes on their choice of disposal technology;
- consider carefully the scheduling of their waste disposal facilities procurement and the potential advantages of smaller scale plants;
- consider actively where they would be better placed buying allowances than investing in infrastructure;
- cooperate regionally and sub-regionally and organise their waste systems in the most environmentally friendly way possible;
- base their estimates of future waste flows on good evidence, and should be cautious about purchasing surplus capacity without firm agreements for its use;
- avoid creating disincentives to pursuing waste minimisation and recycling initiatives;
- apply the same discipline to assessing the price they pay for waste infrastructure as for other major investments, regardless of the need to avoid landfill tax or LATS costs;
- be realistic about what can be achieved in time to achieve their targets, and should not allow the urgency of achieving a diversion solution to outweigh VFM considerations;
- be alert to the implications of their proposed schedule for building new waste treatment facilities for the prospects for timely and cost effective completion, and also to the risk that limited competition in the market may mean there is little downward pressure on the prices quoted;
- cooperate with neighbours to the extent necessary to capture available economies of scale;
- follow guidance on good practice in waste procurement to ensure that the procurement delivers VFM; and
- follow guidance on risk allocation and management and learn from others’ experience.
Leading communities in reducing waste

The interaction between council and citizen is the last link in the delivery chain described in Chapter 2. Effective community leadership is required both to involve people in setting waste management strategies for an area and to influence their behaviour. The role played by councils is explored in this chapter.
Why local democratic leadership?

182 In theory, local waste could be disposed of by the private sector, as is the case for water and sewage services, or by people appointed by central government, even if waste collection remained a council responsibility. A case can be made for a privatised solution as most waste disposal is already done at private facilities. But no WDA, nor any other significant stakeholder, argued for it, and it is not clear that the benefits of such a change would outweigh the disruption it would undoubtedly cause.

183 While there are advantages in voluntary regional and sub-regional collaboration in the interests of efficiency, the case for nationalising disposal is no more persuasive as:

- it is environmentally best for most waste to be disposed of as close to the point of collection as possible;
- appropriate waste management solutions vary between areas;
- all waste management solutions cause local controversy and should therefore be subject to local democratic debate and choice; and
- any such approach would go against the thrust of current government policy to bring services closer to citizens.

The elements of community leadership

184 The components of community leadership on waste are illustrated in Figure 6.1. There are three stages in the process of developing and implementing a waste strategy: strategic direction setting, detailed decision-making and implementation (shown as light green arrow boxes). This process can be enhanced by two statutory procedures, consultation and scrutiny (light and dark green). This activity works best when underpinned by two important ways of working: officer support and cross-party working (light and dark grey). Finally, all this activity either requires, supplies, or is a source of, information (light grey).

185 The rest of this chapter examines how these elements of community leadership can work in practice.

Strategic direction setting

186 The Audit Commission has previously identified setting priorities and maintaining focus as key success factors for community leadership (Ref. 25). In the context of waste management, this means not only setting the goals of the service, but also deciding the importance of waste management improvements relative to other aims.
Investing in new waste treatment and disposal contracts usually means paying a higher price now for a higher quality service with less financial risk in the future. In the short term this implies:

- higher costs for councils that need to expand the range of materials they collect at the kerbside and at HWRCs; and
- meeting the cost of new disposal infrastructure.

Possible inconvenience for service users includes:

- limited bin size/mandatory participation in recycling;
- charges, for example for bulky waste and garden waste; and
- controlled access to HWRCs.

In the interests of longer term benefits such as:

- more individual responsibility for waste;
- lower environmental impact at disposal; and
- less risk of landfill tax and LATS penalties in the future.
Chapter 3 showed that councils are faced with strong financial incentives but that there are few externally imposed targets for individual councils. They are free to determine their own priorities in making very significant decisions about the size and location of waste management facilities; LATS trading strategies; the levels of recycling and landfill diversion to aim for; the technology to use; and when to act.

In making these choices, councils face demands from elected members, the public, partner organisations, government and the public sector. These often pull in different directions (Figure 6.2). For example, investing in new waste management systems involves trading off short-term cost increases against longer term reductions in financial risk.

**Detailed decision process**

In order to make these choices, councils need to have access to the right information. There is considerable room for councils to improve the robustness of their evidence base for waste management (Box 6.1). Appendix 5 gives a brief introduction to sources of information for councils.

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Since landfill allowances are tradeable, LATS allocations are not fixed targets. It is no longer compulsory for councils to have waste targets: the choice and level of targets have been set within LAAs by mutual agreement. The government’s waste strategy for England sets national targets (for landfill diversion, recycling and minimising non-recycled waste).

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**Box 6.1**  
**Weaknesses in use of information in waste strategies**

Use of information was the weakest area identified in the analysis of published waste strategies. The analysis found that:

- two-thirds of waste strategies either made no reference to historic trends in waste or did not seek to explain them;
- only a third made good use of proxy data (for example household or population growth) for forecasting, and one third made no use of such data at all;
- only an eighth of strategies quantified the effects of reduction and reuse efforts by reference to action plans; and
- over half of all strategies contained no sensitivity analysis at all.

Source: SLR Consulting analysis of municipal waste strategies
Once councils have established their evidence base, they need to decide on and oversee an appropriate process for making decisions. Waste strategies set the general direction of waste policy but some key decisions will often be made afterwards. For example a strategy may indicate the authority’s desire to work in partnership, but legal or constitutional partnership agreements may be the product of subsequent negotiations. And some key decisions, for example on choice of technology, are made as part of a procurement process rather than strategy making. Because so much information emerges during procurement, the governance of the procurement process is very important even though final decisions will be made by the cabinet and may be referred to full council.

‘The negotiation involved the preferred bidder providing us [the partner councils] with prices for the authorities going their separate ways as well as for working jointly. This was to demonstrate to us the benefits of having economies of scale. There were also prices for contracts over a 10, 15 or 25 year period. So we could examine different variables to determine what would be the best value for money to that procurement process.’

Council officer

‘People stop me in my ward and they keep saying, “Why can’t we recycle such and such? Why can’t we do that? Why can’t you pick up glass at the road side?” They know that we have very high profile press opposition to Energy from Waste. But people in my ward say, “Just get on with it.” They ask me, “When are you starting?” There is immense frustration there and they want to recycle and they want to reduce rubbish being landfilled.’

Executive member

Waste authorities cannot achieve their objectives without public support. Local concerns are influential in decisions on planning permission for waste facilities; the effectiveness of recycling and composting collections are dependent on the extent and quality of public participation; and action by the public to reduce and reuse their waste will decrease the quantity of waste and reduce service costs. Executive members have taken the lead in consultation. Member-fronted meetings were the most common method of public consultation, used by 67 per cent of waste authorities according to the analysis of waste management strategies. Elected members also receive constituents’ views.

The role of consultation
Box 6.2
Effective consultation has benefited some WDAs.

West Sussex
The county council and district and borough councils in West Sussex adopted a Joint Materials Resource Management Strategy in 2006. Alongside the strategy the county council published a list of the ways that it had engaged with the public over waste issues. There were 30 varied community engagement events in the 10 years from 1997 to 2006. A thorough approach to consultation provides a sound basis for procurement and delivery of new waste contracts.

Hull City Council and East Riding of Yorkshire Council
Hull and East Riding carried out joint consultation following the failure of their contractor to win planning permission for a key EfW facility. They:

• hired specialist consultants, sharing the costs;
• made clear the constraints on their decision making;

‘We did some pretty forthright PR stuff with bags of money on posters and so on, really telling people how much it was going to cost if we didn’t get our act together in terms of recycling, composting and diverting waste from landfill. And obviously it formed a focal point of the whole debate through the consultation process.’

• continually fed clear information about technology;

‘We sent a special council newsletter to every household before, telling them about the technologies. And we drip-fed it as well; so we started in the February and the consultation wasn’t until the August. So there were always articles in the local paper, and the various council publications that go out every month to all residents: this is what it really is, this is what it looks like, this is what it does, this is how emissions are controlled and so on. And we put it through the Crystal Mark process in terms of plain English, because it is difficult enough to understand.’

• included interactive, intensive elements in consultation;

‘We had workshops facilitated by the consultants. And they explained the technologies, allowed people to ask questions and it was far more interactive. They then went through the same evaluation process, so the results gained through that process [were comparable with] those from the general questionnaire.’

• received a very good response rate to a questionnaire that was sent to every household (just under 30,000 responses, a 12.3 per cent response rate compared to a 0.3 per cent response rate to a similar consultation by a nearby council); and
There are several statutory obligations for authorities to consult the public on waste planning policy and (separately) about waste management strategy. But given the public sensitivity surrounding the issues, authorities can benefit from consulting more frequently than the statutory minimum, in a process of continuous engagement. Done properly, consultation can build public support, alert councils to potential problems, and provide a firm foundation for action. Box 6.2 illustrates how effective consultation has benefited some WDAs.

But waste disposal is a particularly complex topic on which to consult. It is less visible to residents than collection and involves specialist technical information. Authorities need to make a special effort to ensure that the documents that form part of waste consultations are clear and comprehensible to varied audiences.

‘I have to say that the consultation which was done on the Core Strategy [waste planning document] the last time was awful. If officers who are involved in the waste industry like myself struggle to understand the documentation which is sent out, how on earth is somebody at a parish council going to have any idea what you are trying to consult on.’

District council officer

Box 6.2 continued
Effective consultation has benefited some WDAs.

- fed back to the public and agreed a challenging recycling rate that has strong public support and has lessened concerns about the EfW crowding out recycling.

The contractor subsequently sought planning permission from both councils for a new site straddling the boundary of the two councils. Their decisions were both to grant planning permission.

Sources: West Sussex County Council and Audit Commission fieldwork
193 WDA’s experience reinforces previous Audit Commission advice that, when consulting on very complex issues, a variety of consultation techniques comprising intensive techniques like citizen’s juries as well as questionnaire surveys and public meetings, is desirable (Ref. 26). There is evidence that authorities understand this: the analysis of waste strategies found that 70 per cent were based on consultation using three or more methods.

194 On waste, as with other topics, public responses can be very different when they are better informed. Authorities should consider the relative costs and benefits of combining methods that elicit informed views from a smaller number of people, for example, citizens’ juries, with methods that can gather views from a wider representative sample of the population.

The role of scrutiny

195 Community leadership can be seen as something that only relates to executive councillors (members of the cabinet). However the scrutiny function provides a route whereby non-executive councillors can represent their constituents by providing critical but constructive challenges to the plans and services of the executive. Scrutiny functions of councils have only relatively recently engaged with waste disposal issues: the examples discussed here are all from 2006 or later. Prior to this, waste scrutiny primarily engaged with collection issues. Though formal scrutiny imposes burdens on the executive of a council, there are a number of benefits:

- scrutiny is an additional source of information for decision makers;
- scrutiny panels can devote the time required by the complex issues that waste throws up, drawing on outside expertise as necessary; and
- public meetings and calls for evidence can reassure concerned members of the public that their voices are being heard and their concerns are being taken seriously.

‘We do articulate what Mrs Smith is telling us and while we’re elected members, that’s what we should be doing. For that reason people should take notice of what we’re saying even when we’re wrong. Mrs Smith isn’t always right but you need to take a view of that and put it in the mix.’

Councillor

196 Senior officers and executive members should welcome the additional reassurance that will come from having their assumptions and choices tested. This applies particularly to waste disposal given the large sums of money that can be involved in waste contracts, the complexity of decision

As evidenced by the Centre for Public Scrutiny’s roundup of 19 waste and recycling reviews from February 2002 to June 2006 (Ref. 27).
We would be the first to say scrutiny helped us as officers and as members of the Procurement Board, not only in keeping us on our toes, but they also made an active contribution to the project as well. All of that, I think, led to confidence and reassurance. Think of the value of this contract: we are talking about something that is going to put additional costs onto the council tax. But we have persuaded all parties, that whoever may be in power in 10 or 20 years’ time, this is a better financial deal overall, on the modelling that we have done, than simply doing nothing. It was virtually nodded through the council at the end. People were saying they felt confident with the technology, confident with the process.’

Deputy chief executive, county council

making in this area and the contested nature of many waste decisions. Fieldwork authorities said that scrutiny panels both tested their analysis and helped to manage political and public concern about waste issues.

“We had very active engagement from our scrutiny process. The chair of scrutiny was an opposition member and she was very good. They looked at the whole programme twice, everything from the process to the technology, and it was really helpful to open it all up, expose it to challenge. It helped enormously because we had a series of challenges from an individual member of the public that the whole thing was a waste of money and what we should be doing was going to 80 per cent recycling as they do in a few states of America - not realising they were duff figures anyway.

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Deputy chief executive, county council

Box 6.3
The Essex Waste Commission

The Commission comprised five members, with expertise in and experience from: central government, local government, corporate finance, economics, environmental science and waste management.

- It was supported by two external advisers and two Essex County Council officers.
- It saw 32 witnesses (from Essex County Council itself, other waste authorities, central government, the waste management industry, academia, consulting, banking) in 19 sessions over 3 days.
- Also met a citizen’s panel of Essex residents.
- Made 18 recommendations, to which the council responded.
Recognising these benefits, some cabinets create sources of independent review in addition to scrutiny. In July 2007, Essex County Council appointed an independent panel, the Essex Waste Commission, to examine the robustness of the council’s approach to waste management (Box 6.3). The main focus was on the management of the risks around a planned PFI contract, with an estimated value of £4 billion.

The Essex Waste Commission examined a wide range of issues relating to the early stages before formal procurement by the Council began. However scrutiny can also be used to examine very specific issues around procurement, which can also be valuable in providing an accessible explanation of what would otherwise be opaque to the public. For example, Suffolk County Council’s resources, finance and performance scrutiny committee examined the different options for funding a waste contract, concentrating on the choice between the PFI and prudential borrowing.

Box 6.4
The planning experience of Project Integra, Hampshire

- Project Integra is a partnership between Hampshire County Council, the district councils, and Southampton and Portsmouth City Councils.

- The partnership was formed after Hampshire County Council’s then contractor had developed a proposal for a single large incinerator but it was not granted planning permission.

- Widespread public engagement led to a new partnership strategy with targets for stabilising waste growth and raising recycling, and a new plan for three appropriately-sized incinerators (involving less waste movement than the original plan).

- The partnership and a new contractor paid more attention to the appearance of the facilities (two of which subsequently won awards) and engaged local communities within planning process.

- All three plants eventually received planning permission and are now operational.

Source: Hampshire County Council and Veolia Environmental Services
scrutiny committee of Darlington Borough Council examined the different ways of designing a procurement specification, and the reasons for using an output specification that does not specify a technology in advance.

Implementation

Both consultation and scrutiny can build support in advance of hard choices, and scrutiny can provide reassurance about the decision-making process. Nonetheless after a final decision, authorities may still need to make the public case for potentially unpopular service changes or locally unpopular facilities. New waste facilities, even those that do not deal with residual waste, can arouse very strong feelings. However a transparent and open process for making planning decisions can lead to acceptance of the process even by those who disagree with the final decision (Box 6.4).

‘We arranged a special meeting at our headquarters, we had a whole day of people speaking against the incinerator proposal, video displays for people who couldn’t fit into the main chamber, live webcasting of the meeting, and everything we could think of to make it as user friendly and as accessible as possible. Hopefully we will never have to do it again because we will not have a contentious application like this, and a single application took a day to determine. But the feedback we have got back so far is that whilst the opponents did not like the decision, because people never like waste decisions, they accepted the decision and felt that it was handled appropriately.’

Council planning officer

The role of cross-party working

One way in which public acceptance of the decision-making process can be achieved is through meaningful engagement from members of all political parties. Also, since securing major waste facilities takes time (see Figure 4.3), there is the potential for a change of political control over the course of the project. Even at fieldwork sites where a single authority was not working in partnership, there had been changes of political control over the life of a waste strategy or waste procurement project. A change of control that leads to a procurement exercise being abandoned doesn’t only imply writing off expenditure to date. It also writes off the investment of all the private sector bidders, and may have a detrimental impact on the council’s ability to obtain private sector interest in the future. In this context, taking a long-term view rather than seeking short-term benefits may be in the interests of any party.
‘The projects are so long that no one political party is going to get any advantage. If [a party] undermines necessary changes to win an election, in four years time when the birds have come home to roost you’re going to get absolutely slaughtered. So it’s just plain stupid and it’s a gross misuse of the public’s money.’

Opposition member

‘There has been a strong theme of commitment, without the administration getting any flack from the opposition on the council where you have the support for what we are doing. Almost to the point that had the council not signed up to this deal, the opposition would have savaged them.’

Council officer

In partnerships of waste authorities, cross-party working is all but inevitable, and a lack of cross-party understanding on waste is a major risk factor. All of the fieldwork sites with waste partnerships had had differences in political control between partners for at least part of the arrangement. Several very successful partnerships placed great emphasis on the contribution that cross-party working had made to their achievements.

‘I will go back right to the very beginning and say the biggest single issue that’s made this work is that it is apolitical. I mean I’ve talked to lots of other authorities who have said “God I wish we could be like that” and it isn’t by accident. This is completely by design.’

Opposition member

As well as taking difficult decisions about waste management in ways that are informed, transparent and tested with stakeholders, authorities are also working to effect behavioural change. This aspect of community leadership recognises that the required reduction in landfill will only be achieved as a joint effort between councils and the communities they serve. Councils need to introduce new waste management systems but these will only divert a proportion of the waste. The rest is dependent on citizens recycling and composting more or, better still, changing their behaviour in ways to reduce the amount of waste generated in the first place. Councils recognise this: for example, Lancashire County Council and the Cambridgeshire and Peterborough Waste Partnership have teams of officers dedicated to waste minimisation activities while Kent County Council has created a changing behaviours team that works on behalf of the Kent Waste Partnership.
Changing behaviour through redesigning collection services

203 The design of collection services directly influences people’s behaviour but changes need to be introduced with care and sensitivity because they rely on public cooperation. Introducing changes to waste collections can arouse fierce opposition and test the strength of a councils’ community leadership ability. But the same system can cause great controversy in one area but minimal upset in another. This suggests that the way a system is introduced can be as important as the system itself.

204 The role of charging for waste was introduced in Chapter 2. Councils are not allowed to charge for general household waste, but they can limit the amount that is collected free of charge. This limit can be set by the size of the waste container, where this is provided by the council (Ref. 10). It is now widely accepted that large bins tend to encourage people to throw away more and recycle less. Councils are gradually introducing more kerbside recycling collections covering a wider range of materials, to achieve higher rates of recycling and reduce the amount of residual waste for disposal. They are finding that there is a balance to be struck between the challenge of encouraging the public to separate more waste at source and the greater costs of collecting and processing mixed waste.

205 As the amount of recycling increases and the amount of residual waste declines, councils are changing their collection systems accordingly. Switching to alternate weekly collection (AWC) is one way to adapt to the changing patterns but this has proved controversial and can be very unpopular with local people. A recent survey by Ipsos MORI (Ref. 28) suggests that people’s concerns about moving to AWC are overstated compared to existing service users’ experience. While it is a natural reaction to be fearful of such changes, some councils have demonstrated that people’s misgivings can be successfully overcome before changes come into effect. AWC is not a completely new idea, and has been operating successfully for several years in some authorities.

‘So many authorities are five years behind us: they are talking now about three stream recycling, and going to fortnightly collections. People in this county laugh at that when they see it on telly: we have been doing it for donkey’s years. The last district that changed their collections was two years ago. And they got the same three months grief that everyone does, and then people settled down and got used to it. ’

Executive member, county council

The Audit Commission drew attention to the impact that large 240 litre wheeled bins were having on recycling in its 1997 report, Waste Matters: Good Practice in Waste Management, pp. 20–21.
The cost of maintaining weekly collections has become more significant because of the extra time spent handling small quantities of waste. Members of the public might not be aware of the cost implications because there is no direct charge for most waste collection services. Some councils are continuing with weekly collections of small quantities of waste. For example, Three Rivers District Council uses a small bin (140 litres) as standard, while Eden District Council collects up to two blue sacks per week.

Another way of raising public awareness of, and participation in, recycling and waste reduction is to make the use of recycling collections compulsory for specific materials. This approach has been used by a small number of London boroughs and has proved highly effective. While trialling compulsory recycling in only four wards, the London Borough of Barnet saw a jump in recycling across the whole borough. In the first year of the borough-wide scheme, 28 per cent more material was collected for recycling than in the previous year. This approach has not seen great public resistance: most non-recyclers respond to an initial letter.

The effectiveness of new waste collection and recycling schemes depends on many different factors such as the baseline level of participation and awareness, the design of the kerbside collection systems and other facilities such as the availability of bring sites, and the way in which changes are introduced and communicated. London Borough of Harrow introduced a pilot scheme with fortnightly residual waste collection alongside compulsory recycling, and saw a 50 per cent increase in the quantity of dry recyclables collected.

### Encouraging waste minimisation

Waste minimisation is not a new activity for councils, but its importance is increasing. For example, the members of the Cambridgeshire and Peterborough Waste Partnership, authorities with some of the highest recycling rates in the country, have agreed that they no longer need to devote the majority of their publicity and education funding to boosting recycling rates but have shifted the balance to spending 70 per cent on waste minimisation campaigns and 30 per cent on recycling campaigns.

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1. Three Rivers District Council’s recycling and composting rate in 2006/07 was 45.6 per cent. Eden District Council’s 2006/07 recycling and composting rate was 39.2 per cent (Ref. 1). These examples are discussed in WRAP’s guidance for councils considering AWC, which includes a discussion of alternative options (Ref. 29).
2. London Borough of Barnet’s approach has been studied closely by other London boroughs – these figures were quoted in a scrutiny review published by London Borough of Waltham Forest.
3. Harrow increased its recycling and composting rate from 13 per cent in 2003/04 to 27 per cent in 2005/06. Through limiting residual waste collection and introducing compulsory recycling it increased its recycling rate again, to an estimated 38 per cent in 2007/08.
In the past, waste minimisation projects have largely been funded by Defra, first through the Waste Performance and Efficiency Grant (WPEG) and then by the National Waste Minimisation and Recycling Fund (NWMRF), which replaced it. However these funding sources no longer exist, and waste minimisation projects have been vulnerable to local budget pressures.

Some fieldwork councils (including Lancashire and Cambridgeshire County Councils) have included waste minimisation targets in recent long-term waste disposal contracts. Lancashire County Council’s waste contract includes a waste minimisation team. The council wanted to make and demonstrate a long-term commitment to minimisation alongside its waste treatment infrastructure, and it felt that contractors would bring expertise and innovative approaches to waste minimisation. New waste facilities usually include some educational facilities because visiting a waste treatment plant can have a powerful effect on perceptions (Box 6.5).

Evaluating the effect of individual schemes can be difficult. While take up of schemes can be monitored, the amount of waste avoided is more difficult to estimate. And the extent to which reductions in, or slower growth of, waste can be attributed to particular initiatives is harder still.

The NWMRF has now ended and the revenue element of WPEG has been rolled into general funding for environmental, protective and cultural services. Waste infrastructure capital funding will continue and will be allocated to upper tier authorities (Ref. 30).

Box 6.5
Approaches to waste minimisation

Lancashire’s contract includes a waste education centre, a team of education officers to work with schools, and waste minimisation officers to support the council’s team (provided at cost by the contractor). The council has committed to spending £1 per tonne of waste arising each year on waste minimisation projects. It is estimated that the spend on waste minimisation over the life of the contract will be £14 million.

To help meet the 2015 waste minimisation target in this joint strategy (see Box 4.2), West Sussex has set up a Community Interest Company called Better Tomorrows to run behavioural change initiatives involving the County Council, the District and Borough Councils, the key waste contractors and members of the community. (For Better Tomorrows is the title of the council’s 36-page guide to waste prevention, now in its third edition.)
‘We’re very much at the development stage of the programme…you need to actually demonstrate that you have an impact. You can spend a lot of money and not get very far.’

**Executive member, county council**

Council employees can make up a significant proportion of the workforce in the local area. Improving the way that the council deals with its own waste can have wider benefits if councils are able to harness the environmental commitment of their employees.

‘Across the whole authority we have got 17,000 staff and a huge number of them, not just in the environment department, are really interested, and they really want to get involved. So we would like to get our staff out there as ambassadors.’

**Council officer**

Lancashire County Council also has a long-established home composting campaign and has been supporting community reuse organisations for several years. Its scheme for promoting reusable nappies is relatively new but already covers 7 per cent of newborn babies. The council has calculated that in 2006/07 the combined effect of these activities was to reduce the quantity of household waste by 4.2 per cent.

As authorities step up their attempts to influence public behaviour, it is increasingly important that they can speak with credibility from having taken steps to put their ‘own house in order’.

‘We have done a lot of work on the council’s own waste and we are seeing the light at the end of the tunnel on that now. I think there is a strong recycling culture within the council. We have done a lot of work in our schools as well. We are now moving on to the wider climate change issues.’

**Executive member, county council**

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‘Across the whole authority we have got 17,000 staff and a huge number of them, not just in the environment department, are really interested, and they really want to get involved. So we would like to get our staff out there as ambassadors.’

**Council officer**

This chapter has discussed the different elements of community leadership. In order to provide effective waste disposal services, authorities need to engage with the public on waste strategy, on individual planning issues concerning new facilities and to promote recycling and waste minimisation. In order to do so effectively and to optimise their community leadership role they need to adopt a set of key success factors. These are summarised in Box 6.6.
Box 6.6
Success factors for community leadership in waste

- A clear focus and goals for the waste strategy.
- A clear view on the priority of waste management vis-à-vis other service priorities.
- Robust evidence base.
- Consultation which includes an element of continuous engagement and a range of techniques.
- Encourage attention to waste disposal from the scrutiny function.
- Commitment to cross-party working.
- Good relationships with partners including collection authorities.
- An understanding of the role of charging and service redesign in encouraging recycling and waste minimisation.
Disposing of waste in the most environmentally sensible and cost effective way is a high priority for the UK. The regulatory regime that the EU and the UK government have put in place has placed the responsibility for meeting this challenge squarely on local authorities, and has created powerful financial incentives for them to reduce the volume of waste sent to landfill.

By choosing to apply a combination of taxation, allowance trading and targets, the government has motivated councils to act to reduce the amount of waste they landfill. But it has also created some curious incentives. Councils are obliged to spend money on waste disposal facilities to avoid having to pay taxes or penalties or to buy allowances, all of which would result in money being redistributed around central and local government but remaining in the public purse. Local taxpayers risk paying costs which may exceed the value of the environmental harm done by landfilling waste. There is no immediate case for changing the regulatory structures that have been put in place (and doing so at this stage could do more harm than good). Rather, government needs to maintain stability in the LATS and landfill tax arrangements and deliver on its funding commitments. But government should keep those structures under review, particularly as the potentially difficult target year of 2013 approaches, and should learn lessons for the design of the forthcoming carbon emissions trading scheme.

Moreover, the regime appears to be working. Most WDAs have responded to the pressures placed on them. And public behaviour has changed markedly too. Recycling rates have risen towards the European average. The landfill diversion target for 2010 looks likely to be met, and WDAs believe that the targets for 2013 and 2020 will be too, although by a narrow margin. But that will only happen if WDAs can deliver on their plans. That will require them both to maintain their efforts to encourage communities to change their behaviour – generating less waste and recycling more – and to manage the procurements of waste disposal facilities that are in train.

Those procurements are fraught with risks. Even if England as a whole achieves its landfill diversion targets, the financial consequences are likely to be severe for any individual WDA that does not. Because WDAs are anxious to avoid those consequences, there is a risk that collectively they will not secure the best environmental solution nor good VFM. The pressure to secure complex high-value contracts quickly to avoid financial penalties means that there are risks to VFM. This report and associated products will help WDAs to identify, understand and manage both those risks and their role in leading their communities in meeting their environmental challenges.


References


Appendix 1

Research methodology

1 The study was conducted under Section 33 of the Audit Commission Act 1998. Section 33 places a duty on the Audit Commission to undertake studies to support recommendations aimed at improving economy, efficiency and effectiveness in the provision of local authority services.

2 Following a literature review, the study methodology comprised collection of numerical data through an electronic survey instrument, documentary analysis, and fieldwork interviews. The research for this study was conducted between June 2007 and June 2008.

3 All English WDAs were surveyed, in consultation with Defra’s Waste Infrastructure Development Programme and Improvement and Efficiency South East. Forty-seven per cent of disposal authorities responded to the survey asking about their waste plans and predictions; these authorities managed 51 per cent of England’s municipal waste stream in 2006/07. The survey responses formed the basis for the modelling and analysis discussed in Chapter 4. They were supplemented with Audit Commission estimates based on publicly available information, which took the coverage of the waste stream to 95 per cent.

4 An analysis of municipal waste management strategies was commissioned. A representative sample of 42 strategies was analysed against criteria informed by fieldwork, in order to identify areas of strength and weakness.

5 Fieldwork was conducted at 12 sites, based around a single waste disposal authority. In one instance the site comprised two disposal authorities working in partnership. The sites (listed below) were selected to represent a range of types of authority, geography, demographic profile, waste performance and waste management methods.

6 During fieldwork, 88 semi-structured interviews were conducted. Most interviews were with:
- waste authority officers at various levels, including chief executives, directors of finance, directors of environment, and heads of waste; and
- elected members.

Representatives of partner organisations were interviewed, including organisations from the voluntary and community sector and private sector partners, where appropriate. Across the 12 sites, representatives of 29 authorities were interviewed.
The lead Commissioners for the study were Jenny Watson and Cllr Chris White. The study team was Denise Davies, Phil Hall, Cameron Paton and Katie Smith, supported by specialist expertise from an internal project board. John Kirkpatrick was the project director. SLR Consulting carried out the analysis of waste management strategies and assisted with fieldwork.

An advisory group was established to advise on the scope of the study, and comment on outcomes and key messages. The group met the study team on two occasions, and commented on key documents, as well as providing support and information on points of individual expertise.

The Audit Commission thanks all those who have contributed to the study, particularly fieldwork participants and survey respondents. However the views expressed in the report are those of the Audit Commission alone.
Advisory group

Andy Bond/Julian Parfitt  ECT Group
Martin Brocklehurst  Environment Agency
Neil Carrett  London Community Recycling Network
Professor Chris Coggins  Independent consultant
Andrew Crudgington  Institution of Civil Engineers
Peter Ellis  Communities and Local Government
Neil Ferris  North Lincolnshire Council
( representing Local Authority Recycling Advisory Committee)
Kevin Glaze  Staffordshire County Council
( representing Chartered Institution of Wastes Management)
David Greenfield  South East Centre of Excellence/
Improvement and Efficiency South East
David Harvey  Derbyshire County Council
( representing County Surveyor’s Society)
Jacob Hayler  Environmental Services Association
Daniel Instone  Defra
Dr John Lincoln  Audit Scotland
Lee-Ann Murray/
Marcus Popplewell  National Audit Office
Professor Paul Phillips/
Emma Adams  Northampton University
Steve Waller  Improvement and Development Agency
Fieldwork sites

Birmingham City Council
Cambridgeshire County Council
Darlington Borough Council
East London Waste Authority
East Riding of Yorkshire Council and Kingston-upon-Hull City Council
Gloucestershire County Council
Greater Manchester Waste Disposal Authority
Kent County Council
Lancashire County Council
Leicester City Council
Northumberland County Council
Worcestershire County Council
Greenhouse gas impacts of selected waste management methods

Table A2.1
Net reduction in greenhouse gases emissions by recycling compared to landfill

<table>
<thead>
<tr>
<th>Recycling</th>
<th>Kg CO₂ equivalent greenhouse gas avoided per tonne of material recovered</th>
<th>Assumed proportion of material in MSW (%)</th>
<th>Kg CO₂ equivalent greenhouse gas avoided per tonne of MSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>253</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Plastic (HDPE)</td>
<td>491</td>
<td>8</td>
<td>41</td>
</tr>
<tr>
<td>Textiles</td>
<td>3169</td>
<td>2</td>
<td>63</td>
</tr>
<tr>
<td>Ferrous metals</td>
<td>1487</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>Aluminium</td>
<td>9074</td>
<td>1</td>
<td>95</td>
</tr>
<tr>
<td>Paper</td>
<td>600</td>
<td>29</td>
<td>177</td>
</tr>
</tbody>
</table>

Table A2.2
Net reduction in greenhouse gases emissions by composting compared to landfill

<table>
<thead>
<tr>
<th>Composting</th>
<th>Kg CO₂ equivalent greenhouse gas avoided per tonne of material recovered</th>
<th>Assumed proportion of material in MSW (%)</th>
<th>Kg CO₂ equivalent greenhouse gas avoided per tonne of MSW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open composting</td>
<td>32</td>
<td>31</td>
<td>10</td>
</tr>
<tr>
<td>Closed composting</td>
<td>37</td>
<td>31</td>
<td>11</td>
</tr>
<tr>
<td>Home composting</td>
<td>58</td>
<td>31</td>
<td>18</td>
</tr>
</tbody>
</table>

These figures give a general indication of greenhouse gas impacts of recycling relative to landfill. The true figure for an individual waste management system would depend on local factors including the level of contamination, transportation and the efficiency of material reprocessing.
Table A2.3
Carbon dioxide emissions of different waste treatments

<table>
<thead>
<tr>
<th>Waste disposal technology (avoided)</th>
<th>Kg CO₂ per tonne of MSW produced/(avoided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landfill</td>
<td>57</td>
</tr>
<tr>
<td>Mass burn incinerator</td>
<td>31</td>
</tr>
<tr>
<td>Mass burn with electricity generation</td>
<td>(2)</td>
</tr>
<tr>
<td>Mass burn with CHP</td>
<td>(60)</td>
</tr>
<tr>
<td>MBT with landfill of residues</td>
<td>(63)</td>
</tr>
<tr>
<td>MBT with incineration of refuse derived fuel</td>
<td>(45)</td>
</tr>
</tbody>
</table>

The results in table A2.3 are the expected emissions per tonne of MSW treated, using the EU average waste composition in the year 2000. This assumes the composition is not affected by up-front recycling, and serves only as a rough guide to performance. The performance of an individual waste management system would depend on local factors.
Appendix 3

International Comparisons

1 International comparisons of waste statistics need to be handled with great care if they are not to be misleading. The first two sections of this appendix discuss some of the reasons that comparisons can be problematic. The final section then presents municipal waste statistics for a number of countries and draws some very limited conclusions.

Limitations of the statistics

2 Detailed European waste statistics are available for most countries up to 2002 or 2003. These figures show that the level of import and export of waste across national boundaries is limited and can be ignored for most purposes.

3 However these statistics contain different definitions or interpretations. Some countries used categories that were not end treatments and so could not be located on the waste hierarchy, for example ‘mechanical sorting before further treatment’. Some countries did not define the categories as mutually exclusive, so they could not be used to derive percentages.

4 The European Environment Agency has recognised these difficulties (Ref. 31), and European waste statistics have been reformed. The successor statistical series is consistently applied and the categories are exclusive. The most recent figures (released in early 2008) are for 2006. However, the series only consists of three figures: waste arising per head, landfill per head, and incineration per head. The destination of the waste that does not go to landfill or incineration is simply not stated.

5 Some reports have assumed that all waste that is not incinerated or landfilled is recycled or composted. However this implies that substantial quantities of waste are now recycled even though it was previously categorised in different ways. This is likely to lead to substantially overstating the level of recycling in some countries.

6 In a number of countries local authorities are responsible for, and therefore municipal waste figures cover, all waste generated within their locality. This means they collect a much higher proportion of commercial waste, which is usually easily recyclable, than in the UK. This difference affects comparisons of levels of municipal waste as well as comparisons of recycling rates.

The same point can affect comparisons of targets within the UK, for example the recycling targets in the English waste strategy are based on a definition of recycling that includes a narrower set of activities than the definition used in the Welsh Assembly Government’s recycling targets.
Other factors to be considered in drawing conclusions

7 Any comparison needs to pay careful attention to the geographical make-up of the areas being compared, due to the particular difficulties of recycling and composting in dense and deprived urban areas. Even European leaders in recycling and composting (for example Austria, the Netherlands) have much lower levels in large, densely populated urban areas with significant levels of deprivation.

8 Any comparison with the UK, or nations within it, also needs to take into account the policy instruments that have contributed to high achievements in recycling and other forms of landfill diversion, and the extent to which they are present or politically acceptable in this country. These instruments include variable charging for waste, legal compulsion on householders to separate their waste, landfill bans or restrictions on the biodegradability of waste that can be landfilled, levels of landfill tax, and arrangements for producer responsibility for packaging waste with more direct industry involvement, either in arranging collections or providing funding to local authorities (Ref. 32).

9 In assessing the extent to which countries have moved up the waste hierarchy, comparisons should ideally take into account the ways that different types of composting are recorded or not recorded in the statistics. Centralised composting is environmentally beneficial compared to landfill but less desirable than home composting.

Some limited comparisons

10 The OECD has released figures for most European countries plus some comparators (Australia, the US and Japan). The categories allow percentages to be derived and are slightly more recent than the first EC series, since all are from 2003, 2004 or 2005. There is still an ‘other’ category, and the largest element of this category in Germany and the Netherlands appears to be the production of refuse-derived fuel. The category of ‘thermal treatment’ refers to incineration, but also to gasification and pyrolysis, which are new technologies in the UK. Figure A3.1 below is based on the OECD statistics, combined with other information where appropriate.

11 Apart from Austria, the European leaders in recycling and composting recycle and compost around half of their waste (specifically 48 to 53 per cent). This is England’s target for 2020 in the government’s waste strategy (Ref. 2). Austria exceeds this level only because it has exceptionally high levels of composting; it is not a leader in other forms of recycling.
The level of energy recovery from waste that is projected in the government’s waste strategy (25 per cent by 2020) is not high by current European standards: seven countries thermally treat between 32 per cent and 54 per cent.

Compared to affluent western European countries, England’s current level of landfill is no longer exceptionally high – it is roughly equivalent to that of Ireland, Italy and Finland. This comparison excludes Greece, Portugal, and the recent accession states, which have higher levels of landfill than England.
Figure A4.1
Forecast of waste growth

Aggregate waste growth rate forecast (%)

Source: Audit Commission survey returns
Explanatory note on waste growth rates used in forecasting model

1. The central forecast is for waste to grow at an average rate of 0.9 per cent per annum during the period to 2020. This is the aggregate growth rate from the survey responses, supplemented with information from waste strategies for the non-respondents. The exact figures for each year used in the forecast are shown in Figure A4.1.

2. Most authorities assume waste will grow at a rate between 0 per cent and 2 per cent per annum, with 1 per cent as the median of the assumptions. We have used the same range of assumptions for our sensitivity analysis (waste growth rates of 0, 1, and 2 per cent per annum).

3. WDAs’ estimates of continuing waste growth reflect two beliefs. Some believe that the recent stabilisation is temporary and assume that growth will resume in the long run at a more modest rate. This may be because there are limits to the interventions that councils can make in this area. Councils do not feel capable by themselves of influencing the behaviour of either retailers or consumers to a large extent. Others may simply be erring on the side of caution in waste planning. If so, they may be overstating the risk by applying a margin of error to the growth rate, which builds up over the years. Unless there are specific reasons to think otherwise, it may be more realistic to plan for a constant amount of waste per household going forward, with an appropriate margin of error.
Waste knowledge and information is available in a wide variety of forms: highly technical scientific research, comparative statistics, reports produced by and for local authorities, good practice case studies, tools and toolkits, guidance, and the text of regulations and legislation. This information is produced by a large number of different organisations, and held in many different places. This has meant that being able to quickly and easily access the most appropriate waste information has traditionally been reserved for those already ‘in the know’. This has contributed to the idea that waste management can be the preserve of experts, rather than a matter for everybody.

Improvement and Efficiency South East (formerly the South East Centre for Excellence) has the waste lead for the Regional Improvement and Efficiency Partnerships (RIEPs). IESE has created the Waste Information Network (WIN), a website to improve ease of access to information and knowledge about waste.

WIN has gathered together copies of, or links to, a very large body of material, which is organised by category with brief introductions to each document. For example, WIN hosts the material formerly held by Defra’s Local Authority Support Unit and guidance on realising efficiencies. WIN is a repository for procurement documents, which can reduce the need to produce documents from scratch and may reduce the need for assistance from external consultants. There are plans to improve the organisation and sign-posting of WIN further, making the site more useful to non-expert users.

Four of the most important sources of information are described below.

Requires a ‘.gov.uk’ email address for registration.
**Defra**

http://www.defra.gov.uk

As the government department with lead policy responsibility on waste matters, Department for Environment, Food and Rural Affairs (Defra) is the main source for information on national waste policy and strategy, waste indicators, legislation and EU Directives. Topics dealt with on Defra’s website that may be of particular interest to local authorities include LATS, municipal waste management strategies, partnership working and joint waste authorities, financial incentive schemes, flytipping and enforcement. The WIDP section of Defra’s website contains a variety of information and guidance relating to procurement, including waste PFI, prudential borrowing, and spatial planning in relation to procurement. Defra is the major source of waste data and statistics. Defra also commissions and publishes research on a variety of waste-related topics, for example on international waste prevention practice, models of behaviour change and the health impacts of waste technologies.

**Environment Agency**

http://www.environment-agency.gov.uk

The Environment Agency (EA) aims to protect and enhance the environment. Within the framework set by Defra, the EA is the independent regulator of waste activity, including landfill, energy from waste processes, and waste exports. Its website contains extensive guidance on regulatory requirements. The EA also publishes statistics on landfill availability. The EA administers the LATS scheme: it holds the official register of LATS allowances, provides guidance on LATS reporting by councils and publishes an annual report on LATS. The EA’s Waste Technologies Data Centre hosts the emerging results from the New Technologies Demonstrator Programme, as well as other technology studies.

Spatial planning is the responsibility of Communities and Local Government; energy policy is the responsibility of BERR, and producer responsibility is a joint responsibility of Defra and BERR.
The Waste and Resources Action Programme (WRAP) aims to improve resource efficiency and reduce the UK’s carbon footprint. It specialises in a number of areas relevant to local authorities, including public communications (it runs the Recycle Now campaign), collection systems, food waste, markets for recyclable materials and waste prevention. It provides (fully funded) support and training to authorities in these areas. WRAP’s website hosts guidance, toolkits, case studies and research reports, for example on Materials Recycling Facilities, improving glass collections, alternate weekly collection, how to monitor and evaluate recycling schemes, and barriers to recycling in the home.

The Improvement and Development Agency’s (IDeA’s) website contains a variety of case studies and other material under the Beacon scheme’s ‘Waste and recycling’ theme. There is also material on joint working in waste. The IDeA’s communities of practice provide opportunities for sharing ideas.

Information for businesses

Councils may also wish to direct local businesses to sources of information that will be helpful to them. These would include the Environment Agency and (particularly for the agricultural, construction and retail sectors) WRAP. Envirowise (www.envirowise.gov.uk) provides businesses with advice and support on reducing waste and minimising environmental impact. Small and medium sized enterprises will find the regulator sponsored website NetRegs (http://www.netregs.gov.uk) particularly useful for understanding their legal obligations when handling and managing waste.
Abbreviations

AD Anaerobic Digestion
BMW Biodegradable Municipal Waste
CLG Communities and Local Government Department
CLO Compost-Like Output
Defra Department for Environment, Food and Rural Affairs
EfW Energy from Waste
HWRC Household Waste Recycling Centre
JWDA Joint Waste Disposal Authority
LAA Local Area Agreement
LATS Landfill Allowance Trading Scheme
MBT Mechanical-Biological Treatment
MRF Materials Recovery Facility
MSW Municipal Solid Waste
NAO National Audit Office
PFI Private Finance Initiative
RDF Refuse Derived Fuel
RIEP Regional Improvement and Efficiency Partnership
VFM Value for Money
WCA Waste Collection Authority
WDA Waste Disposal Authority
WIDP Waste Infrastructure Delivery Programme
WRAP Waste and Resources Action Programme