

Rethinking Rubbish in London

The Mayor's Municipal Waste Management Strategy



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September 2003

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foreword

It is 17 years since the GLC provided a coordinated approach to waste management for London. Over that period we have fallen way behind the achievements of many European cities. I am delighted therefore to present this Strategy, which I believe sets us on the right course for the 21st century.

Last year, when I consulted on the draft Strategy, Londoners commented very positively on my proposals saying that they were keen to recycle more and wanted improved recycling services. Stakeholders in the waste sector also warmly welcomed the approach in the Strategy, but made a number of specific comments. All comments have been taken into account when preparing this final Strategy and it sets out a package of policies and proposals to move London towards sustainable waste management.

In the last year I have done more than just revise the Strategy, as it was important to get things moving to make a real difference. The £21.3 million that I successfully secured from Government, in partnership with the Association of London Government and London Waste Action, has now been distributed through the London Recycling Fund, and is doing just that. The further £3.6 million recently secured is proof of this success.

Another key achievement is my Green Procurement Code, which I have developed with London Remade. I am delighted that all 33 London boroughs have signed up to the code, along with over 230 of London's key businesses and organisations. This, along with my continued investment in industry using recyclable materials, through the London Development Agency, is creating further demand for recycled materials. This development of future markets is vital, particularly as we need to recycle three times the current amount by 2005/06.

All the London boroughs collect a wide range of items for recycling, much more than just newspapers and glass bottles. However, some people are not aware of what they can do or how. To deal with this, I have just launched a Londonwide awareness campaign – Recycle for London. I am working with the London boroughs, who provide the services, to help make recycling part of the everyday lives of Londoners. To find out more visit the campaign website www.recycleforlondon.com or ring the helpline 08453 31 31 31.

New waste legislation will mean that we have to massively reduce the amount of biodegradable waste we can send to landfill, so my Strategy really has to work to achieve this. Composting, at home and through



collections, will help towards this. However, even with the implementation of the reduction, reuse and recycling proposals in this Strategy, there will still be a lot of waste to deal with. Therefore, I am working to bring new waste treatment technologies into London that mean we will not need to use as much landfill or any more incineration. The plans in East London for two new Mechanical Biological Treatment plants are a great step forward.

Taking into account comments in relation to the London Plan and the Waste Strategy, I have revised my proposal on incineration. The new proposal maintains my aim to ensure that we manage London's waste in the best way possible. If this is done, we shouldn't need any new incinerators in London. This was strongly supported by Londoners during the consultation.

My key project on litter, the Capital Standards Programme, is now gathering momentum – with 26 of London's boroughs working hard with me to improve the standard of London's streets and public areas. Just before Christmas, I launched my 'Pick it Up' project, to help make schoolchildren aware of the problem; this included a great song for them to learn. My London Schools Environment Award (LSEA), also launched recently, builds on this by challenging London's schools to improve their local environment and rewarding those who are most effective. In the last couple of months, the Capital Standards Programme has trained staff from 26 London boroughs on improved litter enforcement. The first 120 officers are expected on London's streets by the autumn, with 500 anticipated in 2004.

The world of waste management continues to change at a rapid pace. Since the publication of the consultation draft of this Strategy, the Government's Strategy Unit published a report on waste. In response to that report, the Government is taking forward its recommendations and has already introduced some changes. Some of these are not yet clear and the supposed improvements, from the moving of Landfill Tax Credits Funding away from local projects to national initiatives, are yet to be seen. There needs to be huge investment in waste management in this country to make it sustainable. I plan to make the best of London's share of this funding – but it is the Government's responsibility to make sure the pot is big enough to make the changes needed. This is what I will be urging them to do.

I look forward to working with everyone including the London boroughs, community recycling groups and the waste industry, but particularly individual Londoners, to make my vision for sustainable

waste management a reality. Now that my Strategy is published, we can concentrate on implementing the proposals to take London to 25 per cent recycling, and beyond, in the next 3 years.

A handwritten signature in black ink that reads "Ken Livingstone". The signature is written in a cursive, slightly slanted style.

Ken Livingstone

Mayor of London



preface

This Strategy is one of a series dealing with environmental issues in London. The Mayor is required to produce four environmental strategies addressing Air Quality, Ambient Noise, Biodiversity and Municipal Waste Management. He has also decided to produce an Energy Strategy for London. The main elements of each environmental strategy are reflected in the overall London Plan and where appropriate in the Transport and Economic Development Strategies. Together these strategies provide the basis for improving London's environment. They also provide an integrated framework for sustainable development.

Whilst improvement of London's immediate environment, by reducing pollution and improving the quality of life for Londoners, is the main purpose of the environmental strategies, this is not the sole objective. We also need to be aware of London's wider impact on the global environment and realise that when we improve the city's environmental performance there will be direct and indirect benefits elsewhere. We need to consider the way that London functions in terms of its daily processes and be aware of its wider ecological footprint. A helpful way of thinking about the city in this context is to see it as an organism consuming vast quantities of materials and energy, with influences reaching out far and wide. Its ecological footprint extends to virtually all parts of the globe. Viewing the city in these terms helps to understand how it functions. It also helps to identify action we can take to improve our environmental performance, which may also reduce our impact on other parts of the world. This is crucial if we are to be successful in combating climate change and reducing London's global impacts on biodiversity and natural resources.

A detailed analysis of London's ecological footprint, published in 2002, quantified the energy and materials used or wasted by current practices. It illustrated the fundamental difference between the way a city works and the processes of the natural world. Whilst natural ecosystems have a series of inbuilt circular processes, preventing most wastage, the metabolism of a modern city is almost entirely a one-way process. This is particularly true of affluent cities in developed countries, where vast quantities of material are imported daily for human use and waste products are discharged as unwanted residues. London is no exception. The scale of the challenge for London is well illustrated in the Mayor's State of the Environment Report for London published in May 2003.

The Mayor's draft London Plan makes it clear that to become an exemplary, sustainable world city, London must use natural resources more efficiently, increase its reuse of resources and reduce levels of waste and environmental degradation. As London grows, these objectives will become ever more important. The shift towards a compact city, which is

inherent in the London Plan, will contribute towards these objectives. It will enable more efficient use of resources such as land and energy and will also enable the 'proximity principle' to be applied to promote greater self-sufficiency.

Implementing the Mayor's environmental policies will enable London to draw on the resources it needs to live, breathe and develop as a growing world city. It must aim to become a more sustainable and self-sufficient city, healthier to live in and more efficient in its use of resources. It should also be a better neighbour to its surrounding regions by consuming more of its own waste and producing less pollution.

How we use energy is fundamental to long-term sustainability. If London is to make a significant contribution to the reduction of greenhouse gas emissions we need to restrain our energy use and promote renewable energy. Implementation of the Mayor's Energy Strategy will help to mitigate climate change by reducing carbon dioxide emissions. The energy strategy has wide implications, promoting new kinds of fuel for transport and encouraging high performance buildings with less demand for energy. It promotes good practice in new developments and supports examples such as the Beddington Zero Energy Development. Although one of the principal objectives of the strategy is to reduce our dependence on fossil fuels, it also addresses the vital issue of energy poverty.

Waste is another area where we need to significantly improve our efficiency. It is not simply a matter of improving levels of recycling, which is how the problem is often perceived. If London is to become sustainable, a more fundamental long-term change is required to establish a secondary materials economy. We need to develop a new business culture, where components of the waste stream are automatically considered as potential products for new industries. The policies contained in the Mayor's Waste Strategy set the framework for such a change. Substantial progress has already been made through the London Remade Programme, funded by the London Development Agency, and this approach is now being promoted as a component of economic development. The Mayor's Green Procurement Code is another key initiative which provides the necessary link between environmental improvement and business performance.

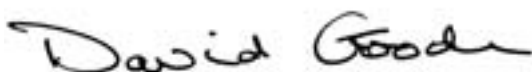
Clearly one of London's main environmental problems is air quality. Although we no longer see the smogs of the 1950s, London's atmosphere still poses major problems, in terms of health and environmental quality. The main problems are emissions from road traffic in the form of nitrogen oxides and air-borne particles. London currently fails to meet EU and

national targets for air quality because of the size of the conurbation and because of the density of road traffic. The Mayor's Air Quality Strategy makes proposals for meeting the legal targets, and for longer term solutions to introduce cleaner vehicle technologies.

Strategic policies to deal with noise have until recently been far less advanced than other areas of environmental concern. However, the requirement for the Mayor to produce the UK's first citywide strategy for tackling environmental noise has resulted in much progress over the past three years. His draft Noise Strategy sets out the main steps that need to be taken, including quieter road surfaces, smoother traffic flow, rail infrastructure improvements, aircraft noise measures, and investment in improved design for new developments.

Conservation of biodiversity is addressed in detail in the Mayor's Biodiversity Strategy and in the London Plan. The sub-title Connecting with London's Nature emphasises the social context, since one of the main objectives of the strategy is to ensure the conservation of London's natural heritage for people to enjoy. The Mayor has adopted the well-established procedures for identification of important habitats in London as the basis for his Biodiversity Strategy, which was published in 2002. At present, London is the only part of Britain where there is a statutory requirement for a biodiversity strategy as part of regional planning and it may provide a useful model for other towns and cities in the UK. The strategy also has an international dimension by making proposals to clamp down on the illegal international trade in endangered species for which London's airports are one of the main points of entry to Europe

The overall effect of the Mayor's five environmental strategies over the next twenty years will be to make significant improvements in our own local environment as well as reducing London's wider global impacts. The strategies provide many of the essential ingredients to make London a truly sustainable world city.



David Goode

Head of Environment



G297 XRI



WHAT GOES IN THE BAG

- ✓ GRASS
- ✓ TWIGS
- ✓ BRUSH
- ✓ SOFTWOODS
- ✓ LEAVES
- ✓ FOLIAGE
- ✓ SOIL
- ✓ MULCH
- ✓ COMPOST
- ✓ GARDEN WASTE
- ✗ PAINTS
- ✗ OILS
- ✗ FLAMMABLE LIQUIDS
- ✗ REFRIGERATORS
- ✗ AIR CONDITIONERS
- ✗ FREEZERS
- ✗ WASHING MACHINES
- ✗ DRYERS
- ✗ STOVE
- ✗ HOB
- ✗ DISHWASHERS
- ✗ REFRIGERATORS
- ✗ FREEZERS
- ✗ WASHING MACHINES
- ✗ DRYERS
- ✗ STOVE
- ✗ HOB
- ✗ DISHWASHERS

executive summary

Introduction

The Mayor is required to produce a Strategy for London's municipal waste, which is collected by the London boroughs from households, including litter from the streets and some of the waste from businesses. There is an urgent need to find new and much better ways to deal with the waste produced in London.

In 2002, a draft Strategy was produced for public consultation. Londoners and stakeholders in waste were consulted, in a variety of ways, on what they thought of the Mayor's proposals. Londoners responded by saying that the amount of waste being produced in London is a problem and a majority strongly supported the approach to the problems set out in the draft Strategy. The waste stakeholders broadly supported the direction of the draft Strategy but made comments raising some concerns.

All of these comments have been considered and, where appropriate, the views of those who responded to the consultation have been incorporated into this final Strategy.

Aims and objectives

The Mayor's Vision for Waste in London is that by 2020, municipal waste should no longer compromise London's future as a sustainable city.

To achieve this long-term goal, lifestyle habits must change so that we each produce only the minimum amount of waste, and reduce the pressures on our environment.

We must also manage waste better, so that its impact on the local and global environment and on London communities, economy and health is minimised. This Strategy will be led by waste reduction, reuse and recycling.

The Strategy is a visionary strategy, which clearly sets out an overarching framework of policy until 2020. Many of the proposals then focus on the period to 2005/6.





the waste problem

London produces about 17 million tonnes of waste every year. Of this, 4.4 million tonnes, a quarter of all waste, is collected by councils, mostly from households and some from businesses and is called municipal waste. This means that, in the course of a year, each household in Greater London creates over a tonne of municipal waste and we are producing more municipal waste every year. If waste continues to grow at its current rate, there will be twice as much to deal with by 2020. We cannot allow this to happen.

The rest of the 17 million tonnes of waste is made up of a further 6.4 million tonnes produced by businesses and industry and 6.1 million tonnes produced by construction and demolition work. Although these sectors produce more waste, they are more efficient at reusing and recycling it than the municipal sector.

The vast majority of London's municipal waste is currently disposed of in landfill. In 2001/02, landfill accounted for 73 per cent of municipal waste, with a vast majority of this going to sites outside Greater London. But the amount of landfill space is running out and both European Directives and national Government policy are driving us to reduce the amount of municipal waste we landfill. We will not be able to rely on landfill for the disposal of our waste in the future and we must seek other options.

19 per cent of municipal waste is incinerated, at the two waste incineration plants within London, at Edmonton and Lewisham, where the process generates electricity. These plants provide about one third of England's incineration capacity. In addition, the construction of any new incineration plants would not contribute to either recycling objectives or renewable energy objectives.

Only eight per cent of London's municipal waste is currently put to good use through recycling schemes, or by composting. This compares poorly with other major cities throughout the world and even with some other UK cities and counties. Therefore, both European Directives and the Government are also driving us to recycle more. Tough statutory targets have been set, demanding that we recycle and compost increasingly large percentages of household waste.



Crucially, since the Greater London Council was abolished in 1986 there has been no one responsible for strategic waste management for the whole of London. Each London borough is responsible for its own waste collection. Twelve boroughs dispose of waste themselves and a further 21

are arranged in four joint waste disposal authorities. This has meant there has been no coherent overall policy and efforts to improve waste disposal have been fragmented.

For all these reasons, a stark choice faces London. We cannot stay as we are, a poor performer compared with the rest of the world and continue with unsustainable landfilling and the prospect of new incinerators. This will just help us to stand still against a growing tide of waste.

We now have to move towards a 21st century approach, where we concentrate on reducing the levels of waste being produced and massively increase the recycling and reuse of our municipal waste. We must do this in a way that brings new products, new industries and new jobs into London, whilst at the same time protecting our environment.

It is this option that the Mayor's Strategy wholeheartedly adopts.

London's current capacity

At present, London's capacity for disposing of municipal waste is small. We only deal with about a third of our municipal waste within the city, the majority of which is incinerated. We rely on exporting most of our waste elsewhere for landfill.

Recycling

Collecting waste for recycling or composting is done in two main ways in London - by collection from households, or by using 'bring' facilities where residents take their recyclables to collection centres. Waste collected for recycling includes paper, cardboard, textiles, plastic bottles, metals, glass and green garden waste.

Recycling as a proportion of waste management is increasing slowly, from five per cent of municipal waste in 1996/97 to eight per cent in 2001/02. Tonnages are increasing and more recycling is collected each year, but so is more waste.

There were wide discrepancies between performance in different boroughs. A number of the highest performers are suburban outer London boroughs. In 2001/02 Bexley recycled 20 per cent, Kingston-upon-Thames and Richmond-upon-Thames 18 per cent and others 15 or 16 per cent. However, some suburban areas such as Barking and Dagenham only achieved two per cent. Although Camden had a high recycling rate (15 per cent), other inner London boroughs tended to be low performers, including Hackney, which recycled just one per cent of its household waste.





In 2001/02, around 1.75 million households in Greater London were offered recycling collections from homes for dry recyclables. In all, 57 per cent of households were offered some kind of collection, with only one authority providing no service at all. The total tonnage of dry recyclables from household collections was 144,678 tonnes. Around 11 per cent of London households, spread across ten London boroughs, now have an organic waste collection from their home. 8,103 tonnes were collected for composting in 2001/02.

At present, there are 39 Civic Amenity sites in London, most of which offer recycling facilities, as well as over 2,700 'bring' sites – such as bottle banks. Provision varies widely from borough to borough, as does the variety of materials collected. The average number of households per 'bring' site is 1,127, but this varies from one site per 357 households (Wandsworth) to one site per 4,502 households (Islington). In total 155,884 tonnes of recyclables were collected through 'bring' sites in 2001/02.

Recycling as a method of waste management has a high level of public support and the environmental benefits are well known, but there are barriers to recycling. Instabilities in the market for recyclable materials can be a disincentive and introducing recycling schemes can have high cost implications. Any scheme must take into consideration local conditions and a lack of public awareness can result in apathy. A recycling scheme that works well in a leafy London outer suburb will not necessarily be suitable for a densely populated inner city borough. However, a good scheme will promote itself through rows of boxes or bags of recyclables regularly awaiting collection. Social exclusion is a potential barrier to recycling, but this is likely to have more to do with the resources and high priority placed on other services by the local authority, than an unwillingness to recycle by those living in areas of deprivation. People on low incomes are often very good at recycling.



Finally, around half of London's homes are purpose-built or converted flats, particularly in the inner London boroughs. They have limited storage space for recyclables and collectors may not be able to access the buildings to collect from the property. If traditional methods of collecting of recyclables from the home are not possible then recycling banks at the entrance to the building or alongside general waste bins will help to ensure facilities are as convenient as possible.

A number of new projects to improve recycling performance in London have received grants from the £21.3 million London Recycling Fund. The Mayor, in partnership with the Association of London Government and London Waste Action, successfully secured this funding from the

Government and has allocated it to projects on a strategic basis. The total value of the projects is over £45 million through the levering in of additional funding. The funding has enabled projects such as a green waste composting facility, improvements to civic amenity sites, recycling on estates and collections of recyclables from homes. A further £3.6 million will be allocated in 2003/04.

The collection of more recyclables will require more reprocessing facilities in London. In the past, these have usually recycled waste into the same sector, with glass bottles recycled into glass bottles and newspapers recycled into newsprint. However, recyclables are increasingly being considered as a basic raw material that can be made into a variety of different products. For example, glass may be used as an aggregate in road construction.

Recovery and waste treatment

Recovery of waste incorporates the recycling, composting and also the recovery of heat, electric power and other forms of energy from waste. By the late 1960s, the incineration of waste at high temperature was seen to have many advantages over landfill – not least the generation of heat which could be used to provide electric power, district heating or steam for industry. It also reduces waste by about 70 per cent by weight.



London has two large incineration plants: Edmonton, opened in 1971 and SELCHP at Lewisham, opened in 1994. Together they handle 19 per cent of London's municipal waste by combining incineration with the recovery of energy. A proposed new plant at Belvedere in east London is currently under consideration by the Secretary of State for Trade and Industry. A contract has also been awarded by East London Waste Authority, and planning applications have been submitted for the provision of two Mechanical Biological Treatment plants with a combined capacity of 0.36 million tonnes

Landfill

The majority of London's municipal waste is sent to landfill. Municipal waste is currently taken by rail to landfill sites in Bedfordshire and Buckinghamshire, by barge down the Thames to Essex and by road to other sites in Bedfordshire, Buckinghamshire, Cambridgeshire, east London, Essex, Oxfordshire and West Sussex.

Disposing of waste a long way away can lead to an 'out of sight, out of mind' attitude, by those producing the waste. In addition, the estimated capacity in the East of England will only last six years and the South East capacity will fall by four fifths by 2024.



In addition, the EU Landfill Directive is putting serious constraints on landfill, particularly for biodegradable waste. National targets on recycling and local plans to reduce amounts being landfilled in the area are adding to the pressure. The combined effect of these, shrinking capacity around London, and local policy means that continuing to landfill London's municipal waste is unsustainable and other solutions must be found.

Development of waste policy

The EU Landfill Directive requires, amongst other things, that by 2010, the amount of biodegradable municipal waste going to landfill must be reduced to 75 per cent of the total produced in 1995. By 2013, the amount must be reduced to 50 per cent of the 1995 total, and by 2020, to 35 per cent. The amount of biodegradable waste going to landfill will be controlled by a tradable allowance system.

In addition, the Landfill Directive requires specific controls on the disposal of hazardous waste and a total ban on tyres in landfills by 2006.



The Government has established, through Waste Strategy 2000, a series of national targets. These targets require at least 25 per cent of household waste to be recycled or composted and the recovery of value from 40 per cent of municipal waste by 2005. Figures increase to 30 per cent and 45 per cent respectively by 2010 and to 33 per cent and 67 per cent by 2015. In 2002, the Government's Strategy Unit looked at how the national strategy could do better. In response to the report that recommended increasing the recycling and composting target for 2010 to 35 per cent and 45 per cent in 2015, the Government has undertaken to review the targets in 2004 in light of the progress local authorities have made towards meeting their 2003/04 targets.

To achieve the national recycling and composting rates, statutory standards have been set for both waste collection and waste disposal authorities for 2003/04 and 2005/06. These require that areas with recycling and composting rates below five per cent in 1998/99 must achieve at least 10 per cent by 2003/04. Authorities with five to 15 per cent recycling rates are required to at least have doubled their recycling rates and all other authorities will have to recycle or compost at least a third of household waste.

By 2005/06, waste disposal authorities or waste collection authorities with recycling and composting rates under six per cent in 1998/99 are required to achieve at least 18 per cent, and those with six to 12 per cent rates of recycling and composting are required at least to have trebled their recycling rate. Those who recycled or composted 12-18 per cent in

1998/99 must reach 36 per cent, and all other authorities must reach 40 per cent.

These standards would deliver the national target recycling rate of 25 per cent by 2005/06.

The growth in waste

There is no doubt that the amount of household and municipal waste has increased in the recent past. Since 1996/97 London's municipal waste has grown by just over three per cent per year and looking back, at less accurate data, to 1986 the growth rate has been about two and a half per cent.

This growth was most notable in other household waste collected such as street cleaning and litter, bulky waste and garden waste, rather than from household dustbins and black sacks. Household recycling tonnage has risen by 70 per cent between 1996/97 and 2001/02. Despite this increase in recycling tonnage, household recycling as a proportion of household waste has only crept up from five to eight per cent over the same period, due to the increase in other wastes.



For example, Lewisham increased the amount of household waste it recycled by 133 per cent, or 3,693 tonnes, between 1996/97 and 2001/02. However, as the total amount of waste also increased by 12,147 tonnes or 12 per cent, the amount of waste for disposal actually increased by 8,454. Therefore, an increase in recycling often offsets some of the extra waste but doesn't solve the problem of increasing waste.

There are a number of factors influencing the growth in waste, including the increase in population and number of households; greater affluence; changing shopping habits and increases in packaging; and the influence of the 'throw-away society'.

London's future

In response to comments during the public consultation on the draft Strategy, further work has been carried out to model different scenarios for London to meet the Landfill Directive targets. This uses four growth rates including zero per cent, two per cent, a rate which combines London Borough recent growth rates and comes out at three and a half per cent, and a rate which starts off at the three and a half per cent until 2006 and then reduces to two per cent until 2020.

The model then considers various options for managing London's waste including landfill, recycling, incineration and new technologies. Judging the outcomes of the model against a number of criteria such as whether it

meets the landfill directive and is flexible, a preferred option that offers maximum benefits is selected. This option combines recycling rates at 35 per cent in 2010 and 45 per cent in 2015, with incineration remaining at the current levels and an increase in new waste technologies to meet the landfill directive requirements. This approach would avoid reliance on any one method of waste management. There is still a need for some landfill capacity under all of the options but by 2020 this would be needed for only 12 per cent of London's municipal waste in the preferred option.

Comparison with other cities

As no two cities face exactly the same issues, comparing London to other international cities is difficult, but it can provide inspiration for what can be achieved and practical examples of programmes that work. For example, Berlin is about half London's size in terms of population, but it recycles and composts more than twice as many actual tonnes as London.

In Tokyo, the tonnage of municipal waste has fallen steadily, by about one and a half per cent over the last decade. Although the economy has gone through a recession, this downturn in the tonnage of waste began several years before and the population is also growing. This shows that a continuous rise in the level of waste in a growing economy is not necessarily inevitable. Householders in Tokyo routinely sort out combustible waste, incombustible waste, and recyclables for separate collection, which raises awareness about waste.

Eighty per cent of New York's housing is apartments, but due to legal measures and heavy investment in recycling, the city has been able to reach recycling levels of 20 per cent from households. However, city budgetary problems have seen changes to the level of recycling service provided.

Crosscutting themes and linkages with other strategies

When writing this Strategy the Mayor is required to consider a number of issues including the effect the Strategy will have on the health of Londoners and the achievement of Sustainable Development in the UK. The Mayor's main role is to promote economic development and wealth creation, social development and improvement to the environment. These therefore have been considered in developing this Strategy along with consideration of equality of opportunity for all people and any links with the Mayor's other Strategies, such as the effect of the Strategy on transport in London or the need for new waste sites in London.



key policies and proposals

The Mayor's policies are based on the premise that London will need to radically redirect the way it manages its municipal waste. They aim to promote waste minimisation, increase the proportion of waste that is recycled and ensure that all waste is handled in the most sustainable manner, with minimum impact on the environment. The proposals provide a clear lead to London's waste authorities on the actions it is expected they will need to undertake to meet and exceed their targets. They also encourage action by other waste stakeholders. The Mayor recognises the role that partnerships and co-operative working will play in delivering change. The Strategy sets out 44 policies, which are accompanied by 101 detailed proposals for consultation.

London will aim to exceed the recycling and composting Best Value Performance Standards for waste authorities set by the Government including any changes as a result of a review of the recycling targets. The Mayor aspires to higher targets for recycling and composting and considers they can be achieved in the longer term. The Mayor will therefore seek to persuade the Government to put in place the legislative changes and other measures necessary, to enable the achievement of rates of recycling and composting of municipal waste of 50 per cent by 2010 and 60 per cent by 2015.

The Mayor will insist that waste authorities consider options to maximise the reduction, recycling and composting of municipal waste from all sources before considering the recovery of materials and energy from the residual waste. London will therefore aim to meet the targets, specified in Waste Strategy 2000, for recovering value from 40 per cent of municipal waste by 2005, from 45 per cent by 2010 and from 67 per cent by 2015, by prioritising reduction, recycling and composting.

Waste reduction

Clear action is needed to halt the growth of municipal waste. Even a slow down in the growth rate can have a large cumulative impact. The modelling described a scenario for the growth of waste to be reduced from three and a half per cent after 2006 to two per cent until 2020. If this happened, then London would need to manage over two million tonnes less waste by 2020. This is equivalent to about four times the capacity of the current Edmonton incinerator.

The Strategy argues that recycling alone will not solve the problem of waste growth, only reduce it. There is a clear need for the waste authorities to make people aware of how the choices they make affect



the production of waste. The Mayor supports the reduction and reuse of waste. The aim is to reduce the amount of waste produced by every household, to slow down the amount by which waste is growing.

The Mayor will develop a Waste Reduction and Reuse Programme for London in partnership with the relevant stakeholders, to coordinate, facilitate or undertake actions to reduce waste.

These actions will include communicating with retailers and manufacturers about waste creation and the design, repair and reuse of goods, raising awareness through a campaign and the co-ordination of practical schemes such as furniture reuse. It is important that reduction, reuse and recycling services are as high profile and convenient as waste collection services.

At the moment, a Default Levy System means that those 21 waste collection authorities that are part of a joint statutory waste disposal area have no direct link between the amounts of waste collected in their boroughs and the costs of disposal. The cost is divided between the various boroughs on the basis of the housing, not by the tonnage of waste collected. Therefore a waste reduction or reuse scheme by one borough will only reduce the costs to all authorities, and not directly benefit the borough that takes the initiative. Changing from the default system will impose higher costs on boroughs that produce a large amount of waste in relation to their population. Using the 'polluter pays' principle, the costs of waste disposal should be levied on a per tonne basis.

The Mayor will seek a voluntary agreement to commit to a tonnage based levy arrangement, to start in time for the year 2005/06 which may include arrangements to soften the initial financial burden to those authorities affected. However, if no agreement can be reached by this date, the Mayor will seek to persuade the Government to amend legislation to impose this change.

Recycling and composting

The Mayor has clearly set out what is expected of the waste authorities to increase recycling and composting in four key policies.

By September 2004, all London Boroughs must introduce collection from homes of materials for recycling, except where impracticable, in which case exceptionally intensive and effective 'bring' systems should be developed, to meet and exceed the national recycling targets.



Waste authorities should maintain and extend the current provision of 'bring' recycling facilities, particularly for those materials that are not collected as part of the authorities' household recycling collection scheme. They should be chosen with care and in consultation with local residents, in order to minimise adverse affects on the local environment, so that sites are neither unsightly nor noisy. Ideally, they should be located at places people will be visiting anyway – supermarkets, shops, schools and near main roads.

Between 20 and 30 per cent of household waste such as kitchen vegetable waste, tea bags and green garden waste is suitable for composting at home. A significant increase is needed if requirements to divert biodegradable wastes from landfill are to be met. Home composting and community composting schemes should be encouraged and vigorously promoted. All boroughs should take a lead by composting market and municipal parks' waste.

For organic waste that is not composted at home or in the community, the Mayor will request that London Boroughs make appropriate provision to collect organic waste from homes.

As such all of the London Boroughs must prepare a fully costed feasibility study for the boroughwide collection of separated kitchen vegetable waste and garden waste. This feasibility study must be presented to the Mayor for consideration by September 2004

In 2001/02 about 15 per cent of all London's household waste passed through existing Civic Amenity sites before being disposed of or recycled elsewhere. Most of this waste is not recycled and this is a lost opportunity. Sites that change their focus from disposal to reuse and recycling can achieve recycling rates of 40 to 50 per cent.

The Mayor is promoting the rebranding of these sites as 'Reuse and Recycling Centres' to open up new opportunities, including the reuse of waste, especially household goods, wood, surplus building materials like bricks and doors and furniture. These centres should be available free of charge to all Londoners when depositing household waste and allow convenient and safe pedestrian access to avoid any unnecessary car journeys. The Mayor will also discuss with the waste authorities about setting up an authority to provide a uniform quality of service for reuse and recycling centres throughout London.

A small amount of hazardous waste is created by homes and businesses – materials such as paint and paint thinners and strippers, medicines,



garden chemicals, engine oil, and chemicals used in photography. A collection service is available across London but is not uniformly promoted in all boroughs. Such hazardous materials can contaminate the waste stream and pose risks for waste operatives. Moreover, some of the materials, such as waste motor oil, water-based or low solvent paints and fluorescent tubes, offer opportunities for recycling.

The Mayor wishes to achieve the segregation of all hazardous household waste from the normal household waste stream to enable higher recycling rates, to avoid cross-contamination of potentially recyclable materials and to reduce the health and safety risk to people and the environment.



New recycling industries and jobs

The Strategy aims to convert waste into new materials, creating new industries and jobs at the same time. This means the London Development Agency has an important role to play.

Current reprocessing capacity includes a well-established industry for recycling paper close to London. There are well-established markets outside London for reprocessing glass, steel and aluminium, and companies to handle bulk materials for reprocessing. There are no facilities in London for reprocessing plastics. The transportation costs for plastics are high, so there are particular business opportunities for reprocessing in London.

London Remade, with funding of £5.4 million over three years from the Mayor through the London Development Agency, has been formed to help stimulate and coordinate the development of new markets and new uses for recyclable materials. The London Development Agency has identified the environment as a priority sector under the new Single Programme funding regime.

The Mayor will bring together a Markets Taskforce of existing stakeholders to work with the reprocessing industry. They will consider the markets and reprocessing capacity for recyclables in London to find out what London needs, and where, and when London needs it. The Mayor will also work towards the establishment of a Londonwide consortium for recyclables to help maintain consistent prices.

Promotion, education and encouragement of recycling

The Mayor undertook a pilot study with two London boroughs, Brent and Lambeth, to assess the impact of a financial reward scheme for recycling. Residents who participated in the scheme at least half of the

time received £10. The pilots demonstrated that even a relatively small cash incentive can encourage participation and increase the tonnages collected for recycling from householders. The Mayor thinks that financial rewards should be used to increase participation.

The Mayor will work with the London boroughs to promote messages on waste reduction, reuse and recycling, through a Londonwide programme to raise awareness.

The Mayor is leading the first phase of a campaign, bringing together waste authorities and other stakeholders, to promote recycling and sustainable waste management Londonwide. To find out more about the 'Recycle for London' campaign, log on to www.recycleforlondon.com or call 08453 31 31 31. The Mayor will seek further funds to enable the campaigns to continue in future years.

Since children are the recyclers of the future, all schools should have a recycling centre so that their pupils get into the habit of recycling. The Mayor has therefore developed the London Schools Environment Award (LSEA). This will give primary schools a series of challenges based on four themes of litter, recycling, biodiversity and energy conservation.

The Mayor will encourage waste from high profile public outdoor events to be reduced, reused and recycled where possible. This will raise awareness of waste and acts as an education initiative.

The Mayor will continue to lead by example, by using recycled products and materials where these are available. Further to this, through London Remade, the Mayor has developed a Green Procurement Code that was launched in March 2002. More than 230 of London's key organisations and all 33 of London's boroughs have signed up to the Code.

These organisations have committed themselves to working with London Remade to explore opportunities for buying recycled products and achieving measurable targets. Research shows that citizens want companies to take their environmental responsibilities seriously. The Mayor's Green Procurement Code is the first step to securing a commitment from London's stakeholders to divert waste from landfill and close the loop on recycling, by purchasing products made from recycled materials.

Recovery and treatment

London doesn't have much landfill space and there is already twice the national average of conventional waste incineration in London. The Mayor wants to encourage an increase in waste reduction, reuse and



recycling, the development of new and emerging advanced conversion technologies for non-recyclable residual waste and new waste treatment methods such as Mechanical Biological Treatment. The Mayor will support and encourage these waste management methods in preference to any increase in conventional incineration capacity.

If waste cannot be reused, recycled or composted, then value should be recovered from it. This could be the recovery of materials or energy. In the case of energy, this should be done using a process that is eligible for Renewable Obligation Certificates (which excludes conventional incineration of mixed waste), maximises the efficiency by using both heat and the electric power, and minimises emissions of pollutants.

There is a range of different processes, other than conventional incineration, for the recovery of useful materials and energy from waste. These include Mechanical Biological Treatment, anaerobic digestion, production of biofuels, advanced thermal conversion techniques, including pyrolysis and gasification and the use of wood waste as a fuel. These 'new and emerging technologies' all generally require or are compatible with sorting of recyclable materials from the waste stream first and are well suited to smaller scale facilities. Therefore the Mayor will give favourable consideration to proposals utilising these technologies.

With effective waste reduction measures in place, there would be no need to introduce significant additional recovery capacity before 2013, even if London does no better than achieve the Waste Strategy 2000 targets.

Street litter

The Mayor wishes to see major improvements to the standard of cleanliness on London's streets, action to combat environmental crime and to investigate the potential for recycling litter.

The quality of the local street environment has a direct effect on a community and hence their impression of and engagement in local environmental issues. In response to the consultation on the draft Strategy, 78 per cent of the general public supported the Mayor's proposal to work with the London boroughs to improve street cleanliness.

The Capital Standards Programme was publicly launched by the Mayor in March 2002. It is a four year campaign designed to raise the standard of London's street environment and to monitor performance. Twenty six of the 33 London boroughs are now members of the Capital Standards Programme along with the Association of London Government. The



programme is administered by ENCAMS (formerly the Tidy Britain Group) who are undertaking independent surveys in the member boroughs.

An enforcement training school is also part of the Capital Standards programme. It provides three days of 'Street Academy' training to London borough enforcement officers on how to gather evidence and use the powers available to tackle environmental crime.

The Mayor is working with the partners in Capital Standards to produce a Londonwide advertising campaign against litter.

Fly-tipping – the unauthorised discarding of waste – and abandoned vehicles are a major problem on London's streets and impose significant costs to London boroughs.

Unfortunately one of the common sights of waste in London is of discarded furniture and household appliances. London Boroughs will collect these items but arrangements can vary significantly. Some collect items free whilst others make a charge. The Mayor will require all boroughs to have a well-advertised service to minimise dumping, and where a borough has a problem with dumping, a free service must be considered. All services must maximise opportunities for recycling and reuse.



Abandoned vehicles accounted for around six and half per cent of fire calls attended by the London Fire Brigade in 1999/2000. Consultation by the Department for Transport proposed changes to improve the current problems, which included reducing the notice period required before removing vehicles. The EU Directive on End of Life Vehicle aims to reduce the amount of waste from vehicles at the end of their lives. The Mayor is aiming to work with the London boroughs to ensure that all abandoned vehicles are managed to a high standard and will seek incentives through the End of Life Vehicle regulations, so that the vehicles are not abandoned and are recycled.

Transport of waste

Transportation of waste is done in a number of stages, including collection from homes and transfer to reprocessing or disposal facilities. Of the municipal waste disposed of outside of London, 27 per cent is currently transported by barge, 27 per cent by rail and 46 per cent by road.

Whilst, many waste authorities are trying to make their vehicles as clean as possible, separate collections of recycling will probably lead to an increase in the number of vehicles on the road. However, a benefit of

reducing London's dependency on landfill and improving self-sufficiency could be a reduction in longer distance movements.

The Mayor stresses the need for environmentally friendly modes of transport (rail and river) and cleaner vehicles for waste collection. He will encourage waste authorities to minimise the environmental impact of waste transportation, including air pollution, noise, energy use and traffic impacts.

Waste infrastructure

The infrastructure of waste management facilities must be able to change with the development of sustainable waste management. With new recycling collections there is a need for new recycling sorting and processing plants. Most municipal waste currently leaves London for landfilling but in the future it will need to be treated or reprocessed within the London area, as far as is possible.



The London boroughs are the waste planning authorities. Through their Unitary Development Plans and new Local Development Documents, boroughs should make sure that there are adequate sites available for the management of the wastes arising in their area.

Through his London Plan, the Mayor will consider the implications of managing all waste. This therefore will consider more than just municipal waste, which is the subject of this Strategy. A comprehensive review of waste management in London has been undertaken. This Technical Assessment for Waste Management concluded that, amongst other things, the Unitary Development Plans do not identify specific sites for waste and together they only protect two per cent of London's 750 existing waste management sites.

The Mayor will work with the boroughs to produce detailed waste planning guidance indicating the number types and, where appropriate, locations of facilities needed to manage waste and recyclables in London.

Costs and funding

A key barrier to progress towards higher recycling rates is the cost. Landfill and incineration are often cheaper, particularly as their prices do not reflect the full environmental cost borne by the community. The Landfill Tax seeks to help address this, by making landfill more expensive. It was announced in the Budget 2003 that over time the tax will increase up to at least £35 per tonne.



In the past, some of this tax funded sustainable waste projects directly through the Landfill Tax Credits Scheme. However, changes to the scheme were also made in the Budget. £100 million will now be allocated to the new sustainable waste delivery programme, to be managed by DEFRA. Some of this, £24 million in 2003/04, will help to fund improvements in local authorities.

Further to the London Recycling Fund mentioned earlier, there has been an announcement of more money to be invested in waste reduction and recycling in future years. This amounts to £90 million for England in 2004/05. In 2005/06, another £45 million will be available as a challenge fund but there will also be a transition to a Waste Performance Reward Fund. Operational details and the potential role for a London allocation are not clear at the time of going to print.

However, managing municipal waste in London had a net cost of more than £361 million in 2001/02 and the costs are increasing above inflation. This trend has not been matched by adequate funding and this has hampered the waste authorities ability to improve levels of recycling.

A costing assessment has been undertaken for this Strategy. It is clear from the study that although there is considerable uncertainty in predicting future waste management costs until 2020, the costs will rise substantially over that period. The increase in cost will be driven mainly by the growth in waste.

The following conclusions can be drawn from the study. 'Business as usual' is the most costly option for London. Beyond that, there is little significant difference between the costs of any of the other options considered, which included high recycling and high incineration.

The Mayor will work with the Association of London Government and the waste authorities to determine the required investment to achieve sustainable waste management. The Mayor will look to secure London's fair share of funding to invest in sustainable waste management and will seek an increase in the total funding provided.

Waste contracts and strategies

The Mayor wishes to work in partnership with waste authorities in developing existing contracts and drawing up new ones. The aim is to achieve a minimum service level and consistency in waste and recycling contracts across London, whilst taking into account the uniqueness of each London borough. Key to this will be sharing best practice. However, in order to help the Mayor implement the policies and proposals



contained within his Strategy, the Greater London Authority Act 1999 does give the Mayor certain powers of direction over waste authorities in relation to new and existing waste contracts.



Waste authorities in delivering waste management services must have regard to Best Value, of which an important tenet is Best Value Reviews. The Mayor can help waste authorities address the 'five Cs' of a review (Challenge, Competition, Compare, Consultation and Co-operation), especially with regards to offering an external challenge to the review process. This will provide the opportunity to realise mutual benefits, for the authority and the implementation of this Strategy, and hence to overcome some issues before a contract is even drafted.

A requirement for two-tier authorities to produce a joint municipal waste management strategy will be introduced through the Waste Emissions Trading Bill. The four statutory joint waste disposal authorities should each have a joint strategy that covers their own area. The 12 unitary authorities should consider how to work together in groups and consider preparing a joint strategy for each group. At a minimum, each unitary authority should produce an 'implementation programme'. Joint strategies or implementation programmes should have regard to the Mayor's Municipal Waste Management Strategy and be presented to the Mayor for consideration within 12 months of the final publication of the Mayor's Municipal Waste Management Strategy.

A waste database for London

The need for high quality data on waste is now greater than ever. Significant improvements in data capture, monitoring and accessibility have been made by the Mayor in partnership with others, addressing issues raised in the draft of this Strategy. A key success has been the development of the online database by the Mayor and London Remade – www.capitalwastefacts.com

The Mayor will continue to develop this website and will work with DEFRA, CIPFA and other authorities towards the joint development of an electronic survey to reduce delays in information provision.

Longer-term structural changes – a single waste disposal authority

One of the key strategic roles of the Mayor in this area will be to investigate developments in waste management. This includes best practice and alternative ways of managing waste, both within the UK and elsewhere, and to consider how they can be applied to London. If legislation does not allow for improvements to be implemented, then the

Mayor's role would be to seek to persuade the Government for changes to national legislation.

There are long-term structural changes that the Mayor believes would be the best way to achieve sustainable waste management in London, specifically the formation of a single waste disposal authority. The Mayor is unconvinced that the current situation will deliver sustainable waste management as new facilities are not being built strategically, there is not equal access to all reuse and recycling centres (civic amenity sites), and waste is criss-crossing all over London to disposal and treatment facilities. A single authority would also bring London into line with other major world cities. Therefore, the Mayor will seek to persuade the government that this change is required.

The Mayor will develop an environmental and business case for a single waste disposal authority and consider the views of London waste authorities. As part of this process, the Mayor will also consider the implications for the waste planning structure in London. In the light of London's progress towards the 2005/06 recycling targets, the Mayor's position will be presented to Government to consider appropriate changes to legislation.

Implementation and monitoring progress

The Mayor alone cannot improve municipal waste management in London. The waste authorities have an essential role. Working together and developing partnerships with other waste stakeholders, including the community sector and waste service providers will also be key to delivering the Strategy.

The Strategy should be achievable through co-operation. However, in the absence of co-operation, the Mayor can secure action through directions to the waste authorities.

A cost assessment indicates that continuing to landfill, incinerate and recycle in the same proportions as we do now will prove the most expensive option in the long term. Therefore we need to invest now and change the way we manage waste, not only to avoid damage to the environment, but also to save money in the future.

Progress towards achieving the objectives of the Strategy as well as the requirements of the Landfill Directive, the national targets set out in Waste Strategy 2000, and local authority individual recycling and composting statutory performance standards, will be monitored. The results will be published on www.capitalwastefacts.com



Whilst providing an overarching framework of policy until 2020, many of the proposals in this Strategy focus on the period to 2005/06. After 2005/06, this Strategy will be reviewed to take into account the experience gained whilst working towards the proposals and policies. There is a need for a wider Strategy on all waste in London. This will follow the final publication of the Mayor's Municipal Waste Management Strategy.

1 introduction

This Chapter outlines the response to the public consultation on the draft Strategy and the legal basis of the Mayor's Municipal Waste Management Strategy.

- 1.1 From the 12 September 2002 until the 6 December 2002 the public and waste stakeholders were consulted on the Mayor's draft Municipal Waste Management Strategy, which outlined the Mayor's vision that by 2020 London's municipal waste should no longer compromise a wider vision for London as a sustainable city.
- 1.2 The consultation process involved three main documents, the full draft Strategy, a highlights report and a leaflet. In addition, questions on waste management and recycling were included in the 2002 Annual London Survey, an online version of the leaflets was available on the www.london.gov.uk website and emailed to individuals and questions were placed on i-kiosks around London.
- 1.3 Londoners were asked about their views on the waste situation in London and the proposals the Mayor made in his draft Strategy. Londoners responded saying that the amount of waste being produced in London is a problem and that there is concern about the current level of recycling in London. The public consultation provided strong support for the approach set out in the public consultation draft, but the greatest support was for the encouragement of councils to sign up to a 'Green code' to use recycled materials and for the collection of three different types of recyclable materials from homes to be extended across London.
- 1.4 Those with an interest in waste were also consulted through the distribution of the documents. A series of consultation meetings were held and presentations made to a range of stakeholder groups across London. These waste stakeholders also broadly supported the direction of the strategy but did not always agree completely with the proposals. Specifically they raised concerns about the costs that these may incur. Whilst the costing report undertaken on the Strategy clearly showed that the most costly option would be to continue to deal with our waste as we do today, recycling a little and sending the rest to landfill, the issue of costs is a sensitive one.
- 1.5 The comments received as part of the extensive programme of public consultation on the draft Strategy have been considered as part of the decision-making process. The results of consultation have been collated analysed and taken into account during the development of this final Strategy. Where appropriate, the views of respondents have been incorporated. The broad direction and general philosophy of the draft



Strategy has been maintained in accordance with the views of Londoners but some specific changes have been made to ensure that these are reasonably implemented to avoid any potential excessive costs. A report setting out the consultation process and results has been prepared and is available on www.london.gov.uk. Copies are also available from the Public Consultation Team at the GLA on 020 7983 4857.

- 1.6 There is an urgent need to find new and much better ways of managing waste as landfill space starts to run out and as legislation restricts what can be landfilled in order to protect the environment. More important are the sheer waste of resources, the widespread concerns about the potential impacts on health from landfilling waste or from pollution as emissions from incinerators, and other potential environmental damage. This means a change in the general attitude to waste is needed so that it is regarded as a valuable resource for reuse, rather than a liability. Many people feel uneasy about the possible effects of large incineration plants on the health of nearby residents. There is also a need radically to improve the use we make of the world's resources. Increasing resource productivity will economise on primary materials and the energy required to process them.
- 1.7 Since the abolition of the Greater London Council in 1986, waste in London has lacked a strategic lead and the responsibility for the disposal of municipal waste has been divided. The creation of a Mayor and Assembly for London restores a democratically accountable government to London, which is able to take a strategic view of how to protect and improve London's environment. For the first time in over a decade there is a body required to take a long-range view of how London as a whole should manage its waste.
- 1.8 The Greater London Authority Act 1999 requires the Mayor to prepare a Municipal Waste Management Strategy. The Strategy must include proposals and policies for implementing the National Waste Strategy, Waste Strategy 2000 for England and Wales, within Greater London, and meet waste recycling and recovery targets. It must contain the Mayor's proposals and policies for the recovery, treatment and disposal of municipal waste and may contain such other proposals and policies relating to municipal waste as he considers appropriate.
- 1.9 In preparing or revising the Strategy, the Mayor must have regard to the principal purposes of the Authority, the effect the proposed Strategy will have on the health of the people of London and the achievement of sustainable development in the United Kingdom. The principal purposes of the Authority are to promote economic development and wealth creation; promote social development; and to promote the improvement



of the environment in Greater London. Furthermore, in the preparation of the Strategy, due regard must be paid to the principle that there should be equality of opportunity for all.

- 1.10 In addition to the Municipal Waste Management Strategy, the Mayor must produce seven other statutory strategies - Spatial Development, Transport, Economic Development, Culture, Biodiversity, Ambient Noise and Air Quality. The Mayor is also producing a number of non-statutory strategies - notably one on Energy. The Spatial Development Strategy is the most closely linked to waste management, although there are also significant links with the Transport, Economic Development, Air Quality and Energy Strategies and some links with Ambient Noise, Biodiversity and Culture. Measures in other Mayoral strategies will work together with policies in this Strategy to improve waste management in London. The State of the Environment Report, which the Mayor published in May 2003, includes information on the production, reduction, reuse, recycling and disposal of waste in London.
- 1.11 Although the Greater London Authority Act 1999 requires the Mayor to prepare a Municipal Waste Management Strategy covering waste collected by local authorities, municipal waste accounts for only around a quarter of London's total waste. The urgent need to provide guidance to London's Waste Collection and Waste Disposal Authorities means that the present Strategy will concentrate on municipal waste. However, the Mayor recognises the need for a wider Strategy and the preparation of a London Waste Strategy will follow the Municipal Waste Management Strategy.
- 1.12 This Strategy starts by setting the scene of the current problems and issues. It then puts these issues into the London context before going on to outline policies and proposals to address the issues raised. Finally, it considers how these proposals will be implemented and monitored.



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CITY SERVICE

RECYCLING

R-H357

2 setting the scene

This Chapter sets out the current situation in municipal waste in London including the most recent facts and figures available and the sets out the key issues that will influence waste management in the future, including EU and national waste policy. This Chapter then considers how municipal waste may develop in the future, specifically forecasts of waste tonnages. The Chapter goes on to model these waste growth scenarios with a number of waste management options. This Chapter also considers the development of waste management in other countries to see what lessons can be learnt.

- 2.1 London produces 17 million tonnes of waste¹ every year². Households alone produce 3.4 million tonnes, that equates to 1.1 tonnes per household³, most of which is collected in dustbins and black bags by the local authority or by contractors working on their behalf. Over two tonnes of waste are produced for every person living in London⁴ by businesses and industry in building our homes, and other facilities, and in making the goods we consume. Local authorities collect 4.4 million tonnes of municipal waste, which included the waste from households, street cleansing waste as well as some commercial waste, where they are requested to do so by businesses. Many authorities operate Civic Amenity sites, where residents can deliver waste. This Strategy is primarily concerned with the 4.4 million tonnes of waste handled by local authorities, which is known as 'municipal waste'. This amount of waste alone is enough to fill over 400,000 refuse collection vehicles.
- 2.2 The vast majority of London's waste is disposed of to landfill. In the past, most landfills were in old sand and gravel pits around the edge of London but as these have gradually been filled the waste has been taken further afield. Waste is currently taken to landfill sites in Bedfordshire, Buckinghamshire and Oxfordshire by rail, to Essex by barge down the river Thames and by road to other sites in Bedfordshire, Buckinghamshire, Cambridgeshire, Essex, Surrey and West Sussex. In 2001/02, 73 per cent of London's municipal waste was sent to landfill, the majority of which was disposed outside of Greater London. A further 19 per cent was taken to the two waste incineration plants within London, where it was incinerated to generate electricity. Only eight per cent of municipal waste was recycled or composted.
- 2.3 The way in which London's waste is handled is going to change quite radically over the next few years, for a variety of reasons. We cannot continue to depend on landfill to dispose of London's waste, as remaining capacity is limited and there are legal requirements to divert biodegradable waste from landfill. Around 68 per cent⁵ of the waste that is collected by local authorities is biodegradable (or putrescible) and



decomposes when it is buried. This is a waste of resources and can also lead to the contamination of water supplies, rivers and streams, as well as the release of methane, a powerful greenhouse gas. As a result, strict controls on landfilling now exist. The European Union Landfill Directive will limit the amounts and types of waste that can be landfilled. For example, the landfilling of whole tyres will be prohibited from non-hazardous landfill sites by July 2003. Co-disposal of waste and the deposit of untreated waste will be prohibited by July 2004. The first EU target, for reducing the landfill of biodegradable municipal waste to 75 per cent of 1995 levels, takes effect in the UK in 2010.

- 2.4 From a baseline of 1998/99, the Government has set statutory targets for the recycling and composting of household waste. There are also guidelines for waste to be dealt with as close to its point of production as possible, which will be a particular challenge for London. The baseline of recycling rates for each London waste authority is set out in Table 1. To reach these targets will require the amount of recycling collected by 2003/04 to double, and to treble by 2005/06⁶.



Table 1 Progress towards Best Value performance standards for household waste recycling and composting

Authority	1998/99 Baseline Recycling Rate⁷ (Per cent)	2001/02 Recycling Rate (Per cent)	2003/04 Standard (Per cent)	2005/06 Standard (Per cent)
Corporation of London	0	0 (13)	10	18
Barking and Dagenham	3	2	10	18
Barnet	9	8	18	27
Bexley	18	20 (21)	33	36
Brent	5	6	10	18
Bromley	7	14	14	21
Camden	11	12 (15)	22	33
Croydon	14	12 (15)	28	36
Ealing	10	9 (11)	20	30
Enfield	9	11 (9)	18	27
Greenwich	4	7 (12)	10	18
Hackney	2	1	10	18
Hammersmith and Fulham	8	9	16	24
Haringey	5	4 (5)	10	18
Harrow	8	10	16	24
Havering	9	6 (11)	18	27
Hillingdon	7	16	14	21

Table 1 continued

Authority	1998/99 Baseline Recycling Rate ⁷ (Per cent)	2001/02 Recycling Rate (Per cent)	2003/04 Standard (Per cent)	2005/06 Standard (Per cent)
Hounslow	14	13	28	36
Islington	3	5 (6)	10	18
Kensington and Chelsea	11	8 (9)	22	33
Kingston upon Thames	15	18	30	36
Lambeth	7	8 (9)	14	21
Lewisham	4	6	10	18
Merton	9	15 (17)	18	27
Newham	2	3	10	18
Redbridge	7	8	14	21
Richmond upon Thames	14	18 (17)	28	36
Southwark	3	4	10	18
Sutton	16	15 (19)	33	36
Tower Hamlets	3	3	10	18
Waltham Forest	6	7 (8)	12	18
Wandsworth	8	8 (9)	16	24
Westminster	6	9	12	18
East London Waste Authority	4	6 (8)	10	18
North London Waste Authority	6	7 (8)	12	18
Western Riverside Waste Authority	8	9	16	24
West London Waste Authority	9	10	18	27
Greater London⁸	8	9	17	25

note: Recycling Rates have been calculated on a consistent basis by the Greater London Authority from data provided through the '2001/02 GLA/DEFRA Municipal Waste Management Strategy'. Where the published Best Value Performance Indicator Recycling Rates differs from the GLA calculated recycling rate, the BVPI rate has been shown in brackets.

source: www.capitalwastefacts.com, 2003; Audit Commission Best Value Performance Indicators 2001/02

2.5 There is a need for a cohesive strategy for the whole of London. An overarching strategy can provide a framework within which similar organisations, such as the London boroughs acting in their capacity as waste collection authorities, can move towards more sustainable solutions in a co-ordinated way, gaining strength through exchanging best practice and implementing economies of scale. The key issues for waste in London have been highlighted in Tables 2 and 3.



Table 2 Key issues for waste in London: constraints and problems

- Resources are not used efficiently, individuals and communities do not generally take responsibility for their waste and waste is not dealt with sustainably.
- Waste is increasing as both the amount of waste per household and the number of households increases.
- Costs of landfilling waste will increase due to scarcity and increasing costs and taxes
- The amount of waste recycled or composted by each waste authority will need effectively to double by 2003/04 and treble by 2005/06.
- Raw materials and energy are under increasing pressure and are currently being wasted.
- Markets for recyclables are unstable, and capacity is based in the traditional sectors where recyclables become a raw material for a similar product.
- There is a need to ensure the best practicable environmental option for waste.
- London has very limited landfill space and we cannot continue to export waste from London for disposal: we need to deal with our waste in London. This is referred to as regional self-sufficiency.
- The targets for reducing the landfilling of biodegradable waste will take effect in the UK from 2010, placing restrictions on the landfilling of biodegradable waste.
- There will be a need for more waste facilities in London.
- Waste transport already has, and will increasingly have, an adverse environmental impact. We therefore have to deal with our waste closer to its point of production and use the most environmentally friendly methods and modes of transport.
- There are differing standards in waste services in London. This is especially the case with recycling, with some waste authorities achieving recycling rates of less than five per cent.
- Data on waste in the past has been unreliable and not comparable.

Table 3 Key issues for waste in London: opportunities

- Value of materials wasted which could be recycled.
- Jobs and new business opportunities can be created in recycling, reuse and reprocessing industries and particularly as a result of legislative changes including the new directives from Europe on Waste Electrical and Electronic Equipment and End of Life Vehicles.
- Boosts to economic prosperity from growth in green industries.
- The potential to make London a world leader in green industrial design. More sustainable use of trees through wood and paper recycling.
- Savings for consumers on repairable/upgradeable consumer durables.
- Savings to local authorities from reduced landfill costs and taxes.
- Carbon dioxide savings through waste reduction.
- Use of waste-derived compost to improve the quality of soil.
- Separation of hazardous chemicals from the waste stream.
- Improvement in London's air quality through better management and enforcement of existing incinerators.



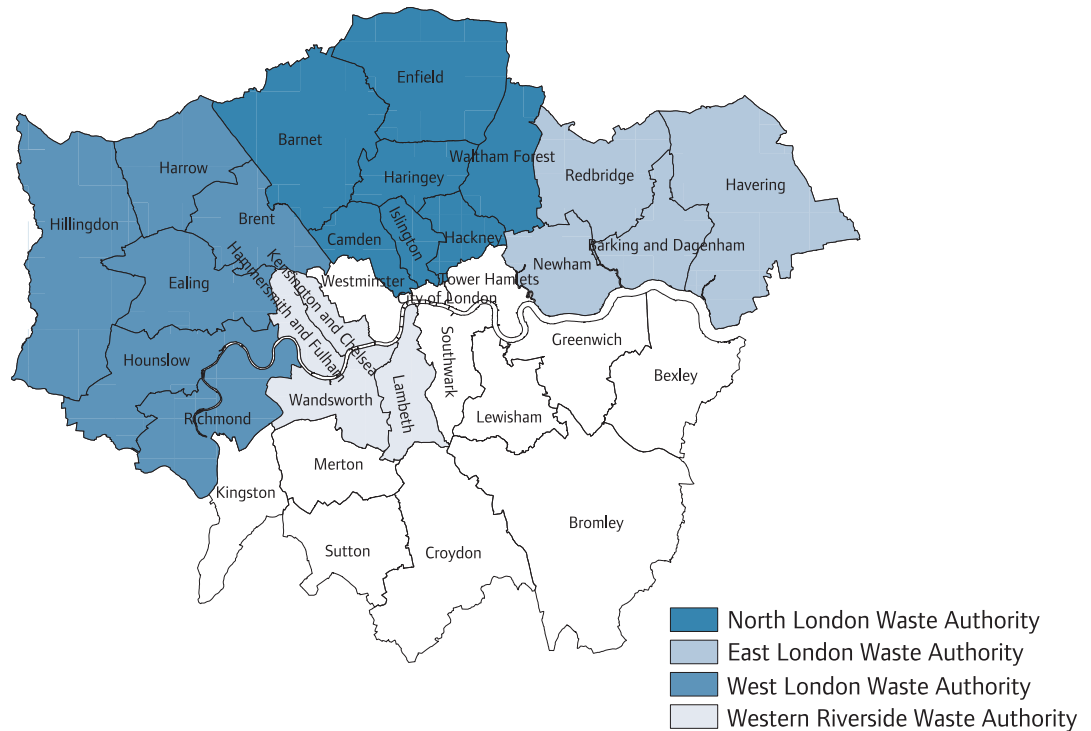
Current waste management

Who does what

- 2.6 Waste is currently created by, collected by, disposed of and regulated by a wide cross-section of individuals and bodies. Other elements in waste management include provision of funding, development of technology and methods of waste collection and markets for recyclable materials.
- 2.7 Since the abolition of the Greater London Council (GLC), the responsibility for waste disposal has been dispersed. Each London borough is responsible for the collection of its own waste. Twelve London boroughs are also responsible for the disposal of their own waste but the other 21 boroughs are arranged into four joint waste disposal authorities. (See Figure 1). Since 1986, no one has been responsible for strategic waste management for the whole of London and this has resulted in a lack of cohesive development. For further details see Chapter 3.



Figure 1 Waste disposal authority groupings in London

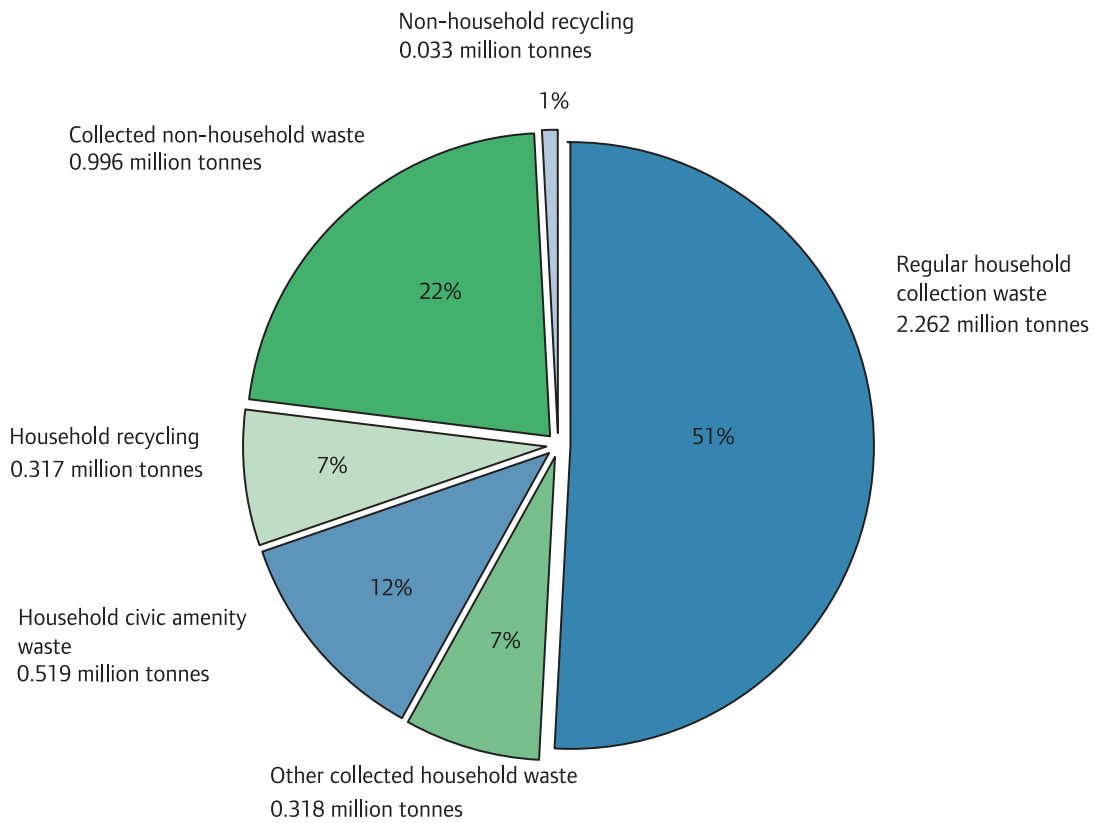


source: GLA 2003

2.8 The current municipal system of collections of mixed waste, that are then incinerated or sent for disposal to landfill in the surrounding regions, has lasted for more than a century. It was developed to meet the requirements of collecting any waste discarded as quickly and cheaply as possible. The concept of 'out of sight, out of mind' was the sign of a good waste service. Now it is recognised that this is unsustainable. So too is the way many manufacturers, commercial enterprises and institutions have marginalised waste in their plans and operations. Sustainable waste management practices will need to be introduced. This will require a radical shift in how we collect and dispose of municipal waste.

2.9 In 2001/02 London produced 4.4 million tonnes of municipal solid waste made up as shown in Figure 2. A further explanation of the types of waste defined as municipal solid waste is given in Appendix 1.

Figure 2 The make-up of London's municipal waste 2001/02

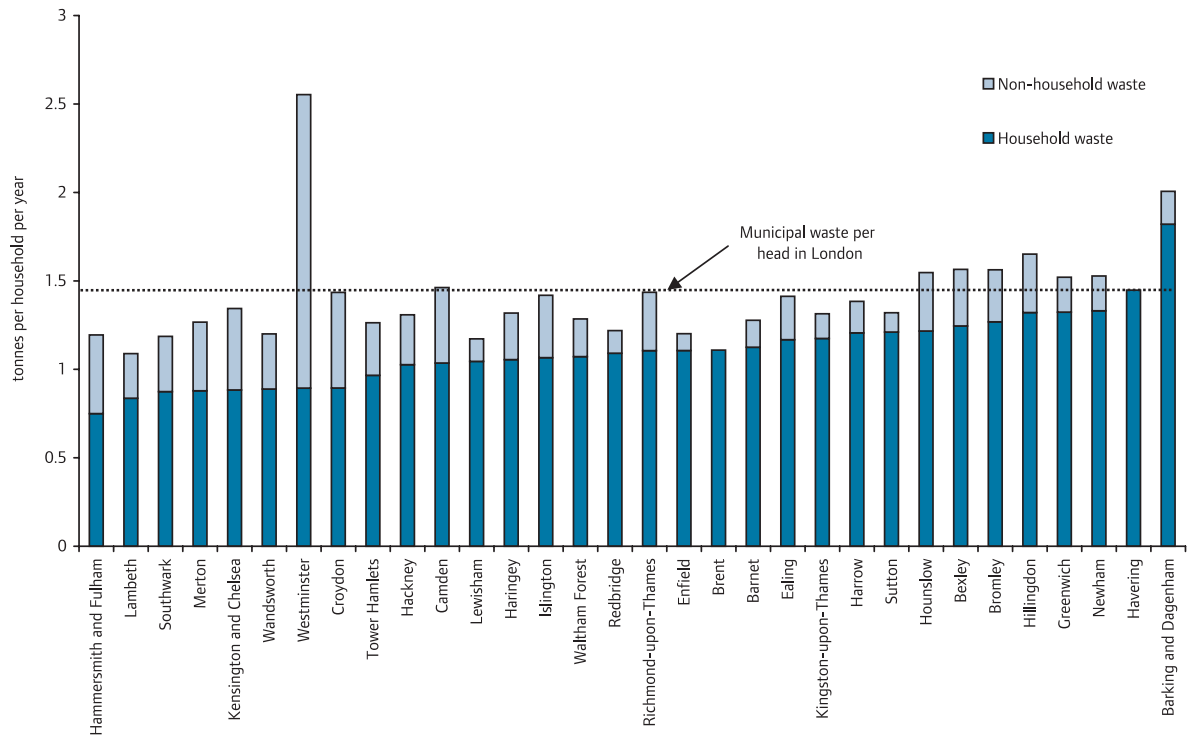


note: Totals may not add up due to rounding. Collected non-household waste includes 125,000 tonnes of non-household waste accepted at Civic Amenity sites and local authority waste transfer stations.

source: www.capitalwastefacts.com, 2003 and GLA projections, 2003

2.10 The amount of municipal waste produced, per household, by each London borough varies significantly as shown in Figure 3. This figure excludes the Corporation of London, which recorded 19 tonnes per household in 2001/02, as this would distort the scale. This high level is due to the low number of households and the high levels of commercial waste collected.



Figure 3 Municipal waste per household per year 2001/02

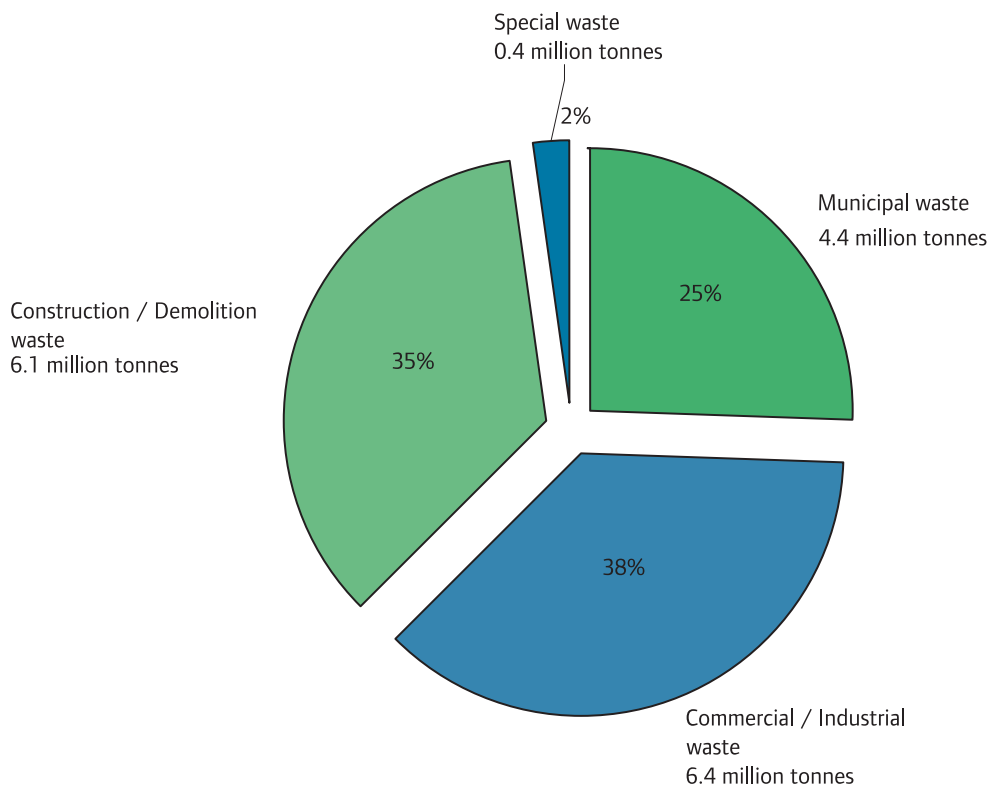
source: www.capitalwastefacts.com, 2003

2.11 In the context of England's regions, in 2001/02, 28.8⁹ million tonnes of municipal waste was produced in England. Municipal waste in London accounts for around 15 per cent of the total produced in England. London produces 28.0 kilograms of municipal waste per household per week, slightly above the national average of 26.8 kilograms¹⁰. The breakdown by type of waste is different in London to the rest of the country. Regular household collections and waste from Civic Amenity sites accounts for less proportionally in London than the national average: 51 per cent compared to 58 per cent and 12 per cent compared to 15 per cent respectively. London collects a greater proportion of its waste from other household sources such as bulky waste collections, litter and street sweepings: seven per cent compared to four per cent. Waste from non-household sources including offices, local authority premises, municipal parks and gardens, and non-household recycling comprises 11 per cent of municipal waste in England compared to 23 per cent in London: this is indicative of London's role as a shopping, tourist and business centre.

Other waste

2.12 Municipal waste only makes up 26 per cent of the waste collected in London, as shown in Figure 4. A further 6.4 million tonnes of waste is produced by businesses and industry¹¹, and 6.1 million tonnes is produced by construction and demolition work. London also produces 0.4 million tonnes of special wastes. It should be noted that, whilst these sectors produce more waste, they are also better at reusing or recycling it than the municipal sector as shown in Table 4. The commercial and industrial sector currently recycles a third of its waste and the construction and demolition sector recycles 81 per cent.

Figure 4 Controlled waste in London by type



source: Enviro, 2003

Table 4 Controlled wastes produced and disposal method, in London

	Tonnes (millions)	Landfill (Per cent)	Recycled (Per cent)	Incineration (Per cent)	Other (Per cent)
Municipal Solid Waste	4.4	73	8	19	0
Commercial/Industrial	6.4	50	33	2	15
Construction/Demolition	6.1	2	81	0	17 ¹²
Special Waste	0.4	66	7 ¹³	1	26 ¹⁴

note: All data is 2000/01, except for municipal waste that is 2001/02

source: Based on Enviros, 2003

- 2.13 For the purposes of comparing London's performance on recycling with rates reported in other countries where all solid waste is under the control of the municipality, it should be noted that London had a recycling rate of around 44 per cent for all controlled wastes in 2000/01 (household, construction and demolition waste, commercial and industrial waste).

Where does this waste go?

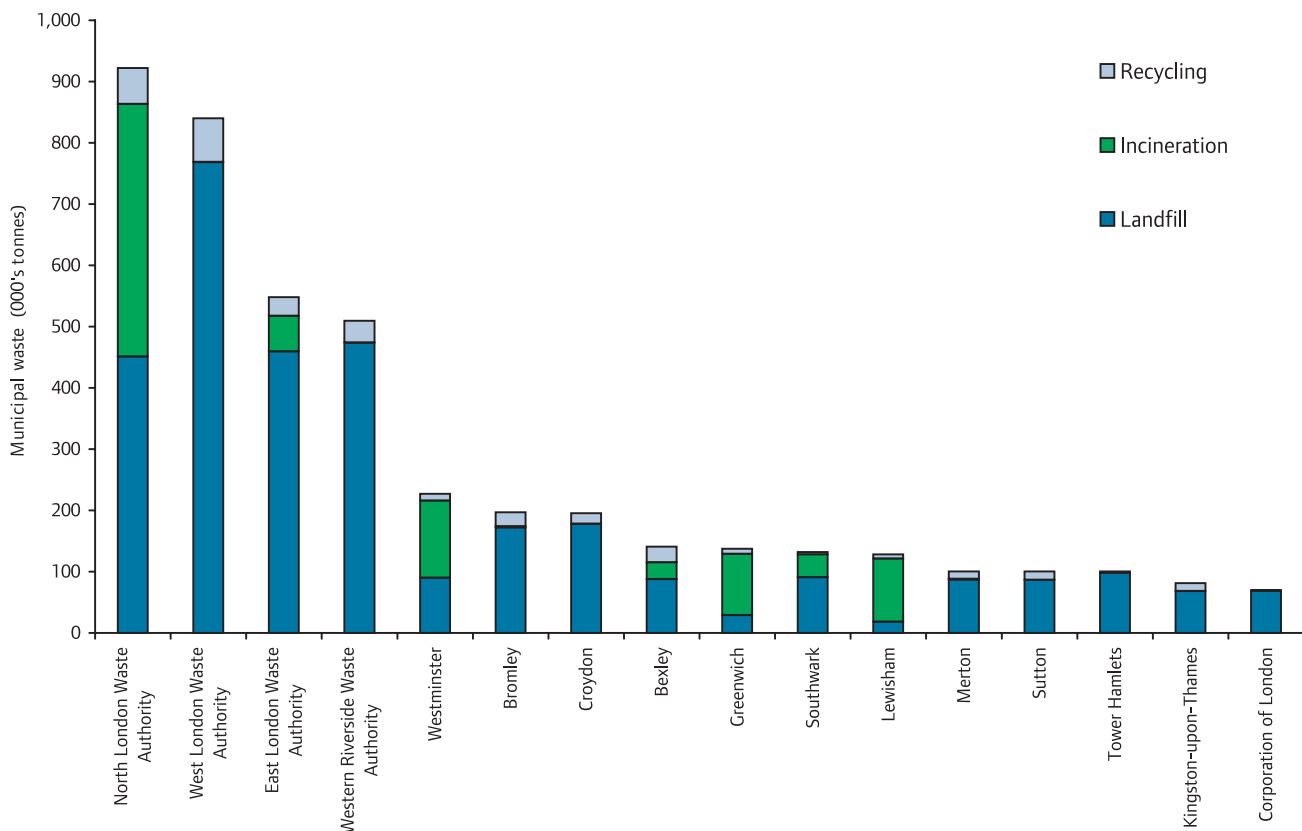
- 2.14 Until the distribution of £21.3 million by London Recycling Fund, which was established in 2002/03, there was no major investment in waste infrastructure in London since the end of the Greater London Council in 1986. This with the exception of the SELCHP energy from waste incinerator in Lewisham, which was completed in 1994. There has been an increase in Material Reclamation Facilities (MRFs) developed over the last ten years, but these have generally been on an individual authority scale. As they have been independently developed, unfortunately they do not form a strategic network.
- 2.15 Modern local authority recycling began with bottle banks in the 1970s. From the 1980s onward, bottle, can and newspaper containers began to be installed at Civic Amenity sites, spreading to supermarket car parks and elsewhere. These facilities are often referred to as 'bring' facilities, as householders are required to bring their recycling to a central point. The first collections of recycling from households (often referred to as 'door to door' or 'kerbside') were of newspapers and were usually operated by charities. The early 1990s saw the first local authority collections from homes with 33 per cent of households in London receiving a collection of dry recyclables in 1997/98. By 2001/02 this had increased to around 57 per cent. However, the frequency of collection and range of materials collected varied from borough to borough.



Differences across London

2.16 The disposal method for municipal waste varies between the different areas in London, (See Figure 5).

Figure 5 Municipal waste management method by Waste Disposal Authorities in London 2001/02



source: www.capitalwastefacts.com, 2003

Current treatment methods

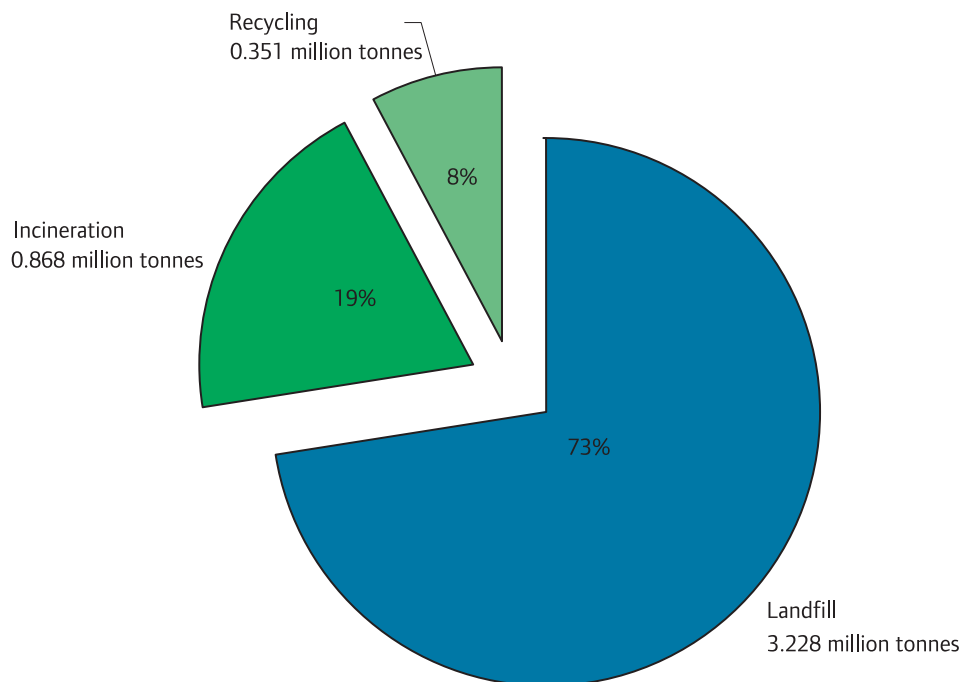
2.17 In 2001/02, 73 per cent of London's municipal waste was sent to landfill, 19 per cent was incinerated with energy recovery and eight per cent was recycled or composted (see Figure 6). In comparison England as a whole, disposed of 78 per cent of its waste in landfill in 2001/02. A greater proportion of municipal waste in England was recycled at 14 per cent. However, London recovered value from 27 per cent (recycling and incineration) of municipal waste compared to 22 per cent in England¹⁵. Table 5 shows the waste management routes for municipal waste since 1996/97.



Table 5 Management of London's municipal waste 1996/97 to 2001/02 (million tonnes)

Method	1996/97	1997/98	1998/99	1999/2000	2000/ 01	2001/02
Landfill	2.775	2.930	3.061	3.125	3.207	3.228
(percentage)	73%	73%	74%	72%	72%	73%
Incineration with energy						
from waste	0.851	0.830	0.787	0.853	0.886	0.866
(percentage)	22%	21%	19%	20%	20%	19%
Incineration without energy						
from waste	0.000	0.000	0.002	0.001	0.001	0.002
(percentage)	0%	0%	0%	0%	0%	0%
Recycled/ composted	0.193	0.240	0.267	0.344	0.344	0.351
(percentage)	5%	6%	7%	8%	8%	8%
Total	3.819	3.998	4.118	4.323	4.438	4.446
(Of which mechanical metal extraction)	0.024	0.022	0.026	0.019	0.019	0.016

notes: 1996/97 and 1997/98 revised DEFRA data
1998/99, 1999/2000 and 2000/01 revised GLA data
source: www.capitalwastefacts.com, 2003 and DEFRA, 2003

Figure 6 Management of London's municipal waste in 2001/02

notes: Incineration with energy recovery includes 1,000 tonnes of incineration without energy recovery

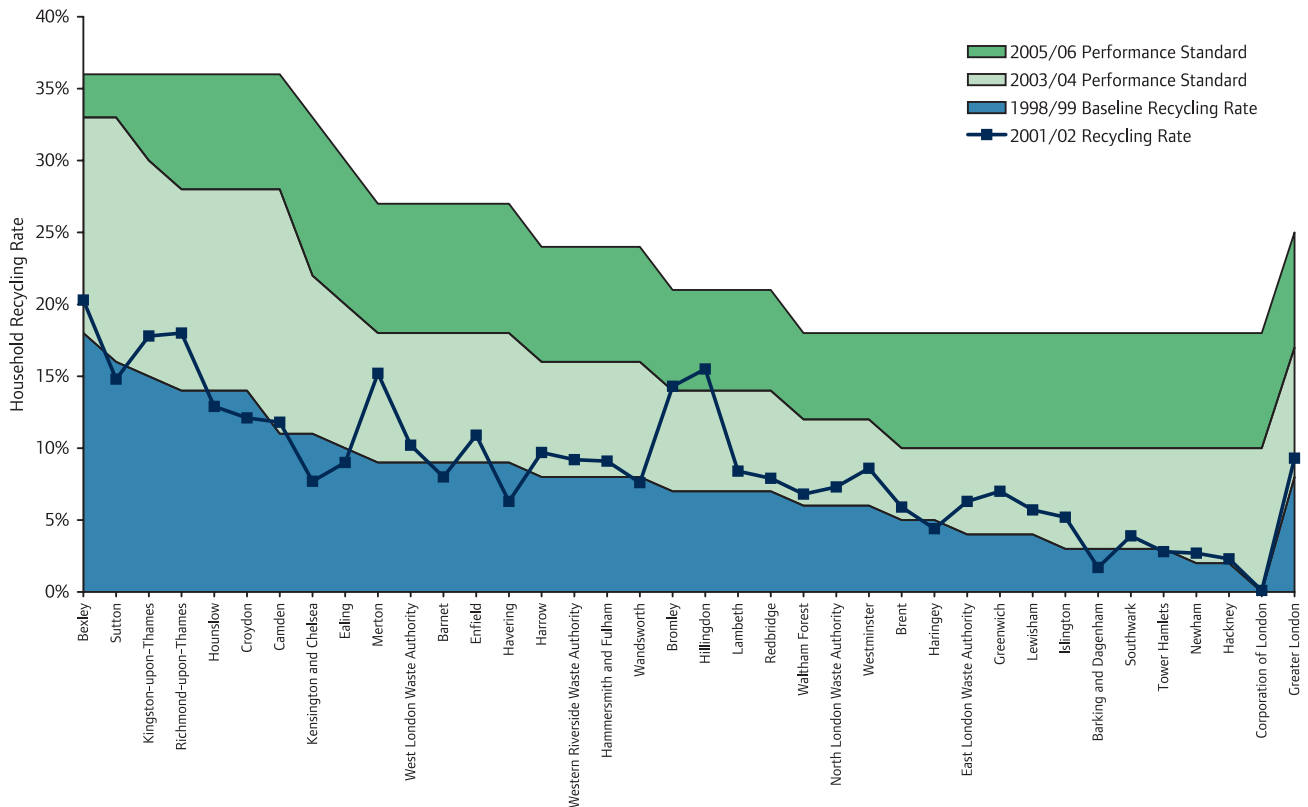
source: www.capitalwastefacts.com, 2003

Current Recycling

2.18 The recycling rates in London boroughs and within the statutory waste disposal areas in 2001/02 are shown in Table 1. These relate to household waste only and therefore differ slightly from the municipal recycling figure discussed earlier. The household recycling rate for London in 2001/02 was nine per cent, only one per cent higher than in 1998/99 (eight per cent). Within this, recycling rates across London waste authorities vary significantly. A number of the highest performers are suburban outer London boroughs. In 2001/02, Bexley recycled 20 per cent, Kingston upon Thames and Richmond-upon-Thames 18 per cent, Hillingdon 16 per cent, and Merton and Sutton 15 per cent. However, some suburban areas, such as Barking and Dagenham only achieved two per cent. Although Camden had a high recycling rate (15 per cent), other inner London boroughs tended to be low performers, including Hackney, which recycled just one per cent of its household waste, Newham recycling three per cent, Southwark recycling four per cent and Tower Hamlets recycling three per cent. West London Waste Authority was the highest performing joint statutory waste disposal authority in 2001/02, recycling ten per cent of household waste. Figure 7 shows the progress of London waste authorities towards their recycling performance targets.



Figure 7 Household waste recycling rates in London in 2001/02 and performance standards for 2003/04 and 2005/06



note : 2001/02 recycling rates are calculated from GLA / DEFRA Survey Returns for 2001/2
source: www.capitalwastefacts.com, 2003 and DETR, 2001.

2.19 Between 1998/99 and 2001/02 the proportion of households receiving a recycling collection service in England has risen from 43 per cent to 58 per cent¹⁶. This trend has been mirrored within London where, the increase has been from 43 per cent to 57 per cent over the same period of time.

2.20 Around 145,000 tonnes of 'dry' recyclables were collected by household recycling collection schemes in London in 2001/02, this equates to 1.6 kilograms per household provided with a service per week. To put this into context the average London household puts out ¹⁷.1 kilograms of waste for collection every week¹⁷. Over 85 per cent (by weight) of the recycling material collected through household collections was mixed paper and card, and glass. Almost half of the householders who received a collection had a weekly service (49 per cent), the remainder received a fortnightly service. As well as the number of households receiving a collection and the frequency of collection, as shown in Table 6, the number of materials and method of containment vary significantly from borough to borough.

Table 6 London borough household recycling collections and 'bring' recycling 2001/02

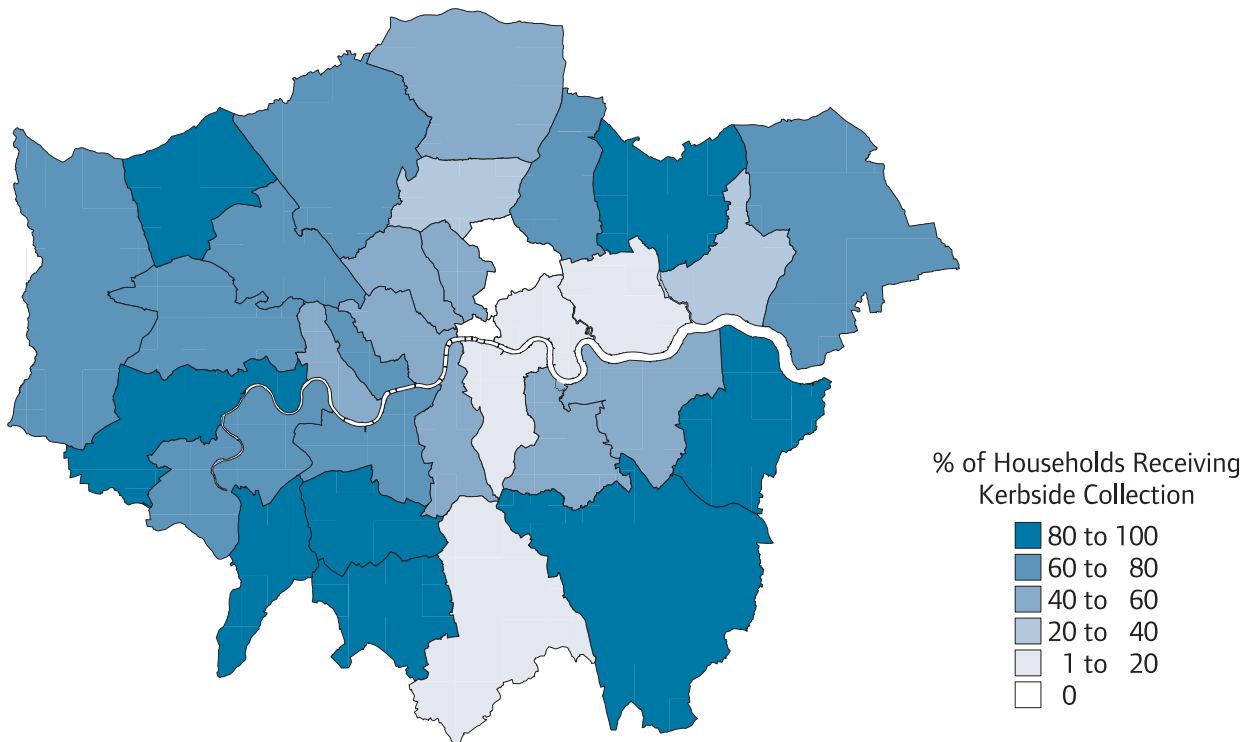
Borough	Recycling collections from homes ¹⁸				Bring recycling			
	Households receiving collection	Per cent borough served ¹⁹	Frequency of collection	Tonnes collected	Number of Civic Amenity sites	Number of bring sites	Tonnes collected ²⁰	Households per recycling site
Barking and Dagenham	22,000	34%	Fortnightly	525	1	40	1,520	1,606
Barnet	80,000	63%	Fortnightly	6,550	1	75	4,928	1,692
Bexley	86,000	96%	Fortnightly	10,031	2	61	11,9 ³⁴	1,476
Brent	72,781	67%	Weekly	4,852	1	116	2,145	930
Bromley	115,000	91%	Fortnightly	9,364	2	56	13,187	2,251
Camden Corporation of London	40,000 on request	44% n/a	Weekly on request	5,193 0	1 0	128 3	5,769 9	716 1,215
Croydon	11,171	8%	Fortnightly	2,474	3	33	12,303	4,126
Ealing	92,000	68%	Weekly	8,842	3	56	4,344	2,432
Enfield	47,000	42%	Weekly	3,383	2	57	7,716	1,941
Greenwich	48,000	53%	Fortnightly	3,504	1	81	2,958	1,115
Hackney	0	0%	n/a	0	0	52	1,073	1,692
Hammersmith and Fulham	47,000	59%	Weekly	2,860	0	51	1,557 ²¹	1,559
Haringey	30,000	32%	Weekly	2,272	1	28	2,121	3,358
Harrow	66,000	80%	Fortnightly	6,097	1	38	3,527	2,160
Havering	70,000	76%	Weekly	3,683	1	24	4,716	3,832
Hillingdon	60,000	61%	Fortnightly	5,249	3	90	14,787	1,089
Hounslow	72,506	84%	Weekly	7,971	1	67	5,042	1,286
Islington	37,000	46%	Weekly	3,533	1	18	980	4,502
Kensington and Chelsea ²²	64,434	78%	Twice weekly	9,369	1	25	0	3,288
Kingston-upon-Thames	50,000	81%	Fortnightly	3,858	1	38	8,898	1,624
Lambeth	73,000	59%	Weekly	6,411	1	265	2,350	469
Lewisham	60,000	55%	Fortnightly	2,339	1	52	3,632	2,105
Merton	70,000	88%	Weekly 74% weekly	4,862	1	118	5,436	672
Newham	17,000	19%	26% fortnightly	641	1	106	2,649	858
Redbridge	80,988	85%	Fortnightly	3,344	1	148	4,845	642
Richmond-upon-Thames	53,000	68%	Fortnightly	6,264	1	123	9,150	632
Southwark	7,500	7%	Fortnightly	955	1	65	2,753	1,712
Sutton	60,512	80%	Fortnightly	5,069	1	187	5,314	407
Tower Hamlets	10,780	14%	Fortnightly	751	1	81	1,387	980
Waltham Forest	66,000	72%	Fortnightly	3,413	1	32	3,256	2,862
Wandsworth	82,712	72%	Weekly	5,123	0	322	2,420	357
Westminster ²³	50,000	56%	Weekly	5,896	0	75	974	1,185
Greater London	1,742,384	57%	49% weekly 51% fortnightly	144,678	39²⁴	2,711	155,884	1,127

source: www.capitalwastefacts.com, 2003, GLA household projections, 2003



2.21 Figure 8 shows the proportion of householders in boroughs receiving a regular collection from home of dry recyclables. It should be noted that the figure shows the proportion of recycling collections to all households within a borough, including purpose built flats. Around 33 per cent of London's household dwelling stock comprises of purpose built flats²⁵. Operational difficulties and financial costs have traditionally made recycling collections from this type of dwelling particularly challenging. As a consequence some boroughs may be providing a recycling collection service to a significant proportion of their low-rise properties, whilst this may not appear to be the case. For example in 2001/02 the London Borough of Tower Hamlets provided 14 per cent of its households (10,780) with a recycling collection, however over 82 per cent of its housing stock was purpose built or converted flats. The borough was therefore providing around 75 per cent of its low-rise dwelling stock with a recycling collection.

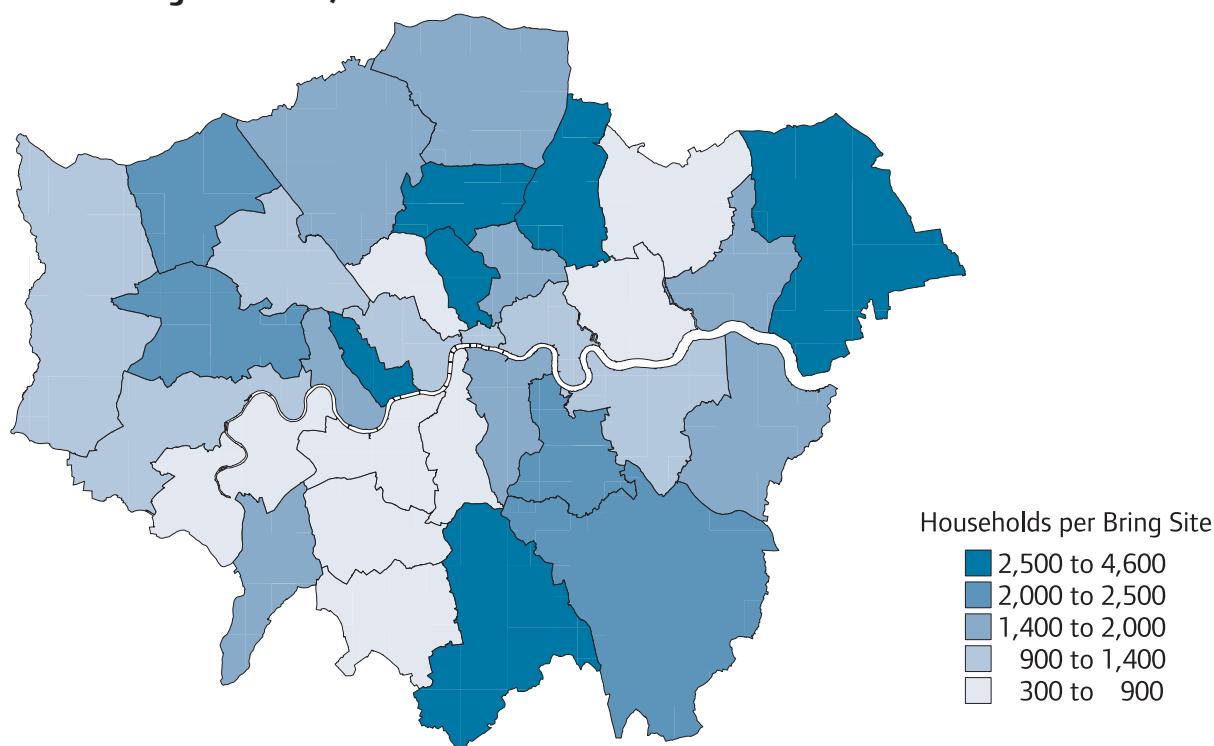
Figure 8 Proportion of households served by a collection of dry recyclables in London boroughs 2001/02



notes: Collections to householders in the Corporation of London are made on request
sources: www.capitalwastefacts.com, 2003, GLA household projections, 2003

- 2.22 Provision of recycling for flats is also increasing. In 1997/08 there were only 29,106 households in multi-storey blocks with collections, either through recycling collections or near entrance collections. This had increased to 86,160 by 1998/09 and was forecast to reach 118,280 by 1999/2000²⁶. However, there are more than one million purpose-built flats in London, which may require special arrangements. The London Recycling Fund has enabled several schemes for the collection of recyclables from purpose built flats to go ahead. The London Recycling Fund is discussed in more detail in paragraph 2.27.
- 2.23 The number of 'bring' recycling facilities is improving but still varies significantly across London boroughs. The average number of households per 'bring' site in 2001/02 was 1,127, compared with 1,203 in 2000/01 and 1,383 in 1999/2000²⁷. The density of households per recycling site varies significantly across London, from one site per 357 households to one per 4,502 households. The range of materials handled, also varies from site to site. Figure 9 shows the number of households per recycling site in each London borough in 2001/02. Just under 156,000 tonnes of household waste were recycled through London's 'bring' sites and civic amenity sites in 2001/02. Table 6 gives a breakdown of the number of recycling sites and tonnages collected by London boroughs.

Figure 9 Number of households per recycling 'bring' site in London boroughs in 2000/01



2.24 Many London boroughs provide low cost or subsidised home compost bins for their residents. Organic waste is now being collected for composting at 26 (out of 39) Civic Amenity sites; 38,868 tonnes of household waste were collected in 2001/02.



2.25 The number of authorities providing a collection of organic waste for composting from homes has increased from three in 2000/01 to ten in 2001/02, however a number of these are only at a pilot scale. Around 11 per cent of London households now have access to a regular collection of organic waste and 8,103 tonnes were collected for composting in 2001/02. This trend is expected to continue over the next few years. Table 7 gives further detail of the authorities providing compost collections.

2.26 A further 3,603 tonnes from non-household sources were also composted by London's waste authorities.

Table 7 London boroughs providing a collection of organic waste for composting from homes in 2001/02

Borough	Households receiving collection	Per cent of borough served	Frequency of collection	Tonnes collected
Bexley	4,200	5%	Fortnightly	732
Camden	2,500	3%	Weekly	246
Enfield	47,000	42%	Weekly	991
Greenwich	5,000	6%	Weekly	1,900
Hammersmith and Fulham	47,000	59%	Weekly	– ²⁸
Hounslow	71,450	83%	Fortnightly	503
Lewisham	5,000	5%	Weekly	198
Merton	76,741	97%	no details	187
Sutton	60,512	80%	Fortnightly	3,286
Wandsworth	2,300	2%	Weekly	60
Greater London	321,703	11%		8,103

London Recycling Fund

2.27 In March 2002, central Government announced that £140 million would be made available to improve waste minimisation and recycling. Recognising the difficulties that London faces in making significant progress to improve levels of recycling, the Mayor in partnership with the Association of London Government and London Waste Action successfully secured London's share of this fund to be made available to London waste authorities, for allocation on a strategic basis. A figure of £21.3 million

was allocated and the London Recycling Fund was set up in April 2002 through a partnership between the Mayor, the Association of London Government and London Waste Action. The principal aim of the Fund is to enable London's waste authorities to improve recycling in London, so that they meet their 2003/04 Best Value Performance Indicator (BVPI) targets for recycling or composting, equivalent to 17 per cent overall.

2.28 During the past year, the Fund has allocated the £21.3 million to develop a range of projects that will improve the recycling performance of the capital. The Fund aims to meet specific funding priorities, appropriate in the London context, and reflecting the overall priorities for the DEFRA national programme. Table 8 shows the allocation by priority funding category. A proportion of the £21.3 million is allocated to each priority category. The two top priorities are to extend recycling collections from homes and to improve performance on estates. These two categories together amounted to nearly 59 per cent of the funds.



2.29 The Fund has achieved a number of important targets. These include:

- The DEFRA priority targets to help turn round low performing authorities through allocating at least 51.5 per cent of the funds to such authorities has been met.
- The London target to implement recycling collection schemes and estates recycling through allocating £5.5 million and £3.5 million respectively has been exceeded.
- The London target to stimulate the building or expansion of processing infrastructure such as Material Reclamation Facility (MRFs) and composting plants has been achieved, through the funding of three new plants (two composting plants and a new MRF). All three projects also involve significant injections of private sector funding.
- An important target is to lever additional funding from both the private sector and from individual waste authorities, through longer term commitments in waste and recycling budgets. The fund has successfully achieved this with the help of all waste authorities that have been awarded funding. The £21.3 million has created projects with a total value of over £45 million. This represents a doubling of the value of the core Government funding.

2.30 Projects funded from the London Recycling Fund are fully illustrated in Appendix 2. For example, funding has been provided for a scheme for a green waste composting facility in Sutton (£2 million); a number of projects in Tower Hamlets including improving the civic amenity site and a scheme for providing recycling on all estates (£1.2 million); and a recycling collection scheme in Wandsworth (£1.44 million). If this investment had been funded directly by council taxpayers instead of via

the London Recycling Fund this would have added £13 in Wandsworth, £17 in Tower Hamlets and £13 in Sutton to the annual Band D Council Tax bill. The projects now being implemented as a result of this fund are expected to significantly improve London's recycling performance.

Table 8 Allocation of funding by Londonwide priorities

Priority Category	Number of projects	Total allocation [£ millions]
Recycling collection schemes	12	7.70
Estates recycling schemes	8	4.86
'Bring' recycling	1	0.01
Infrastructure projects	4	4.85
Waste awareness schemes	6	2.10
Re-engineering Civic Amenity sites	8	1.74
Waste minimisation projects	1	0.04
Total	40	21.3

source: London Recycling Fund, May 2003

- 2.31 In July 2003, the Government announced an extra £24 million to support schemes in England, funded from the landfill tax. London has been allocated £3.6 million of funding for 2003/04²⁹. This will be distributed in London through the London Recycling Fund.

Current reprocessing capacity

- 2.32 In the past, markets for recyclables have been in the traditional sectors. Glass bottles are recycled into new glass bottles and newspapers are recycled into newsprint. However, recyclables are being increasingly considered as a basic raw material that can be made into a variety of different products. The over-supply of some recyclables, as recycling collections have grown, has made some recyclables a cheap source of raw material. Appendix 3 shows the recycling flows through sorting and bulking to reprocessing of cans and metals, glass, paper and card, plastics and textiles. There are also 60 composting sites in London, exempt or licensed, with a capacity of 51,000 tonnes per year³⁰.

- 2.33 Newspapers were one of the first types of waste materials to be recycled. There is a well-established infrastructure close to London, reprocessing waste newspapers into new newsprint. In the near future, markets for paper recycling should be at least partially demand-led. However, there could be an impact on the market for recyclable paper from the new British Standard for recovered paper (BSEN 643). The UK Newspaper Publishers Association have set a voluntary target for the end of 2006 to



use 70 per cent recycled content of newsprint. Targets were also set for 2001 of 60 per cent and 65 per cent in 2003. The target was exceeded in 2001 and the recycled content in 2002 is 63.5 per cent, exceeding the 2003 target³¹.

- 2.34 The collection of glass bottles is also well established. All brown and clear glass bottles can be reprocessed in this country. However, in the last few years the volume of green glass bottles being collected for recycling has exceeded reprocessing capacity. The UK is a net importer of green glass in wine bottles, but demand for green glass is lower for packaging in the UK. However, we are a net exporter of clear glass used for whiskey and jam, as well as brown glass used for beer. Some green glass has been exported for recycling to wine-producing countries, mainly France, but in extreme cases as far as South America. The price for green glass has reacted as supply outstrips demand. If the volume of glass to be recycled is to be increased, then new uses have to be found for green glass. Some examples are being developed: all colours of glass, including mixed, are being used as a substitute for stone aggregate in asphalt, and for 'sand blasting'.
- 2.35 At present there are no plastics reprocessing facilities in London. Due to the high volume but low weight of plastic waste, the environmental impact and cost of transporting it over long distances is particularly high. It is also desirable to remove certain plastics from the waste sent to the existing incineration plants. Although plastics have a high calorific value, they can add significantly to the emissions from the plants. For these reasons, the development of new plastics recycling industries is a major business opportunity in London.
- 2.36 There are also well-established markets for reprocessed steel and aluminium, although there are no reprocessing/smelting facilities in London.

Current recovery and waste treatment

- 2.37 Recovery of waste incorporates the recycling, composting and also the recovery of heat, power and other energy sources from waste. Recovery of municipal waste in London in 2001/02 was 27 per cent; a combination of the 19 per cent incinerated with energy recovery and eight per cent recycling³². A household recycling rate of 25 per cent coupled with existing incineration throughput and non-household recycling would attain the recovery target of 40 per cent by 2005.
- 2.38 The main form of recovery in London is incineration of municipal waste with energy recovery. By the late 1960s, incineration of waste using high



temperature techniques was seen as offering many advantages. The process achieves a reduction in waste of about 90 per cent by volume and 65 to 70 per cent by weight, and produces heat that can be used to generate electric power, with the potential to supply district heating and/or steam for industry. The incinerator at Edmonton in north London, was envisaged in the 1960s, and commissioned in 1971, as the first of four to serve London. None of the others were built, but in 1994 a new plant was opened in South East London known as SELCHP (South East London Combined Heat and Power). Although the SELCHP plant was originally planned as a combined heat and power plant, as implied by the name, only electricity has so far been supplied from the plant. Planning permission for an extension to the Edmonton plant was refused by the Secretary of State for Trade and Industry in May 2002 (see Table 9). A new plant at Belvedere in east London is currently being considered by the Secretary of State for Trade and Industry under the Electricity Act 1989. It should also be noted that Shanks has been awarded a contract with East London Waste Authority, including the provision of two Mechanical Biological Treatment plants with a combined capacity of 0.36 million tonnes. Planning applications have been submitted for these sites.

Table 9 Waste incineration in London (2001/02)

	Tonnes per annum	Tonnes of London's municipal waste per annum	Per cent of London's municipal waste	Electricity generation capacity (MW)
Edmonton	530,000	470,022	10.6%	32
SELCHP	419,000	395,131	8.9%	32
Belvedere proposal ³³	585,000	n/a	13.2%*	72**

notes: * Assumes that all the waste in municipal waste from London

** This is the estimated gross generation capacity given in the planning application. Some of this will be used 'in-house'

2.39 The industry is regulated through the planning system, which controls location and design, and through the industrial pollution control regimes, which control operation and level of emissions of pollutants. The Environment Agency is responsible for regulating the operation of larger industrial processes, whilst the London boroughs regulate smaller industrial processes.

2.40 Large municipal waste incinerators have the potential to emit a wide range of pollutants to air, particularly if not properly operated, and therefore these plants are regulated by the Environment Agency. Plant operators are required to obtain pollution control 'authorisations' or

'permits' from regulators prior to operating the plant. These authorisations set operating requirements, emission limits and improvement programmes for the plant to ensure that appropriate techniques are used to prevent or minimise emissions of specified substances, to ensure any emissions are 'rendered harmless' and to ensure consideration of the effects on the environment as a whole.

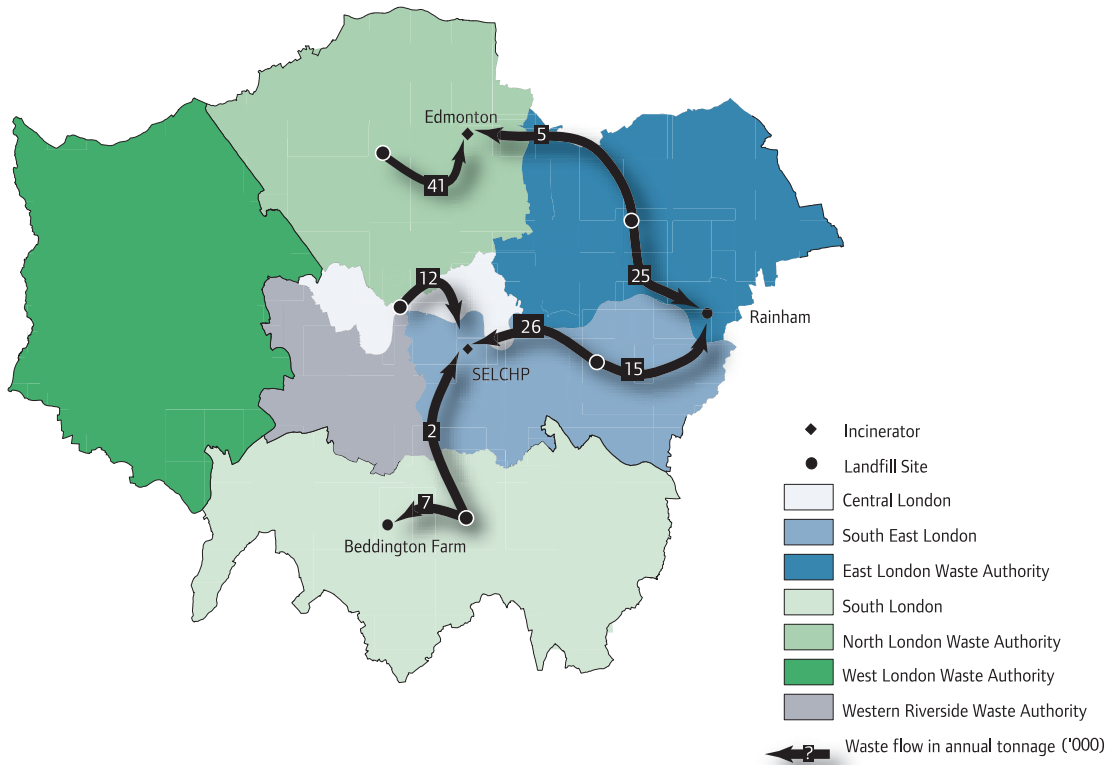
- 2.41 Pollution control regulations require progressively stringent emission limits and improved pollution control techniques to be adopted by plants. Modern large municipal waste incinerators are now fitted with more efficient abatement equipment so that their actual emissions are small compared to earlier plants, meeting and in some cases going beyond current regulatory requirements. As part of their authorisation conditions, plant operators are required to measure and report emissions of specified substances, and report any breaches of authorisation conditions.
- 2.42 Operators are required to ensure that the ash produced during combustion, and the waste material collected in the abatement equipment, are disposed of or used in a responsible manner. Nevertheless, concerns have been expressed about the way that fly ash and bottom ash are handled^{34,35}. These concerns originate from the mishandling of ash from the Byker plant in Newcastle upon Tyne³⁶. Water can be used, both to cool the ash produced from the burned rubbish and in the gas cleaning equipment, so operators also have a duty to manage their waste water discharges. The sale of electricity from modern incineration plants has a significant effect on their operating costs, and this is an added incentive to ensure that the combustion process is managed as efficiently as possible. This can, in turn, lead to lower polluting emissions including reduced levels of carbon dioxide.

London's current disposal capacity

- 2.43 Only 38 per cent of London's municipal waste was dealt with within London's boundaries in 2001/02. This comprised 865,266 tonnes that were incinerated, 484,944 tonnes landfilled and 350,518 tonnes of recycling. The majority of the recycling is bulked in London but sent out of the capital for reprocessing. Appendix 3 gives further information on the flows of materials for recycling. Figure 10 shows the flows of municipal waste to incineration plant and landfill within London. Of waste sent to landfill over 85 per cent was disposed of outside of London, as set out in Figure 12.



Figure 10 Waste disposal routes within London 2001/02



note: Only shows movements of waste above 1,000 tonnes per year
Waste movements are shown where they have been reported by waste disposal authorities

source: www.capitalwastefacts.com, 2003

2.44 In April 2003, Enviro undertook a Technical Assessment of Waste Management in London for the Greater London Authority. The London RTAB acted as a Steering Group for the project. As part of this assessment, a facility inventory was drawn together, providing details of site names, locations, operators, capacity, planned expansions, licensing and planning status where available. The report identified that there were 124 transfer stations for municipal and commercial waste with an estimated capacity of 14.2 million tonnes. London also had transfer capacity for inert, special and clinical wastes.

2.45 The two waste incineration plants receiving municipal waste in London have a combined capacity of just less than one million tonnes per year. The majority of this capacity is used to incinerate municipal waste.

2.46 London also has capacity for bulking, sorting, some processing and transferring of recycled materials from a number of different sources, not just from the municipal stream. There are nine MRFs with a total



estimated capacity of 141,000 tonnes. Table 10 shows the estimated recyclables processing capacity in London to be 4.9 million tonnes.

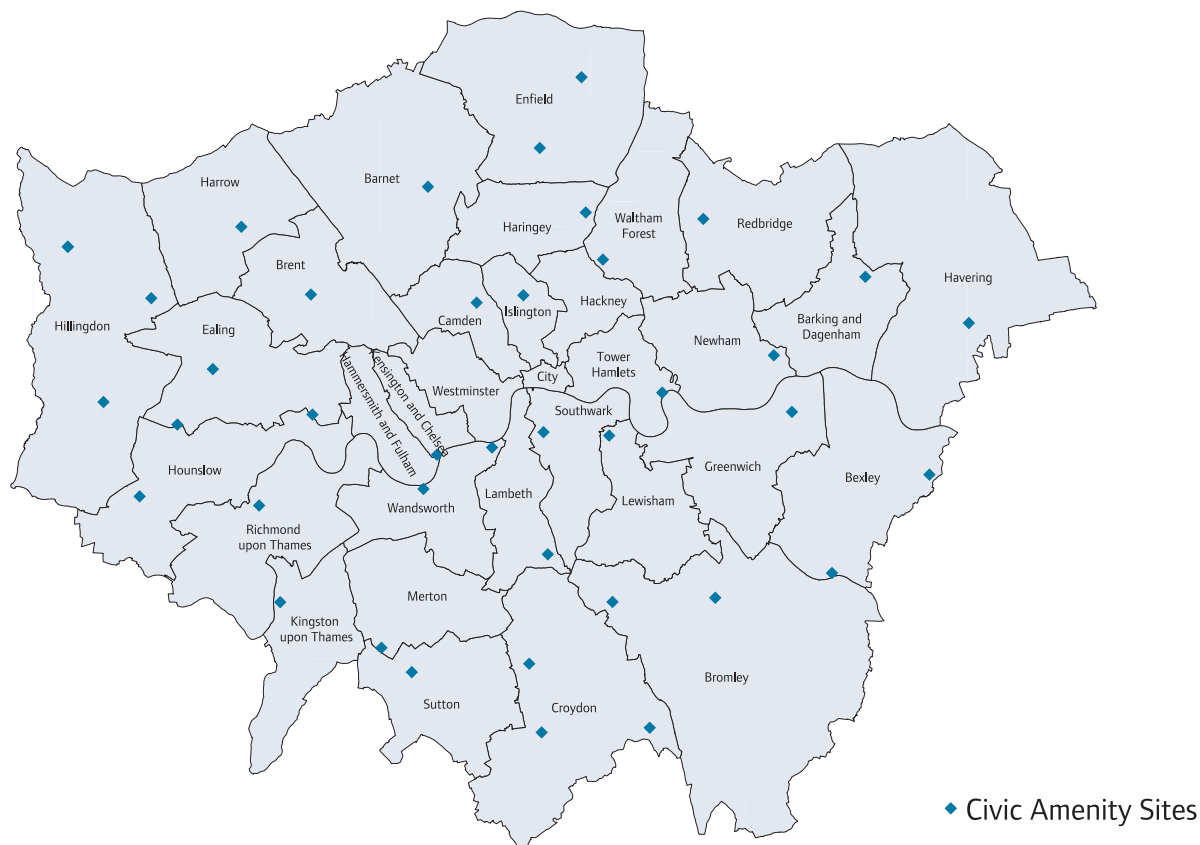
Table 10 Recyclables Processing (Estimated Capacity)

Material⁽⁷⁾	Estimated number⁽¹⁾	Estimated capacity 000 tonnes⁽²⁾	Types of activity
Glass	5	345 ⁽⁴⁾	Sorting, washing Crushing
Mixed recyclables	37	135 ⁽⁵⁾	Baling, sorting, washing
Oil	1	–	Treatment
Paper	32	830 ⁽⁵⁾	Baling, sorting
Plastics	3	30 ⁽⁵⁾	Sorting, washing, flaking, granulating
Wood	2	20 ⁽⁵⁾	Chipping
Textiles	17	90 ⁽⁵⁾	Sorting
Metals & cans	69	3,471 ⁽⁵⁾	Sorting cans, breaking cars
Total	166⁽⁶⁾	4,901⁽³⁾	

- notes:*
- (1) Numbers of facilities of each type is an estimate as data has been derived from a range of sources and as the definition of 'processing' varies with each type of material/process.
 - (2) Capacity is an estimated figure based on what little information is available and in-house knowledge on how this may apply to remaining facilities.
 - (3) This estimate must be viewed with caution as this represents the sum of a number of rough estimates for each material type.
 - (4) Estimates made for two facilities on the basis of 20 tonnes per hour working for 6,000 hours per year
 - (5) Estimates made for the majority of sites, based on values obtainable from a small sample.
 - (6) Some facilities undertake more than one type of processing
 - (7) This list includes London Remade Eco-sites at Charlton (Glass) and at Crayford (Paper)

source: Environment Agency lists of exempt sites, exemptions 11, 17 and 15, Environment Agency lists of licensed sites for treatment and metals processing, London Remade (2002) Supply Infrastructure Project Phase 1 Report, Brook Lyndhurst Ltd for London Development Agency (2002) Waste Sector Development. Business databases eg yell.com, Materials Recycling Handbook (2002), Information from www.capitalwastefacts.com, In-house knowledge on location of certain processors, telephone calls with operators of facilities.

2.47 London also has a network of 39 Civic Amenity sites (see Figure 11) for accepting bulky waste from householders. Croydon, Ealing and Hillingdon each have three sites. Most of the other London boroughs have one or two sites. At present there are no Civic Amenity sites within the boundary of the Corporation of London, Hammersmith and Fulham, Hackney and Westminster.

Figure 11 London's network of civic amenity sites**Table 11 Non-inert landfill capacity and life expectancy**

	Remaining voidspace ⁽¹⁾ 2000/01 (000 m ³)	Remaining capacity ⁽²⁾⁽³⁾ 2000/01 (000 tonnes)	Input rate 2000/01 ⁽⁴⁾ (000 tonnes)	Remaining life (years)
Central	0	0	0	0
East	12,332	10,236	2,230	7
North	0	0	0	0
South	3,770	3,129	232	13
West	240	199	0	1 ⁽⁵⁾
London	16,342	13,564	2,462	

notes: (1) Environment Agency (2003) unpublished data on landfill capacity and input rate (2000/01)

(2) Assuming a volume to weight conversion of 0.83 tonnes per cubic metre

(3) Capacity for all wastes including cap/cover, capacity at restricted user sites and capacity at co-disposal sites.

(4) Input for municipal, commercial and special wastes

(5) No input rate available, therefore life assumed to be one year

source: Enviro, 2003

- 2.48 Clearly London has a significant infrastructure for waste management but it's capacity for final disposal by landfill is limited. London has 18 operational landfill sites, ten accept inert wastes only and eight non-inert wastes. At present, only two of these sites, Rainham in Havering and Beddington Farm in Croydon are contacted to accept municipal waste. The estimated remaining landfill capacity for non-inert wastes is shown in Table 11.

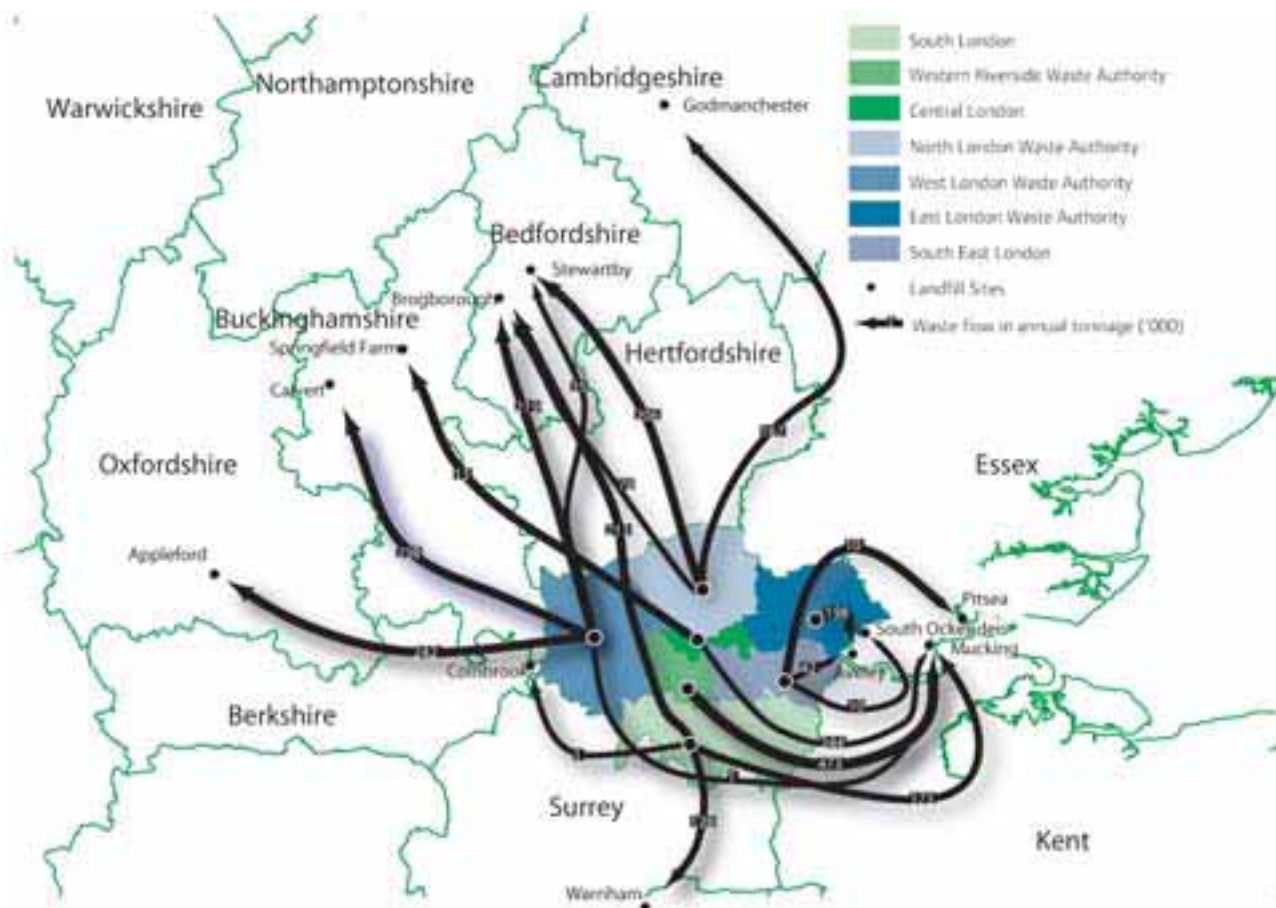


Disposal outside of London

- 2.49 In 2001/02 London exported around 62 per cent of its municipal waste for landfill to counties in the East and South East of England (London landfills 73 per cent of its municipal waste and over 85 per cent of this was deposited in landfill outside the Greater London area). The former Greater London Council built three transfer stations for compacting waste into containers for transport to landfill by rail to Oxfordshire, Buckinghamshire and Bedfordshire, as well as two transfer stations for Western Riverside at Cringle Dock and Smuggler's Way for compacting waste for transport by barge currently to Mucking in Essex. Figure 12 shows the flows of municipal waste to landfill from London. Essex receives 43 per cent of the municipal waste that London exports. Significant amounts are also disposed of in Bedfordshire (28 per cent), Buckinghamshire and Oxfordshire (nine per cent each), Cambridgeshire (six per cent) and West Sussex (five per cent).
- 2.50 Tables 12 and 13 show the estimated landfill capacity within the South and South East regions. Landfill capacity in the Eastern region is expected to run out in six years, whilst capacity in the South East region will fall by four-fifths by 2024.
- 2.51 Disposing of waste a long distance from its place of production can lead to an 'out of sight, out of mind' attitude, by those generating the waste. It places the environmental burden of disposing of the waste onto other communities, as well as creating additional environmental costs from transporting the waste over a longer distance.
- 2.52 The continued landfilling of a majority of London's waste within London and surrounding counties is not sustainable. Landfill has the potential to pollute groundwater (leachate) and the air (greenhouse gases). Another increasing concern is the period of aftercare now required. The landfilling of waste is also a waste of a resource.



Figure 12 Disposal routes outside of London 2001/02



notes: Only shows movements of waste above 1,000 tonnes per year
 Waste movements are shown where they have been reported by waste disposal authorities
 source: www.capitalwastefacts.com, 2003

Table 12 Future landfill capacity in the South East Region

Estimate of future capacity for inert and non-inert landfill in the South East '000 tonnes							
	2002/03	2005/06	2010/11	2013/14	2016/17	2020/21	2024/25
Berkshire	1,968	828	474	474	459	414	0
East Sussex	499	499	444	444	444	444	0
Brighton & Hove	0	0	0	0	0	0	0
Buckinghamshire	4,615	4,496	4,212	2,993	2,993	2,833	2,806
Milton Keynes	947	947	936	936	936	936	936
Hampshire	4,952	3,564	970	800	328	240	0
Isle of Wight	150	150	150	150	0	0	0
Kent	236	236	236	86	86	86	8
Medway	59	59	59	59	59	59	0
Oxfordshire	1,903	1,760	1,438	784	690	690	180
Surrey	3,859	1,995	1,496	795	471	471	105
West Sussex	940	441					
Total	20,128	14,975	10,415	7,521	6,466	6,173	4,035

note: total does not sum for 2016/17

source: ERM and LUC for SERTAB, 2002 South East Regional Waste Management Statement. Table C1.2-C1.14. (Derived from Survey of WPAs 2001/02, and corrected data)

Table 13 Landfill capacity in the Eastern Region

London Plan sub-region	Capacity at non-inert Sites (2000/01)					Inert sites
	Capacity '000 m³	Capacity less cap '000 m³	Capacity '000 tonnes⁽²⁾	Input 2000/01	Life expectancy in years⁽¹⁾	Inert capacity '000 tonnes⁽³⁾
Beds	15,100	9,060	9,060	3,335	2.7	314
Cambs	30,307	18,184	18,184	1,412	12.9	8,209
Essex	23,055	13,833	13,833	3,800	3.6	1,381
Herts	7,874	4,724	4,724	470	10.1	6,608
Norfolk	17,423	10,454	10,454	652	16	1,549
Suffolk	11,662	6,997	6,997	697	10	3,160
Total	105,421	63,253	63,253	10,365	6.1	21,221

notes: (1) Life expectancy is calculated differently to the method used in this Technical Assessment but is appropriate to report existing research here

(2) East of England RTAB Report uses a conversion factor of 1t/m³ – a figure different to that used in the South East Regional Waste Management Statement (2002) and later in this report

(3) A conversion factor of 1t/m³ used here

source: East of England RTAB (2002) East of England Regional Waste Management Strategy (consultation draft) Tables 12 and 14.



Transport of waste

- 2.53 It is estimated that around one in ten lorries on Europe's roads is transporting waste³⁷. The majority of London's municipal waste sent for disposal is currently transported by road. In total 2.75 million tonnes of municipal waste is transported out of the capital for disposal. Approximately 27 per cent of this is transported by barge on the Thames, 27 per cent by rail and the remainder by road. The Thames is the only inland waterway in the United Kingdom carrying significant quantities of waste; elsewhere it is mainly moved by road. With water transport it is important that the point of waste transfer and disposal is located near to the waterway. On the Thames, tides and bridges restrict and vary the times and numbers of journeys that can be made in a day (usually two in each direction). Currently, on an average day, approximately 2,500 tonnes of municipal waste, are loaded onto barges and pulled by tug to landfill in Essex. One barge carries around 300 tonnes of waste and is equivalent to approximately 15 lorry journeys (if the waste were bulked into 20 tonne articulated loads). A tug can tow a varying number of barges depending on how far upstream it is; further downstream, many barges will combine onto a single tug. In environmental terms transport on the Thames has historically performed considerably better than road transport. Road transport has, and will continue to benefit from changing engine design, lower fuel consumption, lower emission rates and higher average loads per journey. These changes will significantly reduce the environmental burdens associated with road transport. Even so, for riparian boroughs on the Thames transporting waste to landfill or other waste recycling or disposal sites, also on the Thames, transport by river will still result in lower environmental and social costs than road transport³⁸.

Costs of waste management

- 2.54 There are concerns about the reliability and comparability of some cost data for waste and recycling services. A range of collection and disposal costs were reported by local authorities in their Best Value Performance Indicators for 2001/02, in London.
- 2.55 Managing municipal waste in London had a net revenue cost of more than £361 million in 2001/02³⁹. The trend for waste management and disposal prices has been upwards, and above the underlying rate of inflation⁴⁰.
- 2.56 The cost of waste collection per household (BV86) for waste collection authorities in joint statutory waste disposal authority areas ranged between £25.62 (Hillingdon) and £76.99 (Hackney). The range for unitary authorities was between £12.75 (Tower Hamlets) and £149.48 in the City of London. Figure 13 shows the costs borough by borough. It should be

noted however that the cost of £149.48 per household in the City of London reflects the small number of households. Less than ten per cent of municipal waste in the City of London is classified as household waste.

Figure 13 Cost per household of waste collection (BV86) by waste collection authority in 2001/02

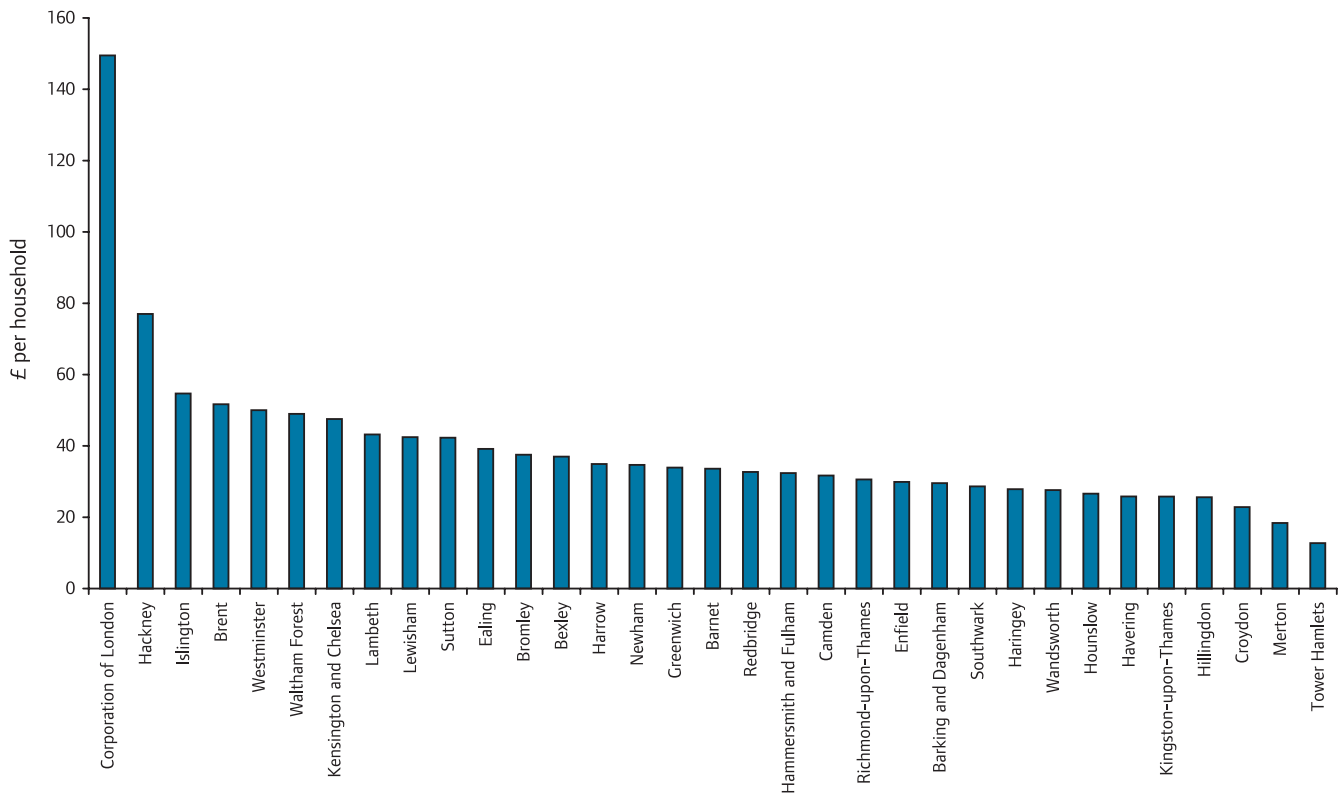
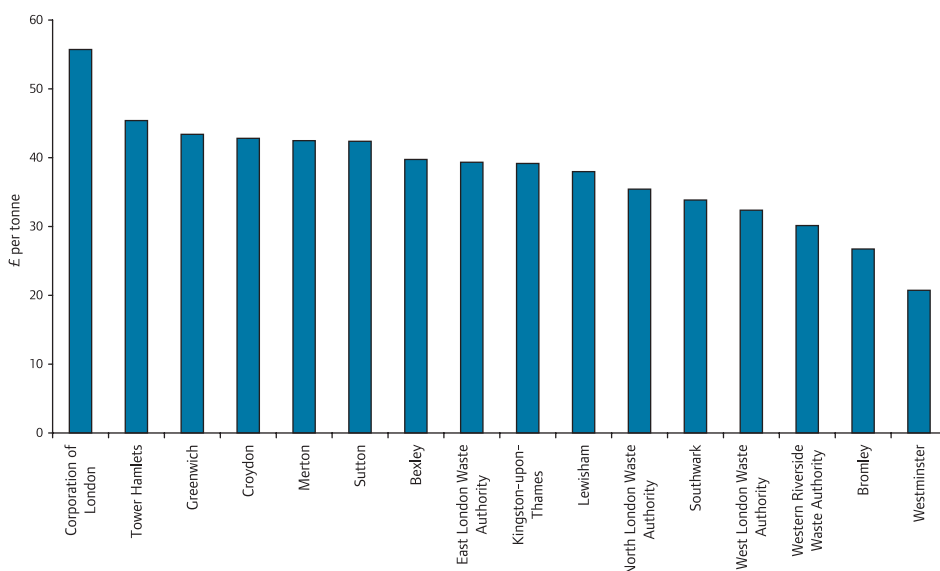


Figure 14 Cost per tonne of waste disposal (BV87) by waste disposal authority in 2001/02

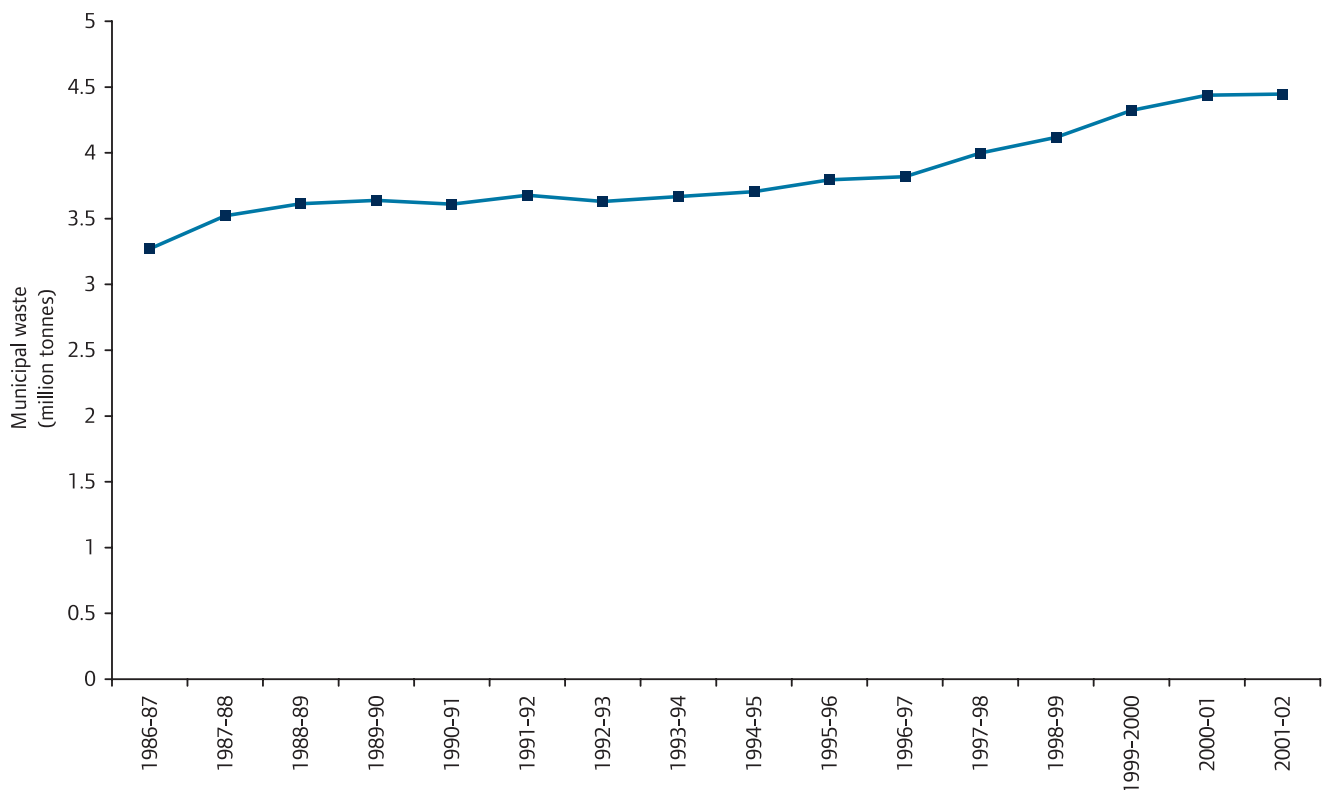


2.57 The costs of waste disposal per tonne (BV87) in the joint statutory waste disposal authorities ranged between £30.14 (Western Riverside Waste Authority) and £39.34 (East London Waste Authority). The range for unitary waste authorities was between £20.73 (City of Westminster) and £55.72 (City of London). Figure 14 shows the cost of waste disposal per tonne by waste disposal authority. The range in reported costs may partly be due to do different financial reporting methods as well as differences in service provision, efficiency and demographics.

Growth in waste

2.58 There is no doubt that the amount of household and municipal waste collected has increased in the recent past. Since 1996/97 municipal waste has grown by just over three per cent each year (linear). Over the longer term since 1986 there has been a growth rate of 2.4 per cent each year (linear). However it should be noted that reporting accuracy of data has improved dramatically over the last few years. Figure 15 shows the amount of municipal waste per year since 1986. Forecasts of waste growth are discussed later in this Chapter.

Figure 15 Municipal Waste Arisings 1986/87 to 2001/02



- 2.59 Table 14 shows that between 1996/97 and 2001/02 municipal waste has increased by 16 per cent. Household waste has grown by 11 per cent over the same period, but as a proportion of municipal waste it has decreased. Caution should be taken when analysing particular waste streams, as increases or decreases can be due to recent improvements in data gathering or a re-evaluation of the proportion of trade waste collected in co-collections rounds. The figures in which there can be the greatest confidence are the total amount of municipal waste produced and the tonnage that is recycled.
- 2.60 Of household waste, the highest rate of growth was waste from other collected household sources. This includes street cleansing and litter waste, bulky waste and separate collections of garden waste for disposal. There has been a 121 per cent growth in the tonnage of waste collected from other household sources between 1996/97 and 2001/02, which as a proportion of municipal waste is reflected as a rise from four to seven per cent. Household recycling has increased by 70 per cent over the same period. It should be noted though that regular household waste collection in terms of tonnage has dropped by two per cent since 1996/97 and as a proportion of municipal waste it has fallen from 61 per cent in 1996/97 to 51 per cent in 2001/02. However, this trend could be due to a more accurate alignment of tonnage between household and non-household sources. The decline also reflects the increase in household waste recycling over the same period. Table 14 also shows a significant increase in non-household wastes, of 38 per cent between 1996/97 and 2001/02.
- 2.61 What is not known is the proportion of household waste that is genuinely arising from households. It is suspected that some waste counted as household waste is actually from small business or commercial activities. This waste can enter the household waste stream through Civic Amenity sites, domestic collections, street cleansing, through fly-tipping or dumping of waste at litter bins. The actual amount in the waste stream is difficult to quantify. The amount of commercial waste in the household stream will vary between boroughs depending on the level of street enforcement, policies regarding waste collection and measures put in place to prevent this occurring, such as checks on waste brought into Civic Amenity sites.



Table 14 Municipal waste in London 1996/97 to 2001/02 (million tonnes)

	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	1996/97 to 2001/02
	Tonnes (per cent of MSW total)	Tonnes (per cent of MSW total)	Tonnes (per cent of MSW total)	Tonnes (per cent of MSW total)	Tonnes (per cent of MSW total)	Tonnes (per cent of MSW total)	Per cent change
Regular							
household collection	2.311 (61%)	2.275 (57%)	2.217 (54%)	2.250 (52%)	2.231 (50%)	2.262 (51%)	-2%
Other collected							
household sources	0.144 (4%)	0.195 (5%)	0.291 (7%)	0.285 (7%)	0.336 (8%)	0.318 (7%)	121%
Household							
civic amenity waste	0.446 (12%)	0.470 (12%)	0.471 (11%)	0.559 (13%)	0.520 (12%)	0.519 (12%)	16%
Household recycling	0.187 (5%)	0.222 (6%)	0.245 (6%)	0.306 (7%)	0.304 (7%)	0.317 (7%)	70%
Total							
household waste	3.089 (81%)	3.162 (79%)	3.224 (78%)	3.400 (79%)	3.390 (76%)	3.417 (77%)	11%
Non							
household waste	0.724 (19%)	0.821 (21%)	0.871 (21%)	0.885 (20%)	1.008 (23%)	0.996 (22%)	38%
Non							
household recycling	0.006 (0%)	0.015 (0%)	0.023 (1%)	0.038 (1%)	0.040 (1%)	0.033 (1%)	450%
Total							
municipal waste	3.819 (100%)	3.998 (100%)	4.118 (100%)	4.323 (100%)	4.438 (100%)	4.446 (100%)	16%
Of which							
MME	0.024	0.022	0.026	0.019	0.019	0.016	

notes: 1996/97 and 1997/98 revised DEFRA data
1998/99, 1999/2000 and 2000/01 revised GLA data
'other collected household sources' includes street cleansing waste and litter and bulky waste.

MME is metal recovered for recycling following the incineration process.

source: www.capitalwastefacts.com, 2003 and DEFRA, 2003

Growth in waste and recycling

2.62 Waste authorities have been successful in improving the actual tonnage of waste collected for recycling. Household recycling tonnage has increased

by 70 per cent since 1996/97, but the recycling rate as a proportion of household waste has only increased from six to nine per cent, due to continued increases in the amount of waste being produced.

- 2.63 Table 15 shows the difficulty facing London's Boroughs. Significant increases in the amount of tonnes recycled are often less than the actual increase in the amount of household waste.

Table 15 Comparison of household waste and recycling tonnages for a sample of London boroughs

Borough		Tonnes collected		Increase 1996/97 to 2001/02	
		1996/97	2001/02	Per cent	tonnes
Camden	Total household waste	81,979	94,880	16	12,901
	Recycled	7,218	11,208	55	3,990
Haringey	Total household waste	80,179	99,127	24	18,948
	Recycled	2,496	4,404	76	1,908
Kingston Upon Thames	Total household waste	54,750	72,479	32	17,729
	Recycled	6,056	12,903	113	6,847
Lewisham	Total household waste	102,227	114,374	12	12,147
	Recycled	2,780	6,473	133	3,693

Influencing factors in waste growth

- 2.64 There are a wide variety of possible factors influencing the growth in waste, and without action many of these have potential to perpetuate the increase in waste in the future. The household is the key waste-generating unit: a person living alone typically generates 11 kilograms of household waste per person per week, while a two-person household generates 7 kilograms per person per week and a family of four just 4 kilograms per person per week. Waste increases typically mirror affluence, according to research conducted by Hampshire County Council's Project Integra, which showed that waste generation rates in more affluent households were 22.5 kilograms per week compared to 15.5 kilograms in lower income households⁴¹.
- 2.65 In the recent past, waste may have increased due to many factors, including:
- A lack of public awareness of waste issues, including the cost implications.
 - Changing methods of waste collection: ie a changeover to wheeled bins, or additional capacity provided as a recycling container, and capacity for residual waste not simultaneously reduced.
 - Increasing population in London.
 - Increasing number of households coupled with a reduction in the



average size of the household.

- Increasing affluence (usually measured by GDP).
- The advent of the 'throw-away society', changes to lifestyles and pressures from marketing.
- Changing shopping habits, increases in packaging, and changes in product design⁴².

2.66 Other factors may have influenced the weight of items of waste produced, such as advances in technology that have allowed the light weighting of packaging. There are also a growing number of measures being introduced nationally that aim directly or indirectly to counteract, or reduce, the impact of the factors that increase waste. For example:

- The introduction of and review of the Packaging Regulations.
- Introduction and increase in the rate of Landfill Tax - set at £14 per tonne in 2003/04 and £15 per tonne in 2004/05. It was announced in the Budget 2003⁴³ the tax will increase by £3 per tonne in 2005/06 and at least £3 per tonne each year thereafter up to £35 per tonne.
- Introduction of a tax on carbon emissions.
- Targets for increasing recycling and composting of household waste.
- Landfill Directive requirements for diversion of biodegradable waste, and proposed tradable allowances system.
- The aggregates levy.

2.67 Factors which will have an unknown impact on future waste arisings include:

- Changing regulatory requirements for waste management operations.
- Public perception of waste facilities.
- Market prices of recyclables.
- Further changes to products and services: ie e-media could replace much of the printed word.

2.68 Other factors affecting waste management in the future will include:

- Cost of transport.
- Oil prices.
- Climate change levy.
- Availability of funding.

2.69 A principal move towards sustainable waste management is to reduce the amount of waste produced per household, to help ensure that the production of waste does not continue to grow at the same rate in the future and eventually to reduce the total amount of waste produced. However, there are still a large number of uncertainties when forecasting waste in the future. Action to minimise waste will have a positive outcome for waste management either to further reduce waste or to impact on continued growth. Therefore actions to reduce and reuse waste, to



prevent the continued growth in waste and in the longer term reverse the trend, are key. Actions are discussed further in Section 4B.

Development of Waste Policy

- 2.70 The development of EU and national policy poses significant challenges for the waste sector. The development of national and EU policy is outlined below. As well as this, the East of England and South East of England Regional Assemblies are also developing Strategies to manage their waste streams. The implications of these regional strategies are discussed in further detail in Section 4F.

EU policy

- 2.71 The UK faces tough EU targets to reduce the amount of waste landfilled. Some of the Landfill Directive requirements are outlined in Table 16.

Table 16 Landfill Directive requirements:

- By 2010 to reduce biodegradable municipal waste landfilled to 75 per cent of that produced in 1995.
- By 2013 to reduce biodegradable municipal waste landfilled to 50 per cent of that produced in 1995.
- By 2020 to reduce biodegradable municipal waste landfilled to 35 per cent of that produced in 1995.

Please note: dates include the four-year derogation, of which the UK can make use due to its high dependence on landfill.

Other requirements of the Directive⁴⁴ include:

- By 2009 landfills can only accept waste that has been pre-treated with the exception of inert waste for which treatment is not technically feasible, or waste other than inert waste which is not reduced in quantity by such treatment, nor in the hazards which it poses to human health or the environment. However, under the Landfill (England and Wales) Regulations 2000 the Government intends that all waste will have to be pre-treated, prior to landfill by 2007.
- Landfills to be classified as hazardous, non-hazardous and inert.
- Banning the co-disposal of hazardous and non-hazardous waste.
- Banning landfill of tyres (by July 2003 for whole tyres, July 2006 for shredded tyres).
- Banning landfill of liquid wastes⁴⁵, infectious clinical waste⁴⁶ and certain types of hazardous waste (eg explosive, highly flammable⁴⁷).
- Banning landfill of all waste that does not fulfil the waste acceptance criteria in Annex II of the Directive⁴⁸.
- Provisions on the control, monitoring, reporting and closure of sites.



- 2.72 Other forthcoming European Directives and some of the requirements that will have an effect on waste management in the UK are outlined in Table 17.



Table 17 Other forthcoming European Directives

End of Life Vehicles Directive – Transposition into UK law is due Autumn 2003.

- By 2006 reuse or recycle at least 80 per cent and recover at least 85 per cent of End of Life Vehicles
- By 2015 reuse or recycle at least 85 percent and recover at least 95 per cent of End of Life Vehicles

Hazardous Waste Directive – Full transposition will be achieved through the amendment of the Special Waste Regulations 1996.

- Increase the number of items on the special waste list
- Encourage reductions in the amount of hazardous waste produced

Waste Electrical and Electronic Equipment Directive – Due to be transposed into UK legislation in August 2004.

- Collection target of 4kg per person in 2006
- Producer responsibility

Biological Treatment of Biowaste Directive – Expected to be proposed as an EU directive in 2004.

Proposed revisions to **Directive on Batteries and Accumulators** and the **Waste Oils Directive**.

- 2.73 The 6th Environmental Action Programme calls for a number of inter-related measures designed to reduce the environmental impacts of resource use in line with the EU Sustainable Development Strategy. This includes a thematic strategy on the recycling of waste and initiatives in the field of waste prevention, notably proposals on Community waste prevention. A Communication from the Commission⁵⁰ is the first contribution to the development of a thematic strategy that will cover both waste prevention and recycling. The final Strategy, which will identify the most efficient combination of measures and targets necessary to promote more sustainable waste management, will be produced in 2004.

UK Government Policy

- 2.74 In order to comply with the Landfill Directive, the Government and National Assembly for Wales established recovery targets for municipal waste. An essential part of achieving the municipal waste recovery target

is the drive towards more household recycling and composting (Waste Strategy 2000). Some of the National Targets are outlined in Table 18.

Table 18 National targets:

- 2005 recycle or compost at least 25 per cent of household waste and recover value from 40 per cent of municipal waste.
- 2010 recycle or compost at least 30 per cent of household waste and recover value from 45 per cent of municipal waste.
- 2015 recycle or compost at least 33 per cent of household waste and recover value from 67 per cent of municipal waste

- 2.75 The Government's Strategy Unit reviewed the national strategy in 2002. The report⁵¹ recommended increasing the recycling and composting target for 2010 to 35 per cent and 45 per cent in 2015, in response⁵² the Government has undertaken to review the targets in 2004 in light of the progress local authorities have made towards meeting their 2003/04 targets.
- 2.76 To achieve a national recycling and composting level of 25 per cent of household waste by 2005, statutory Best Value performance standards have been set for both waste collection and waste disposal authorities. The intention of these standards is to increase the national recycling rates to 17 per cent in 2003/04 and 25 per cent in 2005/06. The statutory standards are outlined in Table 19 and the standard for each authority in London is indicated in Table 1. Further standards will be set for local authorities to reach the national targets of 30 per cent in 2010 and 33 per cent in 2015.
- 2.77 Recycling rates in 1998/99 were used as the baseline to set the performance standards for 2003/04 and 2005/06, London waste authority performance ranged widely from zero to 18 per cent. By 2005/06 the worst performing authorities in London will have to achieve 18 per cent recycling and the best, 36 per cent. Overall in 1998/99 London achieved a recycling rate of eight per cent of household waste. This was below the national average of nine per cent. The household recycling rate for London has only increased by one per cent since 1998/99.



Table 19 Waste Disposal and Waste Collection Authorities (statutory standards)

By 2003/04:

- Waste Disposal Authority or Waste Collection Authority areas with 1998/99 recycling and composting rates of below five per cent, to achieve at least ten per cent.
- Waste Disposal Authority or Waste Collection Authority areas that recycled or composted between five per cent and 15 per cent in 1998/99 to double their recycling rate.
- The remaining Waste Disposal Authority or Waste Collection Authority areas to recycle or compost at least one-third of household waste.

This would deliver a national recycling rate of around 17 per cent by 2003/04.

By 2005/06:

- Waste Disposal Authority or Waste Collection Authority areas with 1998/99 recycling and composting rates of below six per cent, to achieve at least 18 per cent.
- Waste Disposal Authority or Waste Collection Authority areas that recycled or composted between six per cent and 12 per cent in 1998/99 to at least to treble their recycling rate.
- Waste Disposal Authority or Waste Collection Authority areas that recycled or composted between 12 per cent and 18 per cent in 1998/99 to reach 36 per cent.
- The remaining Waste Disposal Authority or Waste Collection Authority areas to recycle or compost at least 40 per cent of household waste.
- Those authorities currently recycling or composting 40 per cent or more should seek to ensure continued improvement in their recycling and composting rates.

This would deliver a national recycling rate of 25 per cent by 2005/06.



- 2.78 The government has set performance indicators through the Best Value regime. Best Value authorities are required to publish details of their performance in their annual Best Value Performance Plan. Table 20 outlines other indicators for quality and fair access, cost/efficiency, and service delivery outcome for waste services that have been set for 2002/03.

Table 20 Best Value Performance Indicators for waste 2002/03

Best Value Code	Indicator
BV82a	Percentage of the total tonnage of household waste arisings which have been recycled.
BV82b	Percentage of the total tonnage of household waste arisings which have been sent for composting.
BV82c	Percentage of the total tonnage of household waste arisings which have been used to recover heat, power and other energy sources.
BV82d	Percentage of the total tonnage of household waste arisings which have been landfilled.
BV84	Number of kilograms of household waste collected per head.
BV86	Cost of waste collection per household.
BV87	Cost of waste disposal per tonne municipal waste.
BV89	The per cent of people satisfied with the cleanliness standard in their area.
BV91	Percentage of population resident in the authority's area served by a kerbside collection of recyclables.

2.79 To assist local authorities in achieving their statutory performance standards and in an attempt to achieve some consistency between local authority scores, the government has produced new guidance and reviewed previously published guidance accordingly.

2.80 Other guidance includes:

- Planning Policy Guidance (PPG) 10 Waste Disposal and Management
- Regional Planning Guidance (RPG) 9
- Preparing and Revising Local Authority Recycling Strategies and Recycling Plans
- RPG 3 Strategic Guidance for London Planning Authorities
- Strategic Waste Management Assessments (Environment Agency)
- Guidance on Municipal Waste Management Strategies (March 2001)
- Guidance on Policies for Waste Management Planning (May 2002).

2.81 The landfill tax provides acts as a driver to encourage businesses to divert their waste from landfill. In addition, the Government has set a target to encourage business to reduce waste and to put any waste that they produce to better use:

- By 2005 to reduce the amount of industrial and commercial waste sent to landfill to 85 per cent of that landfilled in 1998.

Barriers to recycling

2.82 Recycling rate increases often happen in large step changes due to the introduction of major recycling schemes, such as recycling collection schemes from homes. Therefore a barrier to increasing recycling rates can



be the significant capital costs in building large-scale infrastructure such as a MRF (Material Reclamation Facility), where recyclables are sorted or bulked up or significant increases in revenue budgets to cover new collection scheme costs. The increased costs can be alleviated through partnership working, where a number of local authorities can help gain economies of scale in the construction and operation of a facility or by offsetting initial costs through grants or other funding schemes.

- 2.83 Some reprocessors are unwilling to sign up to contracts with authorities for either a fixed supply of materials or a minimum price. This is because of the instability in the market value of recyclables. A waste authority in negotiating a contract could share the price risk of recyclable materials, in order that both parties can benefit from higher prices when the market is buoyant and, equally, share the burden when the market value falls.
- 2.84 Participation rates and the tonnage collected by recycling schemes, are affected by the ease of use, frequency of collection, receptacle used and the number of materials collected. Residents should find that recycling their waste is as easy, or easier, than disposing of their residual waste. Low participation has a negative impact on the unit costs of the service. It does not cost comparatively more to collect from 20 houses down one street compared to ten, up to the point where an additional round would need to be added to the scheme, due to the increase in tonnage/volume of material collected.
- 2.85 Recycling schemes should consider local conditions. Some schemes may work effectively in leafy outer London boroughs but might not be suitable for densely populated inner London boroughs. As such there is no right or wrong way to collect recyclables, although inconsistency such as a blue bag for paper in one borough and a green one in a neighbouring borough could be avoided to save confusion and enable joint promotion.
- 2.86 There is a need for greater research into recycling collections and the types of schemes suitable for particular areas. At the moment there is little explanation as to why a multi-material box scheme in one area can achieve a recycling rate of over 20 per cent whereas in another, seemingly similar area, the scheme struggles to collect ten per cent. Some work has been conducted that suggests demographic factors and the differences in the way that local authorities operate schemes have a particular impact. However, a clear understanding of the influencing factors can maximise efficiency and help in improving failing schemes.
- 2.87 Waste collection services have led to an 'out of sight out of mind' attitude to waste. This has meant that participation in recycling schemes

has suffered from apathy and a lack of public awareness. There is a need to change people's understanding and their requirements for waste, so that they want and need recycling services.

- 2.88 Recycling as a method of waste management has a high level of public support and the environmental benefits are well known. Education and promotion will improve participation in a scheme but the best advert for a recycling scheme is a good service. The promotion of a good scheme should be self-perpetuating, requiring regular feedback and ensuring new residents are aware of arrangements and reduce contamination. A successful scheme will provide its own advert through rows of boxes or bags of recyclables awaiting collection regularly, which raises awareness and can create peer pressure to participate. Confusing advice, complicated or irregular collection schedules, or a poor service will discourage continued participation.
- 2.89 There does not seem to be a correlation between high costs of waste services and high recycling rates. Factors other than the cost of investment influence recycling rates, and the costs of waste collection are influenced by more than just the introduction of a recycling scheme. Costs of waste services could be affected, amongst other things, by housing type (particularly high-rise flats), collection arrangements and receptacle, services offered free to residents, enforcement of dumping regulations, inefficiencies in the contract or management of the contract and distance to disposal point.
- 2.90 As lifestyles have changed over the last couple of decades, so too has the amount and type of waste we produce. Shopping habits have become increasingly based on convenience and not on price or quality. The advent of the disposable item in particular has led to a massive change in the composition and quantity of the waste we produce. This craving for convenience also has an impact on whether we participate in recycling schemes. There are schools of thought that suggest it is the mainly white middle class who participate in environmental issues, including recycling. No studies seem to have been undertaken as to the differences in the production of waste by those with differing lifestyles or cultures. Most promotional material is currently geared towards the white middle class and does not cater for multi-cultural and multi-lingual needs. Several speakers at the 'Down to Earth' conference on environmental action and sustainable development in a multi-cultural society⁵³ emphasised the importance of providing specific information and educational material that the communities consider appropriate to their lifestyles and issues of concern.
- 2.91 Age also seems to have an effect on recycling participation. Those who have 'lived through harder times' such as wars often advocate 'waste not,



want not'. Those of a younger generation almost seem to associate the production of a large amount of waste with wealth.

- 2.92 Housing type has an influence on access to a garden, which will affect the amount and composition of waste from the property, and also the opportunity for minimising waste through home composting. Although some flats have access to their own or shared gardens, and some areas of London are known for their communal garden squares, about half of the flats in London and a quarter of all properties do not have access to a garden (See Table 21).

Table 21 Percentage of dwellings with gardens

	Garden	Patio or yard	Roof terrace or large balcony	None
Detached house	99.4%	0.6%	0.0%	0.0%
Semi-detached house	99.0%	0.8%	0.0%	0.2%
Terrace/end of terrace house	95.3%	3.4%	0.4%	0.8%
Purpose-built flat	27.2%	5.3%	11.6%	55.9%
Converted flat	50.6%	6.9%	6.4%	36.2%
All houses	96.9%	2.3%	0.2%	0.6%
All flats	34.8%	5.8%	9.9%	49.5%
All types	69.5%	3.8%	4.5%	22.2%

source: Unpublished data from the 1998/99 Survey of English Housing

- 2.93 Outer London boroughs with a higher proportion of houses (see Table 22) can collect green garden waste and easily boost their rates. However, those with a higher proportion of flats will have less opportunity for home composting or green waste collections, though some flats have communal gardens and could be encouraged to undertake communal composting.

Table 22 Dwellings by type, 2001

	Inner London	Outer London	London (total)
Detached house	2.0 %	8.8%	6.0%
Semi-detached house	5.9%	28.2%	19.1%
Terrace/end-of-terrace house	21.1%	29.3%	25.9%
Purpose-built flat	46.2%	24.0%	33.0%
Converted flat	22.6%	7.9%	13.9%
Other	2.2%	1.7%	1.9%

source: 2001 Census, Key Statistics Table, KS16

note: Totals may not add up to 100 per cent due to rounding

Inner city recycling

- 2.94 47 per cent of the housing stock in London is purpose-built or converted flats, (see Table 22). These are concentrated within inner London boroughs, in particular the boroughs of Hackney and Tower Hamlets (52 and 76 per cent of their populations reside in purpose-built flats). Flat accommodation is associated with a number of factors that can affect recycling rates. A lack of storage space both inside and outside discourages the separation and storage of recyclables by the householder and means that more frequent collections or trips to a recycling site are required. Flats often have no specific boundary to the highway or have a communal door before the individual front door, which can restrict the traditional methods of collection of recyclables from the home. Many of the tower blocks in London have chutes for waste and are now experiencing problems with the collection of general waste. The old chute systems cannot be back-fitted to cope with the increasing quantities of waste. As such, the conversion of chutes for recyclables in most cases is not a practical proposal and therefore it may not always be possible to provide doorstep-recycling collections to these dwellings. In the case of purpose-built flats, high-density recycling banks at the entrances to the building or alongside general waste bins, to ensure facilities are as convenient as possible, need to be combined with intensive promotion and education. However, there are a few examples of collection of recyclables from high-rise flats. For example Hounslow has introduced doorstep recycling in high-rise flats and incorporating the collection work into block caretakers' job descriptions.
- 2.95 It should be noted, though, that even in places where through a variety of measures high recycling or diversion rates in single-family homes have been achieved, the issue of recycling from flats is still not resolved. For example Toronto in Canada⁵⁴, is a cosmopolitan city that has around 490,000 houses and 440,000 apartments. Waste is collected once a week from the houses and twice a week from apartments. All houses and 85 per cent of apartments have box collection of a wide variety of recyclables at half the frequency of the waste collection. The current 'diversion' rate for houses is 32 per cent compared to nine per cent for apartments.
- 2.96 Analysis by Oakdene Hollins⁵⁵ of the recycling and composting performance of London boroughs in 1998/99 in relation to their score on the DTLR deprivation index⁵⁶, showed a moderately strong correlation between recycling and deprivation. Boroughs with a high deprivation score tended to have lower recycling and composting rates, while the least-deprived boroughs tended to achieve higher rates of recycling and composting.



2.97 Social exclusion is often identified as a potential barrier to recycling and certainly can have a huge impact on the budget priorities of local authorities. The problems of collection from flats and social exclusion can compound each other. Some parts of London rank amongst the most deprived areas in the UK. If an area has a high level of deprivation, the resources and high priority placed on other council services such as housing, social services and education may make recycling and other environmental issues lower on the agenda. It is also often argued that in areas of deprivation, recycling and environmental issues can be less of a priority to residents. It should be noted though, that empirical evidence indicates that income levels do not affect recycling, except at the extremes. Those on low incomes are often very good recyclers. Priorities often dictate that other issues rather than recycling are more important, and that has an impact, but caution should be used when assuming that residents of high-rise flats in deprived areas are automatically unable or unwilling to recycle. Separation of recyclables at source in blocks of flats will not necessarily be more expensive than the current waste collection systems, and can deliver improvements in quality of life - such as reduced litter and dumping of waste.



2.98 Deprivation may play a role in the recycling performance of boroughs, but the influence it has should not be taken out of context of other factors that can hinder recycling, such as high-rise buildings, political will, waste composition and the availability of Civic Amenity sites.

Composition and recyclability of waste

The composition of London's waste

2.99 A number of composition studies have been undertaken in London over the past ten years. However, it is difficult to apply these confidently to the whole of London's municipal waste stream. The studies have generally concentrated on household bin waste⁵⁷ (which only accounts for about half of London's municipal waste); they have often concentrated on a specific authority; and they have varied in methodology and duration (between one day and a year). Variation in methodology has been cited as one of the main factors behind differences in composition analyses⁵⁸. Therefore the studies cannot be taken as statistically significant for London as a whole. Without a recent national or regional study that can be applied to the whole of London's waste stream, it is difficult to make anything other than broad comments about waste composition in London.

2.100 A study by Ecologika⁵⁹, summarised 17 household dustbin waste composition studies, carried out in eight London Boroughs during 1997. The summary information is shown in the Table 23. However, the report states that as 'this is a collection of individual studies rather than one

statistically designed study, the results should not be taken as a statistically significant London average. However the figures do indicate general trends and allow boroughs to look at their studies with some perspective'. The study provides a useful snapshot but does not sufficiently address the different make-up of London boroughs, housing type, socio-economic factors, or seasonality. For example, 16 of the 17 studies were conducted between March and September, which may account for the high proportion of putrescible waste reported as available for composting. Seasonality can significantly alter the composition of the waste stream. Results from a study being undertaken in Bradford indicate that the proportion of garden waste can double in May and June and that levels of kitchen waste can also rise by 50 per cent in the same period. The type of housing and other socio-economic factors can also affect the make-up of waste thrown out by householders⁶⁰.

- 2.101 Due to the lack of national waste composition analysis, a review of waste composition analyses commissioned by local authorities within England and Wales between 1999 and 2002 was carried out for 'Waste not Want not - A strategy for tackling the waste problem in England' produced by the Government's Strategy Unit in November 2002⁶¹. In total, 70 sets of waste compositional data were obtained. The study looked at waste composition from household 'bin' waste, civic amenity waste and household recycling.
- 2.102 Table 23 shows the composition of household bin waste from Waste Strategy 2000, Re-inventing Waste and 'Waste not Want not'. The National Household Waste Analysis Programme, quoted in Waste Strategy 2000, was carried out in 1993, and again only looked at the composition of household bin waste. The Table also shows the range of components of the waste stream from 12 other waste composition studies. Nine of these are from London boroughs; Hampshire County Council and Lancashire County Council have also been included⁶².
- 2.103 Table 23 indicates that between half and two-thirds of household bin waste is paper and card or putrescible material. Glass and plastics are the next largest fractions in the waste stream, accounting for around ten per cent each by weight. The Table also shows that there are significant proportions of textiles and metals available in the household waste stream.
- 2.104 The Government's Strategy Unit report suggests that 68 per cent of the household waste stream is recyclable, this is somewhat higher than the estimate in Waste Strategy 2000 (56 per cent). The report also suggests that the biodegradability of the household waste stream is higher at 68 per cent rather than 62 per cent.



Table 23 Estimates of household dustbin waste composition by weight

Category	Composition analysis of household dustbin waste (per cent)			Material range from 12 studies (per cent) ⁶³	
	Waste Strategy 2000	Re-inventing Waste 1998	Strategy Unit 2002 ⁶⁴	High	Low
Paper and card	32	27	19	42	27
Putrescible	21	38	42	38	20
Textiles	2	3	3	7	2
Metals	8	4	7	8	2
Glass	9	8	7	11	4
Plastics	11	8	7	15	7
Fines	7	>1	3	8	1
Miscellaneous combustible /non-combustible	10	12	12	18	6
Recyclability ⁶⁵	56%	81%	68%	-	-

New analysis

- 2.105 The Environment Agency is preparing to undertake the third National Household Waste Analysis Programme, which will look to take samples from representative local authorities from across the UK. The Environment Agency analysis will involve 15 months of sampling. The study will not only look at household dustbin waste, but other aspects of the municipal waste stream including street sweepings and litter, Civic Amenity waste and bulky wastes. The Programme will also look at the proportion of biodegradable waste and the attitudes of householders towards recycling and composting. The Mayor is looking to work with the Environment Agency, boroughs and other organisations to carry out a comprehensive strategic study in London over the same period, using the same methodology as the Environment Agency, to get an accurate reflection of London's municipal waste composition and allow national comparison. Making more accurate predictions about the recyclability of waste in London can only be undertaken if more detailed information about waste composition is available.

Recyclability of waste

- 2.106 It is not currently possible to recycle all types of paper and card, plastics and glass due to contamination or lack of markets. Other items made of composite materials can also be difficult if not impossible to recycle. Like waste composition, definitions and methodologies for calculating what is 'recyclable' vary from study to study. Some take account of what it is currently practical to recycle, whilst others look at what is

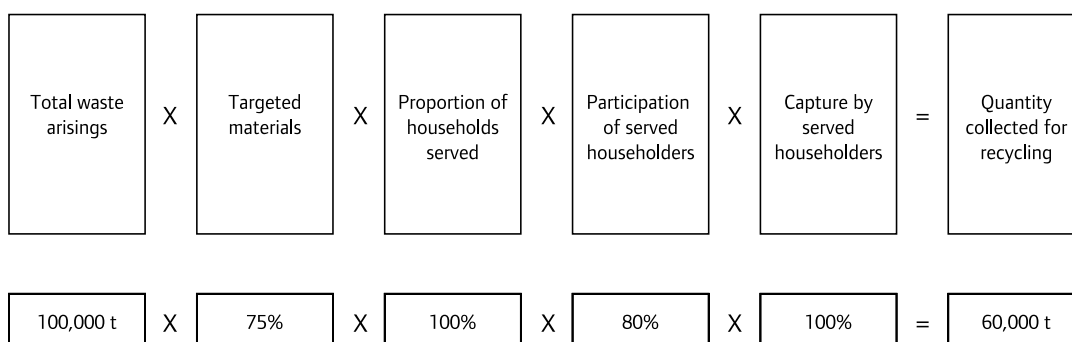


potentially recyclable in the future, whilst not taking into account current markets or capacity.

2.107 There is some uncertainty as to the proportion of London’s waste that is recyclable. A number of different estimates exist. Waste Strategy 2000 estimates that 56 per cent of household waste is practicably recyclable at present in the UK. As discussed above more recent research into waste composition in England for the Government’s Strategy Unit estimates that the recyclability of the household waste stream is around 68 per cent. Re-inventing Waste⁶⁶ estimated the recyclable proportion of waste to be 81 per cent. The London Assembly suggests 75 per cent of waste should be considered recyclable⁶⁷. Other local studies in London that have estimated the recyclable proportion report levels between 53 per cent and 61 per cent.

2.108 Waste composition is just one factor influencing the percentage of the household waste stream that is recycled. Figure 16 demonstrates how some other factors influence the amount of material collected from homes for recycling. The example below shows recyclability composition based on the London Assembly’s scrutiny report. It indicates the level of performance that will be required in London to reach 60 per cent recycling rates from household collection schemes. A participation rate of 80 per cent and a capture rate of 100 per cent are also taken from the same document.

Figure 16 Impact of factors on recycling levels for collections of recycling from households⁶⁸



note: Figures are based on the London Assembly scrutiny report⁶⁹

2.109 Figure 16, firstly shows that recycling tonnages are affected by the materials available in the waste stream and targeted for collection. The proportion of households provided with the service also affects the recycling tonnage. Householders are critical to the success of any recycling scheme. However, it is not just the participation of householders

that is crucial: the recognition of what materials they can separate for recycling as well as a willingness to complete the task, play an important part. Over half of London households have access to some kind of recycling collection from their homes. Other sources of household waste such as Civic Amenity sites and street cleansing and bulky household waste will also contribute to a final recycling rate but waste collected from the doorstep accounts for the highest proportion - and yet London's recycling rate is still only nine per cent. Improving opportunities to recycle, participation and residents understanding of recycling have to be the priority in the short term.

- 2.110 Other issues affecting the amount of material available for recycling include the contamination of potential recyclables. These factors all have a bearing on materials available for recycling. Further to this, even when materials are separated, this does not guarantee a market or capacity for that material to be reprocessed and hence recycled.

Estimating the future

- 2.111 Understanding the composition and recyclability of the municipal waste stream is important in determining the amount of material that is potentially available for recycling and composting. Increasingly waste composition studies are needed to help plan strategies to achieve European, national and regional recycling and recovery requirements. With a good understanding of the composition of the waste stream, the potential for recycling can be analysed. If recycling or composting schemes are already established, waste composition studies can be used to monitor their performance by determining capture rate (the proportion of the material potentially available in the waste stream that is actually being diverted from disposal) or identify areas where schemes can be extended.
- 2.112 Without a comprehensive study in London, it is difficult to assess the true recyclable content of the waste stream. However from the current recycling levels, there is still some distance to go before details on the exact maximum recyclability of waste becomes an issue. For example, we currently recycle 161,000 tonnes of paper and card from household sources in London. Even if the lowest proportion of paper and card identified by the studies listed in Table 23 as present in household waste (19 per cent) is taken, this equates to approximately 649,000 tonnes. Therefore, there is significant opportunity to collect more paper and card before the exact amount available becomes an issue. The maximum potential for recycling will certainly not be an issue as we move towards the household recycling targets for 2005. Therefore, rather than making forecasts based on old or



statistically unreliable data, there is time to undertake new comprehensive analysis.

London's Future

Projections

- 2.113 This chapter has set out how London currently deals with its waste. At present London sends the majority of its municipal waste to landfill, in sites in the surrounding regions, and recycles only a small proportion. This trend needs to be reversed so that waste is reused and recycled and London begins to landfill diminishing amounts of municipal waste. This section will discuss the implications of the biodegradable municipal waste diversion targets, as set out in the Landfill Directive.
- 2.114 The Mayor's draft Municipal Waste Management Strategy included modelling, which identified shortfalls in London's ability to meet the Landfill Directive targets under various scenarios⁷⁰. An analysis of the costs of the scenarios modelled demonstrated that business as usual would be more costly than other waste management options.
- 2.115 In response to consultation, and following a dedicated stakeholder consultation event, the options appraisal and costings model has been refined. Further modelling work has been carried out that demonstrates the capacity required to achieve the Landfill Directive targets. This details the capacity and type of facilities required to achieve the targets, for a given recycling rate and growth assumption.
- 2.116 This modelling shows the outcomes of five municipal waste management options for London. The modelling takes a 'top-down' approach: it assumes various levels of recycling are met, but does not model how these percentages will be achieved. All of the options, except for Option One (Business as Usual) assume that the requirements of the Landfill Directive are met, without purchasing tradable landfill allowances.
- 2.117 The five options modelled are indicative of what might happen, rather than a prediction of actual outcomes. Capital investment in new waste management facilities is likely to be undertaken by a waste contractor in order to provide particular waste management services to a waste disposal authority. Whilst the Mayor has a power of direction in relation to waste contracts and may direct refusal for certain planning applications, he cannot actually determine which facilities are built. This is in contrast to other cities around the world where facilities are built, owned and operated by the municipality or in the past in London when the Greater London Council was the waste disposal authority. Therefore, whilst option five is the preferred option, the modelling has not been used to determine



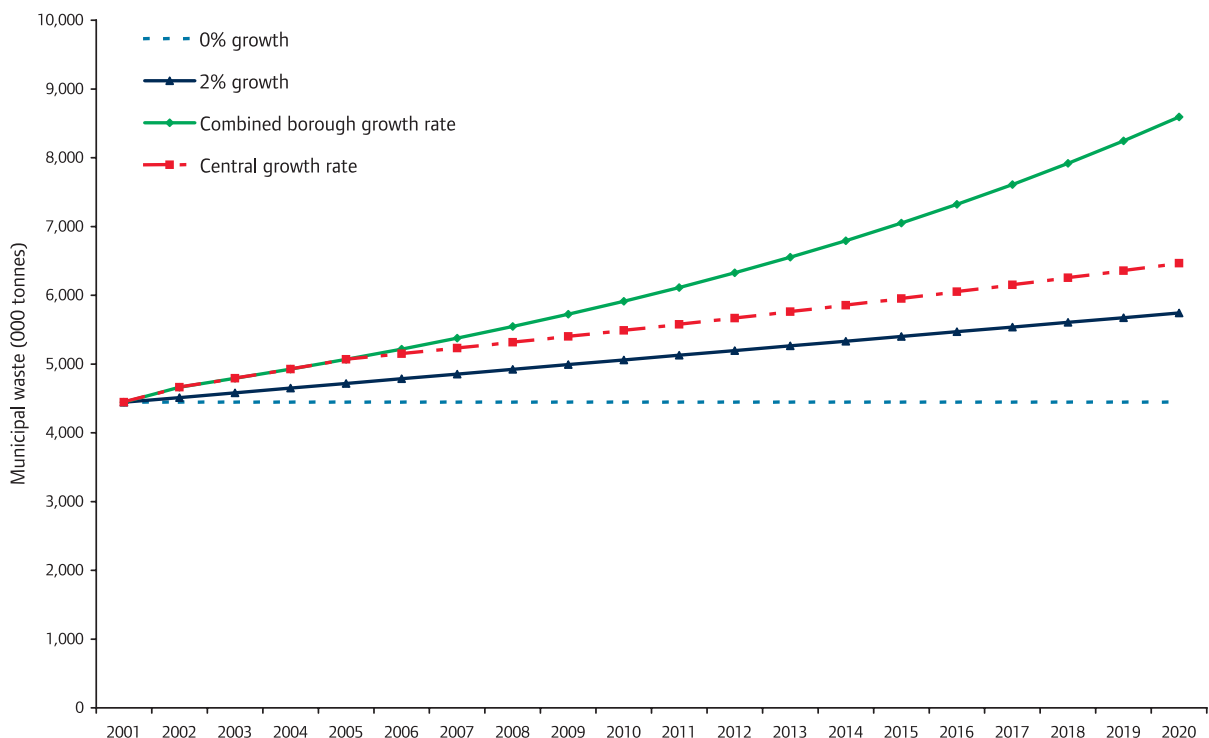
the precise strategy that London should follow. However, the modelling does sets a direction for waste management in London to travel in the future that keeps options open.

Waste growth

2.118 Waste growth projections were a critical element in this modelling exercise. The options have been modelled against four basic growth rates, shown in Figure 17. These are:

- zero per cent growth
- two per cent growth (linear)
- 'combined' growth rate (equating to three and a half per cent a year)
- 'central' growth rate ('combined' growth rate until 2006, two per cent compound thereafter).

Figure 17 Impacts of growth scenarios on municipal waste in London until 2020



source: GLA 2003

2.119 The 'combined' rate was forecast for the GLA by Enviro and was calculated on a borough-by-borough basis, using draft London Plan household projections, and an estimate of the change in waste arising per household. Over the timescale forecasted this equates to a Londonwide growth of three and a half per cent a year. For further details see the 'Technical Assessment for Waste Management in London'⁷¹. The 'central'

growth rate uses the 'combined' rate until 2006, after which waste growth falls to two per cent a year due to waste reduction and reuse measures. This approach reflects the Government's Strategy Unit's growth predictions for their recommended strategy, which assumes waste growth stabilises by 2006⁷². The approach taken in this Strategy takes into account recent trends, which show that the rate of waste growth appears to have declined in recent years⁷³.

- 2.120 The growth or otherwise of the non-household municipal waste stream is dependent on legislative and fiscal drivers, resulting in waste transferring into or out of other waste streams. There are no consistent drivers affecting the growth or reduction in non-household municipal waste. Also, because of uncertainty about the effects of the Landfill Directive on commercial waste collections undertaken by local authorities, it has been assumed that non-household municipal waste remains at 2001/02 levels.⁷⁴
- 2.121 Growth predications must always be treated with caution. If waste per household were to remain static, the amount of additional municipal waste that would be generated by the increase in households forecast in the London Plan would equate to an increase in municipal waste arisings of about one per cent each year. However, it would be over optimistic at this juncture to plan for such a scenario. If waste continues to grow unchecked at the 'combined' rate London's municipal waste would almost double by 2020. Results from the modelling undertaken demonstrates that following this approach may be overly cautious, and could lead to London building too many facilities at too high a cost.
- 2.122 The 'central' waste growth projection has been used as the preferred rate. In recognition of the sensitivity of this variable, waste growth will need to be continually monitored. Further work will be carried out along with the development of the London Plan and the Sub Regional Development Frameworks, which will allow for additional options appraisal, and sustainability appraisal work for the whole controlled waste stream at Londonwide and sub-regional level. This will enable the planning, monitoring and management of waste management capacity in London. This is discussed further in Section 4Q.
- 2.123 Table 24 shows the amount of municipal waste arisings for 2020 given the four different growth projections. The amount of biodegradable municipal waste permitted to landfill has been calculated from London's municipal waste arisings in 1995⁷⁵. The model has assumed that 68 per cent of unsorted municipal waste is biodegradable based on work undertaken for the Government's Strategy Unit⁷⁶. Although increased levels of recycling



could reduce the biodegradable element in municipal waste, the model assumes that, for untreated waste, this ratio will be stable throughout the period. Hence, the amount of biodegradable municipal waste that London is permitted to landfill is calculated at 1.908 million tonnes in 2010, 1.272 million tonnes in 2013, and 0.890 million tonnes in 2020.

Table 24 Municipal waste projected to arise in 2020 (million tonnes)

Projection Method /Year	Municipal waste arising	Biodegradable municipal waste arising ⁷⁷	Biodegradable municipal waste permitted to landfill
0 per cent	4.444	3.022	0.890
2 per cent	5.742	3.905	0.890
Central projection	6.495	4.396	0.890
Combined projection	8.564	5.824	0.890

note: The baseline figure for 2001/02 is slightly less than reported data for London (4.444 million tonnes as opposed to 4.446 million tonnes), due to rounding errors. This is because the Options tool requests information to be provided in 000's tonnes, rather than absolute figures

Outline of options

2.124 The following section gives a summary of waste management options modelled. A report containing a detailed description of the five options modelled and assumptions, together with the capacity requirements for all growth rates are available on the request or from the Greater London Authority website, www.london.gov.uk. Some of the key considerations are outlined below. These are:

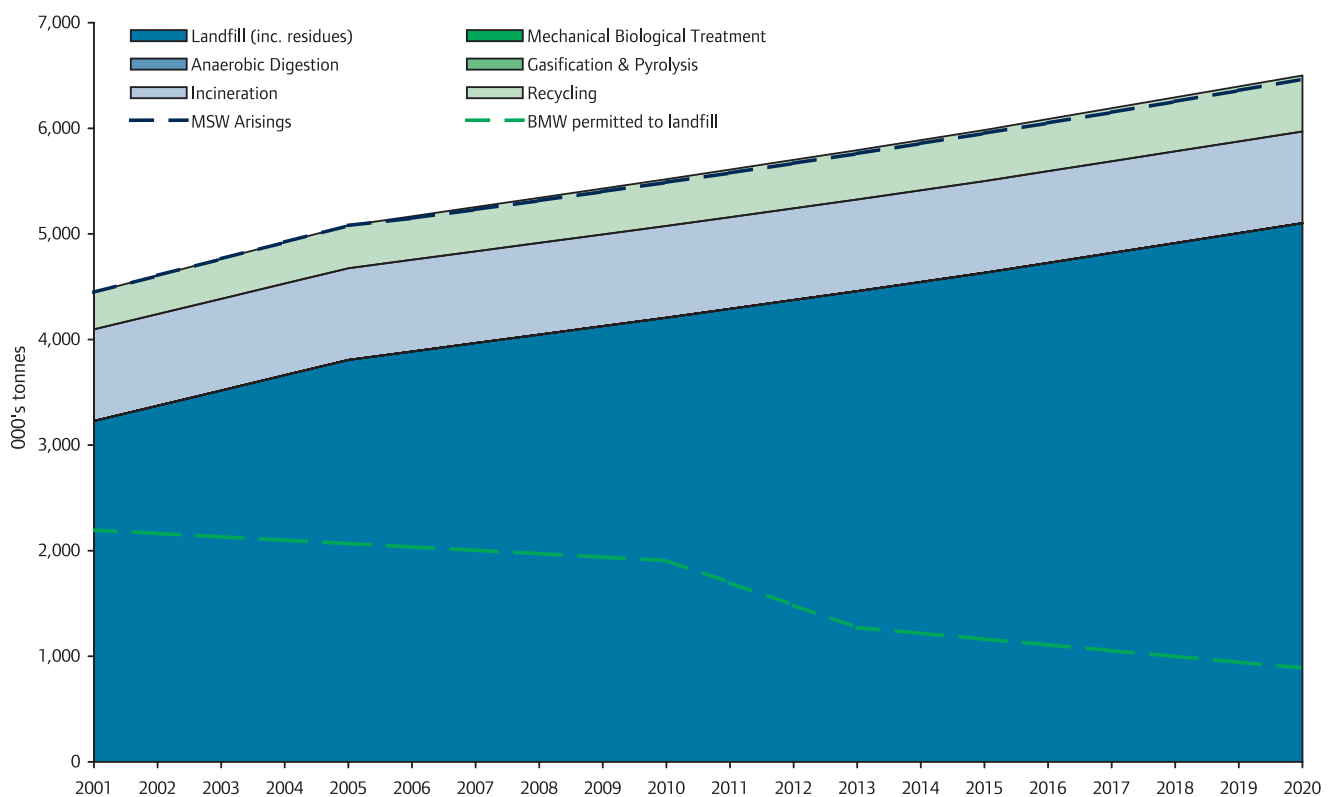
- The proportion of biodegradable waste in the municipal waste stream is calculated at 68 per cent.
- Where a mix of new technology is used to manage residual waste, to meet a shortfall in the biodegradable municipal waste diversion targets, it has been distributed to Mechanical Biological Treatment (MBT) and advanced conversion technologies. This is allocated on the basis that 66 per cent is pre-treated by MBT, 22 per cent is treated by gasification/pyrolysis, and 11 per cent by anaerobic digestion. This reflects a judgment of the part each technology could play in the future⁷⁸.
- The method by which residues from processes (such as thermal treatments, Mechanical Biological Treatment, MRFs etc) are managed, and their biodegradable element.
- Anaerobic digestion does not count towards the recycling and composting statutory performance standards⁷⁹.
- No growth rate has been applied to non-household waste.



- Non-household waste is recycled and composted at the same rate as household waste in all options (except in business as usual).
- Conventional incineration capacity remains at 2001/02 throughput in all options (except Option Two: Waste Strategy 2000 Recycling with High Incineration).

2.125 Option One: Business as Usual - This option shows what would happen if London were to 'do nothing' in response to European and Government targets. Recycling and composting rates for household waste and non-household waste remain at 2001/02 levels (nine per cent and four per cent). The amount of conventional incineration capacity remains at 2001/02 throughput. All other waste is directed to landfill, irrespective of Landfill Directive targets. Figure 18 shows the capacity requirements of this option until 2020.

Figure 18 Total estimated capacity of waste management facilities for Option One, Business as Usual at 'central growth rate'

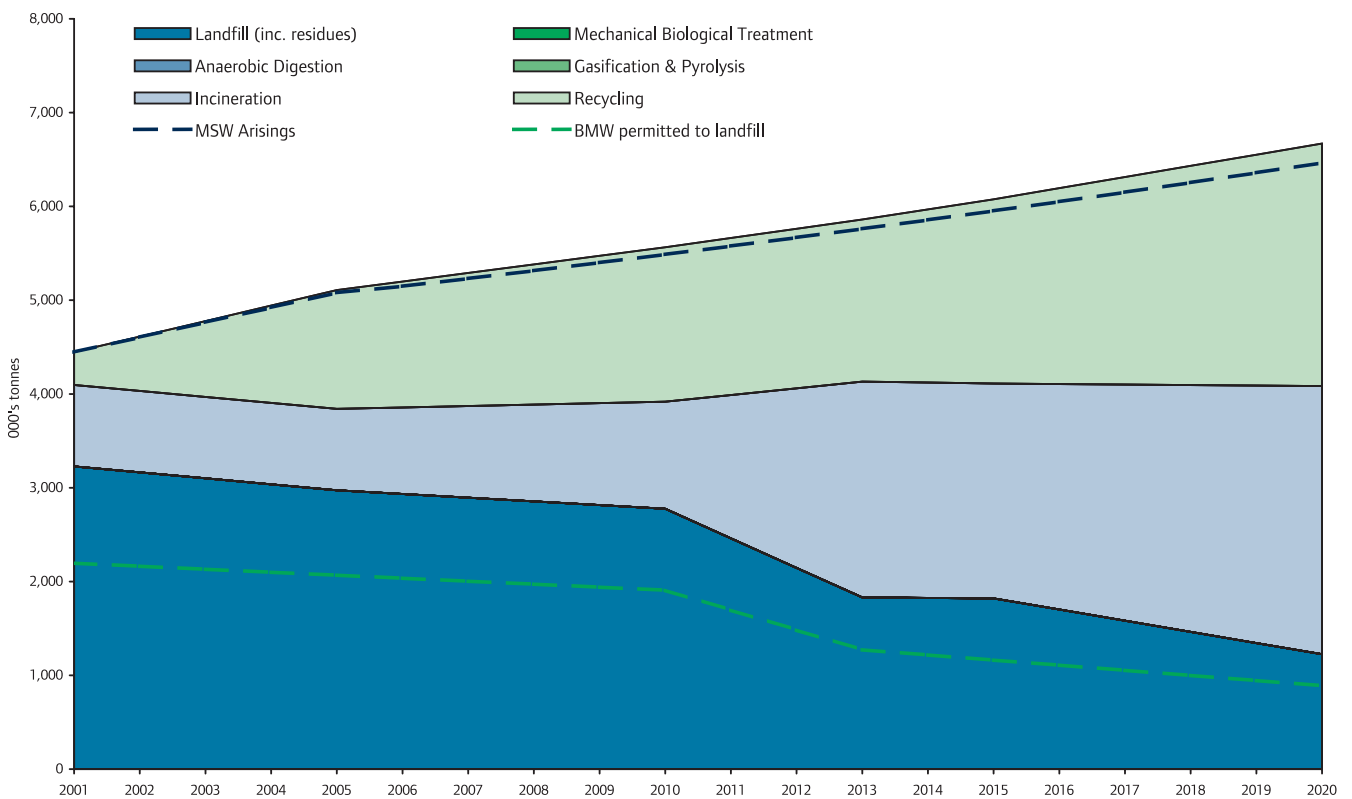


source: GLA 2003

2.126 Option Two: Waste Strategy 2000 Recycling with High Incineration - This option assumes that Waste Strategy 2000 recycling targets of 25 per cent in 2005, 30 per cent in 2010 and 35 per cent in 2015 are met. It has been

assumed that recycling reaches 40 per cent by 2020. Conventional incineration was used to meet the biodegradable municipal waste diversion targets. All other waste is diverted to landfill. Figure 19 shows the capacity requirements of this option until 2020.

Figure 19 Total estimated capacity of waste management facilities for Option Two, Waste Strategy 2000 Recycling and High Incineration at 'central growth rate'

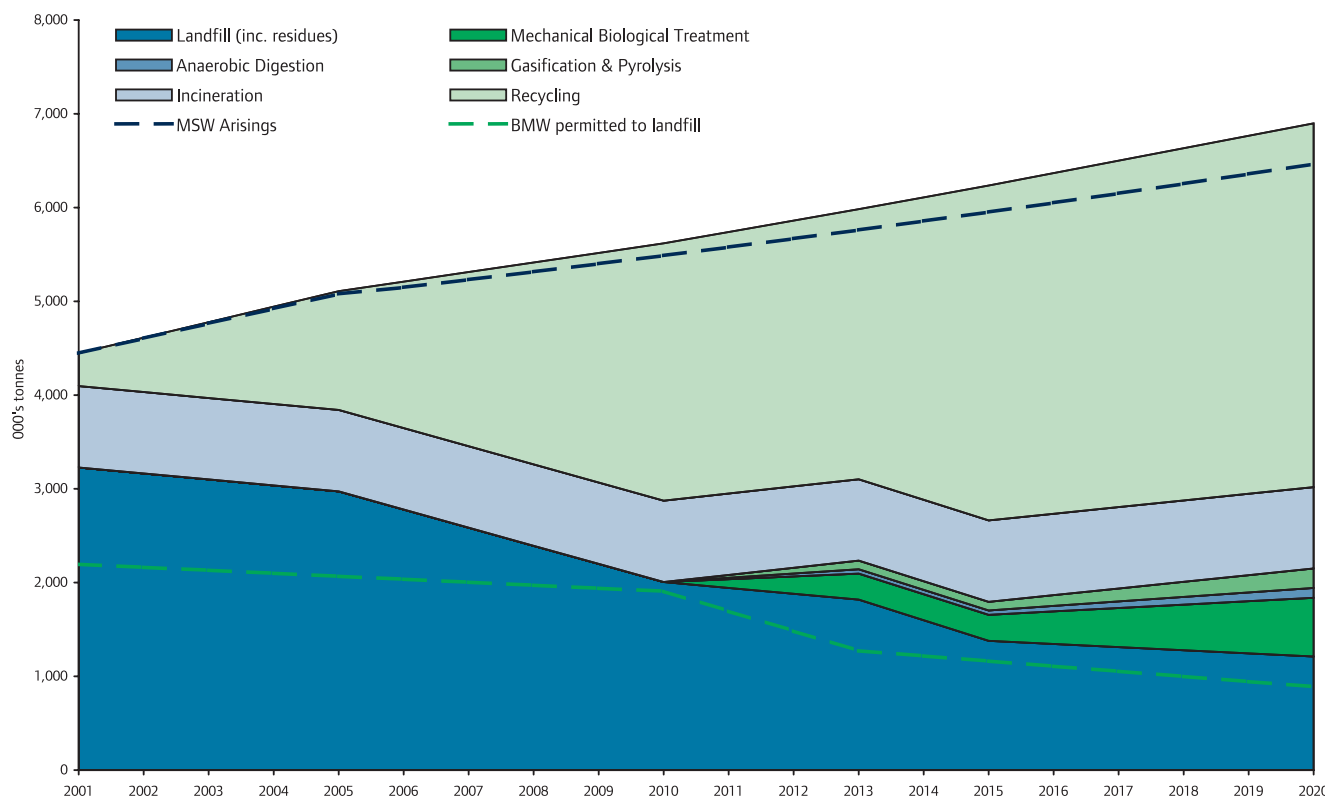


source: GLA 2003



2.127 Option Three: High Recycling - The recycling rates in this option are those advocated by the House of Commons Select Committee on Environment, Transport and Regional Affairs Fifth Report session 2000/01. Recycling was set at 25 per cent in 2005, 50 per cent in 2010 and 60 per cent in 2015. It has been assumed that recycling stabilises at 60 per cent thereafter. There is no further increase in conventional incineration from 2001/02 levels. Any additional capacity required to reach the requirements of the Landfill Directive is met through a mix of new technologies. All other waste is sent to landfill. Figure 20 shows the capacity requirements of this option until 2020.

Figure 20 Total estimated capacity of waste management facilities for Option Three, High Recycling at 'central growth rate'

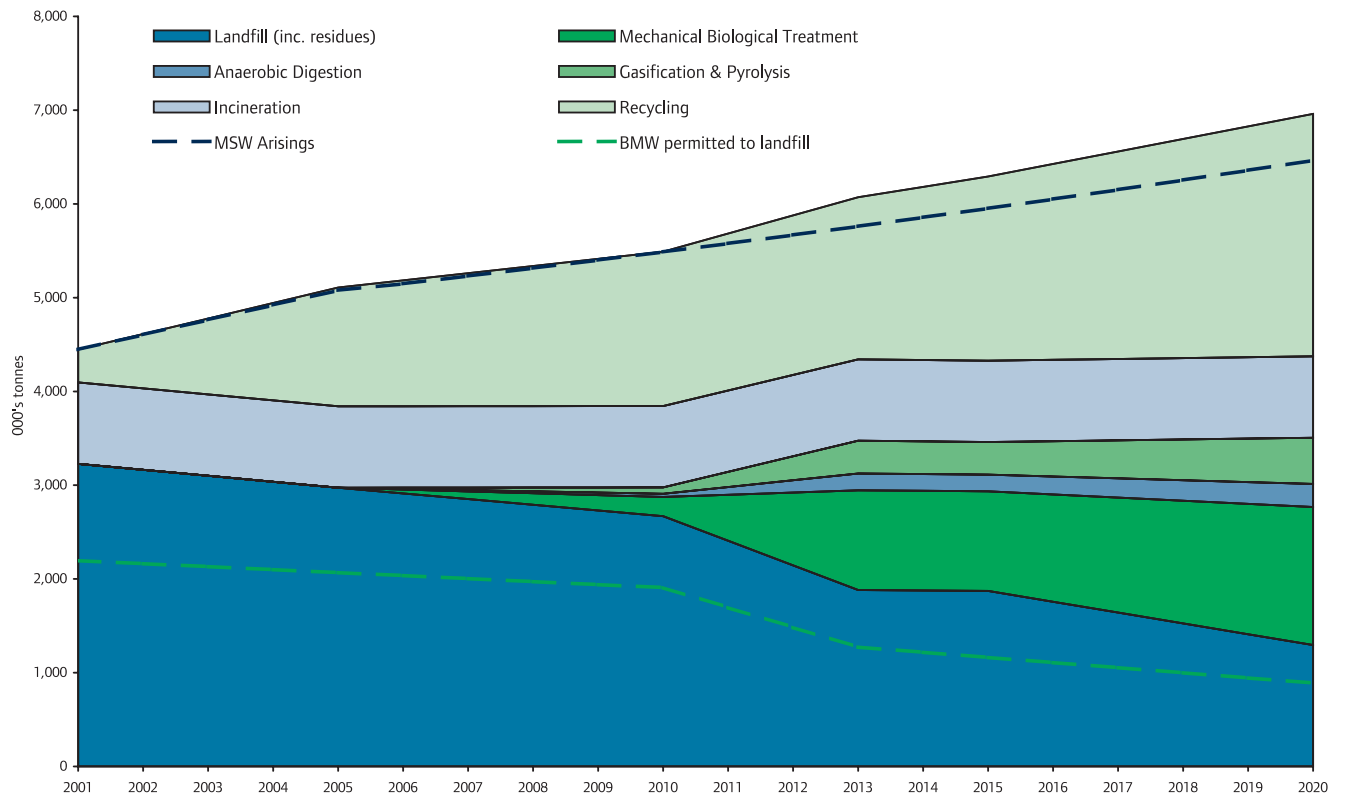


source: GLA 2003

2.128 Option Four: Waste Strategy 2000 Recycling and Balanced Technology Mix - The recycling rates in this scenario use the national targets expressed in Waste Strategy 2000. These are 25 per cent in 2005, 30 per cent in 2010, rising to 33 per cent in 2015. It has been assumed that recycling increases to 40 per cent by 2020. Any additional capacity needed to achieve the targets of the Landfill Directive is met through a mix of new technologies. There is no further increase in conventional incineration from 2001/02 levels. Remaining waste is sent to landfill. Figure 21 shows the capacity requirements of this option until 2020.

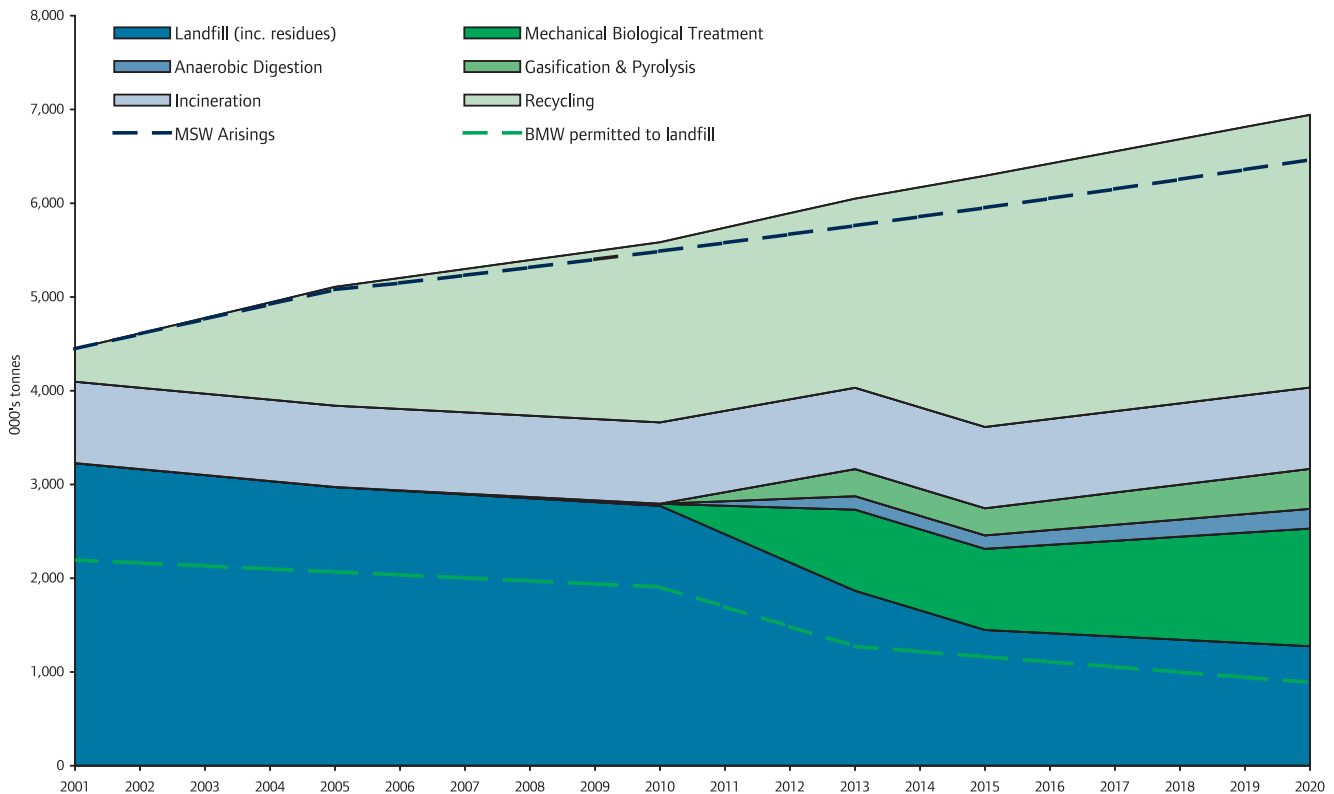
2.129 Option Five: Government's Strategy Unit Report Recycling and Balanced Technology Mix - The recycling rates in this option are those rates advocated by the Government's Strategy Unit report, "Waste not, Want not". These are a recycling rate of 25 per cent in 2005, 35 per cent in 2010, rising to 45 per cent in 2015. Recycling is assumed to remain at 45 per cent in 2020. Any additional capacity needed to reach the requirements of the Landfill Directive is met through a mix of new technologies. There is no further increase in conventional incineration. Remaining waste is sent to landfill. Figure 22 shows the capacity requirements of this option until 2020.

Figure 21 Total estimated capacity of waste management facilities for Option Four, Waste Strategy 2000 Recycling and Balanced Technology Mix at 'central growth rate'



source: GLA 2003

Figure 22 Total estimated capacity of waste management facilities for Option Five, Strategy Report Recycling and Balanced Technology Mix at 'central growth rate'



source: GLA 2003

Results

2.130 An analysis was undertaken of each option, based upon the 'central' growth scenario. Each option's performance was considered against four criteria. Waste Strategy 2000 advises that judgements about which mix of waste management options provides the best practicable environment option (BPEO) can be resolved using decision processes that analyse the trade-offs between objectives or criteria. The process should be comprehensive, flexible, iterative and transparent. Table 25 summarises this analysis and the following section details the considerations made.

Table 25 Benefits and Costs of Options at 'central growth rate'

Option	Economic Costs in 2020 (£m)	Feasibility as a way to meet the Landfill Directive	Proximity/Self sufficiency/hierarchy considerations	Flexibility
Option One: Business as Usual	£634	✗ Does not meet Landfill Directive diversion targets	✗ Not proximal – relies upon landfill which is predominantly outside of London. Landfill capacity is limited within London (there will be no landfill capacity in London by 2015). Therefore this option is not self-sufficient. Landfill is the least desirable waste management method	✗ None – no opportunity to increase recycling or recovery
Option Two: WS 2000 recycling with high incineration	£550	✓✓ This option could deliver Landfill Directive targets. However the additional incineration capacity required is such that there is a significant risk that the planning system may not be able to deliver the number and scale of facilities required, in time.	✓ This would deliver a higher degree of self-sufficiency. Process residues would need to be accounted for, as would the requirements for regional hazardous waste landfill sites to safely dispose of fly-ash. The likely scale of conventional incinerators is such that they do not deliver local solutions. As a residual waste management solution, incineration is the next option above landfill on the hierarchy.	✓ Requires long-term contract commitments, typically 25-30 years, and often minimum tonnage requirements. Fails to encourage movement up the waste hierarchy. Stifles innovation.
Option Three: High Recycling	£550	✓✓ Requires legislative changes and introduction of fiscal measures. High recycling cannot achieve Landfill Directive targets on its own and requires further residual waste processes. However, as the levels of recycling in this	✓✓✓ The levels of recycling in this option would result in sub-regional processing and reprocessing facilities, for some materials. While achieving a greater degree of self-sufficiency for	✓✓

Option	Economic Costs in 2020 (£m)	Feasibility as a way to meet the Landfill Directive	Proximity/Self sufficiency/hierarchy considerations	Flexibility
		option are highest, it requires the least additional, and often very costly, residual waste management capacity.	London, this would not necessarily achieve proximity to the point of waste origin.	This option does allow a greater degree of flexibility than an option based upon incineration, as contracts may be more flexible and over a shorter term. However, it still relies heavily upon one method of waste management – recycling
Option Four: WS 2000 recycling and balanced technology mix	£540	✓✓ As with option two, this requires significant new residual waste management capacity. Whilst new technology is higher up the hierarchy, will still face challenges through the planning process, although facilities can be smaller, and tailored to meet the requirements of the local community.	✓✓ This option has the potential to offer local solutions and to maximise self-sufficiency. However, even though this deals with residual waste further up the hierarchy than options one and two, recycling levels could be higher.	✓✓✓ Provides a good mix of waste management options and avoids over reliance on any one method of management.
Option Five: SU Report recycling and balanced technology mix	£546	✓✓✓ The level of recycling is such that it offers a good balance between what is currently achievable, and the demand for additional residual waste management facilities.	✓✓✓ The use of recycling and new technologies are further up the hierarchy than landfill and conventional incineration. Facilities can be smaller, and tailored to meet the requirements of the local community. The use of gasification/pyrolysis can prevent the need for the disposal of hazardous fly ash.	✓✓✓ Provides a good mix of waste management options and avoids over reliance on any one method of management.

✓✓✓ offers maximum benefits

✓✓ offers some benefits

✓ offers few benefits

X offers no benefits

sources: Cost Data – Enviro 2003, Costing the Mayor's Waste Strategy for London; Based on Strategy Unit 2002, Waste not, want not.

2.131 Option One is judged to fail on all four criteria. The Business as Usual approach demonstrates that London would require 5.1 million tonnes of landfill capacity (including 32,000 tonnes of residues, mainly from composting) by 2020. As such, it will not meet the Landfill Directive targets. All of this waste would need to be exported to landfill sites in the surrounding regions. It therefore does not deal with waste in proximity to its point of origin. This option offers no flexibility, and relies on only one waste management option. This option is unsustainable, but demonstrates why London needs to radically change the way that it manages its waste.



2.132 If London were to adopt Option Two 1.2 million tonnes of waste would need to be landfilled by 2020 (including 205,000 tonnes of residue, mostly from windrow and in vessel composting). For the purposes of this scenario it has been assumed that markets can be found for incinerator bottom ash (608,000 tonnes). A considerable amount of hazardous fly-ash would also need to be deposited in hazardous landfill sites. This need could be mitigated by the use of advanced conversion technologies, which are able to treat fly-ash. Large organic compounds such as dioxins captured in fly-ash, can be decomposed at the high-operating temperature and residence time into smaller species. In order to meet the requirements of the Landfill Directive, 2.9 million tonnes of incinerator capacity would be needed by 2020. The requirement for 2.3 million tonnes of this capacity by 2013 is even more challenging. Given London's current incineration capacity, this would require an additional 1.4 million tonnes of capacity, which is equivalent about to three new incineration plants the size of Edmonton, or six new 250,000 tonnes per annum incinerators. As such, an option based solely upon the use of conventional incineration would probably lead to sub regional facilities which, while achieving a greater degree of self-sufficiency for London, would not necessarily achieve proximity to the point of waste origin. Option Two could also lead to inflexible arrangements with no incentive to develop more innovative solutions higher up the hierarchy. Often conventional incineration plants require long-term contract commitments and minimum tonnage requirements.

2.133 Option Three would require in 3.9 million tonnes of recycling by 2020. This represents more than a ten-fold increase in the amount of waste that is recycled. Even with this level of recycling, an additional 0.94 million tonnes would need to be diverted from landfill to meet the Landfill Directive targets. In this option, as with options four and five, the shortfall has been distributed to Mechanical Biological Treatment, and advanced conversion technologies, whilst conventional incineration capacity has been kept at 2001/02 levels. In the case of high recycling, changes to primary legislation are required which means that the

timescale for achievement is dependent on external factors outside of the control of the Mayor. However, if changes to legislation outlined in this Strategy occurred, this option may become the preferred route. It is clear that the higher the level of recycling, the lower the capacity of residual waste management capacity required.

- 2.134 Option Four would require 2.6 million tonnes of recycling by 2020. An additional 2.2 million tonnes of new technology capacity would be needed to meet the Landfill Directive target. This would be met mainly through Mechanical Biological Treatment capacity, and would require eight new plants the size and scale of those planned for east London. This option performs relatively well in all areas. However the lower levels of recycling in this option compared to options three and five, mean that a greater level of residual waste management capacity is required. As such, there is potentially an increased planning risk associated with the delivery of additional facilities.
- 2.135 Option Five offers maximum benefits in all of the criteria. Exceeding national waste strategy targets would result in 2.9 million tonnes of recycling by 2020. Coupled with existing conventional incineration capacity, an additional 1.9 million tonnes of new technology capacity would be needed to meet the Landfill Directive diversion target. Table 26 indicates the capacity and types of facilities required by this option.
- 2.136 The balanced approach avoids reliance on any one management method, and spreads the planning risk associated with waste management facilities. No additional conventional incineration capacity has been added. London already accounts for over one third of England's conventional incineration capacity. As a proportion of its municipal waste arisings, London currently incinerates twice the national average⁸⁰. Adopting higher targets allows more time to develop options further up the waste hierarchy. Option Five requires no significant additional new residual waste management capacity until 2013. The additional capacity required is reduced by the higher recycling rate of 35 per cent. Option Five enables greater flexibility, as facilities are typically smaller and can be tailored to meet the requirements of the local community and proximity. For example, instead of transfer stations accepting waste, before bulking for disposal to landfill, waste could be taken directly to Mechanical Biological Treatment plants within London. This would reduce the volume and weight of material, as well as increasing the potential for recycling. The general residue remaining after the process could then be transferred to sub-regional advanced conversion technology facilities for energy recovery.



Table 26 Total Capacity of waste management facilities required to manage municipal waste in London for Landfill Directive target years, under Option Five at the 'central' growth rate

Waste Facility	Capacity required in Landfill Directive target years (million tonnes)		
	2010	2013	2020
Material Reclamation Facilities	0.150	0.175	0.306
Recyclate bulking	1.278	1.192	1.269
Composting	0.492	0.650	1.334
Mechanical Biological Treatment	0.023	0.865	1.255
Anaerobic Digestion	0	0.144	0.210
Gasification/Pyrolysis	0	0.289	0.426
Conventional Incineration	0.865	0.865	0.865
Landfill	2.772	1.866	1.275

Landfill capacity requirements

2.137 Under all of the waste management options considered, London requires some landfill disposal capacity for municipal waste. It will take time to develop the infrastructure that London requires to manage a greater proportion of its waste. At the same time, the landfill capacity within London is finite, and is likely to expire by 2015. As a consequence, London will need to continue exporting a proportion of its municipal waste to the surrounding regions. This includes treated municipal wastes and residues from other waste management processes.

2.138 By 2010 at the 'central' growth rate, London will need between 2.0 and 2.8 million tonnes of landfill capacity, depending on the waste management option (excluding the Business as Usual option). Once again, this demonstrates the impact of higher levels of recycling. Under Option Three, high levels of recycling with existing conventional incineration capacity means that the Landfill Directive target is comfortably met. As a consequence, under this option, only 2.0 million tonnes of landfill capacity is required. However, as already stated above, in order to achieve 50 per cent recycling by 2010, significant legislative and financial changes have to occur before this approach can be advocated. The other options modelled require capacity of between 2.7 million tonnes and 2.8 million tonnes. This is likely to be the maximum landfill capacity for municipal waste required. There is only a shortfall in the Landfill Directive diversion target for 2010 at the higher rates of growth and this can be met through new technology, such as Mechanical Biological Treatment or through the purchase of landfill allowances. It should be noted that Shanks has been awarded a contract with East London Waste Authority, including the provision of two Mechanical

Biological Treatment plants with a combined capacity of 0.360 million tonnes. Planning applications have been submitted for these sites. The Mayor has supported this application, concluding that it supports his aims of waste reduction, recycling and sustainable waste treatment processes, as set out in his Economic Development and draft Municipal Waste Management Strategy⁸¹. This additional capacity has not been included in the modelling as the planning decisions are pending.

- 2.139 By 2013 at the 'central' growth rate, London's landfill capacity requirement for municipal waste will reduce to between 1.8 and 1.9 million tonnes, for all options, excluding business as usual. The diversion target for 2013 is challenging, and as such no options can rely solely on recycling and existing conventional incineration capacity alone.
- 2.140 By 2020, the options modelling shows that the need for landfill would reduce further to 1.2 to 1.3 million tonnes of capacity for municipal waste, including disposal capacity for residues from other treatment processes. Under the preferred option the requirement for landfill equates to 20 per cent of arisings. If London were to 'do nothing', it would need over five million tonnes of landfill capacity in 2020.

Cost assessment of waste management options

- 2.141 A cost assessment, of the five waste management options modelled, was undertaken by Enviro. There is a high degree of uncertainty associated with predicting waste management costs. However, it can be said with confidence that doing nothing, the 'Business as Usual' option, will cost significantly more than the other four waste management options. At the 'central growth rate', Enviro forecast that by 2020, the 'Business as Usual' option would cost £634 million per year. The cost of the four remaining options ranged between £540 million (Option Four) and £550 million (Options Two and Three). On the basis of the analysis it is not significant, in terms of costs, which of the remaining four options is chosen. Further details of the cost assessment are included in Chapter 5. The full costing report is available on request or from the Greater London Authority website, www.london.gov.uk.

Risk

- 2.142 The Mayor believes that Option Five, which exceeds national recycling targets and advocates the development of Mechanical Biological Treatment and advanced conversion technologies, offers the most benefits and the most manageable risk of the options considered.
- 2.143 Some of the risks facing the preferred option include the assumption that secondary markets are found for the Refuse Derived Fuel (RDF) produced.

If no market were found for the stabilate, this material would need to be sent to landfill. However, advanced conversion technologies can operate using RDF as a feedstock to produce renewable energy, eligible for Renewables Obligations Certificates (ROCs). This is discussed further in Section 4E. The Mayor is committed to supporting the development of new waste treatment methods and new and emerging advanced conversion technologies, including the identification of secondary markets. It should be noted however, that the risk of finding secondary markets also applies to Option Two, high incineration, where it has been assumed that secondary markets are found for bottom ash (over 0.6 million tonnes).

- 2.144 Another risk concerning new technology is obtaining financial backing for new technology, as it is yet to be operated at a commercially viable scale within the UK. Cost modelling undertaken by Enviros for this Strategy, demonstrates that the costs of new technology are comparable to any of the other 'do something' options over the period to 2020. Examples of operating commercial-scale plants are also discussed further in Section 4E. DEFRA has announced a 'new technology programme'⁸² to overcome barriers within England to new technologies. This includes a minimum £3.8 million of financial aid for its development⁸³. DEFRA expect this to increase over the life of the three year programme. The Mayor will work closely with the Government to aid the development of new technology in London.

Other 'world cities'

- 2.145 Comparison with other international cities is complex for a number of reasons but does have value in providing inspiration of what can be achieved in cities and as a practical demonstration of programmes that can work. For example, Canadian cities use very different methods to calculate a 'recycling rate' and some include an estimated amount of waste which is recycled through 'grass-cycling' by residents who leave their grass cuttings on their lawns to break down and rot away and hence are not thrown into the dustbin. In comparison, the calculation of a recycling rate for local authority Best Value Performance Indicators is restrictive on what can be counted and can therefore seem low in comparison.
- 2.146 Therefore, there is a danger in making direct comparisons between cities and indeed countries. A number of factors need to be considered when looking at other cities including:
- definitions of waste
 - waste streams that city authorities are responsible for
 - how recycling rates are calculated

- political structures
- national and regional legislation
- fiscal instruments
- demographic information
- housing
- restriction on disposal options
- markets for materials
- collection charges for householders
- economic costs of alternatives to recycling.

2.147 Nevertheless, it is clear from the example of other cities, that given the right conditions London could perform much better. This section outlines several examples of cities that have been successful in introducing recycling or reducing the amount of waste they produce. The list of cities is far from exhaustive, but the following outlines some examples of good practice around the world.

2.148 The Mayor commissioned a report comparing the recycling performance in London with other cities⁸⁴. The report compared London to examples of high-performing local authorities in the UK and other international examples. The full report is available on request. Comparisons were made with Bath and North-east Somerset, and Hampshire in the UK and internationally with Canberra, Copenhagen, Berlin, Ontario and Toronto.

2.149 The following points can be drawn from the report :

- London's per capita waste generation is at the middle of the range, and its overall diversion rate is better than the two UK examples; better even than Toronto - but not as good as the other overseas examples.
- The relative sizes, and profiles, of the different examples vary considerably. Ontario alone, at 11.4 million, represents a larger population than London, but it is spread over a much larger geographical region than London and unlike London has considerable rural areas. The city of Toronto, despite having a population just one-third of the size of London's, has some similarities with London and does much better than London on recycling and central composting (23 per cent compared to nine per cent).
- Berlin is less than half London's size, in terms of population, but it recycles and composts more than twice as many actual tonnes as London.
- Canberra not only has a small population in comparison with London, its whole structure and framework is different. Its high composting rate (35 per cent) reflects the large gardens of the affluent community.



New York

- 2.150 New York is a similar city to London in many ways and faces a number of the challenges London faces. New York has eight million inhabitants, a population similar to that of London and is the most densely populated city in the US with a density of 10,238 people per square kilometre. The majority of the population, over 71 per cent, live in structures housing three or more families. New York also has a large social housing sector.
- 2.151 In 2001, New York recycled 20 per cent of waste collected from householders. Recycling of household waste in New York began in the late 1980s. By September 1993, 'kerbside' recycling was provided citywide. Since then the range of materials collected has been increased. The collection programme is now the largest in the US and provides collections to all three million households. Paper, cardboard, metals and plastic bottles are collected for recycling through 'kerbside' recycling collections. The provision of these 'kerbside' recycling services results in 2,400 vehicle movements around the city each week. Some districts are also provided with three garden waste 'kerbside' collections during the autumn.
- 2.152 Legislation is in place to aid recycling. For example recycling has been mandatory for household and commercial waste since 1989, when New York City Council passed legislation setting volumes for recycling. State law requires the 'kerbside' collection of recycled materials from householders. City ordinance also requires that housing complexes with three or more apartment units must have at least one recycling area that is accessible to residents and larger buildings are encouraged to have recycling facilities on every floor.
- 2.153 Enforcement and penalty systems also operate hand in hand with the provision of services. One example of this occurs if apartment recycling containers are contaminated with waste. In this instance, the container is not collected and a fine is levied against the whole apartment block. Repeated failure results in further action. Enforcement is carried out through fines: a first offence carries a fine of \$25, increasing to \$50 for a second notice, \$100 for a third notice and \$500 for four or more notices within a six-month period. Buildings with ten or more apartments that receive more than four fines during a six-month period are then fined \$500 per sack that violates the recycling regulations, up to a maximum of 20 sacks within a 24-hour period. Therefore a maximum daily fine could feasibly be \$10,000. These fines are usually imposed on building owners rather than tenants. Fines can also be imposed for failing to provide instructions on how to use recycling services to tenants. Individual tenants can also be fined for failure to separate and rinse recyclable containers.



- 2.154 New York also has a five cents beverage container deposit system for carbonated drinks and beer containers. The return rate for these is around 85 per cent.
- 2.155 Recent budget pressures have affected the level of service provided in New York. The frequency of recycling collections has been reduced from weekly to fortnightly. Until July 2002, New Yorkers received two 'kerbside' collections for recyclables per week, one collecting newspaper and cardboard and the second collecting metals, glass and plastic (MGP). In July 2002, Mayor Bloomberg announced the suspension of the 'kerbside' collection of plastics for one year and glass for two years to help reduce budget deficits. The city has now been able to work out better contracts that will lower costs for these materials. The collection of plastics has resumed and the collection of glass is due to recommence on 1 April 2004, along with the return to weekly collections⁸⁵. However, the changes in standards of service and the materials collected has undermined public confidence and caused some confusion⁸⁶. The cut-back in the recycling programme has led some residents to deposit recyclables in litter bins rather than store two weeks of recyclable materials in the home. Others have put out recyclable waste at the wrong time, contributing to a perception of additional waste on the street⁸⁷.
- 2.156 New York demonstrates that recycling in a large city, with a significant proportion of multi-occupancy dwellings can work, but equally shows the impact of financial pressures on recycling services if they are not financially viable and the dangers of reducing or changing levels of service. However, there are significant differences between the political structures, legislation and financial incentives in London and New York that make direct application of the New York model impossible at present. Key drivers in New York have included the citywide provision of 'kerbside' recycling for almost a decade, education, legislation and enforcement measures. The Mayor also has direct control of waste management service provision.

Tokyo

- 2.157 The 23 wards of Tokyo (the equivalent of boroughs, which comprise the more densely urbanised eastern part of Tokyo) had a growing population of 8.21 million in 2001 and produced 3.52 million tonnes of municipal waste together with 0.55 million tonnes of material for recycling⁸⁸. Since 1999, materials collected for recycling have been excluded from the calculation of municipal waste tonnages. This was equivalent to a combined total (waste and recycling) of 0.5 tonnes per person or 1.06 tonnes per household, per annum. It is equivalent to a recycling rate of 13.5 per cent. These figures are broadly similar to those for Greater



London. Nevertheless, there are major differences between the two cities. Firstly, the tonnage of municipal waste in Tokyo has been falling steadily at about minus two and a half per cent per annum for the past decade and is now 28 per cent below the peak in 1989. If the material collected for recycling is added back into the calculation, to bring the figures back into line with London practice, there has still been a 17 per cent reduction. The Tokyo Metropolitan Government ascribes this to three factors: more public awareness of the waste problem stimulated by the waste reduction campaign; changes in the composition of waste; and the recent economic recession⁸⁹. However, it is worth noting in relation to the last factor, that the down-turn in the tonnage of waste began several years before the Japanese, and Tokyo, economy went into recession in 1992 (see Figure 23).

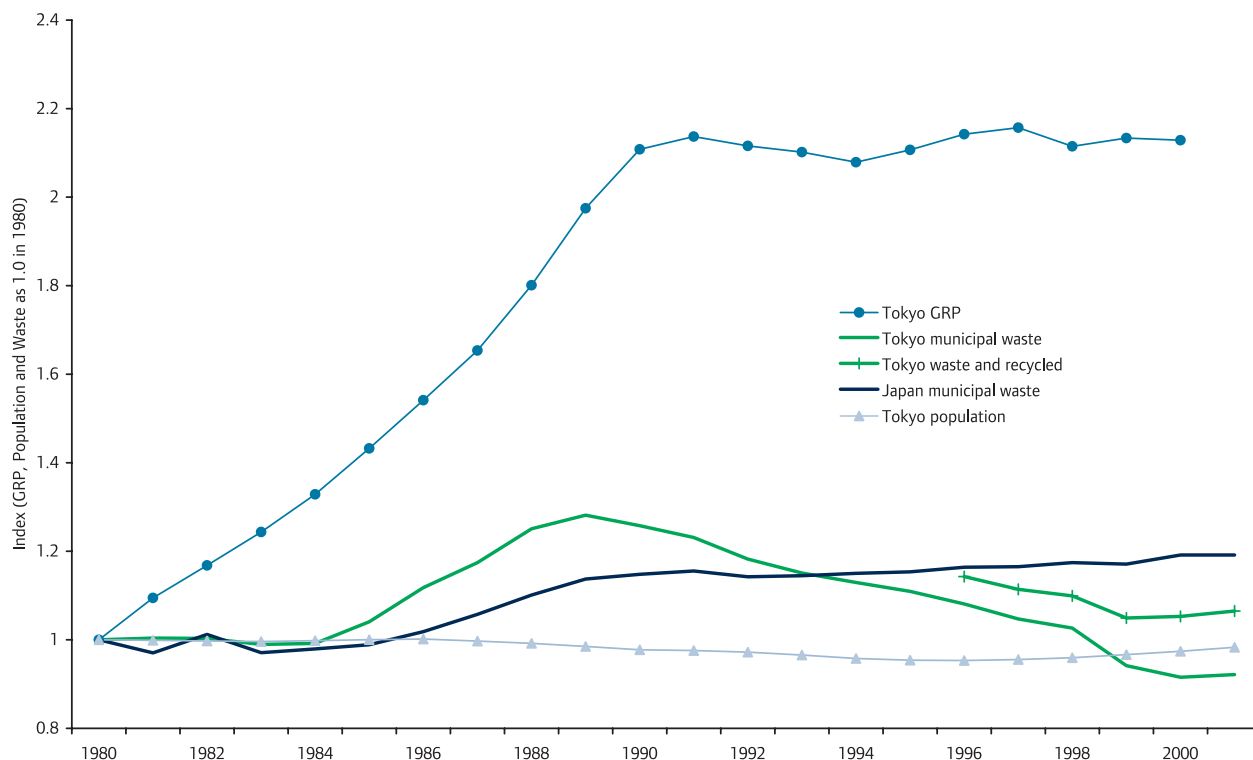
- 2.158 The other major difference between London and Tokyo is that 74 per cent of Tokyo's waste is incinerated in 17 plants before the residue is disposed of by landfilling. Less than one per cent of waste is sent directly to landfill. Residents separate waste into combustible waste (collected twice a week), incombustible waste (collected once a week) and materials for recycling (also collected once a week). Used paper (newspapers, magazines and cardboard), bottles and cans are collected but PET bottles for beverages, liquor, mirin (sweet sake used as seasoning) and soy sauce are recycled through 4,456 retailers.
- 2.159 The main lessons for London are that a continuous rise in the level of waste is not inevitable and that it is possible to set up effective collection systems that divert waste away from landfill. To ask householders to separate out combustible waste (in Tokyo) is not fundamentally different to asking residents (in London) to separate out biodegradable waste. Biodegradable waste can be composted and this, in UK terms, counts as recycling.

Berlin

- 2.160 Berlin has a population of 3.39 million and around 1.823 million households. Like London it is experiencing population growth. The population density is greater than 4,000 per square kilometre.
- 2.161 The framework for waste management is set by legislation from the European Union, the Federal Republic of Germany and the region of Berlin itself. The aims of waste management are set out in German law, giving priority to the avoidance of waste. Where this is not possible, then waste should be used as a material or a source of energy. Only waste that cannot be utilised should be disposed of to landfill.



Figure 23 Gross Domestic Product (GDP), population and waste arising in Tokyo 1980 to 2000



note: Tokyo waste and population data relates to the 23 wards of Tokyo with a population in 2001 of 8.2 million. Tokyo Gross Regional Product (GRP) data relates to the whole of Tokyo. Data on amounts of materials collected for recycling is not available prior to 1996 and has been estimated for 1996-1999. Materials collected for recycling are excluded from the definition of municipal waste but in other respects the definitions are similar in London and Tokyo. Provisional figures for 2002 show a continued decline in the quantity of municipal waste after a slight increase in 2001.

source: Data provided by Tokyo Metropolitan Government and the Waste Management Council of Tokyo 23 cities.

2.162 The ordinance on waste storage, which came into force in March 2001 in Germany, bans the landfill of untreated municipal waste from June 2005. Instead non-recycled wastes need to be either thermally treated or pre-treated using mechanical-biological processes before sending waste to landfill. In 2000 Berlin sent 40 per cent of its municipal waste to landfill and incinerated 25 per cent of its waste; the remainder (35 per cent) was recycled. Current incineration capacity is 500,000 tonnes. It is estimated that Berlin will need to find an alternative route for around 480,000 tonnes by 2005, once recycling has been taken into account.

2.163 Between 1992 and 2000, the amount of household waste⁹⁰ sent for disposal has been reduced from 1.183 to 0.975 million tonnes. This has largely been due to significant increases in recycling from 289,000 to

623,000 tonnes over the same period. The overall amount waste from households has grown by around ten per cent.

- 2.164 Regional law states that Berlin citizens must have the opportunity to have certain materials collected separately from their normal waste. These include paper, card, glass, plastic, organic waste, metals, electrical equipment and bulky wastes. The costs of recycling are not passed on to householders: these costs are covered by licensing fees for the 'Grüner Punkt' (Green dot) system. Manufacturers in Germany are required by law to take back all post-consumer packaging. Manufacturers can exempt themselves from this, if they participate in national waste management programmes, such as the Duales System Deutschland GmbH (Dual system of Germany). The Duales system is operated as a not-for-profit organisation, which collects, sorts and recycles post-consumer packaging from both households and small businesses throughout the country. Manufacturers pay a licence fee based on the type and amount of packaging they produce. Participation in the scheme, means manufacturers can place a green dot on their product, indicating to the householder or business that the waste should be collected through the Duales programme rather than sent back to the manufacturer.
- 2.165 Key drivers behind the success of recycling in Berlin include legislation, including the impact of packaging legislation leading to the Grüner Punkt system. Recycling is 'protected' from being crowded out by producer responsibility and the costs of alternative methods of management. Environment issues have been on the agenda in Germany for a significantly longer period than in the UK and thus environmental awareness is greater.

Seattle

- 2.166 With a population of 534,700 Seattle is significantly smaller than London. However, Seattle faces similar challenges in delivering services to its residents. Over 40 per cent of Seattle's housing stock is comprised of five or more apartment units. Seattle is also an important centre for tourism. In the mid 1980s the two landfill sites accepting the city's waste were closed. The cost of using landfill in the surrounding areas was three times more expensive than the two closed sites and traditional incineration faced opposition from the majority of Seattle's residents. As a consequence an extensive 'kerbside' recycling programme has been in operation since 1988 in order to reduce the quantity of waste requiring final disposal.
- 2.167 'Kerbside' recycling services are provided to all buildings with four or less household apartments. A separate programme operates for multi-



occupancy complexes. Refuse is collected weekly, with dry recyclables and organics collected on alternate weeks. Residents choose which size of container they require.

- 2.168 Seattle recycled approximately 34 per cent of its household waste in 2002, although this figure includes recycling from small businesses, which also receive 'kerbside' collections of recycling. In 2002, over 500 small businesses used the service⁹¹. However, this high level of recycling has not stifled the growth in waste arisings in the city, but has meant waste sent for disposal has remained at similar levels to 1988. Waste is bulked at two transfer stations and sent by rail to a landfill site in Oregon.
- 2.169 The key driver in Seattle's success is that it is cheaper to recycle or compost waste than to landfill; but this is not true in London at present. Increases in recycling are estimated to have saved Seattle \$12.1 million between 1988 and 1999. The city pays a 'base price' to its contractors for recycling different materials and takes on all the market risk. If the price falls beneath the base price the city pays the difference. Alternatively if prices rise above the base price the city deducts this from what it pays for collection. Householders are also charged for waste disposal based on the size of the waste container they use. Prior to 1988 a flat fee was paid. Seattle Public Utilities' waste services are entirely funded through their charges.



Canberra

- 2.170 Another city often held up as a good example of how recycling in cities can work is Canberra. However, Canberra is very different to London, and indeed, not particularly representative of the rest of Australia. Canberra may offer better comparison to an outer London borough than to the whole of London. The city has a population of 311,000 and a low population density, with 80 per cent of housing detached. The population consists largely of civil servants, and has higher than the national average incomes and higher levels of education. Waste is managed by one department, whereas several departments may be involved in other Australian cities. This allows Canberra to have a better strategic approach to waste.
- 2.171 In 1996, the Australian Capital Territory (ACT) Government was the first municipal government to set a target of 'zero waste' by 2010. In 2001/02, Canberra recycled around 64 per cent of its municipal waste. As in most cases, caution must be taken when comparing this to London, as wastes collected by the relevant authorities vary. The vast majority of this recycling is through the recycling of demolition waste, which accounted for 188,191 of the 398,967 tonnes recycled⁹². Only a very small proportion of demolition waste in London is managed by local authorities.



With detached housing accounting for 80 per cent of the housing stock and the large land area the city covers, parks and garden waste also make up a significant proportion of the recycling tonnage.

- 2.172 Whilst Canberra has experienced success in increasing the proportion of its municipal waste that is recycled, the amount of household waste sent to landfill continues to rise. The State of the Environment 2000 ACT Report⁹³ outlines the problem 'Nevertheless, the pattern of domestic waste to landfill has not declined in the way that might have been expected. After an initial drop, it rose again with the introduction of charges for private landfill deliveries in January 1996 and increased substantially in 1997/98, possibly with the improvement in the ACT economy, and has continued to increase during 1998/99 and 1999/2000. Even taking into account population growth, the per-person rate of domestic waste to landfill has increased in the reporting period'.
- 2.173 The costs of landfill in Canberra are relatively low, and there is no incineration capacity in the city. There are also currently no statutory requirements to encourage recycling. Residents pay for their household collections through local authority tax rates. With the absence of fiscal and legal measures, the success of recycling in Canberra is put down to public awareness. It is also worth noting that significant markets exist for materials. The Government is a major purchaser of recycled paper, compost and aggregates. Construction firms and civil contractors are also major purchasers of aggregates and compost. In many cases using recycled products is also cheaper than virgin products.

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- 17 Based on tonnage of household (bin) collection round waste and household recycling divided by the number of households and 52 weeks
- 18 Excluding kerbside collections of organic waste for composting
- 19 Based on GLA household projections
- 20 Excludes rubble recycled at Civic Amenity sites
- 21 Includes kerbside collected organic waste for composting
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- 23 Bring recycling tonnages for glass, mixed cans and mixed paper are included in the kerbside tonnage
- 24 Includes two Civic Amenity sites operated by Western Riverside Waste Authority
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- 47 By July 2001 for new sites and July 2002 for other sites (nb any sites taking these wastes in July 2002 will be classified as a hazardous site, the banks apply to hazardous sites in July 2002, therefore these substances cannot be landfilled at any site beyond July 2002 (Implementation of the Council Directive 1999/31/EC on the Landfill of Waste - Second Consultation Paper (DEFRA) August 2001
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3 vision and linkages

This Chapter sets out the Mayor's vision for London and the role that municipal waste management needs to play to help London attain that vision. The Chapter sets out the specific objectives of the Strategy and the scope of the Strategy document. The Chapter does on to discuss the key organisations in London, which will have a role implementing these objectives.

The Chapter also analyses the links with the Mayor's other statutory strategies and considers the principal purposes to promote economic development and wealth creation; promote social development; and promote the improvement of the environment in Greater London. The cross-cutting themes consider specifically the health of Londoners, the achievement of sustainable development in the United Kingdom, due regard for the equality of opportunity for all people.

The Mayor's vision for London

- 3.1 The Mayor's vision is to develop London as an exemplary, sustainable world city, based on three interwoven themes:
- strong, diverse long term economic growth
 - social inclusiveness to give all Londoners the opportunity to share in London's future success
 - fundamental improvements in London's environment and use of resources.

3.2 **This means London needs to become:**

A prosperous city: in which all share in the benefits of wealth created in London's dynamic economy.

A city for people: a liveable city of safe, attractive streets, where goods and services are within easy reach and where everyone feels safe and secure.

An accessible city: with fast, efficient and comfortable means of transport, and access to affordable homes, education and training, health, leisure and recreation.

A fair city: showing tolerance and abolishing all forms of discrimination, where neighbourhoods and communities have a say in their futures.

A green city: making efficient use of natural resources and energy, respecting the natural world and wildlife, using to the full the varied pattern of open space, eco-friendly design and construction methods, recycling waste and creating new 'green' industries.





- 3.3 Fulfilling this vision requires concerted action, which addresses the wide range of economic, social and environmental needs and priorities of Londoners and contribute to the achievement of sustainable development in the UK. Economic efficiency must be improved and its benefits shared so as to increase social cohesion and environmental quality, and raise the overall quality of life.
- 3.4 The Mayor's vision for London covers all London issues, and is necessarily wide-ranging. The Waste Strategy objectives deal with municipal waste issues. This Strategy and its implementation aim to meet the waste management objectives within the context of the Mayor's overall vision for London.

Aims and objectives for municipal waste management in London

Aims

- 3.5 The Year 2020 Vision for Waste in London
The Mayor's Vision for Waste in 2020 in London is that London's municipal waste no longer compromises a wider vision for London as a sustainable city. To achieve this, wasteful lifestyle habits must change so that we all produce only the absolute minimum amounts of waste, and the environment is no longer under pressure from waste. We need to ensure that municipal waste is managed in a way that minimises the adverse impact on the local and global environment, and on London communities, economy and health.
- 3.6 The Year 2020 Goals for Waste in London
If this vision is to be achieved by 2020, the way we live at home and at work needs to change. This means we must put in balance the effects of our lifestyle behaviours, and reduce the pressures we place on the environment and global resources. We must do this so that our environment does not continue to lose out and so that we stop squandering resources on which future generations will rely.

Objectives

- 3.7 It is the Mayor's objective to develop a 'waste reduction, reuse and recycling-led', cohesive and sustainable strategy for the management of London's waste which will:
- Change the way we use resources so that we waste less. This will require us to deal with waste in a sustainable way, and people and communities to take responsibility for their waste.
 - Reduce the amount of (municipal) waste produced in London.
 - Increase the proportion of London's (municipal) waste being reused.
 - Increase the proportion of London's (municipal) waste being recycled and ensure recycling facilities are available for all.



- Ensure that waste is managed in such a way as to minimise the impact on the environment and health.
- Move London towards becoming more self-sufficient in managing its (municipal) waste within the region, and towards waste being dealt with as close to the place of production as possible.
- Meet the objectives of the National Waste Strategy and Landfill Directive, and other European Directives, by reducing the amount of London's biodegradable municipal waste sent to landfill and reducing the toxicity of waste.
- Increase capacity of, stabilise and diversify the markets for recyclables in London; including green purchasing and encouraging redesign of goods and services to increase consumer choice.
- Maximise opportunities to optimise economic development and job creation opportunities in the waste management and reprocessing sectors, contribute to the improvement of the local community, and directly or indirectly improve the health of Londoners.
- Strategically plan waste facilities for London that meet the needs of the Waste Strategy and enable its implementation.
- Collect and share data and information on municipal waste management in London, and other places; the identification and dissemination of best practice will help to improve performance and reduce inefficiencies.
- Minimise the transport of waste by road and maximise the opportunities for the sustainable use of rail and water.
- Improve the local environment and street scene environment.

Scope

- 3.8 The Greater London Authority Act 1999 requires the Mayor to prepare a Municipal Waste Management Strategy, but municipal waste accounts for barely a quarter of London's total solid waste. The urgent need to provide guidance to London's Waste Collection and Waste Disposal Authorities means that the present Strategy is limited to municipal waste, although the London Plan will provide a framework for the planning of all waste in London. The Mayor recognises the need for a wider Strategy, and the preparation of a London Waste Strategy will follow the Municipal Waste Management Strategy.

Timescale

- 3.9 Whilst providing an overarching framework of policy until 2020, many of the proposals in this Strategy focus on the period up until 2005/06. There is recognition of the provisions of the Landfill Directive moving in on waste authorities. The Strategy considers the longer term and specifically take into account the requirements of the Landfill Directive up until 2020. After 2005/06, in the light of experience of working towards the



proposals and policies, and statutory targets, there will be a better understanding of what can be achieved in the future. This Strategy will need to be updated to take these developments into account.

Who does what on waste in London

3.10 The Mayor's strategic role for municipal waste in London is part of a jigsaw of governmental and non-governmental roles and responsibilities.

3.11 There is a key role for the private waste industry and the voluntary and community sectors in developing sustainable waste management, as well as the London Development Agency in supporting the economic growth of the sector. These roles are outlined in more detail below.

The Greater London Authority (GLA)

3.12 As part of his duties under the GLA Act 1999 (the Act), the Mayor has prepared and published this Municipal Waste Management Strategy, containing the policies and proposals for the recovery, treatment and disposal of municipal waste. It may also contain other policies and proposals relating to municipal waste as he considers appropriate. The Strategy will include targets appropriate for its implementation, which are not less demanding than the national targets. The Strategy needs to have regard to the boroughs' recycling plans.

3.13 The Mayor has been given rights of direction to enable the implementation of the Strategy. The boroughs remain the waste collection authorities and make their waste disposal arrangements, but the Mayor has certain statutory powers in relation to them.

3.14 When a waste authority in London is awarding a waste contract, the Mayor has to be informed before the first notice of the contract is placed in the Official Journal of the European Communities. The Mayor may then direct the waste authority to provide information about the contract. This is required for the purposes of deciding whether the contract would be detrimental to the implementation of the Waste Strategy.

3.15 The Waste Strategy may be achievable through co-operation with local authorities. In the absence of co-operation, the ability of the Mayor to secure implementation of the Waste Strategy can be achieved though the use of directions made:

- to influence contract processes
- to require actions within the terms of existing contracts
- to cover waste issues not within any contract.

3.16 The London boroughs remain the Planning Authorities, developing



Unitary Development Plans for their areas, but the Mayor has produced a Spatial Development Strategy (the London Plan) for London as a whole, with which the borough Unitary Development Plans (UDPs) will need to demonstrate conformity. These UDPs should identify sites and allocate sufficient land for waste management and disposal facilities of all waste, over the life of the plan.

- 3.17 Under the Town and Country Planning (Mayor of London) Order 2000, certain categories of relevant planning applications have been identified as requiring referral to the Mayor. Under Part II, Major Infrastructure, this includes waste development¹ to provide an installation with capacity for a throughput of more than 50,000 tonnes per annum of waste produced outside the land in respect of which planning permission is sought. Such proposals must be referred to the Mayor, who may after due consideration, direct a refusal of permission if he considers that the proposal is contrary to the London Plan (Spatial Development Strategy), or to good strategic planning in Greater London.
- 3.18 The exception to this is for applications for consent and deemed planning permission to construct, extend or operate an electricity generating station, whose capacity exceeds 50 megawatts. This may include large incinerators producing energy from waste. These are dealt with by the Secretary of State for Trade and Industry, under provisions of the Electricity Act 1989. Notice of the application must be served by the applicant on the relevant local planning authority. The relevant authority should note the criteria and thresholds (including if the facility has capacity for a throughput of more than 50,000 tonnes per annum of waste produced outside the land in respect of which planning permission is sought) in deciding whether consultation with the Mayor is necessary.

London Development Agency

- 3.19 The London Development Agency is the Mayor's agency for business and jobs. It prepares the Mayor's business plan for the capital, investing over £300 million a year and mobilising the support and resources of other organisations to create a better environment for London's diverse people, businesses and communities to thrive.
- 3.20 The London Development Agency produces London's Economic Development Strategy on behalf of the Mayor. The Strategy seeks to promote economic growth, knowledge and learning, inclusion and renewal and sustainable development for the benefit of London. The London Development Agency's Corporate Plan has identified the Environment Sector as a target sector for support and co-ordination, as a major plank of its commitment to sustainable development. The links between waste

and economic development are discussed further in the linkages section later in this chapter.

The Waste Authorities

- 3.21 London's waste authorities have an essential role in the implementation of this Strategy, through waste contracts, strategies and plans, the planning system and borough Unitary Development Plans, and their duties under Part II of the Environmental Protection Act 1990.
- 3.22 London boroughs have a statutory duty to collect household waste, and certain other waste defined as household by regulations. Boroughs, as waste collection authorities, also have a duty to collect commercial waste from business, if requested to do so, and a power to collect industrial waste, if they wish to do so and with the agreement of the Waste Disposal Authority.
- 3.23 Waste Disposal Authorities are responsible for arranging for the disposal of waste collected in their area by the Waste Collection Authority(ies). In many cases they also provide sites where householders can deposit bulky or extra household waste free of charge (Civic Amenity sites).
- 3.24 Twenty-one of the London boroughs are arranged into four statutory joint Waste Disposal Authorities. These authorities are responsible for the disposal of the municipal waste collected by their constituent Waste Collection Authorities. They are led by a committee of elected members from their constituent boroughs.
- 3.25 The waste authorities (see Figure 1) consist of:
- **East London Waste Authority (ELWA):**
London Boroughs of Barking and Dagenham, Havering, Newham and Redbridge
 - **North London Waste Authority (NLWA):**
London Boroughs of Barnet, Camden, Enfield, Hackney Haringey, Islington and Waltham Forest
 - **Western Riverside Waste Authority (WRWA):**
London Boroughs of Hammersmith and Fulham, Lambeth, Wandsworth and Royal Borough of Kensington and Chelsea
 - **West London Waste Authority (WLWA):**
London Boroughs of Brent, Ealing, Harrow, Hillingdon, Hounslow and Richmond upon Thames
- 3.26 In some metropolitan areas and for unitary councils, including London, local authorities are both the disposal authority and the collection authority. In London, 12 of the 33 boroughs are so called 'unitary'



authorities and deal with both the collection and disposal of waste.

- Authorities acting individually as waste disposal authorities:
London Boroughs of Bexley, Bromley, Croydon, Greenwich, Lewisham, Merton, Southwark, Sutton and Tower Hamlets, the Corporation of London, the Royal Borough of Kingston upon Thames and the City of Westminster

London Borough Recycling Plans

3.27 Section 49 of the Environmental Protection Act 1990 places a duty on all Waste Collection Authorities to produce recycling plans for the household and commercial wastes which they manage in their area. In London, this is the responsibility of the borough councils in their role as Waste Collection Authorities. However, this requirement is to be removed through the Waste and Emissions Trading Bill².

3.28 Until this time, Waste Collection Authorities are legally required to provide certain information in their recycling plans. This includes:

- The kinds and quantities of controlled wastes that the Waste Collection Authority expects to collect over the time period of the plan.
- The amount of waste that the Waste Collection Authority expects to purchase³ over the period of the plan.
- The amount of waste expected to be dealt with by separation, baling or otherwise packaging it for the purpose of recycling.
- Any arrangements with waste disposal contractors that the waste collection authority expects to make, and any equipment they expect to provide during the life of the plan.
- Details of savings or costs attributable to the methods of dealing with waste identified in the plan.

3.29 Section 353(3) of the Greater London Authority Act 1999 states that the Mayor's Municipal Waste Management Strategy must have regard to the recycling plans prepared by Waste Collection Authorities in Greater London. The Waste Collection Authority's recycling plans should also be reviewed from time to time with a view to deciding what changes are required. Each borough in London is currently required to send draft recycling plans or modifications to the Mayor. The Mayor can give the Waste Collection Authority direction it is considered necessary to ensure compliance with his Municipal Waste Management Strategy.

3.30 The status and time-scale of Waste Collection Authority recycling plans vary from borough to borough. Some have been adopted as policy, whilst others are still being drafted or modified. The proposals and objectives outlined in each recycling plan are varied, and are dependent on local conditions and current waste management practices. A summary of



policies in London Borough recycling plans is in Appendix 4. The Mayor's Municipal Waste Management Strategy seeks to complement and support the objectives outlined in the borough council recycling plans.

Waste Planning Authorities/Planning Authorities

- 3.31 In non-metropolitan areas, the County Council usually acts as the Waste Disposal Authority as well as the Waste Planning Authority. In London, the boroughs are the Waste Planning Authority. However most of London boroughs (21) are not the waste disposal authority.
- 3.32 Decisions on land-use planning matters are the responsibility of planning authorities. Planning authorities are expected to work closely with the Environment Agency to ensure that the best use is made of the latter's expertise and information, and to avoid duplication between the planning and pollution control systems.
- 3.33 The Environment Agency is required to consult the Waste Planning Authority when waste management licences are being considered. Where a waste management licence is sought for the use of land for which planning permission is required, planning approval has to be obtained before the Environment Agency can grant a licence⁴.
- 3.34 Planning permission and waste management licensing are separate requirements. Planning permission will normally be required, even if a site is exempt from licensing. The London boroughs remain the Unitary Development Planning authorities for their areas. Part I Unitary Development Plans should contain policies for the borough's overall planning strategy for the management of all waste, throughout the planning period, within the regional context, and in particular relation to municipal waste management strategies.
- 3.35 Part II Unitary Development Plans should give a detailed expression over the plan period to the strategic waste planning policies, contained in the Part I Unitary Development Plans and should provide the context for development control. Consideration should be given to the preparation of joint plans where this would be beneficial. Plans should identify existing waste management sites with capacity for the future and, where practicable, new or extended sites, sufficient to make adequate provision of waste management facilities for the future. Where specific locations are not identified, Waste Planning Authorities should indicate either 'areas of search' or identify comprehensive criteria against which applications for the development of waste management facilities could be considered. Waste Planning Authorities should include policies that require consideration of all the options for managing waste generated, including



waste arisings from new major development proposals and demonstrate that the preferred policies are consistent with Best Practicable Environmental Option.

- 3.36 Waste Planning Authorities should plan for a provision of waste management facilities that is consistent with forecasts of local and regional requirements, including the proximity principle and regional self-sufficiency. They should not seek to prohibit the development of particular types of waste facility unless they are confident that adequate alternative facilities will be available in their area.

The Environment Agency

- 3.37 The Environment Agency regulates emissions of pollutants to air, land and water, to protect the environment and human health. For waste, these include licensing, monitoring and inspection of waste management facilities. The Agency also carries out a range of other important functions related to waste including working closely with other organisations to tackle specific issues such as illegal waste dumping and fly-tipping, regulating the carriage of waste, implementing and monitoring the 'Producer Responsibility' regulations for packaging waste and obligated companies.
- 3.38 The Environment Agency also works with businesses across England and Wales to cut the costs, both financial and environmental, associated with the production of waste. Under the new Integrated Pollution, Prevention and Control (IPPC) regulatory regime many of the sites regulated by the Agency have a duty to cut unnecessary waste. The Agency has supported moves by companies to reduce the waste they generate, through activities such as waste minimisation clubs, and by working with the Environmental Technology Best Practice Programme, now known as Envirowise.
- 3.39 The results of the Agency's Waste Production Survey carried out in 2000 have provided estimates of industrial and commercial waste, which have informed this Strategy. The Agency published Strategic Waste Management Assessments⁵ that provided detailed information about waste production, how it is currently managed and disposed (including transportation methods) and life-cycle assessments of different waste management options. The nine Strategic Waste Management Assessments (for the eight Environment Agency regions in England and Wales and a ninth for Greater London) are being updated.

Department for Environment, Food and Rural Affairs

- 3.40 'Waste Strategy 2000', was published on 25 May 2000 by the Secretary of State. It sets out the Government's vision for managing waste and



resources more efficiently, and the changes required to deliver sustainable waste management. It proposed statutory targets, for which the ultimate sanction for failure would be the removal of the service from the council's control. The Waste Strategy, together with guidance to planning authorities on the siting of facilities, implements (for England and Wales) the requirement within the European Union Framework Directive on Waste, and associated Directives, to produce waste management plans (a National Waste Strategy). In November 2002 the Government's Strategy Unit produced a Strategy for tackling the waste problem in England. In 2003 DEFRA responded to this and set out actions in response to the Government's Strategy Unit's recommendations.

- 3.41 Since 1995/96, DEFRA has collected annual information on municipal waste from waste authorities through its Municipal Waste Management Survey. The 1998/99 survey was used to establish the baseline recycling rate standards, on which the statutory targets for 2003/04 and 2005/06 were set.
- 3.42 The Secretary of State may give the Mayor a direction about the content of this Strategy if it, or its implementation, is likely to be detrimental to any area outside Greater London, or if a direction is required for the purposes of implementing the National Waste Strategy. A direction may be exercised either generally or specifically, but only after consultation with the Mayor.

Community sector

- 3.43 Non-governmental organisations and community sector incorporate 'not for profit' organisations who collect recycling, for example Ealing Community Transport. It also incorporates those who operate reuse schemes such as charities distributing furniture for reuse and also those who promote waste awareness and recycling, for example Waste Watch, the Women's Environmental Network and Friends of the Earth.
- 3.44 Community Recycling organisations are leading contributors to minimising waste in London and meeting the national and London recycling targets. Waste Strategy 2000 states that 'the community and not-for-profit company sector has consistently shown its ability to be innovative, committed to change and willing to facilitate partnerships'⁶. Collectively, London's Community Recyclers are the largest provider of recycling services in London, serving 550,000 households with 'kerbside' recycling, reusing more than 100,000 items of furniture and white goods a year, composting 10,000 tonnes a year of green waste, providing refurbished computers, running six community and children's scrap stores, 13 city farms and 17 furniture projects⁷.



- 3.45 The participation of local communities is recognised as essential in meeting the national targets set for waste reduction and recycling. *Waste Strategy 2000* states 'individual consumers and households have a vital role to play in achieving sustainable waste management'⁸. Voluntary and community groups play a significant role in educating and raising awareness in waste and recycling.
- 3.46 For many Community Recyclers the environmental benefits of recycling and waste reduction are a consequence of the pursuit of their main economic or social objectives. For instance, the majority of London's furniture and white goods reuse projects' principal aims centre around the alleviation of poverty through the provision of affordable goods and services and whilst achieving this they divert over 100,000 items from landfill each year⁹. As recycling activity increases, so will the potential for achieving additional economic and social benefits.

Partnerships and Stakeholder Groups

- 3.47 Stakeholders in waste management in London include the waste authorities, local authority Waste Disposal Companies, the waste management industry, and the Environment Agency but also retailers, non-governmental organisations and the community sector, recycling and reprocessing companies, composting organisations, consumer focused waste policy organisations and professional organisations.
- 3.48 There are a number of groups that bring together stakeholders in relation to particular issues. Through its Transport and Environment Committee, the Association of London Government discusses waste management at the borough member level. The GLA has established meetings, including an officer level discussion group with key representatives from London's waste authorities and also the Environment Agency. Local authorities have a number of established groups including the London Recycling Officers Group, the Association of London Cleansing Officers, as well as the Association of London Borough Planning Officers. Professional organisations, such as the Environmental Services Organisation or Chartered Institute of Wastes Management, also meet or disseminate information. All discuss issues related to waste management, within their particular interest areas.



London Regional Technical Advisory Body on Waste (London RTAB)

- 3.49 In relation to planning for waste, the Government has said that it wishes to see an officer-level Regional Technical Advisory Body for waste established in each of the English regions. The purpose of these bodies is set out in Planning Policy Guidance Note 10: Planning and Waste Management. Whilst the Government's guidance is primarily aimed at the

regions outside London, the establishment of a similar body in London has been welcomed. It has the advantage of providing a formal framework within which to continue current officer-level discussions with the Environment Agency, Association of London Government, the waste industry, the waste authorities within London and in surrounding regions, the Government Office for London and non-governmental organisations.

- 3.50 The London RTAB is chaired in annual rotation by the GLA, Association of London Government and the Environment Agency and generally meets quarterly. The body has no executive power.
- 3.51 The membership of the Regional Technical Advisory Body is:
- Greater London Authority
 - Association of London Government
 - Environment Agency
 - Environmental Services Association
 - Recycling Industries Alliance
 - Association of London Borough Planning Officers
 - London Community Recycling Network
 - Association of London Cleansing Officers
 - Waste Watch
 - Statutory Joint Waste Disposal Authorities
 - Government Office for London
 - South East Regional Technical Advisory Body
 - London Waste Action
 - Eastern Regional Technical Advisory Body
 - London Recycling Officers Group
 - London Waste Action
- 3.52 Established in 1997, London Waste Action brings together London's private and public sector leaders to develop waste management strategies for London. The board consists of leading individuals from London First, the Association of London Government, the Mayor's office, Environment Agency, Waste Watch and Cleanaway. It has worked closely with the boroughs in implementing the £12 million Capital Challenge programme from 1996-1999 to support the recycling collection and sorting infrastructure.
- 3.53 The programme highlighted the importance of expanding the market for waste materials and in 2000 London Waste Action developed the London Remade Programme with an initial £300,000 of Landfill Tax Funding from the London-based waste industry. London Waste Action is the administrative home of the London Recycling fund, discussed in Chapter 2. Further details of London Remade are set out below and in Section 4N.



London Remade

- 3.54 London Remade is a strategic partnership between the public, private and community sectors and acts as a facilitator in improving the supply of materials and identifying demand for recycled content products and working with manufacturers to increase the availability, range and value of these products. London Remade is supported through a grant from the London Development Agency.
- 3.55 London Remade has a role in:
- **Creating demand:** through the Mayor's Green Procurement Code. London Remade has helped develop stationery made from recycled paper and plastic waste, construction and demolition materials made from recycled glass and compost made from organic waste, and in supporting public and private sector organisations that wish to alter their procurement strategies to buy recycled content products.
 - **Satisfying supply:** working with boroughs to improve the supply of recycled materials, ensuring that reprocessors can provide manufacturers with alternatives to virgin resources, working with all parties to improve quality, consistency of supply and value in the material supply chain.
 - **Investing in reprocessing capacity:** four Eco-Industrial Sites are now operating in London, reprocessing organic waste, glass, construction and demolition materials and paper. These sites demonstrate a range of technological, cutting-edge techniques to deliver end products, whilst creating jobs and training opportunities. Further eco-site capacity is scheduled for delivery in 2003/04, focusing on plastics and electrical and electronic equipment opportunities.
 - **Small business support:** through the provision of loan funding and mentoring services, London Remade provides a business-support service to start-up and small enterprises, and to community organisations looking to develop opportunities in the recycling sector.



Crosscutting themes and linkages with other strategies

3.56 In preparing or revising the Municipal Waste Management Strategy, the Mayor has had regard to the principal purposes of the Authority, the effect the proposed Strategy will have on the health of the people of London, and the achievement of sustainable development in the United Kingdom.

3.57 The principal purposes of the Authority are to promote economic development and wealth creation, promote social development and promote the improvement of the environment in Greater London. Furthermore, in the preparation of the Strategy, due regard has been paid to the principle that there should be equality of opportunity for all people. The Mayor has taken care to ensure that the Municipal Waste Management Strategy is consistent with his seven other statutory strategies – the London Plan (Spatial Development Strategy), Transport, Economic Development, Culture, Ambient Noise, Biodiversity and Air Quality – as well as his non statutory strategies, notably that on Energy. The State of the Environment Report also includes information on municipal waste in London.

Equalities

3.58 The delivery of high quality waste management services accessible to all Londoners and ensuring that waste is managed in such a way as to minimise its impact on health and the surrounding environment is fundamental to the philosophy of this Strategy. To ensure recycling facilities are available for all is an objective of this Strategy.

3.59 The inclusion of equalities issues within waste management is an underdeveloped but evolving agenda. One of the few examples is the report¹⁰ of the Select Committee on Environment, Transport and Regional Affairs in their Fifth Report Delivering Sustainable Waste Management. The Committee was concerned that incineration plants ‘...may end up in those areas where it is anticipated that resistance will be least. In practice, this is likely to be poorer areas...’ Although the Committee was discussing incinerators in particular, the comments apply equally to other waste treatment facilities. ‘If allowed to happen, this may mean that poorer areas of towns and cities are left effectively blighted by the presence of a large incinerator. This must not be allowed to happen. If incineration is safe then a sceptical public must be convinced and incinerators should then be sited in the most appropriate places which could be out-of-town shopping centres or adjacent to town halls and other offices, rather than the poorest areas’.

- 3.60 There is a wide range of other equalities considerations in relation to waste. These include:
- Ensuring that waste and recycling services are equally accessible to all sectors of London's community. For example, they must take account of people who are unable to carry waste or recycling to a specified collection point, including older people and disabled people.
 - Provision of 'kerbside' recycling collection services, or intensive bring recycling collection points, which reduce the discrimination in the provision of recycling services against those people who do not have access to a car and by their nature make recycling services more accessible for all.
 - Recycling services should be equally convenient for people who live in flats as for those who live in houses.
 - People in general, and women in particular, should feel safe when using waste recycling and disposal facilities.
 - Taking account of particular cultural and faith events in the provision of street cleansing and other waste related services.
 - Dietary customs or lifestyle, which may affect waste composition.
 - The same level of services should be provided in all areas. For example, there is a perception that street cleansing services in particular are not provided to the same service level in deprived areas as in affluent areas, even within the same authority boundary.
 - Providing relevant messages about sustainable waste management that are appropriate to lifestyles and cultures.
 - Providing information in a way that is accessible, for example using pictures to help those who cannot read English, regardless of whether it is their first language, or targeting information to specific groups.
- 3.61 A guide, 'Testing the Mix'¹¹ is available for local authorities throughout London on the engagement of people from black and ethnic minority communities in Local Agenda 21 environmental initiatives and policy making. The project was undertaken by four London boroughs, and sponsored by the Government Office for London. This project demonstrates the importance of involving black and ethnic minority communities in environmental and sustainable development initiatives and policy making.
- 3.62 A national conference, 'Down to Earth', which took place in 1999¹², dealt specifically with environmental action and sustainable development in a multi-cultural society. The conference explored the links between environmental action, sustainable development and multi-cultural concerns. Using case studies, the conference highlighted the links between poverty, planning, social and economic injustice and the environment. In the London Borough of Harrow, 30 per cent of the

population are first, second or third generation people from different parts of the world, mainly Africa and Asia. However, only three per cent of people involved in Local Agenda 21 environmental activities are from these groups. Research found that:

- a highly white environment did put black people off
- a specific black and ethnic minority programme was needed particularly if one wanted to get beyond the key activists
- in mixed groups, such as in schools, there was equal participation across black and white on environmental issues
- household projects, eg recycling, also had equal take-up.

3.63 Don de Silva speaking at the same conference said “Many in the mainstream green organisations often talk about ‘creating awareness’ about environmental issues among black communities. But many people within the Asian, African and African Caribbean communities are already ‘aware’ of the links between people and nature... African community values stress that no single person owns land: we must take what we only need from the land and give something back every time we take. No Holy Book stresses the importance of personal hygiene and health as much as the Holy Quoran.” Several speakers at the same conference emphasised the importance of providing specific information and educational material that communities consider appropriate to their lifestyles and issues of concern.

3.64 Gender can also be an important factor in approaches to waste and recycling. How households participate in waste collection and recycling programmes can be influenced by the gender division of labour, responsibilities and resources. Indeed, even the decision to participate can be influenced by this division. An understanding of these factors can improve the effectiveness of schemes. Equally environmental awareness schemes can be more effective if they are tailored to a target audience. For example, women generally set the rules for domestic management, including whether and how recycling is done¹³ therefore use of media targeting that audience may be appropriate. This is considered further in Section 4M.



Sustainable development

3.65 The GLA Act requires that the Mayor's strategies include policies aimed at contributing to the achievement of sustainable development in the UK. The UK Strategy for Sustainable Development seeks to ensure a better quality of life for everyone, now and for generations to come, and identifies four key objectives which need to be met in order to deliver a more sustainable future:

- social progress which recognises the needs of everyone
- effective protection of the environment
- prudent use of natural resources
- maintenance of high and stable levels of economic growth and employment.

- 3.66 Achieving greater sustainability means that we not only have to improve the quality of life for Londoners today – we must also consider the impact of our actions on our neighbouring regions, the UK as a whole, the global environment and future generations. The way we deal with waste is crucial to these wider relationships as we seek to reduce London's ecological footprint by reducing the amount of waste we produce, make better use of waste products and ultimately process waste closer to home.
- 3.67 Waste is not just an environmental issue. It provides a good example of the type of virtuous cycle required if we are to achieve greater sustainability. Waste products and waste management contribute to London's economy, provide employment and also affect social conditions. Creating employment through increased recycling – and generating new recycled products – is an obvious win-win situation for London's economy, people and environment.
- 3.68 In addition to the above, this Strategy advocates producer responsibility measures, promoting green procurement policies and contains actions to educate the public about the importance of sustainable waste management.
- 3.69 The Mayor's London Sustainable Development Commission undertook a sustainability assessment of the draft Waste Strategy using their London Sustainable Development Framework. The full report is available¹⁴. The overall objective of the Framework Appraisal states:
- We will achieve environmental, social and economic development simultaneously. The improvement of one will not be at the detriment of another. Where trade-offs between competing objectives are unavoidable, these will be transparent and minimised.
- 3.70 Some of the key findings of the Commissions assessment are set out below:
- Effective waste management policy has the potential to demonstrate the kind of virtuous cycle required by sustainable development. It should score strongly on economic, social and environmental criteria and produce across the board benefits.
 - The Strategy is particularly strong on the environmental aspects of sustainability, but weaker on economic and social issues. Aspects of equalities and tackling social exclusion are minimal and 'people-focused' issues are lost in the overbearing wealth of technical data.

- A useful tool to attempt to move forward on all three fronts is presented in proposal 96 (in the draft Strategy) – where waste authorities are requested to ‘fully consider the social, environmental and economic benefits when undertaking Best Value reviews of waste management services’. The Best Practicable Environmental Option (BPEO) is advocated but could be developed to link in with social impact testing and economic modelling.
- In general, the Strategy is very open in terms of waste management options and admits that the benefits of pursuing an aspirational waste reduction, reuse and recycling-led approach substantially outweigh any short-term benefits of alternative options. However, this results in a less clear long-term strategy for London.

3.71 All of the findings of the appraisal have been considered in the redrafting of this final Strategy.

Health

3.72 The vast majority of waste legislation is driven by the desire to reduce the risks to the health of humans and animals and to minimise the pollution of land, air and water. For example, Public Health Act 1936, which required a collection of domestic waste within seven days of a request, was principally concerned with interrupting the ten-day life cycle of the common housefly, in order to stop the spread of diseases.

3.73 Many aspects of waste management have come under scrutiny, and there is a great deal of debate over the potential health impacts of waste management processes, except waste reduction. Indeed no other method of waste management can be assumed to be free of any hazard to health, including reuse, recycling, composting, landfill or thermal processes, but these impacts need to be considered within the broader context of the life-cycles of products and energy. For example, is the impact of recycling a can more or less than making a new one? In terms of air pollution, the most significant impact in London is from the transport of waste.

3.74 The independent London Health Commission undertook a health impact assessment of the Assembly draft of this Strategy. A collation of evidence of the relationship between waste management and potential health impacts was prepared to inform the London Health Commission's evaluation¹⁵. The broad range of health considerations include:

- frequency of waste collection
- health and safety of workers collecting, processing and disposing of waste
- health impacts of home and neighbourhood composting
- waste disposal including landfill and incineration



- loss of amenity leading to a reduction in well-being and, in the worst cases, stress and anxiety-related ill health
- food packaging
- vermin
- noise and vibration
- pollution of air, land and water.

Incineration and health

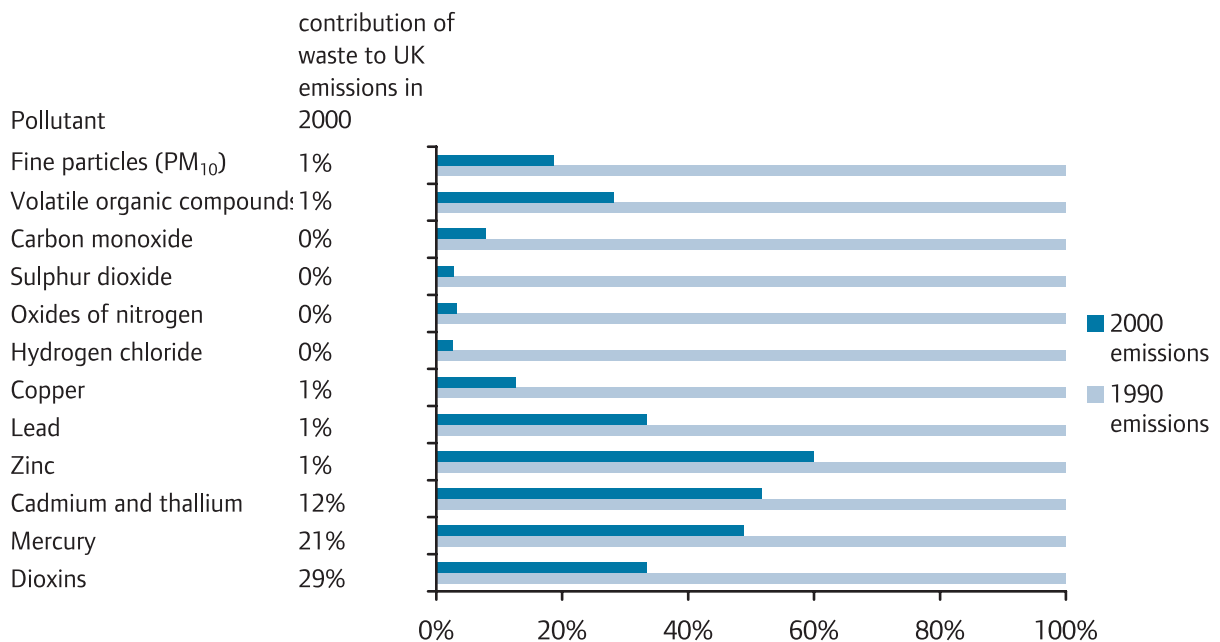
- 3.75 In the past, municipal waste incinerators were the source of a wide range of pollutants and there is still much public concern about the effects of these emissions on health. This concern includes pollutants such as dioxins and heavy metals. However, new incinerators are much less polluting than older ones and are becoming progressively cleaner as a result of the continued tightening of pollution control legislation. The substantial reduction in emissions which have occurred over the last decade are illustrated in Figure 24. Emissions of several heavy metals are now close to zero.
- 3.76 There is particular concern over the potential health impacts of dioxins from incineration. They are very long-lived organic substances, which can accumulate in the food chain and are classed as 'human carcinogens' or 'likely human carcinogens' by the US Environmental Protection Agency (US EPA), depending on the particular species. Dioxins can arise from any high temperature process where chlorine is present and are produced in small amounts from many combustion sources such as vehicles, bonfires and metal smelting, as well as waste incineration. Total emissions of dioxins have reduced dramatically in the last decade – estimations indicate total UK dioxin emissions declined by 82 per cent over the period 1990/2000 as a result of new control measures. Nevertheless, waste incineration remains the largest single source of dioxins in the UK¹⁶.
- 3.77 Food, from the UK and overseas, is the main way dioxins enter the body, though the amount of dioxins in the UK diet has declined substantially in the last 20 years¹⁷. Nevertheless, a significant proportion of the UK population may be exposed to dioxin levels above the tolerable daily intake (TDI)¹⁸ level of two picogrammes per kilograms of bodyweight as a weekly average, set by the Food Standards Agency (FSA) Committee on Toxicity. Measures are being taken at EU level, and carried forward nationally by the FSA, to reduce dioxin levels in food¹⁹.
- 3.78 Although there are still uncertainties, studies of people living around incinerators have found no evidence of health effects caused by incinerator emissions. One epidemiological UK study, conducted by the Small Area Health Statistics Unit (SAHSU), considered the incidence of cancer in over 14 million people living near to 72 solid waste incinerators



in England, Wales and Scotland. A review of the results by the Department of Health's Committee on Carcinogenicity was completed in March 2000²⁰. This concluded that any potential risk of cancer due to living (for periods in excess of ten years) near to municipal solid waste incinerators was exceedingly low and probably not measurable by the most modern epidemiological techniques. The Committee agreed that, at the present time, there was no need for any further epidemiological investigations of cancer incidence near municipal solid waste incinerators.

3.79 There are two large municipal waste incinerators in Greater London, regulated by the Environment Agency: LondonWaste Ltd at Edmonton and SELCHP at Lewisham. The process operators are required to report on their emissions to the Environment Agency on a regular basis. Both organisations post the results on their respective web sites.²¹ European Community Directive 2000/76/EC sets significantly lower emission limits for a range of pollutants for existing waste incineration plants which have to be met by the end of December 2005. Both plants are already meeting the new limits for dioxin under agreements with the Environment Agency.

Figure 24 Municipal waste incineration emissions in the UK, 1990 and 2000



source: National Atmospheric Emissions Inventory

3.80 The London Borough of Lewisham commissioned the former Lambeth, Southwark and Lewisham Health Authority (now the South East London Health Protection Unit on behalf of local Primary Care Trusts) to undertake health impact assessment of the SELCHP plant. This is expected to be completed in the autumn of 2003.

Landfills and health

- 3.81 A number of studies have been carried out of the higher rates of some diseases reported amongst people living near landfill sites receiving hazardous waste, although these studies have so far failed to show a causal link. In 1998, a study entitled *'Risk of congenital anomalies near hazardous waste landfill sites in Europe: the EUROHAZCON study'*²² considered the incidence of congenital birth defects in communities around 21 landfill sites throughout Europe. Five of these sites were in the UK.
- 3.82 The UK Government commissioned the Small Area Health Statistics Unit to conduct further research to investigate the significance of the EUROHAZCON findings if applied to all United Kingdom landfill sites²³. The study analysed data on congenital abnormalities, stillbirths, and low birth weight. The association between proximity to hazardous waste sites and congenital abnormalities (around seven per cent increase) was more significant than for non-hazardous sites (around one per cent increase). A World Health Organisation workshop has suggested that the potential exposure to landfill sites was likely to be limited to one kilometre. The Unit had been provided with information that identified a total of 19,916 known open or closed landfill sites in Great Britain and compared the health outcomes for the population living within two kilometres of the sites with those for the rest of the population. As the Unit estimated that 80 per cent of the population lives within two kilometres of landfill sites, the study is unusual in that the study population was significantly larger than the reference population.
- 3.83 The next stage of the EUROHAZCON study²⁴ was published early in 2002, in which the results of a Europe-wide investigation suggested that there is a 40 per cent higher risk of congenital chromosomal abnormalities such as Down's syndrome in children born to parents living within three kilometres of hazardous waste landfill sites. The study made adjustments for the social-economic status and the maternal age of the women. However, the results also highlighted an anomaly that there was no reliable correlation between the risks of exposure and the distance the study group lived from the hazardous landfill site.
- 3.84 All these studies are carried out on a geographical basis – ie, they use proximity to a landfill site as a surrogate for exposure to emissions from the sites of interest. These studies can only demonstrate a correlation between the incidence of disease and proximity to the sites under consideration, rather than prove cause. The results from these studies must be taken with a degree of caution, as there may be an entirely different underlying cause of the observed health effects. Further





research is needed to investigate the health effects of landfill sites, which incorporates more detailed statistical analysis, thereby ensuring that other possible cause and effect factors have been eliminated. Finally all these studies have concluded that there is no evidence of causal links to substantiate the claim that landfill poses a risk to health and that further research is required to investigate the potential health effects of landfill sites on local populations.

Recycling plants and health

- 3.85 Potential health effects are not confined to incineration plants and landfill sites. A recent Canadian article²⁵ on the risks, mainly to workers, associated with three municipal solid waste recycling plants grouped the risks under four headings:
- biological
 - chemical
 - physical
 - ergonomic.
- 3.86 Biological risks are associated with moulds and bacteria (bio-aerosols), which result from the decay and decomposition of waste. Waste Strategy 2000 estimates that 62 per cent of the waste stream in the UK is biodegradable and other inert materials such as cans and bottles may be contaminated with biodegradable residues. Chemical risks may come from chemical wastes in the waste streams, and also from equipment such as forklift trucks used to move waste. In the Canadian case these were propane-fuelled which, although posing less of a hazard than diesel, gave rise to high levels of pollutants such as carbon monoxide.
- 3.87 Physical conditions which could pose health and safety risks include inadequate or inappropriate lighting, noise, vibration, ventilation, unsuitable floor surfaces, and unguarded or inadequately guarded equipment and other hazards. Ergonomic risks are associated with workers physical symptoms, particularly pain or injury to backs, shoulders, forearms and elbows. In the case of one of the Canadian plants, hand cuts represented 58 per cent of accidents, pain in the upper limbs (wrists, forearms or shoulders) 27 per cent of cases, and shoulder pain 15 per cent of the reported cases.
- 3.88 Work organisation, personal protection and hygiene measures are all extremely important in all aspects of waste management. It is essential that managers and designers of waste recycling and other plants are aware of the occupational health and safety risks. However, as more materials are separated for recycling at source, the public in general needs to be made aware of the importance of cleanliness of materials that are

put out for recycling. In many cases these materials will be handled again by other people further down the waste stream. They will no longer be tipped unsorted into landfill sites.

Health effects in perspective

- 3.89 Studies of waste management and health are still in their infancy, with many of the possible connections poorly understood. As the US EPA said in the conclusions to its dioxins review²⁶, the absence of any clear indication of increased disease in the general population may be due to limitations of current data and scientific tools rather than indicating that exposure is not causing adverse effects. Conversely, public concern about adverse effects does not mean that adverse effects exist. The Government announced in its response to the report of the Government's Strategy Unit 'Waste not, Want not' that it would publish a review of the environmental and health effects of waste disposal and management options in the autumn of 2003. The impacts of waste management have to be considered in relation to the effects of other activities. The incineration of municipal waste contributes to a very small proportion of London's NO_x and PM₁₀ concentrations, and a relatively small proportion of its dioxins emissions. The effects of waste and its management on health are still poorly understood at present.
- 3.90 The implementation of this Strategy has the potential to actively improve the promotion of health and well-being, including through protecting human health by adopting waste management processes and techniques with the least impact on the environment. Other measures may have an indirect effect, such as the development of green industries and jobs, which support economic development and regeneration, which in turn has the capacity to improve the health and well-being of communities. People can participate in activities with social worth. Improvements to local and street environments can also have a positive effect on the quality of life and therefore health.

Air Quality

- 3.91 The main impact on air quality concentrations from municipal waste is the collection of London's municipal waste and transport to disposal sites, mostly to landfill outside of the London area, which currently creates a significant transport requirement. It is estimated that one in ten lorries on Europe's roads transport waste²⁷.





- 3.92 Of the municipal waste sent for disposal (outside London), 25 per cent is transported by barge, 22 per cent is by rail, and the rest is transported by road in waste vehicles. The road vehicles used are generally heavy goods vehicles and as such they can emit high levels of air pollutants. Emissions from water and rail transport are less than from road transport, per tonne of waste transported.
- 3.93 Many London boroughs have led the way in adopting cleaner refuse collection vehicles or use the alternatives of rail or water to bulk transport the waste to its place of final disposal. The Mayor will encourage:
- The use of less polluting vehicles, and as such has set emissions standards for waste vehicles to be used in London.
 - Improvements to routing and operating practices.
 - Consideration of the 'proximity principle' (ie waste should be dealt with as near to its place of production as possible and so reduce the requirement for the transport of waste).
- 3.94 Twenty per cent of London's municipal waste is incinerated. There are two existing municipal waste incinerators in London, Edmonton and SELCHP; these are discussed in more detail in Chapter 2 and Section 4E. The impact on air quality from these plants is minimised by strict emissions limits being set by the Environment Agency, and having tall chimney stacks which disperse the pollution. The health impacts of incineration are discussed earlier in this chapter.
- 3.95 Bonfires and the burning of waste, particularly on construction sites, still create statutory nuisances in London and produce emissions of particulates in the PM₁₀ size range, as well as larger particles. London borough environmental health departments enforce against statutory nuisances. PM₁₀ is a pollutant of particular concern to health. Composting is a better alternative method of treatment of green garden waste. Construction site waste can be collected, as commercial waste, by the local authority or other licensed bodies.

Biodiversity

- 3.96 The main link between the Waste Strategy and biodiversity is where reduction in landfill requirements, through waste reduction and recycling, removes the pressure on sites important for biodiversity. The composting of green waste, an essential part of organic and wildlife gardening, also minimises or recycles waste.
- 3.97 Proposals in the Mayor's Biodiversity Strategy to encourage wildlife gardening, in community gardens, allotments and domestically, link with the home and community composting proposals of this Strategy.



Encouraging economic uses for woody material from the management of woodlands and street trees also assists waste reduction.

- 3.98 Sustainable waste management also helps biodiversity as increased volumes of compost will benefit London's biodiversity footprint by reducing the use of peat in horticulture, which threatens peat bogs in Britain and abroad. The Biodiversity Strategy also encourages the green landscaping of waste management facilities as they can function as wildlife habitat as well as improve the aesthetics of the site.
- 3.99 There is a physical link made between education on waste reduction, recycling, energy efficiency, biodiversity and other environmental issues in many of London's environmental education centres. The Biodiversity Strategy aims to maintain and enhance access to these centres and proposals in this Strategy aim to increase education and awareness for all Londoners.
- 3.100 In the past, the Landfill Tax Credit Scheme has provided vital funding to secure public use of nearby wildlife sites (for example at Rainham Marshes). The revised objectives for this scheme continue to match such work, and it is hoped that further projects will be funded in this way in London, and so help to ameliorate the adverse environmental effects of landfill on biodiversity in and near London.

Culture

- 3.101 The Mayor has produced a Culture Strategy, which is underpinned by the principle that all of London's cultures play an invaluable and integral part in its make-up and prosperity. It demonstrates how and where culture can make a difference to the lives of Londoners and how important it is to the success of London as a world city. Policies address issues concerning the arts, tourism and sport, ancient monuments, buildings of historical or architectural interest, museums and galleries, library services, broadcasting and film production, parks and open spaces, design, fashion and other creative industries.
- 3.102 The messages on how we as a society move away from the 'out of sight, out of mind' mentality in managing our waste will have to be conveyed equally to all cultures. It is important for all Londoners as individuals to adopt more sustainable practices in dealing with their waste, from not littering the streets to reducing the amount of waste they produce, to reusing waste, and by recycling as much as possible. London should promote itself as a clean and sustainable world city, where Londoners can be proud, and tourists impressed by the quality of London's environment.



- 3.103 Specific areas where the waste and cultural strategies can interlink are outlined below:
- Presenting London as a clean and sustainable city to tourists. Ensuring through waste contracts and the capital standards programme that high levels of cleanliness are achieved around ancient monuments, buildings of historical or architectural interest, museums and galleries.
 - Promoting sustainable tourism. Over the next three years, through the Tourism Action Plan, the London Development Agency is committed to working with London Boroughs and supporting local partnerships in adopting a more sustainable approach to tourism. This includes raising awareness among businesses and visitors of the benefits of sustainable tourism.
 - Waste reduction and recycling education centres, for school and groups visits, attached to sorting or reprocessing facilities.
 - Waste reduction, reuse and recycling at major events, including the Notting Hill Carnival and St Patrick's Day celebrations at Trafalgar Square.
 - Consideration of waste to be built into major leisure projects, including use of recycled materials.
 - Recycled art: exhibition or competitions/scrap stores for schools and art groups.
 - Promoting sustainable waste management practices within fashion and other creative industries.
 - Understanding how the composition of waste may differ between different cultural and faith groups.

Economic Development

- 3.104 The London Development Agency's (LDA) Corporate Plan has identified the environment as a target sector for support and co-ordination, as a major plank of its commitment to sustainable development. A key element of that is support for the waste reprocessing sector in London, working with the Greater London Authority and other key stakeholders to capture the economic development and job creation benefits for London.
- 3.105 The London Development Agency commissioned a feasibility study into the development of the waste reprocessing sector in London, which builds on its support for London Remade through the Single Regeneration Budget. The report has identified a number of constraints facing the waste reprocessing sector as well as key opportunities for its development in London.
- 3.106 The growing emphasis on recycling and rise in legislation offer significant economic development opportunities. In particular, the transformation of waste into new products that command a value, involves the development



of a new remanufacturing sector. The report identified a number of priority materials with particular potential for reprocessing in London. In particular, in the light of forthcoming legislation, Waste Electrical and Electronic and End of Life Vehicles offer particular opportunities. Other priorities include plastics, glass, paper and wood.

- 3.107 The study, carried out by Brook Lyndhurst consultants, identified a range of factors that need to be addressed in order to move the sector onto a more commercially sustainable footing:
- stimulating demand for recycled products; quality and cost will be crucial elements
 - access to finance
 - range of business support services tailored to the needs of the sector
 - provision of affordable and appropriate premises, a particular issue in London given high land values
 - support for technology and innovation
 - legislative changes – impact of uncertainty of legislative changes
 - appropriate skills and training.
- 3.108 The list above demonstrates the range of issues facing the sector and the need for a wide range of organisations to work together in order to make real progress. Within this range of issues, two issues of particular concern are stimulating demand and provision of premises.
- 3.109 Recycled products have tended to be regarded as of inferior quality and often more expensive than their virgin alternative. Section 4P sets out further detail on the Mayor's Green Procurement Code which is working to encourage procurement of recycled products amongst some of London's major organisations. The London Development Agency is working with London Remade to develop the Green Procurement Code to address supply chain issues targeted at key sectors. The aim is to both broaden the range of products that are promoted through the code and to deepen the engagement with organisations to most effectively meet their product requirements.
- 3.110 Given the high land values in London, access to affordable premises is a major problem facing the reprocessing sectors, in common with many other sectors in London. Compounding this is the perception of the waste industry as a 'bad neighbour'. The London Development Agency is working with London Remade to identify 'clean' reprocessing activities that can be located within mixed use development. Waste Electrical and Electronic Equipment and Plastics are particular areas of potential in this regard.





- 3.111 The report concluded that support for the sector need to tackle the demand and supply sides. On the demand side, work on encouraging new markets in recycled products, for example through the Mayor's Green Procurement Code will be crucial to establishing commercial viability of the sector. On the supply side, support is needed to ensure that London's businesses have the capacity to access markets and produce high quality products.
- 3.112 The Mayor has agreed that a key performance target for the London Development Agency will focus on the development and support of the green economy. One of the 16 medium-term outcome targets for London, the London Development Agency's target states that 'the London Development Agency will work with the Greater London Authority to promote the Mayor's environmental strategy'. In particular:
- Encourage the expansion of London's environmentally focused businesses.
 - Ensure the creation of new 'green economy' jobs.
 - Promote improved environmental management among London's businesses, including increased levels of recycling, prudent use of natural resources, improved energy efficiency and an increase in the use of recycled materials and products.
- 3.113 Other medium-term outcome targets include sustainable economic performance, employment and enterprise. These outcomes are to be achieved through the cumulative impact of annual milestones for employment opportunities, brownfield land reclamation, education and skills and business performance.
- 3.114 The London Development Agency promotes and supports the waste recycling and materials reprocessing sector. Work is underway through the London Remade programme, CREATE and other initiatives. The London Development Agency is also examining potential for clustering activity, including possible eco-industrial parks in Dagenham Dock and Thames Gateway South, and is now looking to build on these initiatives to provide a strategic Londonwide approach to support for the sector. Work is underway to develop the business case for improved environmental management in small and medium sized enterprises.
- 3.115 The Mayor, through the London Development Agency, supports the London Remade Single Regeneration Budget Programme with £5.4 million funding over 3 years. The Programme aims to develop markets for recycled materials and to encourage manufacture of recycled products. It is a broad based partnership including four London boroughs – Barking, Bexley, Dagenham, Greenwich and Havering – the community and private

sectors and works closely with WRAP and the GLA. However, London Remade is collaborating with all London boroughs on different initiatives. The Programme is focusing on four key materials – glass, organics, paper and wood – and is establishing three eco-industrial sites where glass, mixed paper and organic materials are processed and re-manufactured. Training, technical and business support are also provided.

Energy

- 3.116 There are positive impacts on energy to be made through recycling, by the saving in primary material production elsewhere. The impact to Londoners is indirect, but impacts will be made on the production of greenhouse gases, the benefits of which Londoners can share. For example, recycling an aluminium can is said to save 95 per cent of the energy that would be required to produce a new one from raw materials. The recycling of some materials may not produce such a high energy saving, but will save the extraction or use of raw materials. The Best Practicable Environmental Option (BPEO) should be considered for particular materials, taking into account the life cycle, local circumstances and other sustainability objectives, such as improvement in the community.
- 3.117 The Government has set a target that ten per cent of UK electricity requirements should be met from renewables by the end of 2010. This is a tough target to meet. The Government Office for London and the Mayor of London jointly commissioned a study to carry out an assessment of the potential for generating renewable energy in London, to inform a target for London. The study estimates that London's possible contribution as being between one and two per cent. The study recognises that London's contribution to the national target is constrained by spatial issues. The one per cent estimate excludes the contribution of waste incineration of organic materials, whilst the two per cent target includes this contribution. The Mayor wants London's contribution to be greater than one to two per cent and a target for London will be adopted in the Mayor's Energy Strategy following consultation.
- 3.118 The Government does not support waste incineration through the Renewables Obligation as it is a competitive form of energy generation that does not require subsidy. More detail is contained in Section 4E. This approach is also consistent with the Government's support for waste reduction, reuse and recycling as described in *Waste Strategy 2000* and supports the development of more efficient and environmentally benign energy conversion from biomass. By and large, these new technologies require pre-separation of recyclable material from the waste stream and are well suited for community-sized developments. The Government has



included these technologies (which use thermal or biological processes to convert the waste into a fuel oil or gas, which is then burnt) within the Obligation. Mixed waste may be used as the feedstock for such stations but only the output attributable to non-fossil derived material will be eligible.

3.119 Renewables Obligation Certificates (ROCs) issued by Ofgem to accredited generators can be traded separately from the actual electricity produced. They will add value to electricity generated from eligible plants treating biomass as compared to conventional incineration plant. This should be an incentive to develop advanced conversion technology and to separate recyclable wastes prior to processing in order to maximise the eligible output.

3.120 Large scale conventional incineration is not the only way of recovering energy from waste. For example, the biogas produced from anaerobic digestion can, after treatment, be burnt in boilers or used in vehicle engines. It is also possible to recover energy from the biogas directly and with very low emissions, using high temperature fuel cells, or convert the biogas to hydrogen. The hydrogen could then be transported for use by fuel cells in other applications. This has already been successfully demonstrated, for example, at the Hokubu Sludge Treatment Centre in Yokohama²⁸. Hydrogen can also be produced using the pyrolysis and gasification processes referred to in Section 4E.

3.121 There is now considerable interest worldwide in the development of fuel cells because of their high theoretical efficiency, reliability, low noise and low pollution characteristics. They are quiet, compact and modular, making them ideal for powering vehicles as well as powering and heating individual buildings and even replacing batteries in small portable applications. Fuel cells work by converting the chemical energy of a fuel directly into electricity. As such, it functions like a battery, but is continuously refuelled whilst in operation. The hydrogen combines with oxygen to produce electricity and heat, with pure water as the only by-product. High efficiencies are due to the process being electrochemical rather than combustive – the conventional and less efficient method of generating power.

3.122 The Mayor has publicly announced his intention for London to lead the fuel cell industry and launched the London Hydrogen Partnership in April 2002. The partnership is responsible for delivering a Hydrogen Action Plan to ensure that London works to benefit from hydrogen and fuel cells as soon as possible.



Ambient noise

- 3.123 The collection, transfer, treatment, disposal and recycling of waste can generate noise. At the household level, separation of materials for reuse and recycling can result in additional collections, with potential to increase noise.
- 3.124 Traditionally, waste collection vehicles have generated annoying levels and types of noise, often at sensitive times of the day. Collection rounds involve stop–start driving, and collection vehicles often need to manoeuvre in cramped areas close to noise sensitive activities. High noise levels can also be generated during on-board compaction and other procedures. Many local authorities have been adopting cleaner emissions vehicles, which typically have quieter engines. Quieter container handling and compaction machinery should be utilised wherever possible.
- 3.125 In neighbourhoods, ‘bring’ recycling points can be sources of annoying noise, particularly from containers for glass, but also from the vehicles servicing containers. Opportunities to use noise-reducing measures are available but have their own associated problems, so will need to be considered on an individual basis. For example, recycling banks can be screened to reduce noise, but this also shields the containers from view and can attract the illegal dumping of general waste. Underground containers are now available, although these are expensive and may be difficult to locate in London because of existing underground services. To raise awareness of the potential for noise from recycling, signs requesting the use of banks only within certain times can be placed at sites, particularly in residential areas.
- 3.126 The Mayor will encourage waste authorities to seek noise reduction in the specification of networks of facilities, modes of transport, vehicles, equipment and operating practices.

The London Plan (Spatial Development Strategy)

- 3.127 The Mayor's role in relation to UDPs and waste planning applications is set out earlier in this chapter. The key waste planning policies and proposals, and links between the London Plan and the Municipal Waste Management Strategy are discussed further in Section 4Q.

Transport

- 3.128 A number of links exist between the Mayor's Waste and Transport Strategies. Transport is a significant factor in waste management, and is essential in the collection and transfer of waste materials for recycling, recovery and disposal. In addition waste, in the form of litter, can discourage the use of certain types of transport.





- 3.129 Transportation is a key element of the proximity principle, which requires waste to be disposed of as close to the place of production as possible and also relates to regional self-sufficiency objectives. The objectives of these principles are to avoid passing on the environmental costs of dealing with waste to other communities, and to reduce the environmental cost of waste transportation. The principle of regional self-sufficiency has to be sensibly applied to London; for example it could be less environmentally beneficial to send waste from one side of London to another, if a facility existed just outside of London that was actually closer.
- 3.130 The majority of waste and recycling materials in London are collected and transported for recovery, disposal or reprocessing by heavy vehicles on the road. The transportation of waste by road has a number of environmental costs, including adding to congestion, noise, energy usage and air pollution. The prevention of waste in the first place, reuse of waste within the home and home or community composting have an immediate impact by reducing the need to transport waste. Although road transportation cannot always be avoided and may be increased by the introduction of separate collections of recyclables from homes, its impact can be reduced. Measures include ensuring that vehicles are as clean as possible, meet the appropriate 'Euro' emissions standards, ensuring routes are planned efficiently and having regard, as far as possible, to sensitive times of the day.
- 3.131 If it is necessary to transport waste or recyclables over long distances, transfer stations can play an important role in reducing the impact of transportation. Once delivered to a transfer station, waste or recyclable materials can be bulked up to reduce the number of vehicle movements required or change the mode of transportation, to send the waste for treatment, reprocessing or final disposal. A number of transfer stations are operated in London for the transportation of bulked waste via road, rail and water. Of municipal waste disposed of outside of London 27 per cent is currently transported by barge, 27 percent by rail and the remainder by road.
- 3.132 As waste is diverted from landfills and the volume of recyclable materials collected increases, the pattern of waste movements throughout London will change. It will be important that transportation is planned to maximise use of sustainable modes (ie rail, water) and, again, that routes are planned efficiently.
- 3.133 Waste, particularly in the form of litter, also has a potential impact on the usage of public transport and hence indirectly on traffic congestion and

the environmental impacts of transport. People often complain that buses and tubes are dirty and that clean streets are more likely to encourage people to walk. Therefore improvements made in peoples' awareness of waste issues, waste collection and street cleansing in London could have an indirect positive impact on transport in London.

References and notes

- 1 Waste development is defined as 'any operational development designed to be used wholly or mainly for the purpose of, or a material change of use to, treating, keeping, processing or disposing of refuse or waste materials' in Part II, Category 2b.2 of the Town and Country Planning (Mayor of London) Order 2000
- 2 Letter from ODPM and LGA, To Local Authority Chief Executives, on Reducing Local Authority Plan Requirements, 22 July 2003
- 3 In some instances an Authority may have a contractual requirement to deliver a certain amount of waste to a waste facility. They may, in some circumstances, have to purchase waste to meet this amount
- 4 Unless the waste management facility is regulated through the integrated pollution control or local air pollution control regimes
- 5 Environment Agency (2000) Strategic Waste Management Assessment 2000: Greater London. Bristol: Environment Agency
- 6 DETR Waste Strategy 2000 Section 4.31, p. 50
- 7 London CRN mapping exercise January to June 2001
- 8 DETR Waste Strategy Section 4.33, p. 51
- 9 London CRN mapping exercise January to June 2001
- 10 House of Commons Select Committee on Environment, Transport and Regional Affairs (2001) Delivering Sustainable Waste Management. Fifth Report. HC 36-i. London: The Stationery Office
- 11 Testing the Mix, March 2001, http://www.london.gov.uk/sustainabledevelopment/testing_the_mix.asp
- 12 West A, and de Silva D (Ed) (1999). Down to Earth - Report of a National Conference on Environmental Action and Sustainable Development in a Multicultural Society. London: Community Development Foundation
- 13 Resource Recovery Forum Household waste behaviour in London. Brook Lyndhurst Ltd/MORI, (2002)
- 14 www.london.gov.uk/mayor/sustainable-development/sustainable_development_commission.jsp
- 15 Health and Waste, A collation of the evidence of potential impacts of the Mayor's draft Municipal Waste Management Strategy, G Leonardi, September 2001
- 16 <http://www.airquality.co.uk/archive/reports/cat07/naei2000/index.html>
- 17 PCBs and Dioxins, Food Standards Agency Statement, 16 November

- 2001 (www.food.gov.uk/news/pressreleases/pCBSandDioxins)
- 18 TDI (tolerable daily intake) relates to lifetime exposure without appreciable health risk
- 19 Goodwin, JWL, UK Emissions of Air Pollutants 1970 to 2000. Culham: AEA Technology, 2002. Also available at: www.food.gov.uk/science/ouradvisors/toxicity/statements
- 20 <http://www.doh.gov.uk/munipwst.htm>
- 21 <http://www.londonwaste.co.uk>, and <http://www.selchp.com/>
- 22 The Lancet Volume 352, Number 9126 - Risk of congenital anomalies near hazardous waste landfill sites in Europe: the EUROHAZCON study, 8th August 1998
- 23 Small Area Health Statistics Unit study of 'risk of adverse birth outcomes in populations living near landfill sites'
- 24 The Lancet Volume 359, Number 9303, 'chromosomal congenital anomalies and residence near hazardous waste landfill sites, 26th January 2002
- 25 Lavoie, J and Guertin, S 'Evaluation of Health and Safety Risks at Municipal Solid Waste Recycling Plants' Journal of the Air & Waste Management Association, Vol 51, March 2001, pp. 352-360, 2001
- 26 Available at <http://www.epa.gov/ncea/pdfs/dioxin/dioxreass.htm>
- 27 European Commission press release: Speech /01/302, Mrs Margot Wallström European Commissioner for the Environment 'Future Directions for European Waste Policy' European Waste Forum Brussels, 21 June 2001
- 28 <http://www.caddet.co.uk/html/register/datare/CCR02115.htm>

4 policies and proposals

This Chapter sets out the Mayor's Policies and Proposals on municipal waste, which are considered necessary by the Mayor to achieve the objectives of this Strategy (outlined in Chapter 3). This Chapter discusses these management options in the order of the waste hierarchy and then goes on to discuss other specific issues that will contribute to the sustainable management of London's municipal waste. Section 4A provides a framework within which all of the other proposals in this Chapter should be considered, particularly the consideration of the Best Practicable Environmental Option.

4A Framework for policies and proposals

Introduction to policies and proposals

Integrated waste management

- 4A.1 There is currently an imbalance in the use of waste management options in London. In 2001/02 London was over reliant on landfill, mostly outside of the London area, for the disposal of its waste; incinerated nearly one million tonnes of municipal waste, which was more than twice the national average¹; but recycled less than the national average². Recycling has been increasing steadily in terms of tonnage but the continued growth in waste has meant that the proportion of waste dealt with by recycling and composting methods has remained static over the last few years. Recovery of value from residual waste has been limited to the use of large scale conventional technology. Existing conventional incineration capacity will continue to play a part in the integrated management of municipal waste in London.
- 4A.2 There are two key pressures that will mean that it will not be possible to rely on landfill for the management of a majority of London's municipal waste in the future. One of these pressures will be the EU Landfill Directive requiring a move away from the landfill of biodegradable municipal waste, and the Government's control of this through the Tradable Allowances for landfill and the targets, which are outlined in further detail below. Further to this, and in line with regional self-sufficiency, the regions around London are looking to restrict the use of their diminishing landfill space to residual waste. A fundamental change is therefore required in London's approach to the management of its municipal waste.
- 4A.3 There is now a need to focus attention further up the waste hierarchy to ensure that an integrated and sustainable system is developed. This will focus on the development of waste reduction, reuse and recycling, and once all that can be reused, recycled or composted has been removed from the waste stream, value should be recovered from the remainder in



the form of other materials and energy. In the case of electricity this should be done using a process that is both eligible for Renewables Obligation Certificates, maximises the efficiency, and minimises emissions of pollutants.

Targets

- 4A.4 The Mayor needs to consider all municipal waste and, in line with the priorities of the waste hierarchy, encourages the reduction, recycling and composting of all municipal waste. The Mayor looks not only to achieving the national targets but to maximise the recycling and composting rate in London. Waste reduction is an essential part of this. Recycling and composting of municipal waste will also contribute towards the recovery targets. In line with the waste hierarchy, waste authorities are encouraged to aim towards meeting the targets for the recovery of municipal waste, as far as possible, through the recycling and composting of all municipal waste.
- 4A.5 The national targets for recycling and composting of household waste and for the recovery of municipal waste laid out in 'Waste Strategy 2000' are incorporated into this Strategy. Statutory Best Value performance standards have been set by the Government for all waste collection and disposal authorities. These together equate to a target for London for at least 25 per cent of household waste to be recycled or composted by 2005/06.
- 4A.6 The targets currently set by the Government in Waste Strategy 2000 are:
- to recycle or compost at least 25 per cent of household waste by 2005
 - to recycle or compost at least 30 per cent of household waste by 2010
 - to recycle or compost at least 33 per cent of household waste by 2015
- to recover value from 40 per cent of municipal waste by 2005
 - to recover value from 45 per cent of municipal waste by 2010
 - to recover value from 67 per cent of municipal waste by 2015.
- 4A.7 The target for recycling and composting for 2005/06 has been translated into statutory Best Value recycling performance standards for all waste authorities, which are shown in Table 1. This was discussed in further detail in Chapter 2.
- 4A.8 The Mayor fully recognises that the waste authorities have their own statutory functions. The Mayor expects authorities to have regard to this Strategy in drawing up their own plans or strategies and in the exercise of their functions, but he recognises that authorities will need to have regard to their own circumstances when applying the strategic guidance of this Strategy. The Mayor is given a power to direct authorities to exercise their



own statutory functions in a manner that he considers necessary for the implementation of this Strategy but he will do so only after consultation with that authority and full consideration of the circumstances of that authority.

4A.9 The policies and proposals throughout this chapter provide a clear lead to London's waste authorities on the actions it is expected they will need to undertake to meet and exceed their targets. As stated above the proposals are not prescriptive about the specific measures, but do outline actions intended to achieve consistency of service provision to all Londoners where appropriate and, to help move London towards more sustainable waste management operations. It is intended that waste authorities should implement the proposals to help achieve the policy objective. The Mayor will look to authorities to demonstrate that due to local circumstances, there is a better way to meet the policy objective and achieve the targets in their area.

4A.10 One of the challenges for London is that each of the 33 waste collection authorities collect and recycle waste differently. It is not expected that only one system will be suitable for the whole of London but that a smaller range of systems than at present, and a minimum service provision in all authorities, would both meet the needs of different requirements across London but also provide a significantly more consistent service to all Londoners. It is understood that no two authorities will be starting from the same base. The timescales for implementation of the each of the proposals will vary depending on the current situation in each authority. Generally, those authorities with higher targets, set by the Government from a baseline in 1998/99, are expected to have many of the proposals in place, particularly those which are considered a high priority by the Mayor. It is therefore expected that these authorities will need to implement proposals with a medium or low priority to ensure that they reach their targets. For others, starting from a much lower base, the implementation of the high priority proposals are expected to be required to ensure that their targets are met. As such, whilst they must still consider the medium and lower priority proposals, these are, as stated, a 'lower' priority.

4A.11 Authorities must consider all of the proposals. However, the Implementation Plan in Chapter 5 sets out the level of priority of proposals. Where a proposal is identified as 'key' or 'high', their implementation should be considered first. Details on the monitoring of implementation of these proposals is outlined in Chapter 5.





Targets for the longer term

- 4A.12 The Mayor agrees with the House of Commons Select Committee on Environment, Transport and Regional Affairs view that 'the national targets for recycling and composting provide a real challenge for the year 2005 (25 per cent) but the targets for 2010 (30 per cent) and 2015 (33 per cent) are depressingly unambitious and appear implicitly to accept that there is a 'ceiling' on the proportion which can be recycled. These later targets fail to build on the significant efforts which will be required to meet the 2005 target and could result in a loss of momentum in recycling'³. The Government's Strategy Unit Report⁴ also recommends higher national recycling targets, of 35 per cent by 2010 and 45 per cent by 2015. In response, the Government has undertaken to 'review in 2004 the national recycling targets in light of progress made by local authorities in meeting their 2003/04 targets'⁵. Policy 1 below reflects the objective for London to aim for the targets as a minimum and therefore to exceed targets set by Government and this would include any changes made as a result of the review.
- 4A.13 Furthermore, whilst the targets from the Government's Strategy Unit Report are lower than the targets recommended by the Select Committee, they are higher than the Government's current targets and as such provide further encouragement for higher long-term targets. Responses from the general public during the consultation provided further support and encouragement, with 89 per cent of respondents to the highlights document questionnaire strongly supporting massive increases to waste recycling 83 per cent strongly supporting work to meet or exceed the national recycling and composting targets for 2005, 2010 and 2015. The comments from stakeholders received during the public consultation on the Mayor's draft Strategy has confirmed the Mayor's view that higher targets could only be achieved with significant changes to the current waste management arrangements. Achieving higher targets will require a commitment from the Government with regard to changing the regulatory framework and funding, as well as fundamental changes in public attitudes.
- 4A.14 The Mayor takes the view that it is essential that the Government introduces legislation in order to minimise the amount of waste that London's local authorities have to deal with. Producer responsibility needs to be extended to cover all products, with tough recycling requirements imposed on manufacturers. A general duty needs to be placed on manufacturers and retailers to ensure that products and packaging waste is minimal.
- 4A.15 Therefore, whilst higher targets for London are not set within this Strategy, as the legislation changes and other measures such as

appropriate funding required to make these achievable are beyond the Mayor's powers, the aspiration for these changes to be made remains in the Strategy. The Mayor concurs with the Select Committee's recommendation that new targets should be set by the Government at 50 per cent by 2010 and 60 per cent by 2015. These targets will help to ensure that vigorous efforts to recycle are maintained.

policy 1: London will aim to exceed the recycling and composting targets for household waste set by the Government. These are currently, as set out in Waste Strategy 2000 :

- to recycle or compost at least 25 per cent of household waste by 2005
- to recycle or compost at least 30 per cent of household waste by 2010
- to recycle or compost at least 33 per cent of household waste by 2015.

policy 2: London will aim to meet the recovery targets for municipal waste set by the Government, by prioritising reduction, recycling and composting. The Mayor will insist that waste authorities consider options to maximise the reduction, reuse, recycling and composting of municipal waste from all sources before considering the recovery of materials and energy from the residual waste. The targets are currently, as set out in Waste Strategy 2000 :

- to recover value from 40 per cent of municipal waste by 2005
- to recover value from 45 per cent of municipal waste by 2010
- to recover value from 67 per cent of municipal waste by 2015.

policy 3: The Mayor aspires to higher targets for recycling and composting and considers they can be achieved in the longer term.

proposal 1: The Mayor intends, through working with the waste authorities and other stakeholders, to exceed the recycling and composting targets for household waste as set out by the Government in the Best Value Performance Standards for waste authorities in London and, as far as possible, achieve the recovery targets for municipal waste through waste reduction, reuse, recycling and composting. The following policies and proposals in this Strategy provide the framework within which these targets can be achieved.

proposal 2: The Mayor supports the proposal in the Government's Strategy Unit Report to increase the recycling targets for household waste and will seek to persuade the Government to put in place the legislative changes, fiscal framework and other measures necessary, to enable the achievement of and the setting of targets for rates of recycling and composting of municipal waste of 50 per cent by 2010 and 60 per cent by 2015. The Mayor fully supports the House of Commons Select Committee on the Environment, Transport and Regional Affairs recommendations on household recycling targets.





Meeting the requirements of the Landfill Directive

- 4A.16 Chapter 2 discusses in detail five waste management options in relation to the Landfill Directive requirements to reduce the landfill of biodegradable municipal waste. In 2001/02 almost 2.2 million tonnes of biodegradable municipal waste from London was sent to landfill for disposal. The Landfill Directive will require London to reduce the amount of biodegradable waste disposed to landfill to 1.9 million tonnes by 2010, 1.3 million tonnes in 2013 and 0.9 million tonnes by 2020⁶. At present 27 per cent of London's waste is recovered, so it is well placed to achieve the reduction in the first target year of 2010. The analysis in Chapter 2 suggests that:
- If London continues to handle waste in the present way, it will fail to meet the requirements of either the Landfill Directive or Waste Strategy 2000.
 - London can meet the Landfill Directive target for 2010, with its existing incineration capacity, if Waste Strategy 2000 recycling levels are met at growth rates of two per cent (linear) or less. If waste grows at the 'central' growth rate, London will need some additional treatment capacity. If only Waste Strategy 2000 recycling targets are met, London would need between 0.3 and 0.65 million tonnes at these growth rates.
 - If higher recycling rates are met the capacity required in 2010 is significantly less. For example, if London recycles 35 per cent of its waste it would only require between 0.02 and 0.31 million tonnes of additional treatment capacity by 2010. Planning applications have been submitted for 0.36 million tonnes of Mechanical Biological Treatment in East London that could help to meet this shortfall.
 - London will require significant new capacity in 2013 and 2020, in order to meet the Landfill Directive targets. At the growth rates that were modelled, if only Waste Strategy 2000 recycling levels are reached then between 0.5 and 2.2 million tonnes of new capacity will be needed in 2013 and between 0.8 and 3.7 million tonnes by 2020.
 - If the recycling targets set out by the Government's Strategy Unit are met, the amount of additional capacity required would be between 0.3 and 1.9 million tonnes in 2013 and 0.5 and 3.3 million tonnes in 2020. If recycling levels of 50 per cent in 2010 and 60 per cent by 2020 are achieved then in 2013 between zero and 0.9 million tonnes of additional capacity will be required and zero to 2.1 million tonnes by 2020.
- 4A.17 On this basis, with effective waste reduction and reuse measures keeping growth to the 'central' rate or less, there would be no need to introduce any significant additional recovery capacity before 2013, even if London does no better than achieve the Waste Strategy 2000 targets. What is clear from the modelling is that if Waste Strategy 2000 recycling targets are exceeded, the amount of new treatment capacity is significantly less.

The Mayor believes that any shortfall left, over the recycling rate and current incineration capacity, could be met through advanced conversion technologies and new waste treatment methods such as Mechanical Biological Treatment.

Data and best practice

- 4A.18 The need for high quality waste data is now greater than ever. The requirements of the Landfill Directive, national targets and recycling and composting performance standards call for quality waste management data. Accurate and consistent information is needed for the Greater London Authority and all waste authorities to enable the most effective management and strategic planning for London's municipal waste, including the development of infrastructure. Best Value also requires accurate information in order to measure performance, set local targets and allow a comparison with others.
- 4A.19 Significant improvements in data capture, monitoring and accessibility have been made over the last few years. Many of the issues surrounding waste data outlined in the Mayor's draft Municipal Waste Management Strategy have been addressed. For example, in 2001/02 the Greater London Authority and DEFRA produced a joint municipal waste management survey for London waste authorities. This built on the national survey, as it included some specific areas where there were data gaps in London, such as where waste was being sent for disposal. For the first time, in partnership with London Remade, the municipal waste management survey was sent out electronically. The survey received, for the first time, a 100 per cent response rate from London waste authorities. Other data issues, such as accessibility of information have also been addressed through the development of the online database www.capitalwastefacts.com. Progress has also been made with ensuring that consistency is applied to waste data in London.
- 4A.20 Although excellent progress has been made, further improvements in waste management data are still required. The Mayor, will continue to press for joint data collection for DEFRA, GLA and CIPFA, to reduce requests made for information to London waste authorities. Disparities can be found between the waste arisings statistics reported by Waste Collection Authorities and those reported by Statutory Waste Disposal Authorities for their constituent boroughs. Waste Collection and Disposal Authorities need to work more closely together to establish the reasons for these differences and to ensure consistency. Some waste authorities have already made good progress on this issue. Further work should be undertaken to reduce the delay in reporting data. The Mayor will work through www.capitalwastefacts.com, with London waste authorities to reduce this time lag.





- London's waste database: www.capitalwastefacts.com*
- 4A.21 As outlined above, accurate, reliable, comparable, and up to date information is crucial in enabling informed strategic decisions to be made and for monitoring progress in London. The sharing of information can help boroughs improve services and identify best practice. The Mayor, in partnership with London Remade, which is partly funded by the London Development Agency, has developed a website providing detailed information on municipal waste in London. The website, www.capitalwastefacts.com, has been available to the public since June 2002, and collects annual information from London boroughs and statutory Waste Disposal Authorities. The success of the project demonstrates the willingness of waste authorities in London to work in partnership in the capital. As well as information on services provided by Waste Authorities, the site allows boroughs to share best practice. The website also includes a comprehensive database, building on DEFRA/GLA waste management returns. The database enables users to generate reports on waste authorities and also download models to help with decision making. The website is the first step in improving the openness and quality of data for London. The Mayor, in partnership with London Remade, will use the website to continue to improve the consistency and quality of waste statistics. The Mayor would urge Waste Authorities to continue to work with and support the GLA and London Remade to ensure that www.capitalwastefacts.com develops further.
- policy 4: The Mayor will work in partnership with London Remade and London's Waste Authorities to share information on waste through www.capitalwastefacts.com and improve the availability, reliability and comparability of waste data for London.
- proposal 3: The Mayor will only accept household recycling and composting rates based on relevant guidance for calculating the statutory Best Value Performance Indicators 82a and 82b.
- proposal 4: Waste authorities should return annual data on waste to the Mayor to collate for London. The Mayor will report the breakdown of tonnage, which makes up the recycling and composting rates of each waste authority in London. This information will be published through www.capitalwastefacts.com.
- proposal 5: The Mayor will continue to work with DEFRA, CIPFA and other authorities towards the joint development of an electronic survey format for the return of data, to reduce delays, data entry errors and repetition in the collection of information.
- proposal 6: The Mayor will investigate, with London waste authorities, the key factors influencing variations in waste arisings, across different parts of London.

Waste composition and recyclability

4A.22 At present no reliable study of the composition of London's municipal waste stream exists. Without this information it is difficult to confidently predict the recyclability of waste in London. The issues surrounding waste composition and recyclability are discussed more fully in Chapter 2. The Environment Agency will be undertaking the third National Household Waste Analysis Programme, however there is uncertainty as to when the programme will begin. The study will look at 40 representative local authorities across England. The Environment Agency analysis will involve 15 months of sampling. This study will allow for seasonal variations in composition and the impact of socio-economic factors. The study will not only look at household dustbin waste, but other aspects of the municipal waste stream. The Mayor will seek to work with the Environment Agency, boroughs and other organisations, to carry out a comprehensive strategic study in London, using the same methodology as the Environment Agency, to gain an accurate indication of London's municipal waste composition. Making more accurate predictions about the recyclability of waste in London can only be undertaken if more detailed information about waste composition is available.



4A.23 There is also a need for work to understand how the composition of waste and its potential recyclability may change in the future. To do this the current composition of London's municipal waste needs to be established. The study then needs to establish influencing factors on the composition of waste, and estimate the influence of these factors in the future. This will then enable estimations of future waste tonnage in relation to the impact of waste reduction initiatives. This will provide important information for the planning of waste in the future.

policy 5: The Mayor will work with relevant organisations to ensure that statistically reliable, comparable data for the composition and recyclability of London's municipal waste stream is undertaken, to inform strategic decision making.

proposal 7: The Mayor will work with the Environment Agency and other partners to undertake a detailed study of the composition of London's municipal waste, applying the same methodology as the National Household Waste Analysis Programme to enable comparison.

proposal 8: When a reliable estimate of London's waste composition exists, further work will be undertaken to establish the influencing factors on composition and recyclability. This will enable the projection of changes to composition and recyclability in the future, for the strategic planning of sustainable waste management.

Best Practicable Environmental Option

- 4A.24 The development of the Mayor's Municipal Waste Management Strategy begins the process of establishing an overarching, systematic and consultative decision-making procedure for London. Effective waste management decisions require the adoption of an integrated approach and rigorous appraisal of waste management options.
- 4A.25 Waste Strategy 2000 outlines the key elements of an integrated approach as:
- Recognising each step in the waste management process as part of a whole: decisions need to take into account elements such as collection, transport, sorting, processing, treatment and disposal methods and identifying key markets.
 - Involvement of all key players: should identify opportunities for all interested groups to be involved in developing and achieving aims and objectives.
 - A mixture of waste management options: the over-reliance on a particular waste management technique should be avoided, and one technique is unlikely to be the Best Practicable Environmental Option for a whole waste stream.
 - Formal and informal partnerships: in particular between authorities that have legal responsibilities with regard to waste management. Waste authorities need to take a view of the implications of their waste management practices and policies on regional strategy as a whole.
- 4A.26 The Best Practicable Environmental Option (BPEO) is a technique for guiding waste management decisions. It is defined by the 12th Report of the Royal Commission on Pollution as 'the outcome of a systematic and consultative decision making procedure which emphasises the protection and conservation of the environment across land, air, and water. The Best Practicable Environmental Option procedure establishes, for any given set of objectives, the option that provides the most benefits or least damage to the environment as a whole, at an acceptable cost, in the long as well as the short term'.
- 4A.27 The strategic waste management framework that is most appropriate for this purpose, is based on the Best Practicable Environmental Option which encompasses:
- the waste hierarchy
 - the proximity principle
 - regional self-sufficiency
 - social, environmental and economic factors.



- 4A.28 The practical application of the Best Practicable Environmental Option assessment, has however had its limitations. The Government states, in recently published guidance⁷, that 'Due to the origin of the BPEO procedure in the environmental protection field, however, BPEO assessments have tended to focus on environmental emissions and resource depletion, rather than local environmental issues. BPEO assessments also generally omit to examine the socio-economic aspects of waste management and issues associated with the implementation and delivery of options, which are important planning considerations. Its application to land-use planning has been inconsistent, and often confusing in terms of the approach adopted and the range of issues considered'.
- 4A.29 The application of the Best Practicable Environmental Option has also been inconsistent and confusing in terms of approach and the consideration of issues. Recently published guidance from the ODPM⁸ has attempted to address the limitations outlined above and deliver a methodology taking account of environmental, socio-economic and implementation factors, as well as those usually addressed through Best Practicable Environmental Options Assessments.
- 4A.30 Any assessment of waste management options needs clearly defined objectives and indicators by which options can be appraised, taking into account local circumstances. The example in Table 27 demonstrates how clearly established objectives and indicators could contribute towards an objective review of the Best Practicable Environmental Option.



Table 27 An example of setting objectives and indicators for assessing waste management options

Environmental Objectives	Indicators
1. To ensure prudent use of land and other resources	<ul style="list-style-type: none"> • Depletion of resources, such as wood, water, fuels and ores • Landtake
2. To reduce greenhouse emissions	<ul style="list-style-type: none"> • Greenhouse gases emitted
3. To minimise adverse impacts on air quality and public health	<ul style="list-style-type: none"> • Emissions which are injurious to public health • Emissions contributing to air acidification • Emissions contributing to depletion of ozone layer • Extent of odour problems • Extent of dust problems
4. To conserve landscapes and townscapes	<ul style="list-style-type: none"> • Extent of visual and landscape impacts
5. To protect local amenity	<ul style="list-style-type: none"> • Extent of noise, litter and vermin problems
6. To minimise adverse effects on water quality	<ul style="list-style-type: none"> • Emissions contributing to eutrophication • Extent of water pollution
Socio-Economic Objectives	
7. To minimise local transport impacts (congestion, severance, fear and intimidation, physical damage)	<ul style="list-style-type: none"> • Total waste kilometres (by mode) • Transport along roads other than motorways
8. To provide employment opportunities	<ul style="list-style-type: none"> • Number of jobs likely to be created
9. To provide opportunities for public involvement and education	<ul style="list-style-type: none"> • Extent of opportunities for public involvement and education (concerning sustainable waste management practices)
Operational Objectives	
10. To minimise costs of waste management	<ul style="list-style-type: none"> • Costs of collection, management and disposal, including material and energy revenues
11. To ensure reliability of delivery	<ul style="list-style-type: none"> • Likelihood of implementation within requested timescale, taking account of maturity of technology, necessary level of public participation, and the need for planning permission (taking account of scale of development and likely perceived adverse impacts)
Waste Management Policy Objectives	
12. To conform with waste policy	<ul style="list-style-type: none"> • Percentage recovery • Percentage recycled

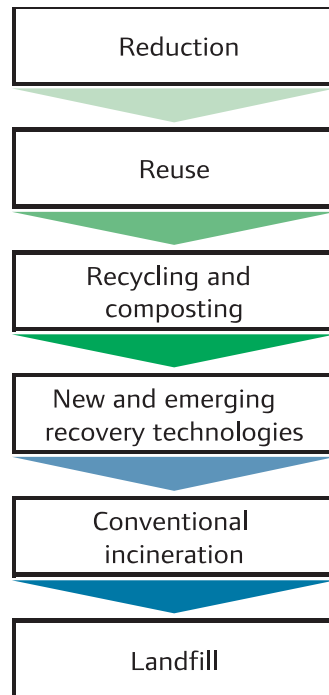
source: ODPM, 2002

- 4A.31 When determining the Best Practicable Environmental Option, waste authorities should ensure their decision-making processes are transparent and open to scrutiny, and flexible enough to allow the robustness of decisions to be explored and allow the development of other options. For example, decisions about the Best Practicable Environmental Option taken early in the life of a contract may no longer be valid when the Best Practicable Environmental Option is reviewed. It is crucial that the method by which residual waste is managed does not restrict the ability to move towards options that are further up the hierarchy. If it is appropriate to change the method of management of a particular waste stream, the contract must be sufficiently flexible to allow this, without appreciable cost.
- 4A.32 The following section discusses some of the key issues in considering the Best Practicable Environmental Option, including the waste hierarchy, regional self-sufficiency and the proximity principle. These issues are discussed within the context of London and its surrounding regions.

The waste hierarchy – top down approach

- 4A.33 Rather than just looking to the next step up on the hierarchy from landfill, we need to change our approach to waste management. The vast majority of London's municipal waste is managed through landfill disposal. This is the last and least desirable option of the waste hierarchy.
- 4A.34 In considering the Best Practicable Environmental Option the waste hierarchy has to be taken into account. The waste hierarchy sets out the order in which waste management options should be considered based on their impact on the environment. The best option for the environment, is to reduce the generation of waste. The next best option is reuse, then recycling and composting. Then recovering energy from waste through new and emerging advanced conversion technologies for waste and new waste treatment methods, such as Mechanical Biological Treatment, before the consideration of incineration. The final option at the bottom of the hierarchy is to dispose of waste to landfill. In its response to the Mayor's draft Municipal Waste Management Strategy, the Government reiterated this position stating that 'opportunities for waste minimisation, reuse, recycling, composting or other forms of energy recovery such as new and emerging advanced conversion technologies should be considered in preference to conventional incineration'.



Figure 25 Waste hierarchy

4A.35 The approach of this Strategy is to concentrate on reducing and reusing waste and recycling and composting. Options to maximise these should be considered first, as set out in Policy 2, and this coupled with existing incineration capacity will help London meet the requirements of the Landfill Directive. This Strategy promotes, where practicable, filling any potential shortfalls with new and emerging advanced conversion technologies or new waste treatment methods, such as Mechanical Biological Treatment. This approach is consistent with Government policy. The recovery of value from residual waste is discussed in Section 4E.

4A.36 In concentrating on a top-down approach to the waste hierarchy, the practical issue of incineration 'crowding out' recycling is considered, as described in Waste Strategy 2000. The Government and the House of Commons Select Committee on Environment, Transport and Regional Affairs have already drawn attention, to the potential conflict between the development of waste reduction and recycling, and the development of conventional incineration as ways of managing waste. The report⁹ of the Select Committee on Environment, Transport and Regional Affairs on delivering sustainable waste management states that 'the nature of incineration is such that it can 'crowd out' recycling: if a significant number of large incinerators, operating on long contracts, are allowed to be built, the long-term prospects for recycling will be diminished. The real

challenge, then, is to keep the contribution of incineration to a reasonable level'. In its response to the Mayor's draft Municipal Waste Management Strategy, the Government reinforces this point, stating that 'incinerators should only be considered where it can be shown that they are appropriately sized so that they would not hamper the achievement of the statutory recycling targets for each local authority in England'.

Regional self-sufficiency

- 4A.37 London has traditionally exported most of its waste, to former mineral workings in surrounding counties for landfill. Many of these sites are being filled and opportunities for new sites are limited. The Eastern and South East regions surrounding London, are both developing waste strategies, which will inform the waste aspects of regional planning guidance. The East of England region has adopted a policy in its Waste Strategy which recommends that after 2010 landfills in the region will only accept residues from other waste processes, or very exceptionally (where it can be demonstrated that there is no other option) waste which would not benefit from treatment. The South East Waste Management Strategy Consultation Draft contains a policy to limit landfill exports from London in line with Landfill Directive targets without the four year derogation and, by 2016, to provide only for residual waste, which has been subject to recovery processes. This is discussed further in Section 4F.
- 4A.38 There has been almost no major capital investment in waste management facilities since the abolition of the Greater London Council in 1986, apart from the construction of the SELCHP incineration plant, and the £15 million investment in upgrading the air pollution control equipment at Edmonton. Whilst it is accepted that a start has to be made on managing a much higher proportion of London's waste within its boundary, this will require significant investment in all stages of recycling and waste treatment, including the development of industries to utilise or treat the materials collected. In balancing any possible conflicts between achieving greater self-sufficiency in the short term and the development of robust recycling infrastructure in the longer term, preference should be given to longer term recycling. To move towards regional self-sufficiency will take time and London will continue to need adequate landfill capacity from surrounding regions in the long term. Waste Management contracts should be designed to ensure flexibility in the future and prevent the crowding out of options higher up the waste hierarchy.
- 4A.39 London currently has few municipal waste facilities other than two energy from waste incinerators, limited landfill capacity for municipal waste, material merchants, waste transfer stations and a network of scrap metal operations. Virtually all waste reprocessing facilities, with the exception of



textile sorting and some facilities for glass and organic waste composting, are outside of London and do not accord with the objective of regional self-sufficiency. There are, however, a larger number of landfill sites close to London, although not within the boundary, which would accord with the 'Proximity Principle' for the outer London boroughs. Reprocessing plants for certain materials are often too far from London, or do not exist in the UK at present, which may mean that recycling options are not always considered the Best Practicable Environmental Option at the current time. There is a need for more appropriately sited reprocessing facilities and plant in and around London. As such, consideration should be given to the need to start collecting material to help build up a market, in order to attract new local facilities, which will be the better environmental option in the longer term.



Proximity principle

- 4A.40 The proximity principle, requires waste to be dealt with as close to its point of production as possible and does not take into account regional boundaries. It aims to avoid passing the environmental costs of waste management on to communities that are not responsible for its generation, and reduces the environmental costs of transporting waste. In the context of London, this should be interpreted reasonably. As with self-sufficiency and the waste hierarchy, the proximity principle can not be regarded as an absolute, but is an important consideration in determining the Best Practicable Environmental Option. Other issues such as transportation and land availability also have to be considered when making local decisions. Where possible, waste should be dealt with within a waste disposal authority area. If this is not possible, an alternative site as close as reasonably possible should be sought, preferably within Greater London. However, particularly in the case of a waste authority whose borders are on the boundary of London, it may be more practical to seek a site just outside of London, or one which can utilise sustainable transport such as water or rail, in preference to one within London but not within close proximity. The Mayor particularly wants to avoid waste vehicles 'criss-crossing' London, adding to transport congestion and adverse environmental impacts. The sustainable transport of waste is discussed in more detail later in Section 4S.

External costs and benefits of waste management options

- 4A.41 The Best Practicable Environmental Option for London will vary from location to location. However, in 2000 the then Environment Minister, told the Environment Transport and Regional Affairs Committee 'the best practicable environmental option in the vast majority of cases is recycling'¹⁰. Appendix B of Waste Strategy 2000 gives an indication of why this is likely to be the case by comparing the external costs and

benefits of different waste management options. (see Table 28 below).

- 4A.42 It can be seen that incineration displacing average mix electricity (the appropriate comparator for new incinerators) causes environmental damage valued at around £10 per tonne, whereas landfill causes slightly less harm with an external cost of £3 per tonne. However, recycling the same waste gives environmental benefits of more than £160 per tonne. The opportunity cost of incineration/landfill in terms of environmental protection is therefore very significant.
- 4A.43 These data from Waste Strategy 2000 are indicative and it is important to recognise that the disbenefits assessed are limited. Energy, transport and greenhouse gas emissions are the principal environmental factors considered in the analysis. The life cycle analysis and economic valuations focus on the impact of air pollution from waste facilities and vehicles, and the emissions associated with energy use. The impacts of greenhouse gases were considered, as well as sulphur and nitrogen oxides and fine particulate matter (PM₁₀). The cost of road accidents was also brought into the equation. However, some other costs and benefits were excluded.

Table 28 External costs and benefits of different waste management options

Waste management option	External cost estimate £ per tonne per waste (1999 prices)
Landfill	3
Incineration (displacing electricity from coal-fired power stations)	-17
Incineration (displacing average-mix electricity generation)	10
Recycling	-161
Ferrous metal	-297
Non-ferrous metal	-929
Glass	-196
Paper	-69
Plastic film	17
Rigid plastic	-48
Textiles	-66

source: Waste Strategy 2000

Tools for BPEO assessment – life cycle assessment

- 4A.44 When deciding the Best Practicable Environmental Option, often the economic implications of a particular waste management option are easier to decipher than their overall impact on the environment. One way to determine their environmental impact is to use the tool of life cycle



assessment. Waste Strategy 2000 defines life cycle assessment as 'the systematic identification and evaluation of all environmental benefits and disbenefits that result, both directly and indirectly, from a product throughout its entire life'.

- 4A.45 Waste management decision-making should not only take into account the direct impacts of specific processes but also indirect impacts. For example, the recycling of aluminium will have impacts on the bauxite mining industry as well as the aluminium processing industry. Life cycle assessment is a way of determining the impact of waste management techniques from 'cradle to grave' (from extraction of raw materials to their eventual disposal) in the context of overall impact on the environment. The Environment Agency's WISARD tool, a waste management life cycle assessment software tool which compares the environmental merits of waste management options, has not been used in developing this Strategy because of its limitations. The WISARD tool is currently unable to consider advanced conversion technologies or new waste treatment processes such as Mechanical Biological Treatment.
- policy 6: The Mayor will insist that all proposals use the Best Practicable Environmental Option when considering the way to treat particular waste streams taking into account the key considerations of the waste hierarchy, the proximity principle and regional self-sufficiency.
- policy 7: London should move towards much greater regional self-sufficiency in waste management. However, in balancing any possible conflicts between such self-sufficiency in the short term and the development of robust recycling infrastructure in the longer term, preference should be given to longer term recycling.
- proposal 9: Where appropriate the Mayor will use the power of direction in relation to waste contracts to enforce the consideration of Best Practicable Environmental Option.
- proposal 10: The Mayor will work with London's waste authorities on new contracts, and seek agreement to amend existing contracts, to ensure options as high up the waste hierarchy as possible are implemented.

Best Value

- 4A.46 Best Value places a duty on local authorities to deliver services to clearly defined cost and quality standards by the most economic, efficient and effective means available to them. All local authorities are required to undertake fundamental reviews of their functions, as well as producing annual performance plans and setting priorities and targets for continuous

improvement. Best Value provides a framework and tool kit that will help local authorities to deliver sustainable waste management in London.

- 4A.47 The Best Value framework for local government services has been set out in Part I of the Local Government Act 1999.

Working with others

- 4A.48 Waste authorities will need to work in partnership with others, including other waste authorities, and the private, community and voluntary sectors to ensure the continuous improvement of services. Co-operation will be a key factor in reaching the requirements of the Landfill Directive and other targets placed on local authorities. The need for waste collection and disposal authorities to work together is emphasised in Waste Strategy 2000. For example, meeting the requirements of the Landfill Directive will mean a larger proportion of waste will have to be segregated at source for recycling and composting. Waste collection and disposal authorities will have to work together to ensure that collection methods, and recycling and treatment facilities complement each other.
- 4A.49 Neighbouring waste authorities should also consider how they can work together to improve their service delivery to the public. For example, neighbouring authorities may be able to identify more efficient routes and ensure capacity is fully utilised by planning their collection round routes together and not basing them rigidly on administrative boundaries. Authorities should also look at how they can share facilities to ensure that the public has access to the best levels of service possible. Throughout this Strategy specific examples are identified where the development of partnerships between key stakeholders or agreements between waste authorities, need to be encouraged.
- 4A.50 By working together and pooling resources, authorities may be able to achieve economies of scale and provide infrastructure and facilities that they would be unable to support on their own, in terms of investment to build them or the tonnage to run them economically. By co-operating with each other, waste authorities can ensure that facilities are placed or used more strategically to ensure they best serve the needs of the community as a whole.



policy 8: The Mayor recognises the role for partnerships and co-operation in delivering strategic sustainable waste management for London.

proposal 11: The Mayor will require waste authorities to thoroughly explore all partnership and co-operative working opportunities to ensure that the Government's guidelines on Best Value are adopted.

References and notes

- 1 In 2001/02 London incinerated 19 per cent of its municipal waste in comparison to a national average of eight per cent
- 2 In 2001/02 London recycled eight per cent of its municipal waste in comparison to the national average of 14 per cent
- 3 House of Commons Select Committee on Environment, Transport and Regional Affairs Delivering sustainable waste management Fifth Report. HC 36-I. London: The Stationery Office, 2001, Para. 56. Also available at <http://www.publications.parliament.uk/pa/cm200001/cmselect/cmenvtra/36/3602.htm>
- 4 Strategy Unit, 'Waste not, want not : A strategy for tackling the waste problem in England', December 2002.
- 5 DEFRA, 'Government Response to Strategy Unit report - Waste not, Want not', 2003
- 6 Based on 68 per cent of municipal waste being considered biodegradable and 1995/96 levels of landfill
- 7 Strategic Planning for Sustainable Waste Management - Guidance on Option Development and Appraisal, October 2002, ODPM, ISBN 1 85112 598 1
- 8 Strategic Planning for Sustainable Waste Management - Guidance on Option Development and Appraisal, October 2002, ODPM, ISBN 1 85112 598 1
- 9 House of Commons Select Committee on Environment, Transport and Regional Affairs Delivering sustainable waste management Fifth Report. HC 36-I. London: The Stationery Office, 2001, Para. 106. Also available at <http://www.publications.parliament.uk/pa/cm200001/cmselect/cmenvtra/36/3602.htm>
- 10 House of Commons Select Committee on Environment, Transport and Regional Affairs Minutes of Evidence - Tuesday 12 December 2000. Also available at <http://www.publications.parliament.uk/pa/cm200001/cmselect/cmenvtra/36/01212c01.htm>

waste management options

4B Waste reduction and reuse

- 4B.1 Reducing the amount of waste reaching the municipal waste stream incorporates the elements of:
- prevention, such as 'designing out' waste
 - avoiding waste, such as buying in bulk and avoiding excess packaging
 - reusing waste in its current form, such as donating furniture to charity
 - dealing with waste at the household level, such as home composting.

Reversing the growth of municipal solid waste

- 4B.2 Waste has increased in London, as elsewhere in this country and other Organisation for Economic Co-operation and Development (OECD) countries. There has been an implicit assumption that, amongst other factors, as society in general becomes more affluent the amount of waste produced will rise. A sustainable waste management strategy for waste therefore needs to tackle this growth and uncouple waste production from increasing affluence.
- 4B.3 To put this into context, if waste is reduced from the 'combined' borough rate of growth to the 'central' growth rate modelled in Section 2.113, London will have 2.129 million tonnes less waste to manage in 2020. This is equivalent to about four times the capacity of the current Edmonton incinerator.
- 4B.4 It is not clear what the main influencing factors are, in respect to the amount of waste produced per household, although the link with affluence and economic growth certainly plays a part. However, it has been noted in Chapter 2 that this link can be broken, as has happened in Tokyo. Other factors may include the housing type. For example, an area with a higher proportion of households with gardens would expect a greater amount of garden waste to be produced. Of course, there would also be a greater opportunity for home composting of both kitchen and garden waste, which an area with a higher proportion of the population in flats would not share. The amount and type of goods and services we buy, the frequency with which we replace items, packaging, and our lifestyles increasing the demand for convenience goods, will all affect the amount and type of waste we produce. The types of collection container, socio-demographics of the population, frequency of collection and provision of reuse and recycling centres are also potential influencing factors.
- 4B.5 If we are to successfully tackle the growth in waste, then the identification of influencing factors will be the first step towards this.



Product manufacture and design

4B.6 Growing waste production is a sign of inefficiency in materials and energy use. Our systems of production and consumption need to be reorganised to design out waste and make the best use of natural resources. The Performance and Innovation Unit (PIU) reported on Resource Productivity: Making More with Less¹. The report defines productivity in terms of the efficiency with which the economy uses energy and materials. Resource productivity also measures the economy's ability to produce goods and services relative to its environmental impacts, especially in terms of waste. The report goes on to build on the concept of 'eco-design', which is defined in Waste Strategy 2000 as 'the process of producing more goods with less resource and less pollution, redesigning and remanufacturing goods and services to enable recycling and reducing harmful effects when they are returned to the environment. 'Producing more with less' entails innovation in the way raw materials are extracted from the physical environment and used in the production process'².

4B.7 Other forms of waste reduction and reuse (largely outside the control of the individual local authorities) are subject to national or European initiatives, such as the 'Producer Responsibility Obligations' that make producers of packaging responsible for its recovery and recycling. This requirement in turn exerts a pressure on producers to reduce the amount of packaging they produce. (see Section 4J for further details).

4B.8 There is a need for further investigation of the opportunities for design that incorporate the concepts of using minimal resources (light-weighting), design for repair, reuse or using a non-disposable material, upgrading, longevity and incorporating design for recycling. The development of these products will need to be supported through the London Development Agency (LDA), the London Remade project, the national Waste and Resources Action Programme (WRAP), or potentially through the development of specific eco-design centres or other mechanisms. Products should then be promoted and championed by the Mayor and London's waste authorities.

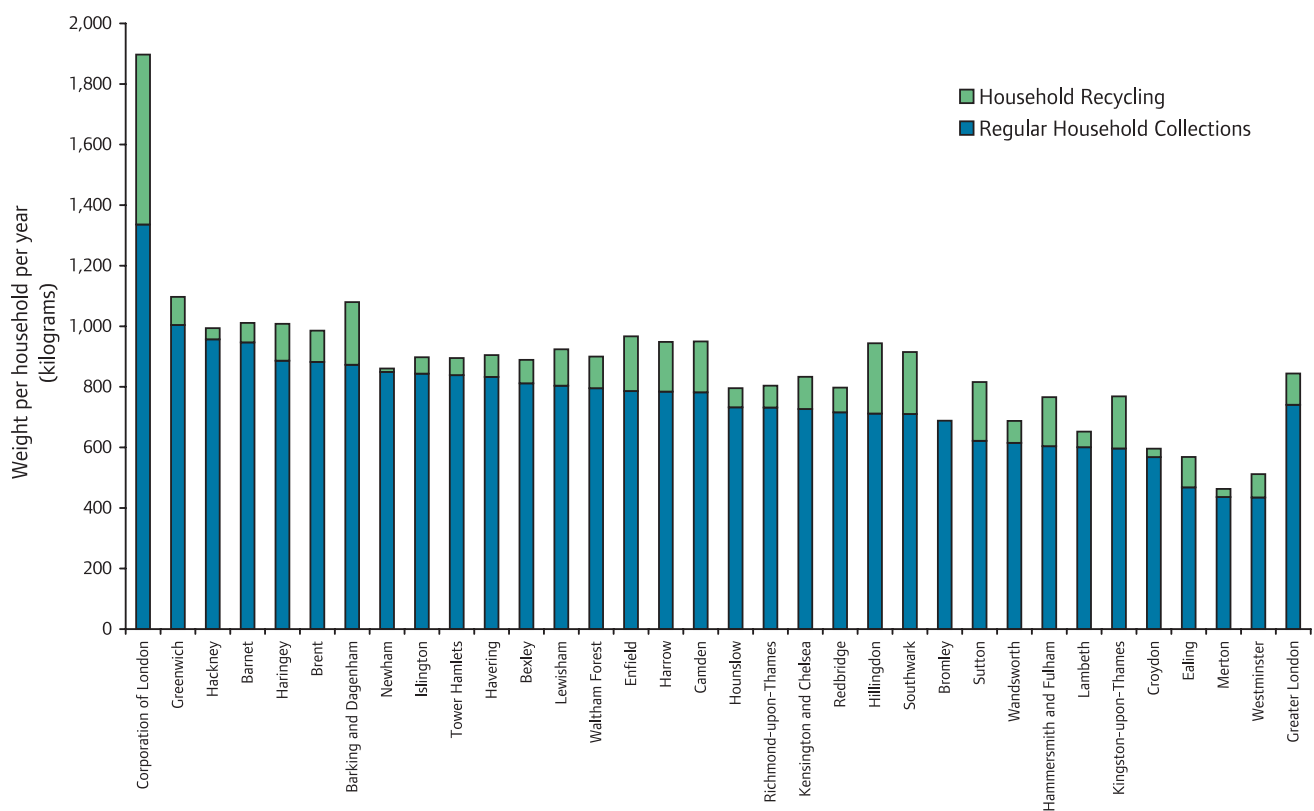
Why reduce not just recycle?

4B.9 Recycling can help reduce the amount of waste disposal required but it will not solve the problem, as we need to produce less waste in the first place. If waste is recycled it is necessary for it to be collected and reprocessed, which involves transportation and energy use. Waste reduction not only reduces this requirement but also saves on the use of valuable raw materials. It should be noted that just because an authority has a high recycling rate, it does not necessarily mean the authority collects less waste for disposal (see Figure 26). For example, although



Bexley almost three times as much material per household for recycling as Redbridge, the amount of waste collected through regular household waste collections per household, which is not recycled, is greater than the combined total weight of recycling and regular household waste collections per household in Redbridge.

Figure 26 Weight of regular household collections and recycling per household in 2001/02



source: www.capitalwastefacts.com 2003 and GLA household projections

4B.10 Attention has concentrated on recycling performance in the past, but increases in recycling in London, seem to have been matched by increases in waste produced per household (see Chapter 2). This means that even though the tonnage of waste being recycled has increased, the tonnage of waste going to landfill has not decreased proportionately. This increase in waste also indicates that extracting recycling from the dustbin doesn't necessarily divert it. It could be possible that space is created within the dustbin only to then be filled by other waste.

Incentives for action

- 4B.11 There are currently few direct incentives for waste authorities to reduce and reuse the waste they deal with. However it is a key issue, because if waste growth is not reversed local authorities will have to provide the services to deal with the rising volume. It is projected that, if waste grows unchecked at the 'combined' borough rate of growth, the amount of municipal waste would almost double by 2020. This would place a significant additional burden on local authority budgets.
- 4B.12 It is not currently possible to use the influence of costs to persuade people to reduce, reuse or recycle their waste, by charging according to the amount of waste they produce for disposal. Other countries do operate these systems and these are discussed further in Section 4C. Local authorities are, however, able to promote options available through the Waste Minimisation Act 1998.

Changes to default levy system

- 4B.13 For those waste collection authorities that are part of a joint statutory waste disposal area, there is currently no direct link between the costs of waste disposal and the amount of waste they collect. In these areas, a default levy system works so that the costs of waste disposal are apportioned between the constituent waste collection authorities according to their council tax base (equivalent Band D properties), and not according to the amount of waste collected in the area. Logically, if the costs are related to the tonnage of waste disposed of, this should be the principal factor used to apportion costs. However, changing from the current default levy system could potentially impose significant costs on some waste collection authorities, which currently produce a large amount of waste in relation to their population. Unless there is a consensus between all constituent boroughs of a joint statutory waste disposal area, alternative systems cannot be implemented. Even if it is agreed that the current system is unfair and illogical, it is difficult for an individual waste collection authority to justify making a decision that would impose higher costs on its council tax payers. A consensus is therefore unlikely to be reached, as any new arrangement would result in at least one losing party. Thus the default system remains for the 21 of London's 33 waste collection authorities, which are part of a joint statutory waste disposal authority.
- 4B.14 The result of the current system is that successful waste reduction and reuse schemes introduced by one authority reduce the overall costs to all authorities, and do not directly financially benefit the authority that undertook the scheme. However, any waste reduction and reuse activity undertaken by an authority will indirectly benefit them as it will reduce the amount of waste collected and therefore increase their recycling rate.



- 4B.15 Legislation could be changed such that the default is based on the tonnage of waste collected rather than the current apportionment. This change would be the first step towards the 'polluter pays' principle. This change in legislation should be done in conjunction with consideration of the Recycling Credits scheme and the current arrangements for Civic Amenity sites under the Refuse Disposal (Amenity) Act 1978. The Mayor wishes to see this change.
- 4B.16 The Mayor will therefore seek a voluntary agreement to commit to a tonnage-based levy arrangement, to start in time for the year 2005/06 which may include arrangements to soften the initial financial burden to those authorities affected and allow a gradual, rather than sudden, change. The Mayor is willing to help lead in the transition and consultation to enable change. However, if no agreement can be reached by this date, the Mayor will then seek to persuade the Government to amend legislation to impose this change.

Other Economic Instruments

- 4B.17 Other OECD countries are increasingly using environment-related taxes for pollution control including waste management, recycling and waste reduction. A 1999 OECD survey³ on such taxes acknowledged the complexity of evaluating their environmental effectiveness, because such instruments tend to be part of a policy package and have no built-in evaluation system.
- 4B.18 The survey investigates packaging charges in Austria, Hungary, Italy, Japan, and Switzerland. These charges target plastic, aluminium and ferrous packaging, paper, plastic bags, plastic containers and packaging for liquids, PET bottles, wood and textiles. All these systems have an 'explicit incentive purpose', while raising revenue that usually contributes towards collection and recovery.
- 4B.19 Two-thirds of the respondent countries have deposit-refund systems for beverage containers for example glass, PET bottles and cans, which aim to encourage the use of reusable containers and reduce waste at source. The survey finds that the environmental effectiveness of such systems is mostly described by means of the rates of return. Return levels of glass and PET bottles, of 60 to 99 per cent are reported and 'few new products have been brought under deposit systems. Car batteries are one exception'.
- 4B.20 Other instruments, such as Ecotaxes akin to excise tax, were introduced in Belgium in 1993, with an explicit waste reduction objective. Ecotaxes are levied on drinks containers, disposable cameras, batteries, certain ink, glue, industrial pesticides and some paper and card products. Exemptions



were granted if graduated recycling levels were reached, e.g. 80 per cent for glass and metals and 70 per cent for synthetic packaging and cartons, by 2000. Thus, the Ecotax system gave rise to more recycling and far less reuse than originally intended. To reassert the primacy of waste prevention and reuse, Belgium is expected to replace the Ecotax system in 2003 with a combination of 'Ecobonuses' and packaging tax. These will provide more of a financial reward to the consumer purchasing reusable containers.

4B.21 Since 2002, Germany has had a statutory deposit system for drinks cans and non-refillable glass and plastic bottles (excluding wine bottles), to halt the rise in disposable packaging in favour of reusable. Denmark has a tax on all primary packaging materials. Finland imposes a tax on disposable beverage containers while Norway has set up a system of ecotaxes on beverage containers.

4B.22 Further measures have been suggested in a report for Friends of the Earth⁴, such as increased taxation of raw materials and waste as well as VAT exemption on repair and maintenance services; producer responsibility to focus on optimising product life; and improved information provision with clear labelling of household appliances specifying their anticipated service life.

policy 9: The Mayor considers that certain fiscal instruments will be needed to reduce waste and raise recycling rates in the future.

proposal 12: The Mayor initially will seek to get a voluntary change from the default basis to a tonnage-based levy for the joint statutory waste disposal authorities to recover the cost of disposal from the constituent local authorities in London, including any transitional arrangements to alleviate problems, which may occur because of a changeover. However, if no agreement can be reached, the Mayor will seek to persuade the Government for a change in legislation to change the default system to a per tonne basis.

proposal 13: The Mayor will seek to persuade the Government to ensure that effective fiscal instruments are in place for the achievement of waste reduction and high levels of recycling in London.

Initiatives

4B.23 There are thought to be many factors which influence the growth of waste and hence many solutions. No particular measure is expected to eradicate certain materials from the waste stream, but it may go some way towards reversing the growth in waste. For example, it is not expected that by promoting reusable nappies, disposable nappies will be

eliminated from the household waste stream completely. However, there is a clear need to make people aware of how the choices they make effect the production of waste.

- 4B.24 There are already some practical examples of waste reduction and reuse schemes being undertaken and waste authorities need to learn from these.

Reusable nappies

- 4B.25 There appears to be an increasing proportion of parents now choosing reusable nappies for their children, with an estimated 15 per cent of parents using reusable nappies at least some of the time. With disposable nappies making up between two and a half and four per cent of the household waste stream this is a key disposable product that contributes to the increasing amount of waste being produced. There is an opportunity to reduce costs and minimise environmental impact if more parents can be encouraged to switch to home or service laundered reusable cloth nappies. As well as reducing waste, use of laundries also has the benefit of encouraging more local economic activity whereas parents can save over £500 on the cost of keeping a baby in nappies by washing them at home⁵. Real nappies can be purchased on the high street and there are an increasing number of styles and designs, many with Velcro rather than pins and shaped nappies which don't require folding. Prices, for all the nappies and waterproof covers required for the whole of a baby's nappy wearing life, start at around £60. The same amount of money will only buy the first ten to 12 weeks for disposable nappies. This saving takes into account the total cost of laundering nappies at home, which is about £50 a year, the savings are still considerable. However, as an initial investment in the nappies is required, this can be an economic barrier to some. An incentive scheme has already been initiated by West Sussex County Council, which offers residents up to £30 cashback for using real nappies – an amount more than repaid by reduced disposal costs.



West Sussex County Council – Nappy Initiative

West Sussex County Council has introduced a scheme aimed to reduce the number of disposable nappies going to landfill. The Council estimates that the cost of disposing of nappies is between £280,000 and £430,000 a year. This will increase as the costs of landfill increase. The Council subsidises a local nappy laundering service. A financial incentive is offered to parents to help with the costs of using the service. Financial support is provided to offset part of the registration fee, and then after three and six months when additional wraps are needed.

The payments are made retrospectively to the nappy-laundering service, which then deducts the subsidy from charges incurred by parents.

Provision of waste collections services

- 4B.26 In the past, the aim has been to make waste collection as easy as possible. However, this has had the impact of reducing people's ownership of waste, and some arrangements, such as the introduction of wheeled bins for example, have resulted in increases in the amount of waste produced. There are a few obvious measures that reverse this situation, and help to discourage the production of waste by making waste disposal less convenient in comparison to reduction, reuse or recycling. Although authorities cannot impose requirements on businesses or householders in their area, legislation does allow authorities to determine the form of collection and the receptacle from which waste is collected. Offering smaller bins, especially to single person households, when recycling collections from home are introduced, or reducing the number of black sacks where they are provided, can also help to discourage the production of waste. Ensuring that waste and recycling are collected from the same place, and making sure waste is not collected from within a property boundary, while recycling has to be taken to the boundary⁶, will ensure a balance in the convenience of services and not unfairly favour waste collection.



Education and promotion

- 4B.27 Consumers are often blamed for creating rubbish when they have no alternative. On the other hand, consumers often complain that waste is 'pushed' on to them by retailers and advertisers. We need to break down this barrier, and ensure that consumers are aware and use their collective powers to influence retailers and advertisers to undertake change and that the individual choices they make can significantly affect the volume of waste they produce. The Mayor, together with the waste authorities, can play an important role in bringing about change through communication with consumers, retailers and manufacturers. There are ways that consumers can alter their habits and start to have an effect. The classic example of this is to refuse a carrier bag when it is not required, buying concentrated products and buying in bulk, which reduces the amount of material used in packaging the goods. The role of the Mayor and waste authorities is to promote and educate people about the ways they can easily incorporate these actions into their lives. The issue of raising awareness of waste issues has been addressed in Section 4M in more detail.

Facilitating reuse

- 4B.28 Waste reuse is where materials have been used and then become a waste item, but they are then used again in their current form. Recycling differs, in that waste is processed before being used again (it is not reused again in the same form). Examples of reuse include refilling a jam

jar with homemade jam or passing a wardrobe on to a charity furniture reuse scheme.

4B.29 The refurbishment or reuse of furniture and equipment also has social benefits. Office furniture can be passed on to schools and charities, and computers and other items can provide affordable alternatives to those on low incomes. For many Community Recyclers the environmental benefits of waste reduction, reuse or recycling are a consequence of the pursuit of their main economic or social objectives. For instance, the majority of London's 17 furniture and white goods reuse projects principal aims centre around the alleviation of poverty through the provision of affordable goods and services. Whilst achieving this they divert over 100,000 items from landfill each year with enormous potential to increase this reuse⁷.



4B.30 The Mayor will look to work with the waste authorities to facilitate and encourage greater reuse. This includes supporting the development of remanufacturing workshops and centres for brown and white goods⁸, linking with local charity shops and the development, with partners, of a Londonwide scheme for the refurbishment of computer equipment to ensure affordable equipment for the voluntary and education sectors. The private and community sector already undertake significant amounts of furniture reuse and the Mayor will look to work with stakeholders to ensure the effective co-ordination of activity, including the establishment of a database, to match supply and demand for surplus office furniture and equipment. Key to local authorities in encouraging reuse will be provision of services with opportunities to reuse before disposal. This could include the provision of a reuse scheme for bulky waste, working in conjunction with local reuse groups, or simply providing the householder with details of reuse organisations.

Home composting and community composting

4B.31 Home composting and community composting prevent waste reaching the waste stream and are the best example of the application of the proximity principle - dealing with waste as close to the point of production as possible. They also help people to become more aware of the amount of waste they produce and the direct impact their actions can have. Although not strictly waste reduction, as the organic waste is still produced, it does reduce the amount of waste an authority has to collect. Composting is discussed in more detail in Section 4D.



Measuring waste reduction and reuse

4B.32 Efforts by waste authorities in relation to reduction, reuse and home composting whilst not directly measured in England, are considered

indirectly under Best Value. The Best Value Performance Indicator target, which considers the number of kilograms of household waste collected per head of population (BV84), therefore needs to be monitored carefully.

- 4B.33 At the moment, by virtue of waste not reaching the municipal waste stream and local authorities generally not operating waste reduction and reuse schemes, any activity is therefore largely unrecorded. As local authority schemes develop, we need to be able to measure or accurately estimate the amount of waste they avoid, reuse or home compost. This will then act as a direct incentive for waste reduction and reuse activity.
- 4B.34 The Government's Strategy Unit Report⁹ states that waste reduction action should aim to reduce the rate of growth in household waste quantities by one per cent by weight, to two per cent per annum by 2006. However, in order to achieve this they recognise that a significant amount of awareness raising needs to be undertaken. In their response¹⁰ the Government recognises the need to reduce waste but will consider the levers local authorities have for reducing waste and whether a reduction target would be an effective means of encouraging waste reduction.
- 4B.35 The European Commission recognises¹¹ that there have been several attempts across Europe to define waste prevention targets in the past, which have generally been unsuccessful and that they have sometimes been defined without considering the means to achieve them, therefore undermining their credibility. Therefore, definition of waste prevention targets must be accompanied by an evaluation of the potential range of measures through which they can be achieved. The potential effect on waste reduction of measures or initiatives and a full scientific analysis of waste generation need to be completed before targets can be considered. Therefore, the priority actions in this Strategy are to create incentives to minimise waste, encourage reduction and reuse activities and develop ways to measure action, before seeking to develop targets.

policy 10: The Mayor supports the reduction and reuse of waste, with an aim to decrease the amount of waste produced per household and slow the overall growth in waste.



proposal 14: The Mayor will develop a 'Waste Reduction and Reuse Programme for London', in partnership with relevant stakeholders, to co-ordinate, facilitate or undertake to:

- Produce a plan outlining the detail of the Waste Reduction and Reuse programme.
- Research waste growth through the identification of the key influencing factors and hence identification of solutions.
- endorse high profile 'pilots' of new techniques for waste reduction.
- Seek to persuade the Government to consider regulatory measures such as extended producer responsibility and economic instruments such as Ecotaxes.
- Create an environment for change through communication with consumers, retailers and manufacturers to encourage design for waste reduction.
- Promote waste reduction and reuse as part of a wider waste awareness campaign for London. This should link to and complement local promotion activity and educate consumers on their powers to reduce waste and influence retailers.
- Encourage the London Development Agency to work with businesses, entrepreneurs, education and design sectors to investigate opportunities for sustainable product design. This should incorporate the concepts of using minimal resources, design for repair, reuse, upgrading, longevity and incorporating design for recycling.
- Investigate opportunities to encourage repair facilities.
- Support the development of remanufacturing workshops and centres for brown and white goods.
- Ensure effective co-ordination between the private and community sector of furniture reuse, including the establishment of a database, to match supply and demand for surplus office furniture and equipment.
- Develop, with partners, a Londonwide scheme for the refurbishment of computer equipment to ensure affordable equipment for the voluntary and education sectors.
- Develop ways to measure waste reduction and reuse and look to develop targets in the future.





- proposal 15: Waste authorities should undertake certain actions to impact on the production of municipal waste including:
- Consideration of the provision of waste collection services in relation to potential influence on the production of waste by householders and to ensure services for reduction, reuse and recycling are as high profile and convenient as waste collection services.
 - Vigorous promotion of waste reduction and reuse to raise awareness locally of the need and actions to be taken in order to restrain the growth in the quantity of waste arising.
 - Increase the awareness of Londoners regarding waste and the impact their behaviour has, including how individual decisions affect the amount of waste, costs of waste management and hence Council Tax bills, and the actions they can take to reduce waste and increase recycling.
 - Promotion of home composting through the provision of appropriate information on how to make compost, and the benefits for the environment and making low cost compost bins and wormeries available to all households with gardens by September 2004.
 - Facilitation of community composting schemes, though the provision of advice, potential sharing of resources such as shredders, and the provision of space on allotments or in parks.
 - Consider the reuse of wood, rubble and other materials, and promote furniture reuse. This should be done either through the direct provision of a scheme or provision of contact details of other organisations, prior to collecting bulky waste or sending it for disposal from Reuse and Recycling Centres (Civic Amenity Sites).
 - Promote reusable nappies and consider supporting schemes financially through a rebate related to the disposal costs.
 - Promote the Mailing Preference Service to reduce junk mail.

References and notes

- 1 Performance and Innovation Unit, Cabinet Office, Resource Productivity: Making More with Less, November 2001
- 2 Department of the Environment, Transport and the Regions, Waste Strategy 2000 for England and Wales. London: The Stationery Office. v2, 2000
- 3 Economic Instruments for Pollution Control and Natural Resources Management in OECD Countries. 6 October 1999 ENV/EPOC/GGEI(98)35/REV1/FINAL. See particularly p 94 and p 98.
- 4 Friends of the Earth (2000). Tim Cooper and Sian Evans of the Centre for Sustainable Consumption, at Sheffield Hallam University.
- 5 <http://www.wen.org.uk/nappies/nappies.htm>

- 6 Paper and glass for recycling can be very heavy, especially when collections are fortnightly. If waste does not have to be carried to a collection point but a bulky recycling container does, then this can discourage recycling not only by older people and the disabled, but also many other householders
- 7 London CRN mapping exercise January to June 2001
- 8 Brown goods include items such as televisions, and white goods include fridges and cookers
- 9 Strategy Unit, 'Waste not, Want not: A strategy for tackling the waste problem in England', December 2002. Recommendation 1, p 116
- 10 DEFRA, 'Government Response to Strategy Unit report - Waste not, Want not', 2003
- 11 Commission of the European Communities, Communication from the Commission - Towards a thematic strategy on the prevention and recycling of waste, Brussels 27.5.2003 COM (2003) 301 final, pp 16-17



4C Recycling collection

Increasing recycling

- 4C.1 Where it is not possible to reduce or reuse waste, consideration should be made to recycle as much as possible. In the waste hierarchy recycling is the third favoured option but also the most obvious one for householders. For recycling to occur, the provision of recycling services is essential. It reduces the need for natural resources and diverts waste from landfill. Recycling household waste, along with composting, also contributes towards the forthcoming Landfill Directive requirement to reduce biodegradable waste sent to landfill and towards the statutory performance targets set for waste authorities by the Government (see Section 4A for more detail). Waste authorities should not just aim to meet their statutory targets but aim to exceed them as they are minimum requirements not aspirations. Recycling of both household and trade waste also contributes towards the targets for the recovery of municipal waste. The Mayor will expect facilities to be accessible for all, excluding no one from participating.



Camden Partnership Recycling

Camden is aiming to reach their recycling target of 24 per cent by building on its award-winning recycling collection initiative with the Big Issue, Oxfam and the council's recycling service.

Launched as a pilot scheme covering 10,000 properties in 1999 the multi-materials recycling operation now provides a weekly collection of paper, cans, glass and textiles to approximately 57,000 households. It uses specially modified vehicles, each with a crew of one driver and two loaders. In return for the textile material collected, Oxfam agreed to sponsor crew members, recruited by the council through the Big Issue's employment training programme for ex-vendors.

Since it started, the recycling collections from homes has seen an increased participation rate from 27 per cent in May 1999 to 37 per cent by April 2002 and yearly tonnages increased from 1,138 tonnes in 1999 to 4,726 tonnes in 2002.

Camden is planning to expand the service boroughwide and is actively working to increase participation rates through targeting low-performing areas, publicity and providing a consistently good service.

Over 40 per cent of the borough is comprised of housing estates and Camden is looking to increase the number of recycling facilities for these areas from 30 sites to include sites for all major housing estates by 2005.



Multi-material dry recycling collections

- 4C.2 There is no single correct way to collect recycling materials from homes. The materials collected, methods and frequencies will vary between authorities depending on location, housing type and markets. Options for recycling collections from homes can include boxes, wheeled bins, re-usable bags, non-reusable bags, carrier bags and survival bags (where recyclables are placed in a sturdy bag and collected with your refuse). These may be collected in a split refuse vehicle, a normal refuse vehicle, sorted into a flat-bed caged vehicle or an electric vehicle. Some schemes are better suited to particular areas: for example sorting of recyclables from boxes is more suited to suburban rather than congested central areas. The main consideration authorities need to make, when identifying the most suitable collection method for their local area, are the types of material they are able to collect for reprocessing and the level of contamination of materials the collection method might lead to.
- 4C.3 Waste authorities should look to collaborate to avoid cross-boundary inconsistency, that may lead to confusion, for example, one borough should not use a blue bag for paper collection whilst another uses a green bag. Where joint schemes are possible, these should be seriously considered. Greater compatibility should help to increase participation and enable Londonwide promotion.
- 4C.4 Identification of 'best practice' for recycling collections from homes will need to consider the advantages and disadvantages of different schemes. This will include – the types of container, frequency and methods of collection, perception of the scheme by residents and required publicity and promotion (for example the need to overcome the misconception of all in one vehicle collection schemes where residents sometimes perceive that the recycling is not separated and goes to landfill). Other areas will include ease of use, equality of opportunity for all sections of the population, and suitability for different areas.
- 4C.5 Recycling collections from homes are by their nature more inclusive. Participants avoid the need to carry recyclables to a bring site or have access to a car. Recycling collections from homes can, and should, be more easily adapted to take into account the needs of older people and disabled people, such as arrangements for collection of recyclables from the doorstep rather than the edge of the property. Where recycling collections from homes are not possible for practical reasons, such as on some high-rise estates, convenient alternative systems should be offered to ensure that recycling is as accessible as possible. In some areas of London, the collection of recyclables from the doorstep in high-rise buildings has been successful and should be considered elsewhere.



- 4C.6 Recycling collections from homes are generally considered to be more expensive than 'bring sites' or reuse and recycling centres. However, there is a very wide range in the cost per household of providing waste management services in London. The most expensive is almost four times the cost of the cheapest, and those waste authorities achieving the best recycling rates do not necessarily incur the highest costs. This suggests that there may be room for some authorities to reconsider how they provide their waste services, with a view to providing a better service within an existing cost ceiling. Section 4T looks at funding further.
- 4C.7 The Mayor believes that in order to meet and exceed the statutory targets set for waste authorities and move London towards more sustainable waste management practices, a minimum of three recycling materials for collection from homes should be introduced to the maximum extent possible. Waste authorities should therefore positively promote this approach, whilst having regard to practicality and cost effectiveness. This will be the best way forward for London as a whole, however it is recognised that there are parts of London where collections from homes may not be the best solution. The Mayor will work closely with waste authorities where collections may be impracticable and to develop best practice to identify the most appropriate schemes for different areas.

Material Reclamation Facility (MRFs)

- 4C.8 Once waste has been collected it needs to be sorted in order to extract materials for recycling. Sorting plants for recyclables are known as Material Reclamation Facilities or MRF's of which there are different types available.
- 4C.9 Dirty MRF's handle unsorted mixed waste collected on the normal refuse collection round. This type of system ensures 100 per cent participation in the recycling scheme. It does not require any action from the householder to separate their recyclables from their household waste and therefore does not raise awareness surrounding recycling and waste issues. The efficiency of dirty MRF's to separate materials in a form that is acceptable to material reprocessors has also been questioned.
- 4C.10 Both clean and semi-clean MRF's handle recyclable waste that has been pre-sorted by the householder and kept separate from the normal waste on the collection vehicle. A semi-clean MRF will sort different dry recyclables such as paper and cans that have been collected together, often in a sack. A clean MRF is more of a bulking station for recyclable materials that have already been sorted on a vehicle, from a box (or other receptacle) or materials that have been collected separately from each other. A degree of sorting – such as cans into



aluminium and steel, or separation of the different types of plastics - may take place.

4C.11 It should be noted that the draft EU Directive on the Biological Treatment of Biowaste states that the amount and contamination of residual waste should be reduced to the minimum level possible. It proposes the separate collection of different components of municipal waste, which includes not only biowaste, but also packaging, paper and cardboard, glass, metals and hazardous waste.

policy 11: Waste authorities should look to maximise the recycling of waste where waste reduction and reuse are not possible, in order to contribute to meeting and exceeding the recycling and composting targets and reduce municipal solid waste to landfill.

policy 12: All waste collection authorities must introduce collections of materials for recycling from households or exceptionally extensive and effective 'bring' systems, in order to meet and exceed the national recycling targets.

proposal 16: The waste authorities must provide all households with recycling collections of at least three materials¹, one of which should be paper by September 2004, except where impracticable. Consideration must be given to include access to the service for disabled people, children and the elderly.

proposal 17: On estates or in multi-occupancy properties where recycling collections from homes may not be practicable, alternative arrangements of easily accessible recycling must be introduced. This should consist of no less than one recycling site per 500 households collecting at least three materials², one of which should be paper, by September 2004.

'Bring' systems (also see Reuse and Recycling Centres in Section 4G)

4C.12 The most effective way of increasing the rates of recycling to the required levels is to introduce recycling collections from homes. 'Bring' systems compliment collections from homes by providing an option to recycle between collections and for those with limited storage. Where collections from homes are impractical, 'bring' systems are vital and sites should be located near, and predominantly for, those properties. They will also need to consider provision of recycling facilities for those materials not collected from the home. Recycling collections from homes, 'bring' systems and reuse and recycling centres all need to be considered together in order to achieve a complementary recycling infrastructure, providing maximum material availability and avoiding unnecessary replication.



4C.13 Identification of 'best practice' for bring recycling collections should look at some key issues. Consideration should be given to site location, accessibility - both for usage and servicing, layout, types of facilities, aesthetics and how all of these things affect usage. Careful consideration must be given where collections from homes are not provided as this can affect the accessibility for older people, children and disabled people. In residential areas, signage to deter usage between certain times and consideration of emptying times and procedures should be implemented as a minimum, particularly if recycling banks with noise-reducing features or site screening are not possible.



4C.14 Recycling sites taking a full range of materials should be provided at as high a density as possible, especially for those materials that are not collected from homes eg glass. In London, the aim should be for one site per 1,000 households where recycling collections from homes exist, and one site per 500 households where recycling collections from homes are not provided. Sites should be located in consultation with local residents, and where possible at centres to which people will be travelling anyway - ie local shops, supermarkets, schools and near main roads.

4C.15 Servicing arrangements, regular monitoring and cleaning of the site, in co-operation with the service provider are crucial to ensure banks are emptied when as full as possible to maximise efficiency whilst ensuring there are no overflows. Also 'adopt a bank' schemes involving the local community or a local group bring benefits of increased participation and ownership, and decrease incidences of overflows, fly-tipping and litter.

policy 13: Waste authorities must maintain and extend the current provision of bring recycling facilities, particularly for those materials not collected as part of the authorities' recycling collections from homes schemes.

proposal 18: The Mayor will look to identify 'best practice' in recycling, composting and promotion, to assist waste authorities to develop consistent schemes, and to save time and resources on investigating options independently.

proposal 19: Waste collection authorities should ensure an extensive, well-distributed and full range of recycling banks for all wards within their area and look to provide best practice arrangements for their recycling sites, including where suitable the encouragement of 'adopt a bank' schemes.



Street cleansing and trade waste recycling

4C.16 Recycling of litter bin waste and street sweepings contributes towards the household recycling rate. Schemes currently in operation include split litter bins, which collect litter in one side and recyclables in another. These

usually concentrate on drinks cans or newspapers, but some collect a wide range of materials and are in effect mini-recycling centres. In some inner London boroughs the introduction of 'commuter newspaper' bins outside tube and train stations has been very successful in diverting newspaper waste from the litter bin to the recycling bin. In other areas, street sweepers are already provided with additional bags for the collection of cans, but there is a need for analysis of street sweeping composition to be undertaken to identify other opportunities. Analysis should also investigate whether arisings from different areas have different compositions, and if some have the potential for extraction of recyclables using dirty MRFs or other technologies.

- 4C.17 As referred to in Section 4E, the recycling of trade waste contributes towards the recovery targets for municipal waste. It is also a more homogenous source of material for recycling or composting as it is often less contaminated, and provides a larger source of particular materials: eg glass bottles from bars and restaurants, paper from offices, cardboard from shops and vegetable food waste from supermarkets and markets. The recycling of trade waste can often be incorporated in the collection of recyclables from householders and provide economies of scale for recycling collections. Waste authorities should fully explore and introduce possibilities for reuse and recycling of trade waste and become leaders, through example, by offering reuse and recycling services to this sector. This may help them with their increasing responsibility for the waste they produce over the next ten years.

proposal 20: Waste authorities should fully explore opportunities for the recycling of street cleansing and trade waste, including trade waste recycling collections.

Increasing participation – incentives to recycle

- 4C.18 Many people recycle due to the 'feel good factor' it gives them. Others do not like to see resources wasted due to their concerns for the environment. There is a gap between how people perceive their recycling habits and their actual recycling habits. For example nearly three-quarters of households with a recycling collection claim to be high to medium recyclers, with 59 per cent claiming to have increased the amount of recycling they put out in the last few years³. This is clearly not the case, as Londoners recycle nine per cent of household waste, yet 57 per cent of householders receive a recycling collection from their home. This indicates that many people are enthusiastic about recycling but may overestimate their recycling activity.



- 4C.19 Methods to encourage more people to recycle need to be considered, as it is better to have everyone doing a little, than a few doing a lot. A higher recycling rate would be produced by 90 per cent of the population recycling 50 per cent of the materials it is possible to recycle, rather than 10 per cent of the population recycling 100 per cent. Participation, by as many people as possible, in recycling schemes is crucial in terms of costs and maximising recycling rates from services provided.
- 4C.20 Through partnerships with community organisations, schools and colleges, waste authorities should seek to maximise participation in waste reduction, reuse and recycling activities.

Direct charging for waste

- 4C.21 Many countries including Canada, the US, Australia and some European countries charge, or are beginning to charge, householders directly to collect and manage the waste that they produce. In Seattle, (referred to in Chapter 2), charges are made according to the size of the household waste collection container provided. The average size of containers requested by residents has decreased since the system was introduced.
- 4C.22 Current legislation on waste management in the UK does not allow for a direct charge to be made for the collection of household waste, barring some exceptions for bulky waste and garden waste⁴. It does allow however, an authority to require the householder to place waste in a suitable container which could, in theory, include separation of recyclables in a specified container for collection, however enforcement of this would be difficult. The removal, or partial removal (so that there is a lower fixed fee for the basic service provision), of charging for waste from the council tax bill and replacement with a direct charge, could be similar to the removal of the water rates and replacement with a water meter. However, unlike water charging, this change could impact upon the wider community, if waste is then illegally dumped.
- 4C.23 The intention of direct charging for waste is to make people more aware of the amount of waste they generate and so those who are not producing waste do not have to pay for the services others are using. This, along with the provision of comprehensive free recycling services, should encourage them to reduce the amount of waste they produce and recycle more. If legislation were to be changed, it may then be possible to minimise or stem the growth of waste in this manner.
- 4C.24 A report prepared by Enviro on behalf of the Scotland and Northern Ireland Forum for Environmental Research⁵ found that charging schemes have been successfully applied under a wide range of national cultures

and local conditions. Where direct charges have been introduced in other countries for residual waste, and combined with the provision of recycling systems, high levels of recycling seem to have been achieved. For example, the Flanders region in Belgium reported a household recycling rate of 58 per cent in 1998⁶. The system includes recycling collections from homes and high-density container parks (similar to Reuse and Recycling Centres or Civic Amenity sites), higher landfill tax than the UK and charging for waste from households by the bag or by container size⁷. Whilst it is not certain that the definitions of recycling are directly comparable, they seem to be doing significantly better than London and much can be learnt from this.

- 4C.25 Research by the Resource Recovery Forum⁸ suggests that due to long held views about council tax, it is difficult for people to think how direct charging would differ from the present system, and how they might benefit. People think that carrots should come before sticks – which would mean making recycling easier first. Also charging is often perceived as imposing extra costs and increases illegal waste tipping. The report by Enviro also comments that there are accounts of problems during initial implementation of schemes due to adverse community reaction and a lack of understanding about what behavioural changes were required. However, all of the studies indicated that this phenomenon was relatively short-lived. Some⁹, however suspect that avoidance of the charge results in waste being dumped in gardens, burnt on domestic fireplaces, or placed in others bins and claim that this is largely undocumented and uncontrollable. There is a need for more research to assess whether there is a genuine reduction in waste arisings and to alert local authorities to aspects that need addressing to avoid potential adverse outcomes. Proposals for direct charging are being investigated by DEFRA and will be reviewed by 2004 as one of the actions outlined in the Government response to the Strategy Unit Report¹⁰.

Rewards for recycling

- 4C.26 An alternative to charging households who do not recycle and do produce large quantities of waste, is to offer a reward to those householders who recycle regularly. This could, for example, be in the form of a rebate on council tax, a cash reward or food vouchers.
- 4C.27 The Mayor, in partnership with the London Borough's of Lambeth and Brent, in conjunction with ECT Recycling Ltd, conducted two pilot schemes, offering a cash incentive of £10 for householders who recycled on average once every two weeks over a six-month period. The pilots took place between June and December 2001. The results of the two trials are shown in the text box.



Recycling Incentive Trials – Brent and Lambeth

Two pilot studies were carried out between June and December 2001 to investigate the impact of offering a cash incentive on household recycling tonnages and participation rates. The pilots took place in Sudbury, Brent and Tulse Hill, Lambeth. The pilot studies were undertaken by a partnership of the Mayor of London, the London Borough of Brent, the London Borough of Lambeth and ECT Recycling Ltd.

In total 1,240 household properties on an existing weekly multi-material recycling collection round, including paper, glass, cans and textiles in Sudbury were offered a £10 cash incentive if they recycled at least half of the time over the six-month trial. Each householder was given a bar-coded collection box with information about the scheme at the start of the trial. The bar-codes were scanned by a hand held device each time the box was put out for recycling.

Participation¹¹ for the whole round was 39.8 per cent. For five continuous weeks before the trial began 663 properties were monitored. Participation rose from 35.3 to 41.3 per cent in these properties. Box usage¹² was 21.2 per cent across the whole round. For the 663 properties monitored continuously before the start of the trial, usage rose by almost 50 per cent from 15.1 to 22.3 per cent during the trial. The tonnage of recycling collected each week rose during the trial by 34 per cent in comparison to the same time period preceding the trial. Of all the properties 274 (22 per cent) qualified for the £10 payment for participating at least half of the time.

In Tulse Hill, 887 households on a high density housing estate were offered a £10 cash incentive for recycling at least half of the time over the six-month period. Residents were given a booklet of slips that they posted in a special box each time they used the recycling bins located on the estate. The slips, along with the glass, paper and cans were collected weekly.

The participation rate for the Tulse Hill trial was 13.4 per cent. A total of 1,872 valid slips were returned over the trial, equating to 8.1 per cent of possible usage. Participation and usage were not monitored before the trial. The recycling banks on the estate were emptied and weighed each week for 13 weeks before the trial. The average weekly weight before the trial was 375 kilograms, this rose to 475 kilograms, an increase in weight of 27 per cent. Some 81 households (10.7 per cent) qualified for the £10 incentive.



4C.28 The pilots have demonstrated that even a relatively small cash incentive can impact on participation and the tonnages collected for recycling from householders. The £10 reward appears to have had the greatest impact on those who already recycled, and may have encouraged these people to take part more regularly. However it may not be enough for 'hard to reach' – low recycling households and the bar coding enabled an accurate analysis of participation and usage by each household to be developed. A significant proportion of households only took part a handful of times during the trial.

4C.29 Whilst the results are not conclusive, they do imply that both participation and tonnage recycled had the potential to be increased by a rebate scheme. Overall there was clearly a willingness from a number of households to at least try recycling, however, there were barriers which prevented them from recycling week-in week-out. The barcoding of boxes enables those responsible for recycling services to identify households which are not participating or have stopped recycling. This information may also help service managers understand why people will not participate in recycling schemes. It will also enable an education campaign to be tailored to low performers, addressing the issues which prevent them from taking part. A study by the Resource Recovery Forum into 'Household Waste Behaviour in London'¹³ found that medium and low-level recyclers felt that they needed to be reminded about recycling more directly. By identifying different levels of household participation, targeted messages can be geared towards specific groups such as high, medium or low recyclers as well as those who never take part.



4C.30 Further investigations will be conducted into a charge-based incentive scheme where £5 a year is levied on each council tax bill which is directly linked to a £10 per year rebate if the household recycles. The scheme would operate by registering each time the household recycles through the use of barcoding of boxes, tokens or swipe cards to be used at bring and Reuse and Recycling Centres (Civic Amenity Sites). This scheme will allow cheaper household waste disposal costs for those who recycle and extra costs for those who choose not to recycle. The scheme would be roughly self-financing unless more than 50 per cent of households participated in recycling. Any extra revenue raised should be ringfenced for improvements in the street environment. If the value of the extra recyclables and savings on disposal costs has not fully offset any additional costs, the scheme may require minor additional support from the central Council budget. Rebate schemes such as these would only be expected to operate for two to three years to increase the participation in recycling schemes and should not constitute a permanent charge/rebate.

4C.31 The Mayor believes that rebates are the best way in which to increase recycling participation rates and wishes to ensure the principle of 'polluter pays'. In this example specifically the 'non recycler doesn't get money back'. In response to the consultation on the draft Strategy, 61 per cent of the responses by the general public in the Londoners Survey 2002 agreed with, and 54 per cent of respondents to the highlights questionnaire strongly supported, financial incentives for households that separate their waste for recycling.

4C.32 Therefore, in order to help meet their targets, waste collection authorities should introduce incentive schemes once full boroughwide recycling collections from homes have been developed. Whilst the Mayor would not rule out the potential for charging for waste as an option for the future, he strongly believes a rebate scheme is the preferred option.

policy 14: The Mayor will encourage greater participation in existing and future waste reduction, reuse, recycling and composting schemes.

proposal 21: The Mayor with waste authorities and their contractors will investigate further the potential impact of incentives to recycle and the 'polluter pays principle' for waste. This is to help increase the levels of participation and recycling from householders but only to be implemented after the development of full boroughwide recycling collections from homes.

proposal 22: The Mayor believes that rebates are the best way in which to increase recycling participation rates. Waste collection authorities should consider introducing schemes to help meet their targets once full boroughwide recycling collections from homes have been developed. Rebate schemes such as these would only be expected to operate for two to three years to increase the participation in recycling schemes and should not constitute a permanent charge/rebate. Any extra revenue raised should be ringfenced for improvements in the street environment.

References and notes

- 1 Please note three colours of glass would count as one material. A centralised collection of compostables would not count as a material this is covered separately. Paper and card collections would count as two separate materials.
- 2 Please note three colours of glass would count as one material. Paper and card collections would count as two separate materials.
- 3 Household Waste Behaviour in London, Resource Recovery Forum, 2002
- 4 Environmental Protection Act, 1990
- 5 Warmer Bulletin (2002). Best Practice Evaluation of Local Authority Waste Charging Schemes. Variable Rate Charging, Warmer Bulletin 85 July 2002 pp 14-15
- 6 Warmer Bulletin (2000). Flanders – Flemish Financial Incentives for Source. Reduction and Recycling, Warmer Bulletin 72, May 2000 pp 14-15
- 7 Charges can be adjusted for social reasons, but only based on the net taxable income of a family, so that low income families will be charged less
- 8 Household Waste Behaviour in London, Resource Recovery Forum, 2002.
- 9 Warmer Bulletin (2002). Illegal Waste Disposal. Waste Charging, Warmer Bulletin 85 July 2002 pp 22-23
- 10 DEFRA, 'Government Response to Strategy Unit report – Waste not, Want not', 2003 recommendation 1, page 24.
- 11 Participation was measured as the proportion of households putting out a box for collection at least once every five weeks
- 12 Usage is the actual number of times boxes were put out for collection as a proportion of the total possible times boxes could be put out for collection
- 13 Resource Recovery Forum (2002) Household waste behaviour in London. Brook Lyndhurst Ltd/MORI

4D Composting

- 4D.1 The EU Landfill Directive requires a reduction in the landfilling of biodegradable municipal waste, and composting can help towards this aim. Over two-thirds of London boroughs now provide low-cost or subsidised home compost bins and some distribute free compost bins to their residents. Composting at Reuse and Recycling Centres (Civic Amenity sites) is becoming more widespread, with 26 of the 39 sites in London collecting green garden waste. An increasing number of local authorities are also providing, or trialling, collection from homes of green garden and kitchen waste for composting from households.
- 4D.2 In 2001/02, a total of 50,574 tonnes of organic waste was collected for composting in London. Just over ninety per cent of this was collected from Reuse and Recycling Centres and collections from homes, and the remainder was collected from non-household sources such as park and gardens, and traders. In some areas, where local authority grounds maintenance and parks services dispose of their green parks waste, there has been an increase in the amount composted and used on local authority land. Overall whilst there has been substantial increases in the amount of household waste collected for composting, the proportion of waste composted is still very small.
- 4D.3 68 per cent of municipal waste collected by local authorities is biodegradable¹ which means it will break down (or rot). This includes putrescible materials such as meat and fish, green garden or vegetable kitchen waste, as well as other biodegradable materials such as cotton, wool or leather textiles, paper and card. It is technically possible to compost all of these materials, but for textiles, paper and card, preference should be given to recycling where possible. In addition to textiles, paper and card recycling, between 20 and 30 per cent of the household waste stream could be diverted from landfill through composting to help meet the requirements of the Landfill Directive and benefit local authorities with the introduction of Tradable Landfill Allowances (see Section 4F).
- 4D.4 Links can also be made with Biodiversity and Air Quality. The composting of green waste is an essential part of organic and wildlife gardening. Increased volumes of compost will benefit London's biodiversity footprint by reducing the use of peat in horticulture, which threatens scarce peat bogs in Britain and abroad. Bonfires and the burning of waste at trade premises can create a statutory nuisance in London, emit dioxins, fine particulate matter (PM10), and larger particles. Composting reduces these statutory nuisances, thus reducing air pollution.



Animal By-Products Regulations

- 4D.5 The Animal By-Products Regulations 2003² came into force in England on 1 July 2003. This is the enforcing legislation for the EU Regulation³ including implementation and transitional measures. The EU Regulations aim to protect animal and public health by tightening the rules on the disposal and use of animal by-products (animal carcasses, parts of animal carcasses and products of animal origin which are not intended for human consumption). These will regulate the use of catering waste containing meat in approved composting and biogas plants.
- 4D.6 These controls only apply to Mechanical Biological Treatment plants if they are producing compost for land application or landfill cover. If they are simply treating the material to remove recyclables prior to landfill or incinerating the residual waste, they will not be controlled by the regulations. The controls in the regulations are based on a thorough risk assessment⁴ of the animal and public health implications.
- 4D.7 The new regulations affect composting operations by local authorities, which have to work within these controls. They are likely to impose greater costs on composting processes, such as requiring the first stage of the composting process to be enclosed or covered. However, there is a need to increase composting to reduce the amount of biodegradable waste going to landfill and to make use of these resources which would otherwise have been wasted. Working within these new parameters will possibly instil more confidence in waste-derived compost.

Home and Community Composting

- 4D.8 Home and community composting should be encouraged where possible and supported by all waste authorities, as these options minimise the waste local authorities have to collect, as well as dealing with it as near to the point of production as possible – the proximity principle. As these prevent waste reaching the waste stream they contribute to waste reduction rather than recycling and composting targets. Reduction is discussed further in Section 4B.
- 4D.9 A number of London waste authorities already encourage home composting by providing cheap or subsidised bins, and for areas with restricted space, such as flats, wormeries have been promoted. Information and advice on how to compost and troubleshooting should also be provided.
- 4D.10 Only 70 per cent of households in London have a garden and can therefore undertake home composting. In addition, the amounts and nature of compostable waste available from household waste will vary, depending on the type of property, garden size and the time of year. The



components that have the greatest potential for composting are vegetable waste from kitchens and green garden waste such as plant trimmings and lawn cuttings.

- 4D.11 The remaining 30 per cent of households in London without a garden will still produce some potentially compostable waste, such as kitchen vegetable waste or tea bags. This is where community composting schemes, an extension of home composting, are important contributors to the diversion of untreated biodegradable waste from landfill. These can involve groups of local residents with communal gardens or garden squares and horticultural and allotment associations who have access to land where a larger scale composting operation can take place safely and without causing a nuisance.
- 4D.12 There may be potential for community composting on empty allotments, through the allocation of land in the local park or other suitable land. These schemes may also have benefits of building relationships in the local community, as well as producing a compost product that can be used as a soil improver and mulch and avoiding the use of peat-based products. Community composting should therefore be encouraged as far as possible.
- 4D.13 Whilst home and community composting is preferable, there are limits to their potential, as some materials such as bulky or woody garden wastes and meat or fish are not suitable for home or community composting.
- 4D.14 If the requirements to divert biodegradable waste from landfill and the recycling targets are to be met, a significant increase in home, community and centralised composting is urgently required. The existing infrastructure of waste processing facilities across London includes few central compost processing facilities. This capacity would need to be dramatically increased.

Home composting in Hounslow

Hounslow has distributed over 9,000 compost bins, free to its residents over the last five years. Although it is not possible to calculate the direct impact on the total amount of waste generated in the borough, in a survey of residents the majority said they could see a marked reduction in the amount of rubbish they were leaving out. At a conservatively estimated 200 kilograms of waste composted per year, it is calculated that the subsidised bins pay for themselves in saved waste disposal costs in about two years. As waste costs continue to rise, this payback period will fall. Residents also receive a quarterly newsletter with advice on composting, and Hounslow has used a 'Master Composter' to run workshops in the area; these have been well attended by residents.



Centralised Composting

- 4D.15 Centralised composting produces a saleable product on a large scale and is hence not usually used directly by those who have produced or collected the material that has been composted. In the past, there has not always been consumer confidence in these composts. As such, quality standards and specialist criteria have been developed by the Composting Association⁵. This will assist producers in maintaining consistent and reliable products, which in turn will encourage greater consumer confidence. The controls required by the Animal By Products Regulations should also assist in the message that these systems are controlled and sophisticated.
- 4D.16 Successful centralised composting is dependent on good quality, source-segregated feedstock, derived either from green garden waste delivered to Reuse and Recycling Centres (Civic Amenity sites), from parks and gardens, or through organic collection schemes from homes. As with any form of recycling which requires the separation of specific types of waste, it is very important that material being composted is not contaminated with other materials.
- 4D.17 The end use of compost produced through centralised composting will depend on the type and quality produced. High-grade compost can be used as a horticultural mulch, a soil conditioner or as a component of seed bed material, both for domestic and commercial applications. Lower grade material can be used for landscape construction, land reclamation and restoration.
- 4D.18 Quality standards are key to the further development of markets and the Mayor's Green Procurement Code, discussed further in Section 4P, and will assist in creating a demand for material by commercial users and London boroughs. There is also a need for the London boroughs to make the compost available to residents to buy back. This is becoming increasingly common place at Reuse and Recycling Centres where green garden waste is collected for composting and is a clear example of 'closing the loop' by creating demand for the material collected.
- 4D.19 Compostable parks' waste, waste from the maintenance of cemeteries and waste from local authority-run nature reserves may contribute to the total municipal waste arising. Therefore the composting of waste on site from parks, either independently or as part of a community composting initiative, is an important waste reduction option. A report by the London Tree Officers Group indicated that over 106,000 tonnes of arboricultural waste arises each year in London. While a proportion will be large tree branches, which are not suitable for composting and are discussed later with regard to wood as a fuel, some may be suitable for composting.



- 4D.20 Many waste collection authorities collect market waste as part of their collection rounds. A great deal of this is fruit and vegetable waste, which, if segregated at source, could be successfully composted with household organic waste. Waste collection authorities will need to introduce well-designed and easy to use systems at local markets to facilitate this process.
- 4D.21 Centralised composting operations are generally of two types:
- Windrow-based composting, which is carried out either in the open air or in 'windrow sheds'. Waste is shredded, mixed and placed in conical heaps formed into long rows. The waste requires regular turning, which allows aeration and maintains correct temperatures.
 - 'Closed system' or 'in-vessel' composting, where the material is either loaded into fixed compartments or into a continuously fed plant. In both arrangements, the process requires forced aeration systems. The advantage of the 'in-vessel' process is that environmental controls, both within the plant and to arrest potential emissions causing odours and dust, are more effective.
- 4D.22 In addition, anaerobic digestion plants are fully enclosed plants that avoid potential odour problems and although expensive they require less land than windrow composting. It is the Mayor's view that those plants which treat pre-sorted biodegradable waste and are a net energy producer for agriculture or horticulture purposes should be treated as a recycling process. Mechanical Biological Treatment could also offer options for composting of source segregated biodegradable waste. These are discussed further in Section 4E.
- 4D.23 Windrow composting has become a common form of composting of green waste, particularly in more rural areas due to the large land requirements. Windrow systems, which among other measures are housed or enclosed and which are turned at least three times, can meet the requirements of the Animal By-Products Regulations for catering wastes containing meat.
- 4D.24 More importantly for London however, is the issue of space requirements. Windrow composting of large quantities of London's municipal waste may not be appropriate in many parts of London. Windrows however, may be the most suitable method for parks waste and for some outer London boroughs with available land. For centralised composting, particularly in inner London boroughs, the most appropriate method of composting is likely to be 'in-vessel'. Although these systems usually have a higher gate fee than windrow composting the total costs are likely to be similar. This is due to the additional costs of transporting the material to windrow composting sites. Further, 'in vessel' systems within London will have the environmental benefit of a lower requirement for transport.





Composting – London boroughs of Bexley and Bromley

London Remade has part-funded the establishment of the first Vertical Composting Unit (VCU) in London. Working in partnership with the London Borough of Bromley, the unit is now processing green waste at the borough's Waldo Road Civic Amenity site. The pilot will provide research in operating in-vessel composters in confined areas.

The initiative complements London Remade's Organic Eco Industrial site situated on the Cleanaway landfill site in Rainham. This site is being supplied with material from a collection trial in the London Borough of Bexley. The trial collects all organic kitchen waste (including meat and fish) and green garden waste from 4,200 properties. The trial uses a variety of containers to help establish the most acceptable types and sizes, as well as frequency of collection. London Remade initially invested over £600,000 in this project, making it an innovative research project to showcase a range of composting processes and their applications.

London Remade expanded the project in 2002 and awarded an additional £104,000 of funding to the organics eco-site. The fund has been applied to two different projects at the Cleanaway site in Rainham. The first project is the expansion of the composting reception and processing area with additional concrete and a 'Goretex' aerated covered window. This capital injection is essential for high quality and controlled composting to be undertaken at the eco-site. The use of the Goretex system will enable comparisons to be made between different technologies, aiding training and demonstrations. This system will require a concrete pad, large enough to be used for compost maturation and controlled windrow trials. The second project has improved the visitor, training, presentation and demonstration area. The proposed landscaping enhancements will greatly improve the visual appearance of the site to visitors, by creating an attractive facility. It will include a patio area, turf, trees and shrubs planted with green compost, a covered display area, furniture and maintenance equipment.

- 4D.25 Historically, some composting operations have not been well controlled and have caused nuisances, due particularly to odour problems. The Environment Agency and the Composting Association have both published effective operational guidance, intended to assist the operators in their design and management of composting processes.
- 4D.26 Composting will be a key component of 2005/06 targets for recycling. As such, the Mayor will require all waste collection authorities to prepare a fully costed feasibility study for the collection of separated kitchen vegetable waste and garden waste for their areas. This study should be

completed by September 2004, to allow consideration of budgets for implementation in 2005/06, and should form part of the strategies or plans detailed in Section 4V.

- policy 15: Waste authorities should maximise waste composting where waste reduction and reuse are not possible, as a means of contributing to recycling and composting targets. A hierarchy of home composting, community composting, then centralised composting should be followed where practicable as part of Best Practicable Environmental Option (BPEO).
- policy 16: For organic waste not composted at home or in the community, the Mayor will request that waste authorities make appropriate provision for collections from homes.
- proposal 23: The Mayor will work with the Environment Agency to alleviate current problems of licensing, particularly of small-scale community composting sites. Central composting facilities need to be developed to complement home composting and community composting schemes. The Mayor requests that waste is composted in accordance with regulators requirements and the Animal By-Products Regulations, and will seek the provision of space for facilities through Unitary Development Plans.
- proposal 24: All Reuse and Recycling Centres (Civic Amenity sites) should be adapted and operated, so that green waste can be received and segregated on site for composting by the end of 2004.
- proposal 25: All waste collection authorities must prepare a fully costed feasibility study for the boroughwide collection of separated kitchen vegetable waste and green garden waste; in the case of green garden waste this may be on a seasonal basis. This feasibility study must be presented to the Mayor for consideration by September 2004.
- proposal 26: The London boroughs should make arrangements for the composting of compostable park waste, waste from the maintenance of cemeteries and waste from local authority-run nature reserves.
- proposal 27: Waste collection authorities should, where practicable, work in partnership with local fruit and vegetable markets to introduce arrangements for non-contaminated fruit and vegetable waste to be segregated to facilitate composting.





proposal 28: Waste authorities should encourage London residents to use waste-derived compost by providing the opportunity for them to purchase waste-derived compost. The Mayor will look to work with London Remade and WRAP, to investigate further the development of consumer markets for composted waste in London.

References and notes

- 1 Parifft, J, Analysis of household waste composition and factors driving waste increases, 2002
- 2 Animal By-Products Regulations 2003
- 3 EU Animal By-Products Regulation (EC) no 1774/2002
- 4 Risk Assessment: Use of Composting and Biogas Treatment to Dispose of Catering Waste Containing Meat - Final Report to the Department for Environment, Food and Rural Affairs May 2002
- 5 http://www.compost.org.uk/dsp_standards.cfm

4E Recovery and residual waste treatment

What is 'recovery'?

- 4E.1 The term 'recovery' is defined in Waste Strategy 2000 as meaning obtaining value from waste through one of the following means:
- reuse
 - recycling
 - composting
 - other means of material recovery (such as anaerobic digestion)
 - energy recovery (combustion with direct or indirect use of the energy produced, manufacture of refuse derived fuel, gasification, pyrolysis and other technologies).

Waste reduction and reuse, recycling and composting have already been considered in the preceding chapters. In this chapter, therefore, the discussion of 'recovery' focuses on processes which derive value from waste that cannot be reused, recycled or composted.

- 4E.2 A significant proportion of the waste stream could, in theory, be reused, recycled or composted, but in practice this cannot be done directly because the waste is contaminated, composed of mixed materials that are difficult to separate or what would be retrieved would have no market. Nevertheless, value can still be recovered from these discarded products in the form of raw materials and/or energy. This both reduces the demand for natural resources and reduces the quantity of waste requiring final disposal.

- 4E.3 A significant proportion of the waste stream consists of biomass, ie, it originates from plant and animal matter. Where electricity is generated from biomass, it may count towards meeting the national renewable energy target and be eligible to earn Renewables Obligation Certificates (ROCs) providing certain conditions are met. These are summarised in the box. Eligible electricity generation from biomass in London will contribute to meeting London's renewable energy target¹. Electrical generation systems which supply both usable heat and electric power, referred to as co-generation or as Combined Heat and Power (CHP) are significantly more efficient overall than systems which supply electric power alone. The development of CHP systems in London will contribute to national and London targets. Energy may also be recovered through some processes, such as anaerobic digestion and pyrolysis, in the form of gas. This gas may then be used directly as a fuel, for electricity generation, as a chemical feedstock, or to produce hydrogen as a fuel. Such processes can offer advantages of long-term flexibility.



4E.4 Once all that can be reused, recycled or composted has been removed from the waste stream, value should be recovered from the remainder in the form of other materials and energy. In the case of electricity, this should be done using a process that is both eligible for ROCs, maximises the efficiency by using both the heat and the electric power, and minimises emissions of pollutants to all media (air, land and water). Combustion processes that are not eligible for ROCs should not be used for the recovery of energy from biomass waste. The approach, to research new treatments and technologies to recover energy from and to deal with waste that cannot be recycled, is strongly supported by 76 per cent of the respondents from the general public on the highlights document questionnaire during the public consultation. Therefore, the Mayor will work with key stakeholders to encourage the development of new and emerging advanced conversion technologies (for example, gasification or pyrolysis) in London that meet these objectives.



Recovery targets

4E.5 In Waste Strategy 2000 there are targets for the recovery of value from municipal waste. For this target, the recycling/composting of household waste, as well as the recycling, composting or recovering of energy from parks and gardens waste, beach cleansing waste, rubble, trade waste and clearance of fly-tipped materials would be included. Under the Best Value regime, there are performance indicators relating specifically to household waste: for recycling/composting (counting towards to statutory targets) and for the recovery of energy. Mechanical metal extraction tonnage also counts as household waste recycling where it has been extracted from household waste prior to incineration, landfill or Refuse Derived Fuel Manufacture. Mechanical metal extraction after incineration and bottom ash recycling already count in the incinerated tonnage for energy recovery, and as such should not be double counted.

4E.6 In increasing the recovery of municipal waste to reach the targets set by the Government, waste authorities must, in line with the waste hierarchy, consider options to maximise the reduction, reuse, recycling and composting of municipal waste from all sources before considering the recovery of materials and energy from the residual waste, as set out in Policy 2 in Section 4A. This includes parks and gardens waste, rubble, trade waste and fly-tipped materials. In particular, the recycling of trade waste, which is often a relatively uncontaminated source of a large quantity of particular materials, offers substantial opportunities. Policies and proposals for the recycling and composting of these waste streams are covered in Section 4C.

- policy 17: Where waste cannot be reused, recycled or composted, value should be recovered in the form of materials and energy. In the case of energy, this should be done using a process that is eligible for Renewables Obligation Certificates, maximises the efficiency by using both the heat and the electric power, and minimises emissions of pollutants to all media.
- policy 18: The Mayor will support proposals for the treatment of residual waste through new and emerging advanced conversion technologies for waste or new waste treatment methods.
- proposal 29: The Mayor will support proposals for and work with key stakeholders to introduce new and emerging advanced conversion technologies for waste (for example, anaerobic digestion, gasification or pyrolysis) which satisfy the requirements of the Renewables Obligation Order 2002, supplying electric power and wherever possible also heat, and minimise the quantity of hazardous solid residues.
- proposal 30: The Mayor will support proposals for and work with key stakeholders to introduce new waste treatment methods such as Mechanical Biological Treatment and the production of biofuels to be used in London.



Renewables Obligation Certificates

Section 32 of the Electricity Act 1989 gives the Secretary of State for Trade and Industry the power to require electricity suppliers to supply a certain percentage of their total sales from renewable sources. The Renewables Obligation Order 2002² gives effect to this power and defines which sources which can be treated as renewable sources. These are:

Source	Process	Eligible	Limits on eligibility
Landfill gas	Combustion	✓	
Sewage gas	Combustion	✓	
Biomass * contamination	Combustion	✓	Not more than 2 per cent with non-biomass material
Waste	Combustion	✗	
	Pyrolysis	✓	Only the biomass content of the waste
	Gasification	✓	Only the biomass content of the waste
	Anaerobic digestion	✓	Only the biomass content of the waste

* See Glossary at the end of this Strategy for the definition of biomass

Under the previous arrangements, known as the Non-Fossil Fuel Obligation or NFFO, electricity generated from waste incineration was treated as eligible. Both the LondonWaste plant at Edmonton and the SELCHP plant in Lewisham were accredited under this scheme. Under the new arrangements, which came into effect in April 2002, only plants that generate electricity from biomass will be eligible for accreditation, although the biomass may be a waste. Plants processing wastes³ must use advanced conversion technologies in order to be eligible, and it is only the biomass component of the waste that will earn Renewables Obligation Certificates or ROCs. Advanced conversion technologies are defined in the Renewables Obligation Order as anaerobic digestion, gasification and pyrolysis (see the Glossary at the end of this Strategy).

Under the new arrangements energy from the incineration of mixed waste will not be eligible. The Government has stated that it does not believe that it should encourage incineration through the Renewables Obligation⁴ This is consistent with the Government's support for waste reduction, recycling and reuse as described in the Government's Waste Strategy 2000, whilst supporting the development of more efficient and environmentally benign energy conversion from biomass. By and large, these new technologies require pre-separation of recyclable material from the waste stream and are well suited for community-sized developments.

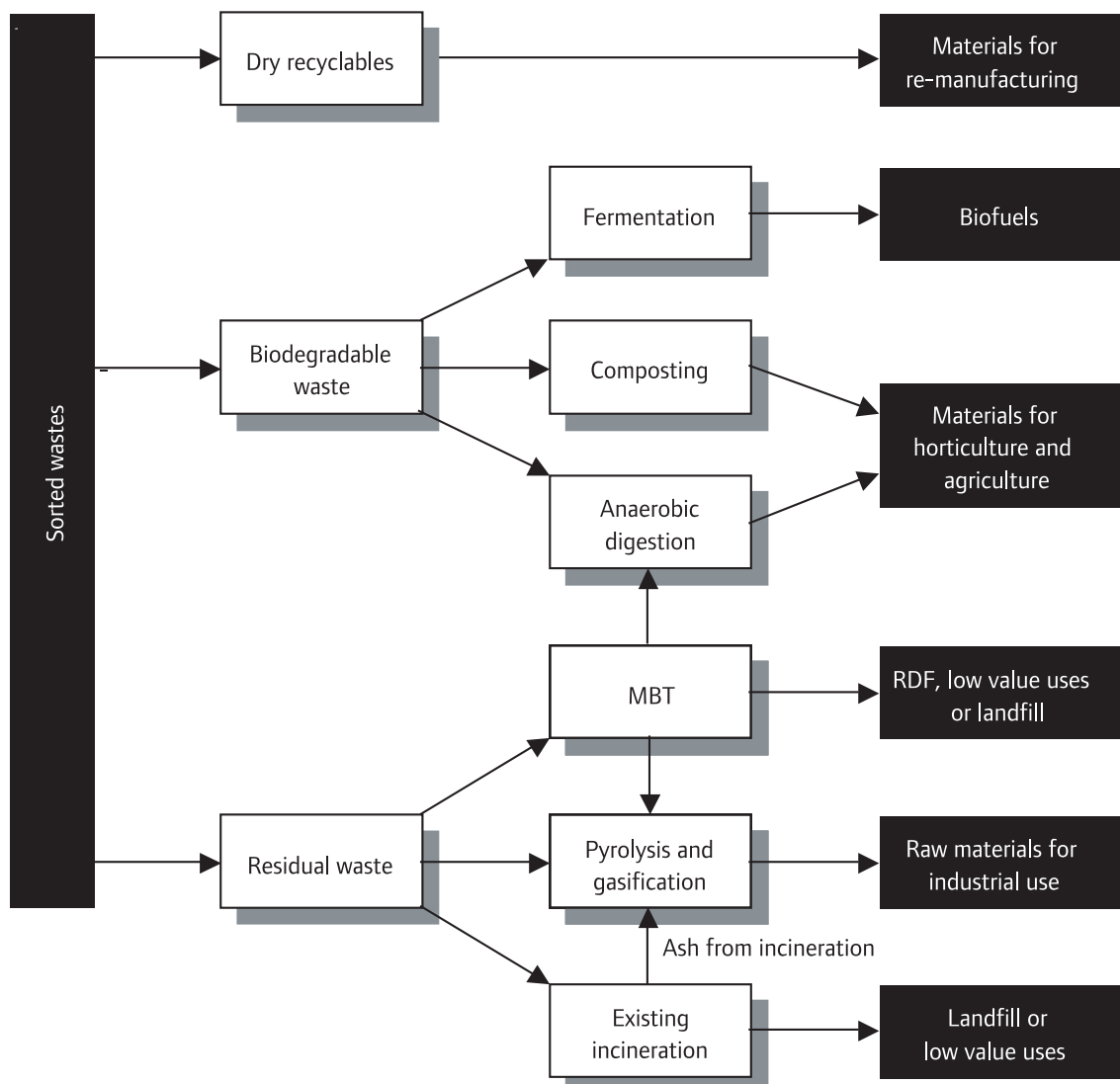
The Office of Gas and Electricity Markets (Ofgem) has published its procedure for accreditation and issuing Renewables Obligation Certificates⁵.

Recovery methods

4E.7 There is a range of different processes, other than conventional incineration, for the recovery of useful materials and/or energy from waste. These include:

- Mechanical Biological Treatment (MBT)
- anaerobic digestion
- production of biofuels
- advanced thermal conversion techniques including pyrolysis and gasification
- use of waste wood as a fuel.

Figure 27 Possible relationships between different waste management technologies



- 4E.8 These processes are not mutually exclusive. They can be used in a variety of combinations to address particular needs of waste management in London. For example, anaerobic digestion may be an appropriate way to treat the biodegradable output from Mechanical Biological Treatment. The potential links between these processes are illustrated in Figure 27.

Mechanical Biological Treatment of municipal waste

- 4E.9 The EU Landfill Directive requires a reduction in the amount of untreated biodegradable municipal waste being sent to landfill. New ways of treating the biodegradable fraction of municipal waste are being developed, such as Mechanical Biological Treatment. This is a process that is widely used in Austria and Germany and in other countries such as Canada, Italy, Netherlands and Switzerland. Shanks Waste Solutions Ltd has recently been appointed by the East London Waste Authority to use this process for the management of its residual waste (see below). The process is applied to residual waste after front-end recycling and composting, prior to final disposal. Various processes are integrated into Mechanical Biological Treatment and a wide range of plant configurations exist.

- 4E.10 The process involves two treatments:
- Mechanical: which generally involves shredding, screening and metal extraction. These processes result in the separation of oversized, inert, recyclables and biodegradable waste fractions.
 - Biological: this treatment is applied to the biodegradable waste fraction, where microbial activity breaks down the waste within a controlled and monitored environment.
 - The processes can take place in either order. Where mechanical separation takes place prior to biological treatment, this is referred to as the 'Splitting Process'. Where biological treatment takes place prior to mechanical separation, this is referred to as the 'Dry Stabilisation Process'.

- 4E.11 Further information on the Ecodeco dry stabilisation process which has been adopted by Shanks Waste Solutions Ltd for the management of waste in the East London Waste Authority area is included in the report of the 'City Solutions' conference.⁶

- 4E.12 The reduction in the moisture content following the biological treatment markedly improves the calorific value of the output and therefore its value as refuse derived fuel. Any reduction in the biodegradable element of the waste resulting from the introduction of source-separated organic waste collection for high quality composting will not adversely affect the process. Rather, the resulting residual waste could produce a higher proportion of refuse-derived fuel with potentially higher calorific values.



- 4E.13 Highly stabilised Mechanical Biological Treatment residue may reduce the potential for landfill gas emissions by 90 per cent when compared to untreated municipal solid waste. This reduces the potential for energy recovery from landfill gas, which is eligible for ROCs, but also reduces the risk of uncontrolled release of methane, a powerful greenhouse gas. Also, the physical properties of the residue will allow a high degree of compaction, reducing the ability of water to infiltrate the waste, which will minimise the production of leachate. The total nitrogen and carbon content of the leachate may also be reduced by 90 per cent.
- 4E.14 As the residue is derived from non-source segregated, or only partly source-segregated, waste the, end product is not high quality compost, but rather a stabilised bio-waste residue. Therefore, it is unlikely to be of sufficient quality for agricultural or horticultural use.
- 4E.15 In summary, Mechanical Biological Treatment should be seen as helping to provide the best practicable environmental option within an overall sustainable waste management solution. It does not replace or constrain front-end source-separation recycling and composting, nor does it offer a final disposal solution. Mechanical Biological Treatment should be considered as a pre-treatment effectively separating and treating residual waste to enhance recycling, composting and final disposal recovery options (anaerobic digestion, gasification, secondary fuel for co-incineration and incineration).
- 4E.16 Mechanical Biological Treatment can offer a greater degree of flexibility, through the introduction of further recycling, composting and recovery options. This inherent flexibility and its modular type plant design will enable the Mechanical Biological Treatment process to be:
- downsized or increased in line with the reduction or growth in waste arisings
 - modified to reflect future compositional changes in waste
 - converted to accept a source-separated biodegradable waste stream.

Advanced conversion technologies

- 4E.17 Under the Renewables Obligation Order 2002 the Government has brought together a group of new and emerging technologies under the term of 'advanced conversion technologies'. The definition specifically includes anaerobic digestion, pyrolysis and gasification. In the Government's view, this approach is consistent with its support for waste reduction, recycling and reuse whilst supporting the development of more efficient and environmentally benign energy conversion from biomass. By and large, these new technologies are compatible with pre-separation of recyclable material from the waste stream and are well suited for community-sized developments.





Anaerobic digestion

- 4E.18 One technology that can successfully treat the organic fraction of wastes is anaerobic digestion. Anaerobic digestion has been used to manage wastes and generate energy for centuries. It is widely used in Asian villages, where the climate is suitable for low technology designs, to produce biogas that is then used for heating and cooking. More recently it has been developed into an industrial process for large-scale waste treatment and energy recovery, although with the exception of sewage sludge treatment, most of the examples are outside the UK.
- 4E.19 Anaerobic digestion is the bacterial fermentation of organic material in the absence of oxygen. This produces biogas, which is typically made up of 65 per cent methane and 35 per cent carbon dioxide, with traces of nitrogen, sulphur compounds, volatile organic compounds and ammonia. This biogas can be burnt directly in modified gas boilers or can be used to run internal combustion engines. Between 40 per cent and 60 per cent of the organic matter present in the waste is converted to biogas. The remainder consists of an odour-free residue, which has an appearance similar to peat and a commercial value as a soil improver or growing media. With some systems there is also a liquid residue, which has potential as a fertiliser.

Anaerobic digestion in London

Anaerobic digestion was used in London for many years for the treatment of sewage sludge prior to the dumping of the residue at sea. When sea disposal was discontinued in 1998 the two East London anaerobic digestion plants were no longer needed and have remained idle since then. However, part of the plant could be converted for the digestion of biodegradable waste at lower cost than the construction of new facilities. The main sites are at Beckton in the London Borough of Newham and Crossness in the London Borough of Bexley. Each of these sites could process some 220,000 tonnes per annum of biodegradable waste. In addition, there is potentially spare capacity at Mogden (London Borough of Hounslow), which continues the digestion process and recycles the product to agriculture. Mogden could potentially process 90,000 tonnes per annum. Beddington (London Borough of Sutton) is also a site with strong potential for anaerobic digestion, provided that additional digestion capacity was constructed. All of the sites except Mogden have land available to accommodate new equipment for the separation of the biodegradable material from other waste. The total potential for digestion at London sewage works is in excess of 600,000 tonnes per annum.

- 4E.20 Ideally biodegradable waste would be collected separately and delivered to the anaerobic digestion plant. Quality control of the product should be

managed by selection of the feedstock and removal of unwanted materials at the beginning of the treatment process. Even source-separated bio-waste has significant levels of contamination in practice, particularly by packaging materials. It is therefore necessary, regardless of whether the feed material is source-separated or mechanically-separated, to provide segregation systems for heavy rejects (grit, glass, metals) and light rejects (mainly packaging plastics and composite materials). Technologies exist to do this separation and are in routine use in other European countries. Once the organic waste is free of these visible contaminants, a good quality product can be made.

- 4E.21 The Animal By-Products Regulations 2003⁷ requires that kitchen and other biowastes, which may contain meat residues, are pasteurised. This provides additional quality assurance to the products, which may be used in a variety of applications for agriculture, land restoration, construction and development projects or production of improved soils. The best quality products are likely to find application in horticultural products as peat alternatives become more accepted. Anaerobic digestion requires less land than windrow composting and, because it is fully enclosed, it avoids the potential odour nuisance where housing is nearby⁸.
- 4E.22 Anaerobic digestion has generally been more expensive than alternative waste management techniques such as composting because of the higher capital investment that is necessary. However, the recent animal by-products legislation may have levelled the playing field significantly. In the case of the former London sewage treatment facilities, an element of the capital investment would be avoided and the cost of waste treatment by this method would certainly be competitive with composting⁹.
- 4E.23 Anaerobic digestion is currently treated as a 'recovery' process rather than a 'recycling' process by DEFRA. However, the Government is expected to publish a consultation paper later this year proposing that, where the digestate is used for agricultural or horticultural purposes, it should count towards composting for the Best Value Performance Indicators.
- 4E.24 The biogas produced from anaerobic digestion needs some treatment to remove hydrogen sulphide and reduce the moisture content before it can be burnt in boilers or engines. Where it is used to generate electricity, it can be eligible to earn Renewables Obligation Certificates or ROCs. A longer-term option for London could be to convert the gas to hydrogen for use in fuel cell vehicles. The conversion of biogas to hydrogen for use in a fuel cell has already been successfully demonstrated, for example, at the Hokubu Sludge Treatment Centre in Yokohama¹⁰. In this case, the fuel cell produces electricity for use in the treatment works, but the gas

treatment system could produce hydrogen for fuel cell powered refuse collection vehicles, buses or taxis.



- 4E.25 In addition to the larger scale anaerobic digestion facilities that might be developed through the adaptation of former sewage treatment plant, there is scope for the development of smaller scale community-based schemes. One such system, developed by Greenfinch Ltd, is described in the report of the 'City Solutions' conference¹¹. The biogas produced could be used in small combined heat and power (CHP) plants with the electricity and heat supplied to surrounding buildings.

proposal 31: The Mayor will encourage the development of anaerobic digestion plants, which treat segregated biodegradable waste and produce a digestate suitable for agricultural and horticultural use.

proposal 32: The Mayor will continue to press the Government to classify anaerobic digestion plants, which treat segregated biodegradable waste and produce a digestate used for agriculture or horticulture, as 'recycling', as measured by the Best Value Performance Indicators.



Gasification and pyrolysis

- 4E.26 Thermally treating waste can unlock its energy value, either directly as heat or by producing solid, liquid and gaseous fuels, that can be used in other processes. The waste volume and weight will be reduced in the process and, in the case of hazardous wastes, their hazardous properties can be reduced. Examples of advanced thermal treatment processes include waste gasification and waste pyrolysis. A second edition of its worldwide review of waste pyrolysis and gasification technologies was published by Juniper Consultancy in 2001¹².

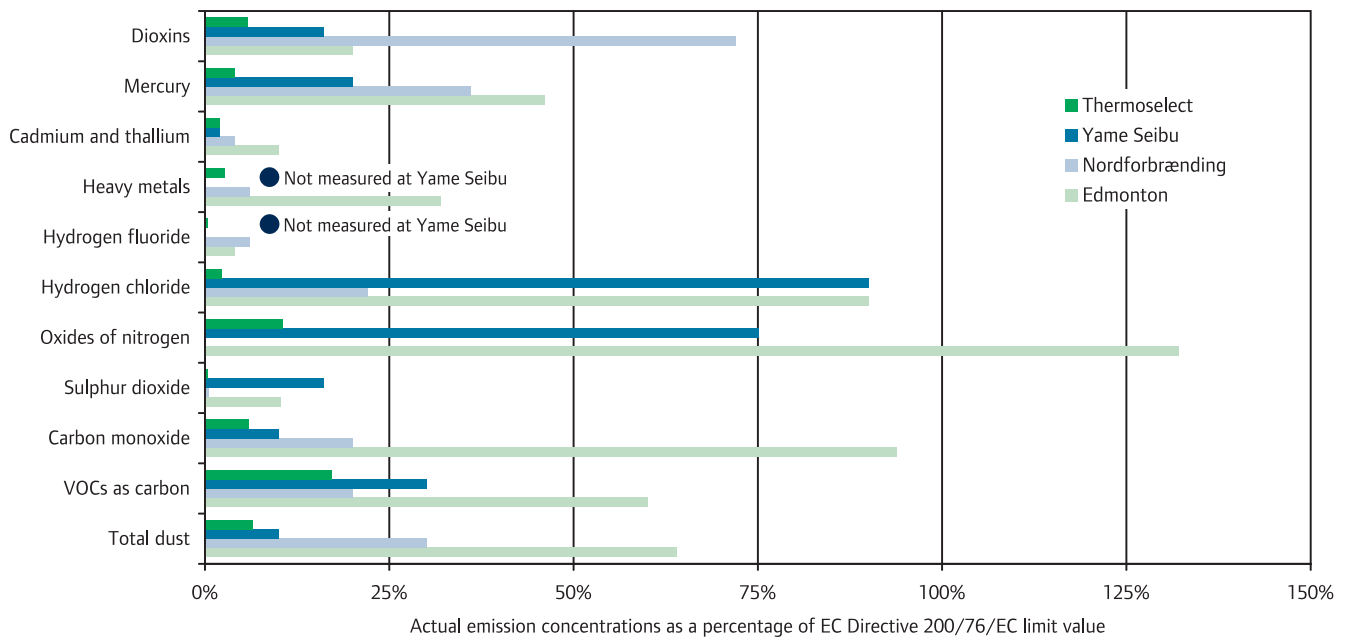
- 4E.27 Pyrolysis is the thermal degradation of waste, in the complete absence of an oxidising agent (eg air or oxygen), into gaseous, liquid and solid products that can then generally be used as a fuel. The process usually operates in a temperature range between 400°C and 800°C. A solid 'char', comprising carbon and other carbon-based organic compounds, and gas can be used as a fuel. Waste pyrolysis technology has been under development for many years with pilot-scale waste pyrolysis plants operating since the 1970s. There are now commercial-scale plants in full operation such as the Contherm pyrolysis plant operated by RWE Umwelt adjacent to the coal-fired power station at Hamm-Uentrop. Further information is available from the International Energy Agency (IEA) sponsored pyrolysis network 'PyNe'¹³ and the IEA CADDET database¹⁴.

- 4E.28 Waste gasification is a related process to pyrolysis, except that the waste feedstock is converted into a gas by partial oxidation at temperatures in the range 800°C to 1600°C, depending upon the oxidising medium. Generally air is used as the oxidising medium, but oxygen enriched air or oxygen alone can be used, this process producing a fuel gas with a higher energy value. If normal municipal solid waste is used as the feedstock, the fuel gas produced comprises mixtures of carbon monoxide, carbon dioxide, hydrogen, methane, water, nitrogen and small amounts of higher hydrocarbons, with a calorific value of about 10 MJ/Nm³ (mega joules per normalised cubic meter). If oxygen-enriched oxidation conditions are employed, the calorific value can be as high as 15 MJ/Nm³. For comparison, natural gas has a calorific value of about 39 MJ/Nm³.
- 4E.29 Small-scale waste to energy gasifiers are currently available that use a range of feedstock, including wood, poultry litter and sewage sludge cake. The fuel gas produced is used to power gas engines which in turn drive electric generators or pumps. A recent example is the BedZED development at Beddington, Sutton, discussed later in this section, which uses locally sourced woodchips in a combined heat and power (CHP) plant.
- 4E.30 Gasification is not a new process, being used historically to gasify coal in order to produce 'town gas'. The use of gasification for waste has received increasing attention over the last quarter-century but it is only recently that full-scale commercial plants have come into operation. A 225,000 tonnes per annum plant, using a combination of pyrolysis and gasification known as Thermosteact-HTR (High Temperature Recycling), began operation in Karlsruhe, Germany, at the end of 1999 and, following certain modifications, received its operating authorisation in January 2002¹⁵. The aim of these plants is to demonstrate a large-scale method of treatment for municipal solid waste in direct competition with incineration. A second plant is in operation at Chiba, in Japan, and others are under construction. Also in Japan there are two plants using a generally similar process, known as 'R21' which stands for Recycling in the Twenty First Century, built by Mitsui Engineering and Shipbuilding at Chikugo in Fukuoka prefecture and at Toyohashi near Nagoya. The Chikugo plant handles 82,000 tonnes per annum and the Toyohashi plant 164,000 tonnes. There are several more plants under construction in Japan by Mitsui. Information on both the Thermosteact and R21 processes is included in the report of the 'City Solutions' conference¹⁶.
- 4E.31 The air pollutant emissions from modern gasification and pyrolysis plants can be less than ten per cent of those permitted under the EU Waste Incineration Directive. They are illustrated in Figure 28 in relation to the LondonWaste Ltd plant at Edmonton in north London and a typical



Danish plant at Vestforbrænding. Perhaps more important still is that modern pyrolysis and gasification plants minimize the quantity of hazardous solid waste that requires landfilling. In the case of the Mitsui plants, the quantity of solid waste is very small indeed and is classified by the Japanese Ministry of the Environment as non-hazardous. The problem with conventional incineration plants is that pollutants such as heavy metals are removed from the flue gasses and then require disposal as hazardous solid waste. A small amount of dioxins can also be produced in the flue gas stream though this is also largely removed via the flue gas treatment and then has to be disposed of as part of the hazardous solid waste.

Figure 28 Comparison of emissions at various waste treatment plants



source: Original data supplied to regulatory authorities by plant operators

4E.32 Another potential advantage of the gasification processes, such as those developed by Thermoselect and Mitsui, is that they could be used to treat the fly-ash produced from the two current conventional incineration plants thereby further reducing the volume of waste to be landfilled. Large organic molecules such as dioxins captured in the fly-ash are decomposed at the high operating temperature of the gasification process into smaller and less hazardous molecules.

Biofuels

4E.33 Biofuels are currently made from food crops. The Government has said in the recent energy White Paper¹⁷ that 'We are also interested in supporting the development of bioethanol and biodiesel production from

biomass such as farm wastes, forestry residues, coppice crops and possibly also domestic waste. These can potentially deliver bigger carbon savings and wider environmental, farming and rural employment benefits'. The EU has put forward the objective to substitute 20 per cent of traditional fuels by alternatives in the road transport sector by the year 2020, which has led to a draft Directive on the promotion of biofuels¹⁸. The Government announced in November 2002 that it proposes to introduce the same 20 pence per litre incentive for bioethanol, subject to EU agreement. This can also be used in blends for existing cars, potentially also as an 85 per cent pure biofuel in adapted cars¹⁹.

- 4E.34 The production of bioethanol would fall outside the scope of Renewables Obligation Order 2002 because the end product would be a liquid fuel rather than electricity. However, it could be a useful partner technology to anaerobic digestion. Anaerobic digestion is not well suited to the processing of woody wastes whereas ethanol production converts cellulose and starch to glucose, which is then fermented and distilled to produce the ethanol. The process can handle waste such as wood which has had lead paint applied or been treated with boron-based fire retardants because these heavy metals are settled out. The process can also be managed to deal with a proportion of material treated with fungicide²⁰.
- 4E.35 Whilst the production of bioethanol from crops is not currently commercially viable, its production from waste could be viable when the avoided costs of landfill and landfill tax are taken into account. As such, it could assume a significant role in integrated sustainable waste management for London in the medium to long term.

Wood wastes

- 4E.36 London has many trees. Around five per cent of the area is woodland and there are many trees in streets, gardens and parks. A study of the potential for supplying biomass fuel from arboricultural operations in London²¹, produced for the London Tree Officers Association by Econergy, estimated that 106,000 tonnes per annum of wood for fuel could be recovered. Much of this at present goes to landfill and is classified as household, municipal or commercial waste, depending on how it enters the waste stream (for example, as parks waste or Civic Amenity waste). Recovering waste wood for fuel has no net carbon dioxide emissions.
- 4E.37 Around 11 per cent²² of Civic Amenity waste is wood and sawn timber. Some of this wood is capable of reuse in its original form such as furniture, doors and planks and some could be used as fuel. Clean wood, for example wood from gardens, can be collected separately at Civic Amenity sites and



could be used in the same sort of schemes as the wood from arboricultural operations. The removal of these wood wastes from the waste stream would make a significant contribution to meeting the requirements of the Landfill Directive to reduce the volume of biodegradable waste. However, it will be important to ensure that wood contaminated with paint, preservatives and adhesives does not get mixed with this 'clean' wood in order to avoid any risk that the combustion plant may become classed as a waste process.



- 4E.38 Various projects are already underway in London to find new uses for 'waste' timber and brush arising from the management of local woodlands and street trees. They include charcoal production, chipping and the setting up of 'timber stations' to collect wood for transfer to large wood-burning plants outside London. The BedZED development at Beddington, Sutton, uses locally sourced woodchips in a combined heat and power plant. The woodchips are first gasified and the gas is then used to power an engine that generates electricity and heat for the development. Gasification was chosen at BedZED because it was considered to be more efficient for a combined heat and power plant, particularly a small one where the gas is burned directly in an engine for power generation without the inefficient intermediate step of raising steam. Alternative combined heat and power technologies are available including the organic Rankin cycle. Where a system is used only for space heating conventional boilers would be the first choice.

proposal 33: The Mayor will support the use of waste wood as a fuel, or for producing fuel. This will contribute to meeting the requirement of the Landfill Directive to reduce biodegradable waste to landfill and will also help London contribute its share to meeting the national renewable energy targets.



- Existing incineration*
- 4E.39 As outlined in Chapter 2, in 2001/02 London incinerated 19 per cent of its municipal waste in two plants that generate electricity. Although, the capacity of the plants is 950,000 tonnes per annum, which is equal to 21 per cent of London's municipal waste in 2001/02, both plants take in commercial waste and other municipal waste from outside London. The Edmonton plant, in North London and the SELCHP plant in Lewisham take untreated waste with minimal recycling removal. There is now a need to move rapidly towards source separation and the development of recycling facilities and industries.

- 4E.40 Conventional incineration plants are relatively inefficient in power generation, however, if heat is supplied to community heating schemes or industry, the overall efficiency is greatly improved. The SELCHP plant was

conceived as a combined heat and power (CHP) plant that would supply heat to the many existing community heating schemes nearby. However, the plant was constructed without the necessary heat supply network. Although the Edmonton plant was planned as an electricity generating plant, the potential for heat supply has been investigated on a number of occasions. The Mayor concurs with the views of the Royal Commission on Environmental Pollution on the benefits of community heating and CHP, and would support the development of heat supply networks²³.

- 4E.41 London's waste incineration plants are now required to operate to far stricter standards than those in place when the Edmonton plant first began operation in 1971 as a result of progressively more stringent regulations controlling their operating techniques and their emission levels. In December 2000, the EU adopted a new Directive on the incineration of waste²⁴, which sets significantly lower emission limits to be met for new plants by the end of 2002 and for existing plants by the end of 2005. SELCHP and LondonWaste Ltd are now making the results of air pollution monitoring available on the internet²⁵. Although the emission limits have achieved progressive reduction in emissions from waste incineration plants there is, nevertheless, continuing public concern about the emissions of heavy metals and persistent organic pollutants such as dioxins. The Environment Agency is currently evaluating techniques for the continuous monitoring of dioxin emissions. The Mayor will keep this work and other developments in emissions control, monitoring and health impacts under review and, where appropriate, press the organisations responsible to adopt new techniques. Londoners need to be reassured that sufficient measures are being taken to protect their health.
- 4E.42 Incineration achieves a reduction of about 90 per cent by volume and 65-70 per cent by weight of the waste. Most of the residue is in the form of bottom ash, the remainder consisting of air pollution control filter residues (sometimes referred to as fly-ash). The air pollution control systems are designed to minimise the release of fine particles together with heavy metals such as mercury and cadmium as well as organic compounds such as dioxins. Recently there have been developments in the reuse of bottom ash as a building material. The recycling of bottom ash has the benefit of reducing demand on virgin materials, as well as further reducing the amount of waste going to landfill.
- 4E.43 The Environment Agency has published an investigative report into ash from municipal waste incinerators in England and Wales, which concluded that subject to appropriate guidance and recommendations, bottom ash could potentially be a valuable secondary aggregate. All residues from air pollution control systems on the other hand, should be treated as



hazardous wastes and disposed or treated accordingly; under no circumstances should they be recycled. The use of bottom ash should be monitored by the Environment Agency.

proposal 34: The Mayor will work with LondonWaste Ltd and SELCHP, the waste authorities and local industry to explore the opportunities to develop heat distribution networks to supply heat from the existing incineration plants to housing, commercial and public buildings in the vicinity.

proposal 35: The Mayor will keep developments in emissions control, monitoring and health impacts under review and, where appropriate, press the organisations responsible to adopt the new techniques.

New incineration capacity

4E.44 Paragraph 4E.4 and Policy 17 states that where waste cannot be reused, recycled or composted, value should be recovered in the form of materials and energy. In the case of energy, this should be done using a process that is eligible for Renewables Obligation Certificates (ROCs), maximises the efficiency by using both the heat and the electric power, and minimises emissions of pollutants to all media (air, water and land). Combustion processes that are not eligible for ROCs should not be used for the recovery of energy from biomass waste. As explained in the box on Renewables Obligation Certificates, the Government does not believe that it should encourage incineration through the Renewables Obligation²⁶ This is consistent with the Government's support for waste reduction, recycling and reuse whilst supporting the development of more efficient and environmentally benign energy conversion from biodegradable waste.

4E.45 The combustion of unsorted waste must come at the bottom of the hierarchy of recovery methods. The construction of new conventional incineration plant would not contribute to achieving either the national recycling objectives nor renewable energy objectives and it would presuppose a failure to achieve recycling targets at the local level. To argue in favour of further conventional incineration of unsorted waste at this stage is, by implication, to expect the worst possible outcome from the uncertainties about the growth in waste, no improvements in recycling, and a failure to develop new technologies. Insisting that waste reduction, recycling and composting is maximised before further conventional incineration facilities are considered, is strongly supported by 71 per cent of the responses from the general public in the highlights questionnaire from the public consultation on the draft Strategy.



4E.46 Recent rulings by the European court of justice²⁷ have focused attention on the primary purpose of incineration. If the main purpose of the process is the recovery of energy and/or materials, then the process is genuinely recovery. However, if the recovery is purely incidental to the main objective, which is the disposal of waste, then it is not a recovery process. Whilst these rulings do not have any immediate effect on waste management in London or the definition of recovery in relation to targets, they are likely to affect emerging EU and UK legislation and could therefore affect any future plants that might be built.

4E.47 This chapter has identified a range of recovery technologies, which are available for development in London. Some, such as MBT, are already being adopted. Others, such as anaerobic digestion, already have much of the infrastructure in place, which can be converted to handle biodegradable municipal waste at a relatively low cost. Yet more, including combined pyrolysis and gasification, are becoming widely established abroad (particularly Japan) even though they are still considered novel in this country. In addition, the Mayor has a statutory obligation to promote the sustainability of London, which includes the development of London's renewable energy resources. For these reasons the Mayor will support and encourage new and emerging advanced conversion technologies and new waste treatments in preference to conventional incineration. However, any such cases will be considered on their individual merits, having regard to the Best Practicable Environmental Option and whether it meets the requirements of the Renewables Obligations Order 2002.

proposal 36: Having regard to existing incineration capacity in London, and with a view to encouraging an increase in waste reduction, reuse, recycling and composting and the development of new and emerging advanced conversion technologies for waste and new waste treatment methods such as Mechanical Biological Treatment, the Mayor will support and encourage these waste management methods in preference to any increase in conventional incineration capacity. Each case, however, will be treated on its individual merits, having regard to the Best Practicable Environmental Option and whether it meets the requirements of the Renewables Obligation Order 2002. The aim is that existing incinerator capacity will over the lifetime of the plan, become orientated towards non-recyclable residual waste.



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 - 25 <http://www.londonwaste.co.uk>, and <http://www.selchp.com/>
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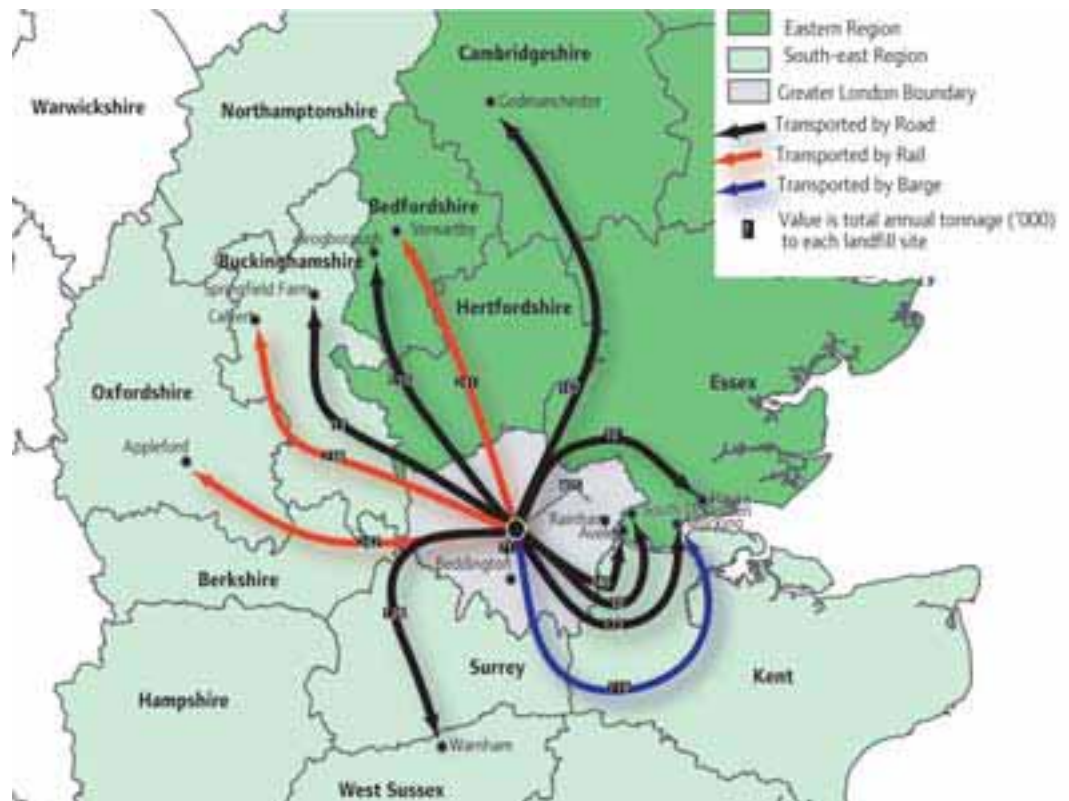


4F Landfill

The current picture

4F.1 In 2001/02, London landfilled 73 per cent, or 3.228 million tonnes of its municipal waste, of which 85 per cent was landfilled outside of London. In this year, 27 per cent of municipal waste disposed outside of London was delivered by rail and 27 per cent by river the remainder was transported by road. Figure 29 indicates the flow of waste into landfill sites within London and the adjacent regions and the mode of transport employed.

Figure 29 Municipal Waste sent to landfill and mode of transport 2001/02



note: This figure only shows flows of municipal waste above 1,000 tonnes per year.
source: www.capitalwastefacts.com, 2003

4F.2 London's ability to landfill a proportion of its own municipal waste is extremely limited. The only site of any note currently accepting municipal waste is at Rainham in the London Borough of Havering.

4F.3 At current rates of input (including imports from London), the East of England Regional Technical Advisory Board estimate that landfills in the East of England have a total life expectancy of just over six years. The Environment Agency estimated in 2000 that if current throughputs

continued then the landfill capacity for London's municipal waste would run out in just under seven years within the South East region. Further details of landfill capacity in the East and South East are contained in Chapter 2.

- 4F.4 The Eastern and South East regions which surround London are both developing waste strategies, through their Regional Technical Advisory Bodies on waste, which will inform the waste aspects of regional planning guidance. In their Regional Waste Management Strategy¹ the East of England Region Waste Technical Advisory Body states that the high level of export of waste into the region from London needs to be drastically reduced. The Strategy has adopted a policy which recommends that after 2010 landfills in the Region will only accept residues from other waste processes, or very exceptionally (where it can be demonstrated that there is no other option) waste which would not benefit from treatment. Regional planning guidance for the East of England is expected to be finalised in 2003/04.
- 4F.5 The South East England Regional Waste Management Strategy Consultation Draft features a policy to limit landfill exports from London in line with Landfill Directive targets without the four-year derogation and, by 2016, to provide only for residual waste which has been subject to recovery processes. The consultation process ended in June 2003. The consultation draft will be modified in the light of consultation and feedback and presented to Government late 2003.
- 4F.6 It is not clear how these policies will relate to the requirement to pre-treat waste prior to landfilling under the Landfill (England and Wales) Regulations 2002, as discussed later. The potential implication of these policies is, that by 2010, London will be required to provide capacity for the pre-treatment all of its waste within its boundaries. It should be noted that the Environment Agency view of treated waste is 'where a local authority has an explicit waste management strategy to meet current recycling and composting targets then the residuals collection should be regarded as treated waste.'²
- 4F.7 Given the changes since the principles of the policy were established by SERPLAN in 1996³, including the non-achievement of the national 25 per cent recycling target in 2000 and the new requirements of the EU Landfill Directive, these policy positions will need to be discussed further given London's continued requirement for landfill of municipal waste set out in Chapter 2. Through this Strategy, the Mayor is aiming for London to become more self-sufficient in the management of its municipal waste, however it is recognised that sustainable waste management will take



time and resources to develop. In the draft London Plan the Mayor has stated his aim to work with the South East of England and the East of England regional authorities to co-ordinate strategic waste management across the three regions⁴.

Landfill – European Union Directives

4F.8 In addition to the lack of available landfill capacity, landfill sites will need to meet the requirements of both the Landfill Directive (99/31/EC)⁵ and the Integrated Pollution Prevention and Control Directive (96/61/EC). The aims of these Directives are to harmonise landfill standards and management across Europe in order to prevent, or reduce as far as possible, the negative effects of landfilling waste on the environment and human health.

The broad implications of the Directives will be:

- increased technical standards of landfill sites
- reduced amounts of biodegradable municipal waste disposed of at landfills
- pre-treatment of waste prior to landfill
- the ban of certain types of waste from landfill
- ending the practice of co-disposal (mixing of hazardous and non-hazardous waste) at landfill sites.

4F.9 In order to ensure that landfill sites meet the requirements of these Directives the Government has introduced 'The Landfill (England and Wales) Regulations 2002', which came into force in 2002 and 'The Pollution Prevention and Control (England and Wales) Regulations 2000' which introduce a single regulating regime and requires the Environment Agency to consider granting Pollution Prevention and Control permits for new and existing landfill sites. The Landfill Permitting system will eventually replace the Waste Management Licensing regime in relation to landfill sites.

4F.10 Meeting the requirements of the Landfill and Integrated Prevention Pollution and Control Directives will therefore increase the cost of using landfill as a means of disposal, which may have major implications for Waste Authorities' budgets, particularly for the landfill of hazardous waste. However, at this stage it is difficult to ascertain how much this increase may be, particularly as the implementation is through a phased approach.

4F.11 In addition, the Landfill Tax Regulations 1996 impose a duty on landfill based on the weight of waste deposited. The rate of tax varies according to the type of waste disposed, with a lower rate set for inert waste than



active wastes. Since 1996 Landfill Tax has been increasing for active wastes at a rate of £1 per tonne per year, however, from 2005/06 this will increase to a rate of £3 per tonne per year on the way to a medium to long-term rate of £35 per tonne.

Diversification from landfill

4F.12 The European Union's Landfill and Integrated Prevention Pollution and Control Directives and the Government's subsequent regulatory framework will accelerate the diversion of waste away from landfill. These drivers to deter landfill use are further enhanced by the imminent lack of landfill capacity in and around London, and the increasing levels of landfill taxation. London will undoubtedly have to become more regionally self-sufficient in dealing with the waste it currently sends to landfill and this in turn will require the building of more waste management facilities within London itself.

4F.13 Inevitably, landfill will still have a role within an integrated waste management strategy in dealing with part of London's waste. This will include:

- the disposal of residues waste from recycling, composting, pre-treatment and recovery processes
- the disposal of certain waste streams where landfill still represents the Best Practicable Environmental Option eg asbestos.

Reducing the amount of 'Biodegradable Municipal Waste' landfilled

4F.14 Article 5 of the European Union Landfill Directive sets out targets to reduce the amount of biodegradable municipal waste being landfilled. The targets are:

- by 2010 to reduce the amount of Biodegradable Municipal Waste landfilled to 75 per cent of that produced in 1995
- by 2013 to reduce the amount of Biodegradable Municipal Waste landfilled to 50 per cent of that produced in 1995
- by 2020 to reduce the amount of Biodegradable Municipal Waste landfilled to 35 per cent of that produced in 1995.

Tradable Landfill Allowances

4F.15 The Government intends to achieve the objectives of this part of the Landfill Directive by introducing tradable permits (now known as allowances in order to avoid confusion with the Pollution Prevention and Control Permits) for local authorities to restrict the amount of biodegradable municipal waste landfilled.

4F.16 Tradable landfill allowances are purported to be a flexible economic instrument and introduce a new concept to waste management in the



United Kingdom. In the Government's view, a system of tradable allowances will minimise the cost of meeting the Landfill Directive obligations, whilst giving local authorities the greatest amount of freedom in how they meet their targets. The fact that they will be tradable will help waste disposal authorities share the cost of the UK achieving the necessary reduction in landfill. Authorities that divert more waste away from landfill than required - for example, through greater recycling - will be able to trade their allowances to those authorities that do not.

4F.17 The Government issued a consultation paper on tradable landfill allowances⁶ in October 2001. In spring 2003, the Government published the Waste and Emissions Trading Bill.⁷ Part 1 of the Bill will implement the provisions of the Landfill Directive that set targets for the reduction in biodegradable waste landfilled. The Bill requires the Secretary of State to apportion these targets between Scotland, England, Northern Ireland and Wales and each allocating authority must then assign allowances for waste disposal authorities in their area. The Bill confirms that authorities exceeding their allowance will face penalties, however the Bill also provides for the development of the trading scheme to allow local authorities to buy and sell allowances from each other. Draft regulations are expected towards the end of 2003.



4F.18 It is proposed that the Mayor acts as a broker for tradable allowances for the whole of London. Whilst some of London's unitary waste disposal authorities (ie not part of statutory joint waste disposal authorities) incinerate a significant proportion of their waste, others rely almost entirely on landfill. Therefore, to enable the development of a strategic sustainable waste management approach across London, the trading of allowances needs to be considered on a Londonwide regional basis. It is envisaged that the Mayor would act as a broker, for tradable permits, firstly trading within London before considering trading nationally. This would complement the Mayor's development of a sustainable strategic Municipal Waste Management Strategy for London, and give impetus to the move towards regional self-sufficiency.

4F.19 The operation of a brokerage scheme will be investigated further, with the full consideration and consultation of the waste authorities, but potentially such a system would increase London's purchasing power with respect to additional allowances that may be required by London boroughs. In much the same way as Packaging Compliance Schemes operate, any demand for large quantities of allowances, as opposed to those required by individual boroughs, will ensure a favourable allowance price is obtained.

4F.20 The Mayor will monitor the effectiveness of the allowance system by evaluating the volume of waste diverted from landfill prior and subsequent to the system's implementation. The volume of waste diverted will be estimated from the boroughs' annual waste data returns and from the number of surplus allowances, or shortfall in allowances reported.

policy 19: In line with Government's waste hierarchy the Mayor considers landfill as the last, and least desirable option for the disposal of London's waste and wishes London to move towards self-sufficiency, as set out in the London Plan. However, the Mayor recognises that there still will be a role for landfill in the disposal of residual waste resulting from recycling, composting, pre-treatment and recovery processes or for waste streams where landfill represents the Best Practicable Environmental Option.

policy 20: Waste disposal authorities in London should aim to meet their allocations to reduce the amount of Biodegradable Municipal Waste being landfilled as stipulated within 'Article 5' of the Landfill Directive.

proposal 37: The Mayor will work with the South East of England and the East of England regional assemblies to co-ordinate strategic waste planning in order that London moves towards regional self-sufficiency for waste treatment and a subsequent reduction in landfill exports.

proposal 38: The Mayor will work closely with London's waste authorities to ensure the tradable allowance system works effectively in diverting London's waste from landfill. Waste disposal authorities in London should seek to trade landfill allowances within London in the first instance so that London meets its allocation, without requiring allowances from outside of London.

proposal 39: The Mayor will consult with London's waste authorities about arrangements for the co-ordination of trading landfill allowances through the Mayor acting as a broker.

Landfill gas

4F.21 Landfilling biodegradable waste is also a major source of methane. Methane is a major greenhouse gas, over 20 times more potent than carbon dioxide. The landfill gas of which 40 per cent to 60 per cent of the total composition is methane is produced as the organic fraction within the waste decomposes.





- 4F.22 Landfill gas within a landfill site has to be controlled and monitored due to its hazardous nature. The nature of these controls has been stipulated within the Landfill Regulations (England and Wales) 2002, which state:
- Appropriate measures must be taken in order to control the accumulation and migration of landfill gas.
 - Landfill gas must be collected from all landfills receiving biodegradable waste and the landfill gas must be treated and, to the extent possible, used.
 - The collection, treatment and use of landfill gas must be carried on in a manner, which minimises damage to, or deterioration of the environment and risk to human health.
 - Landfill gas, which cannot be used to produce energy, must be flared.
- 4F.23 The collected gas can be used as an important source of renewable energy; producing heat, generating electricity or both.

policy 21: In order to promote a sustainable approach to managing landfill gas, waste disposal authorities should encourage the use of landfill gas as a renewable energy source (heating or electricity).

proposal 40: Any contract that includes the landfilling of municipal waste should encourage the use of landfill gas as a renewable energy source (heating or electricity).

References and notes

- 1 East of England Regional Waste Management Strategy 2002
- 2 Environment Agency, Guidance on the Waste Treatment Requirements of Article 6(a) of the Landfill Directive, 2001, Section 3.1.1 p. 13
- 3 SERPLAN (1997). A Sustainable Waste Planning Strategy for the South East 1996-2010. London: London and South East Planning Conference
- 4 Mayor of London, The Draft London Plan: Draft Spatial Development Strategy for Greater London. Greater London Authority, June 2002
- 5 Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste'. Official Journal of the European Communities, L 182 (1999)
- 6 Tradable landfill permits consultation paper. Department of the Environment, Transport and the Regions, March 2001. Also available at <http://www.environment.detr.gov.uk/consult/tradeperm/pdf/tradable.pdf>
- 7 Waste and Emissions Trading Bill, 29 April 2003

other municipal waste

4G Reuse and recycling centres (Civic Amenity sites)

- 4G.1 London's existing network of 39 Civic Amenity sites can provide the basis of an important waste management infrastructure, which can focus on reuse and recycling, rather than final disposal. In 2001/02 a total of just over 518,00 tonnes, or about 15 per cent of household waste (12 per cent of municipal waste) was collected through London's Civic Amenity sites. A further 125,000 tonnes of non-household waste was managed through local authority transfer stations and civic amenity sites. The existing network of London's civic amenity sites is shown in Figure 11.



Repeal of the Refuse Disposal (Amenity) Act 1978

- 4G.2 Civic Amenity sites were established under the Civic Amenity Act 1967, which was further consolidated by the Refuse Disposal (Amenity) Act 1978. The Acts state that it shall be the duty of a local authority to provide places where refuse may be deposited at all reasonable times, free of charge, by residents in the area of the authority. The Greater London Council had the original duty to provide these sites for London. The sites were strategically located, and in some cases positioned not to serve the needs of one particular borough, but rather the residents of a number of London boroughs. With the abolition of the Greater London Council, the responsibility for providing Civic Amenity sites transferred to the London boroughs (via Statutory Instrument 1985 No. 1884 'The Waste Regulation and Disposal (Authorities) Order 1985').
- 4G.3 The legal position for the provision of the sites was due to change, once again, with the introduction of the Environmental Protection Act 1990. Section 51 of this Act placed the duty on Waste Disposal Authorities to provide Civic Amenity sites. Also, Schedule 16 sets out the previous Government's intention to repeal Section 1 of the Refuse Disposal (Amenity) Act 1978; however, this has yet to be enacted, leaving both statutory duties in force alongside each other. This situation is especially confusing within the Joint Statutory Waste Disposal Authorities' areas where the waste collection authority and disposal authority have an equal duty to provide a Civic Amenity site within the same area.
- 4G.4 The two Acts cause further confusion as each has its own definition of waste. The Refuse Disposal (Amenity) Act 1978 has the broad definition of 'refuse', whereas the Environmental Protection Act 1990 states that residents may deposit their 'household waste'. Those sites operated under Environmental Protection Act 1990 have greater discretionary powers on the types of waste which may be deposited with operators being able to refer to the prescriptive definition of 'household waste' (as stated within the Controlled Waste Regulations 1992) as their guide. Therefore, the

Mayor supports the repeal of Section 1 of the Refuse Disposal (Amenity) Act 1978, and will press the Secretary of State to announce a date upon which the section will be repealed, to ensure that:

- residents and waste authorities are clear on who is responsible for the provision of Civic Amenity sites
- waste disposal authorities can plan for the provision of Civic Amenity sites within their areas
- residents can no longer take advantage of the broad definition of refuse within the Refuse Disposal (Amenity) Act 1978.

Reuse and Recycling Centres - Shifting emphasis towards reuse and recycling



- 4G.5 The present situation at Civic Amenity sites throughout London can be seen as a lost opportunity. A shift of emphasis in operation, from disposal towards reuse and recycling, can offer quick and effective improvements in reuse and recycling rates, often in a more cost effective manner than recycling collections from homes. Although there can be a potential for civic amenity sites to compete with recycling collection programmes, careful integration can maximise the return on investment. To reflect the important role that Civic Amenity sites will play in improving reuse and recycling in London, they should be rebranded and developed into Reuse and Recycling Centres.
- 4G.6 The reuse of waste is currently under utilised within Civic Amenity sites. The newly rebranded Reuse and Recycling Centres should promote and enable residents to separate waste that enters the site for reuse. Reorganisation of sites should allow sensitively designed storage of materials for reuse, so as not to undermine the objective of improving their appearance or the safety of the public. There may be opportunities to reuse this waste through links with Social Services departments to pass furniture on to those on low incomes. In many areas there will be opportunities to link with existing charities, voluntary or not-for-profit organisations who may already repair goods, check the electrical safety of goods, and pass goods on at low cost to those who need them. London authorities should consider how civic amenity sites will best fit into their overall strategies for reusing waste. Opportunities to reuse other waste are discussed in Section 4B.
- 4G.7 Currently, the amount of household waste recycled at these sites is estimated to be less than ten per cent, whereas focused sites, can achieve rates of 50 per cent particularly during the summer months when the amount of garden waste peaks. It has already been proven that this can be achieved within London, as shown in the London Borough of Barnet

example below. If all Civic Amenity sites in London are upgraded to Reuse and Recycling Centres, overall recycling in London could be enhanced substantially, adding around five per cent on the total amount of household waste recycled.

4G.8 A fundamental and radical upgrading of these facilities to a 21st century approach based on 'recycling first' Reuse and Recycling Centres is envisaged. As a consequence of new contractual arrangements and funding through the London Recycling Fund, this is already happening at some London sites. This entails:

- A civil engineering programme to make infrastructure enhancements to site layout improving waste reception and storage areas together with easier free-flowing access for pedestrians and vehicles.
- The broadest range of prominently placed reuse, recycling and composting facilities.
- Separation and safe containment of hazardous wastes entering the site.
- Appropriate signage to educate users.
- Where appropriate, the Centres should be pleasantly landscaped to promote biodiversity and design and management measures introduced to control noise.
- On-going staff training to improve the level of service to the public.
- The introduction of incentive schemes, such as performance payments to staff for meeting reuse and recycling targets.



4G.9 It is recognised that in some instances, it may not be practicable to offer a full range of reuse, recycling and composting services at reuse and recycling centres. London sites have some of the largest throughputs and traffic flows in the country. Some sites are also located on very small footprints or can be located close to housing. Spatial restraints, throughputs, traffic flows and location considerations may present serious challenges to achieving this aim. In such instances, waste authorities should thoroughly explore all options to maximise the range of services they offer.

4G.10 The Mayor will work with all appropriate stakeholders, including the waste industry, waste authorities (in and outside London), the Environment Agency and current users of these sites to develop best practice design guidance for Reuse and Recycling Centres. This will build on existing examples of sites within London and sites being redeveloped through London Recycling Fund and across the UK. The best practice guidance will look at maximising recycling and composting, ways of improving the operation and management of sites as well as working within the constraints of sites.

Barnet Civic Amenity Site – working with the Community Sector

The Civic Amenity and Recycling Centre at Summers Lane has been open since October 2001 and is being run in partnership with ECT Recycling Ltd. It is on the site of an old facility and replaces a site at Tilling Road that closed in December 2001. The site at Summers Lane has been completely redesigned as the whole area has been redeveloped. The following figures show the tonnages since the site opened.

	Recycled/ recovered	Waste for disposal	Rubble
Jan – Mar 2003	900	1295	202
Oct – Dec 2002	881	1203	220
July – Sept 2002	1240	1557	353
April – June 2002	1106	1527	361
Jan – Mar 2002	710	880	113
Oct – Dec 2001	261	247	0

The site is recycling or recovering a large proportion of the waste coming in. The rubble is recycled but is shown separately as it cannot be counted towards household recycling targets. Excluding rubble, the recycling rate is consistently over 40 per cent.

*Availability of Reuse and Recycling Centres (Civic Amenity sites)*

- 4G.11 The availability of sites within London has become an issue in recent years. Previously, the Greater London Council may have located two sites within one borough, each site serving the residents within a region, which could include a number of adjoining boroughs. When these facilities were transferred to the individual London boroughs in 1986, the financial burden of operating the sites fell upon the borough in which the sites were located and the legislative framework did not provide a mechanism to share these costs on a regional basis. These costs and the ever-increasing financial pressure on budgets have led to some London boroughs taking a more parochial view, which has resulted in the closure of some sites.
- 4G.12 The positioning of Reuse and Recycling Centres (Civic Amenity sites) should be strategic and the most efficient transport of waste to the site should be encouraged. All Londoners should be provided access to these sites for the deposit of household waste free of charge, to reverse the increasing trend of residents having to cross their authority to use a facility, when another may be closer. No London waste authority should prevent users from other London boroughs from accessing their most convenient facilities, even if they are situated in another waste authority's area. In order to achieve this, authorities which are affected should enter into discussions with other waste authorities whose residents use their

sites, with a view to establish reciprocal arrangements whereby costs may be recovered.

- 4G.13 Where possible, arrangements should be made between authorities on the London boundary with authorities outside of the London area for residents to use the most convenient site and avoid unnecessary transportation due to administrative boundaries. However, if suitable arrangements cannot be agreed then a reasonable charge could still be made to non-London residents for the use of a London facility.
- 4G.14 Consideration needs to also be given to the size and number of these sites in London. In some boroughs, where car ownership is lower, a larger number of smaller sites with safe and convenient pedestrian access may be more appropriate. This will be an important issue that will need to embrace borough planning departments and may be an important feature in future Unitary Development Plans. There will also be a challenge identifying new land for new centres, boroughs should identify and retain the appropriate land use area requirements to ensure that these facilities can be built. One opportunity may be to work in partnership with the network of private sector skip hire companies that operate across London. This existing network of small commercial and industrial waste transfer stations could provide an add-on Recycling and Waste Centre service for householders and businesses in London. A short feasibility study and discussions with the Environmental Services Association should be undertaken to establish how practical this approach might be.
- 4G.15 Taking into account the issues discussed above, in order to protect Reuse and Recycling centres and provide a uniform quality of service across London, the Mayor will consult on options for the management and operation of Reuse and Recycling Centres in London. This will be considered as part of wider consultation on a single waste disposal authority discussed in Section 4R.

A consistent service

- 4G.16 Whilst many sites offer a full and comprehensive range of recycling opportunities, others do not. Opening times vary across London, and in some cases are restricted to hours which may not reflect demand for longer opening times, as offered in the retail and service sectors. The extension and harmonisation of opening hours should be investigated, in conjunction with sensitive designing, and improvements to management and operation to minimise any potential disturbance to local residents. Poor design and operation of Civic Amenity sites can reinforce traditional views that waste is worthless and not a valuable resource. For example, waste containers are often not clean or in good condition. Containers may



also be difficult to access, or open topped exposing users to dust, odours and noise. Improvements in the design and proposed operation of new or altered Civic Amenity sites may also make the planning process easier.

Depositing trade waste at Civic Amenity sites

4G.17 In 2001/02, over 125,000 tonnes of non-household municipal waste was deposited at local authority transfer stations and Civic Amenity sites by local traders and business. Waste Authorities operating Civic Amenity sites are able to make a charge for the deposit of waste from commercial sources, where they are licensed to accept it. Where it is feasible, waste authorities should consider allowing local businesses to deposit waste at civic amenity sites upon payment for the use of that service. Issues such as waste management licensing restrictions, traffic flow, throughputs of waste, spatial implications, the quality of service available to householders and alternative services available to local business should be considered in the decision-making process.

4G.18 A pressing problem at some sites is some small businesses tipping waste free of charge, by passing it off as household waste. At sites that are not licensed to accept commercial waste this is illegal. Whether a site is or is not licensed to accept trade waste, if it is being deposited into the household waste stream it is being subsidised by local Council Tax payers. Waste authorities should ensure that they have rigorous procedures in place to ensure that commercial waste is not passed off as household waste at Civic Amenity sites. Adequate alternative facilities for local traders and business need to be planned for through unitary development plans.

policy 22: The Mayor will promote a programme to enhance and promote opportunities for recycling and reuse and levels of service at existing Civic Amenity sites in London, to be re-branded as 'Reuse and Recycling Centres'. These Centres must be available free of charge to all Londoners when depositing household waste.

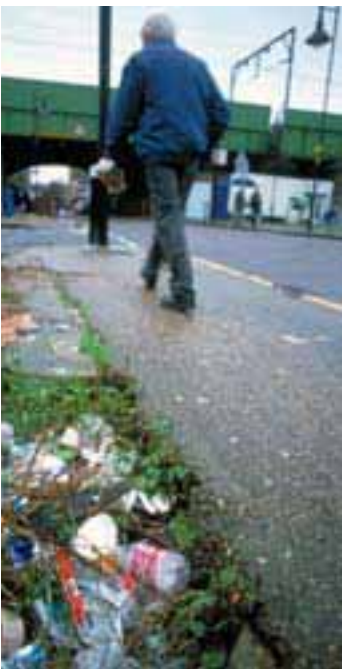
proposal 41: The Mayor will seek to persuade the Government to announce the date on which Section 1 of the Refuse Disposal (Amenity) Act 1978 is to be repealed.

proposal 42: The Mayor will work with key stakeholders to develop a 'best practice' design brief. This will provide the template of features to be incorporated into refurbished sites, resulting in facilities that provide a high standard of service and local environmental quality, coupled with a wide choice of reuse and recycling opportunities.



- proposal 43: The Mayor will promote a feasibility study, to be undertaken jointly with key stakeholders, including the Environmental Services Association and waste authorities, to explore the possibility of expanding the existing network of Reuse and Recycling Centres (Civic Amenity sites) in London. This study will explore the possibility of utilising the existing private waste transfer stations operating in London, as well as identifying land and premises for new sites.
- proposal 44: The Mayor will encourage all Reuse and Recycling Centres (Civic Amenity sites), where practicable, to have arrangements for the separation of reusable items and to provide sites that allow convenient and safe pedestrian access.
- proposal 45: Authorities operating Reuse and Recycling Centres (Civic Amenity sites) should not bar the use of or make a charge for the use of their sites by residents of other London boroughs for the deposit of household waste. To this end, such authorities should enter into discussions with other waste authorities whose residents use their sites, with a view to establish reciprocal arrangements whereby costs may be recovered.
- proposal 46: In order to protect Reuse and Recycling Centres and provide a uniform quality of service across London, the Mayor will, as part of his wider consultation on a single waste disposal authority, consult on options for the management and operation of Reuse and Recycling Centres in London.





4H Street cleansing and litter

- 4H.1 In the GLA Annual London Survey 2002, only 19 per cent of respondents thought that London was a clean city and 72 per cent saw litter as a problem in London. In a poll carried out by YouGov Opinion Research, more than 80 per cent of respondents said that they thought the Mayor should set a standard of street cleanliness across the whole of London and supported a Londonwide programme to improve the cleanliness of the capital's streets. In response to the highlights questionnaire during the public consultation on the draft Strategy, 78 per cent of the general public strongly supported the Mayor's proposal to work with the London boroughs to improve and maintain the standard of street cleanliness on London's streets and to combat environmental crime.
- 4H.2 The Mayor is aware that street cleansing and litter is often higher in the public's awareness than other environmental issues. If you ask people about the state of their local environment, they will talk about litter and dumped rubbish. Through improving street cleanliness, there is a direct link with recycling and waste management. The public perception of the local authority is often formed by the standard and the aesthetic qualities of their street environment.
- 4H.3 The national bill, for keeping the UK's streets clean is around £413 million a year¹. The Government has accepted that existing litter legislation needs to be strengthened, and more effort needs to be made by local authorities on the enforcement of the legislation.
- 4H.4 DEFRA has recently consulted on 'Living Places: Powers, Rights, Responsibilities' a consultation paper suggesting 27 options for reforming the legislative framework. These include; empowering local authorities and Police to set level for fixed penalty notices, creating a new duty on the owners of street furniture to keep their property clear of graffiti and fly-posting, restricting the sale of spray paints to under 18 year olds, extending investigation powers for fly-tipping to local authorities, including discarded chewing gum as litter to which existing litter duties and powers apply, extending the litter duty to include aquatic environments, extending 'duty of care' to householders, more robust powers for clearing fly-tipped waste from private land, making Special Events Licenses include street clean-up provisions, extending local authorities' powers for dealing with litter to include other aspects of local environmental quality (eg graffiti, fly-posting, and minor acts of vandalism) and widen categories of premises which can be subject to Street Litter Control Notices and stronger enforcement procedures.

- 4H.5 Following a large number of letters and phone calls received by the Mayor's office from the public, it became clear that litter was affecting the economic effectiveness of the city and also residents' perception of London. To engage all sectors of the community, local authorities need to ensure that they have got the basics right. The quality of the local street environment has a direct effect on a community and hence their impression of and engagement in local environmental issues. The Mayor believes that like other major cities, the capital needs a common standard that can be recognised throughout London. In September 2000, the Mayor, in partnership with ENCAMS (formerly the Tidy Britain Group), invited the 33 boroughs to join a 'Capital Standards' Street Environment Improvement Programme. This is a four-year Londonwide programme designed to raise the standard of London's street environment and to monitor performance continuously. This programme is a high profile initiative involving the public and private sectors and will reward success.
- 4H.6 On the 5 March 2002, the Mayor and the Association of London Government launched the four-year campaign – Capital Standards – to improve the cleanliness and general appearance of London streets. The Environment Minister at the time, Michael Meacher, spoke in support of the programme at the launch.
- 4H.7 Twenty-six of the thirty-three London boroughs are now members of the Capital Standards Programme along with the London Fire and Emergency Planning Authority, Metropolitan Police and Transport for London.
- 4H.8 The programme, involving the Mayor, Association of London Government and ENCAMS, consists of:
- Local Environmental Quality Survey (LEQS): each waste authority has received a benchmark LEQS survey undertaken by ENCAMS to provide service performance benchmarks against which annual LEQS surveys are assessed.
 - Enforcement Training: A three-day 'Street Academy' training course for enforcement officers that teaches best practice, legislation and how to gather evidence and use powers available to tackle enviro-crime. The Mayor will seek accreditation for the course.
 - Anti-graffiti campaign: A campaign in partnership with the Metropolitan Police encouraging shop keepers not to sell spray paints to under 18s. At present, there is no legislation prohibiting the sale of spray paints to any age group and therefore shopkeeper support is purely voluntary.
 - Anti-litter campaign: A Londonwide anti-litter campaign aimed at making Londoners more aware of the problems and what they can do to help.

Capital Standard



- Educational material: A song and book called 'Pick It Up' has been published and distributed to London Primary Schools. The aim of the initiative is to teach children the importance of the environment, why they should not litter and instil pride in their city.
- Litter Bins in Schools : Capital Standards will be investigating opportunities to install litter bins with advertising space in schools. It is envisaged that the bins would educate and encourage school pupils to use the litter bins through the display of anti-litter campaign posters and advertisements placed by local activity organisers and teenage aimed media advertising.
- London Schools Environment Award (LSEA): The Award will be a series of challenges for primary schools based over four themes; litter, recycling, biodiversity and energy conservation. The two most effective schools from each borough participating will receive a cash reward.
- Capital Standards Network: Dissemination of information, seminars and development of programmes and campaigns with a view to overcome problems and identify and share best practice.
- Consultancy support to councils: Focussing on projects that tackle issues common to a majority of the London boroughs.
- Celebration and rewarding success: Opportunities for recognising, publicising and sharing success and a genuine recognition of achievement. This includes highlighting examples of best practice and performance in various aspects of service delivery.
- A Steering Group: Comprising of the Mayor's Office, Association of London Government and representative London boroughs to oversee the programme.

4H.9 In order to maximise the value and integrity of the programme, the administration staff, survey, data analysis and presentation of findings will be the responsibility of ENCAMS. The Capital Standards Programme will be subject to scrutiny by the Environment Committee of the London Assembly. The programme is intended to be flexible and the components may vary as a result of discussions between the partners.

4H.10 At present, limited information is available about litter and the street environment and the courses of action London boroughs are taking to address these problems. The Audit Commission Best Value indicator of the cleanliness of highways provides part of the picture, but is too general to provide a detailed assessment of what is happening in London. Also this is a self assessment by the borough, rather than by an independent party.

4H.11 The Mayor is seeking to gather more detailed information on the state of the street environment through a new scheme working with London boroughs. Data has already been gathered for the first six months of

2002/03 and will be collected regularly for a period of two years. The scheme includes information about a range of street environment issues, including the use of legislation by authorities to control waste, litter, abandoned shopping trolleys, abandoned vehicles, dog fouling and graffiti. Information about local campaigns to tackle these issues is also included. The Mayor will use his powers under Section 397 of the Greater London Authority Act if the information required is not forthcoming.

- 4H.12 This scheme will also report on the new cleanliness Best Value Performance Indicator (BVPI) 199. BVPI 199 will provide for the first time a robust, reliable indicator covering environmental cleanliness and is based on the methodology of the Local Environmental Quality Survey for England (LEQSE), developed by ENCAMS. The survey, forming the background to the Cleanliness BVPI, has been developed to measure the cleanliness of the local environment, as it might be perceived by the public.



policy 23: The Mayor will work with the London boroughs improve the standard of cleanliness on London streets and public areas, and to combat environmental crime.

proposal 47: The Mayor will work with his partners in the 'Capital Standards' Programme to raise the standard of London's street environment. This will be a high profile initiative involving the public and private sectors and will reward success.

proposal 48: The Mayor will work with the partners in the 'Capital Standards' Programme to set standards and targets to guide local authorities, for litter collection and street cleansing and to combat fly-tipping, reduce litter production, and increase recycling of certain types of litter (eg cans and newspapers).

proposal 49: The Mayor is working with the partners in 'Capital Standards' to produce a Londonwide advertising campaign, highlighting the Government's message of 'war on litter'.

Environmental crime and enforcement

4H.13 Fly-tipping and abandoned vehicles are issues of high public concern. As with street cleansing, a perceived notion of poor enforcement of these issues by local authorities can distract community attention from waste reduction and reuse, recycling and composting.

4H.14 Over the past decade, the law has been considerably strengthened in order to allow local authorities to deal with environmental problems. The Environmental Protection Act 1990 provided new powers to control litter



and waste, and the Fouling on Land (Dogs) Act 1996 allows local authorities to take more effective action against dog fouling. Nevertheless, environmental crime, including graffiti, vandalism, abandoning vehicles, storing and dismantling unlicensed vehicles on the street and in housing estates, fly-tipping and fly-posting, is a continuing problem in many parts of London. It imposes significant costs on local authorities, which must then be recovered through the Council Tax. In several areas local authorities need new legal powers or extended powers.

- 4H.15 Fly-tipping is the unauthorised 'deposit of waste on land'. Examples range from an old washing machine to a lorry load of demolition rubble, but it is often a pile of black sacks dumped in the street by a trader who is avoiding the legal obligation to have their trade waste properly managed.
- 4H.16 Local authorities have a duty to remove fly-tipped waste unless it is deposited on private land. Both the Environment Agency and local authorities are able to prosecute persons who have fly-tipped waste but neither have a statutory duty to do so and the process can be time consuming and costly. The Environment Agency's matrix on fly-tipping² identifies the local authorities as the appropriate body to deal with most fly-tipped waste unless it is hazardous or in/near water, in these cases it is the responsibility of the Environment Agency. Recently, local authorities have been given the power to enter premises and request to see a business's waste Duty of Care Documentation (transfer note and a written description of the waste) and to prosecute those without such documentation³. Until recently this power was only held by the Environment Agency.
- 4H.17 The waste collection authorities have commercial waste contracts to collect waste. However, there is a widespread suspicion that a significant amount of commercial waste is finding its way into the household waste stream. Partly this is because commercial waste is picked up with household waste in street collections.
- 4H.18 The identification of commercial waste where there are mixed collections with household waste is a problem. There is a need in some instances to introduce stronger street environment measures as promoted by the Street Academy. Some local authorities have used a colour-coded bag collection system and designated bins to identify commercial waste, to increase revenue and stop cross contamination into the household waste section. These will help in the identification and hence enforcement of illegally dumped commercial waste. Planning can help to insure that there is adequate space provided for the storage of waste to prevent waste being left on the street awaiting collection. This is discussed further in Section 4Q.

Bulky waste

- 4H.19 Unfortunately one of the common sights of waste in London is of discarded furniture and household appliances. This is unsightly and contributes significantly to the image of an area. Organised collections of these goods take place in all boroughs but the arrangements vary significantly, and boroughs are able to make a charge for the collection of bulky waste. In the London Borough of Brent each household is entitled to a free collection of up to five items, three times a year, providing the goods are easily accessible for collection. The London Borough of Harrow, in contrast, charges £50 for up to seven items. All boroughs with a Civic Amenity site offer free disposal of large household items, but the items need to be taken to the site and not all residents have access to suitable transport.
- 4H.20 Whilst charging may encourage residents to seek alternative disposal or reuse, such as donating to a charity, it can also encourage the unsightly fly-tipping of bulky household items. The system for London needs simplifying so that all Londoners receive the same message and service for bulky waste. Reuse of items can be encouraged through the collection system. Possible links with community groups and charities for reuse of bulky household items has been discussed further in Section 4B.
- 4H.21 The Mayor will consider the collection of data on bulky waste collections through the information scheme. This could provide data on the degree of consistency of bulky waste collections throughout London and enable the Capital Standards programme to identify best practice within London. Once analysed this data could allow a comparison between cost, effectiveness, promotion and quality service provision.
- 4H.22 Section 4G further discusses the encouragement of the reuse and recycling of bulky items at Civic Amenity sites.
- proposal 50: The Mayor will require all London waste authorities to identify ways to minimise the amount of unpaid commercial waste contaminating the household waste stream.
- proposal 51: The Mayor will support changes that enable local authorities to retain the revenue from fines or fixed penalty tickets.
- proposal 52: The Mayor supports, where suitable, colour-coded systems or designated containers for commercial waste collections and waste authorities should consider these when developing new commercial waste contracts or revising existing contracts. The Mayor will also request that existing contracts should examine the feasibility of changing to a system that allows clearer identification of waste.



proposal 53: The Mayor will require waste collection authorities to have a well advertised bulky waste service to minimise the number of items dumped on the streets. The provision of a free service (for a limited number of items) must be considered where an authority has an issue with the dumping of bulky household waste. All services must maximise opportunities for recycling and reuse and collect such items free of charge.

Abandoned vehicles

4H.23 Abandoned vehicles are a major source of environmental pollution, disfigure the local street environment and pose a potential danger to the community, in particular children. In 1999/2000 abandoned vehicles accounted for around six and a half per cent of fire calls attended by the London Fire Brigade⁴.

4H.24 In the UK it is estimated that there are about 27 million motor vehicles in use. Just over two million vehicles are registered each year and just less than two million are scrapped. Across Europe as a whole about 12 million End of Life Vehicles (ELVs) arise annually.

4H.25 The End of Life Vehicle Directive⁵ came into force on 21 October 2000. On 7 March 2003 the Government opened consultation on the transposition of Articles 4, 5, 6, 8, 9 and Annexes I and II of the End-Of-Life Vehicles Directive into UK legislation to become The End-of-life Vehicles Regulations 2003 and The End-of-life Vehicles (Storage and Treatment)(England and Wales) Regulations 2003. Responses to the consultation document were requested by 6 June 2003. The Directive aims to reduce the amount of waste from end of life vehicles and therefore reduce the overall environmental impact and resource use of vehicle manufacture. The main aims of the legislation include:

- to increase reuse and recycling
- to reduce the environmental impact of disposal
- storage and treatment facilities to be authorised and strictly regulated. Hazardous materials to be removed before shredding
- introduction of a Certificate of Destruction to improve vehicle agency records.

4H.26 The Directive contains challenging targets for reuse and recycling of End of Life Vehicle' components and the costs to industry will be significant. Directive targets are to increase reuse and recovery to at least 95 per cent of average vehicle weight, and increase reuse and recycling to at least 85 per cent by 2015, with interim targets of 85 per cent and 80 per cent respectively by 2006.



- 4H.27 The Directive requires that establishments carrying out treatment operations are permitted or registered with a competent authority and treatment operations fulfil certain minimum technical requirements.
- 4H.28 The Directive also requires that free take-back of vehicles (by manufacturers) must be in place by 2007. From the present time until 2007, the last owner of the vehicle will be responsible for the treatment costs of the vehicle. Certificates of destruction are to be introduced, conditional on de-registration of 'end of life vehicles'. These certificates are to be the means of notifying the competent authority (in England this is expected to be DVLA) when destruction takes place.
- 4H.29 Council Decision 2001/119/EC added ELVs to the European Waste Catalogue as hazardous waste. Only ELVs that contain neither liquids nor other hazardous components can be classified as non-hazardous.
- 4H.30 A system that encourages owners of ELVs to ensure they are delivered to authorised treatment plants will minimise any increase in the number of vehicles abandoned. Some EU countries (e.g. Sweden) have operated systems of this sort for many years. However, the value of the incentive will need to be carefully set if the system is to continue to operate effectively under adverse market conditions.
- 4H.31 Due to a fall in the value of scrap metal and the low price of older cars, the numbers of abandoned vehicles on the streets of London, on both public and private land, has soared in recent years. No accurate figure for the number of vehicles abandoned in London, or the associated costs to the community for clearing them, is available.
- 4H.32 London currently has an existing network of around 69 metal recycling sites (scrap dealers)⁶ that are authorised to manage waste. Some of these may be in a position to offer waste authorities ELV pre-treatment services and vehicle collections, under contract. However, as well as these two services, waste authorities will need to plan how they will deal with the almost certain increase in the number of requests from their residents for the collection or disposal of ELVs.
- 4H.33 The Refuse Disposal (Amenity) Act 1978 places a duty on all London boroughs, subject to certain exceptions, to remove abandoned vehicles both from the highway and from public and private land; however, the law is not adequate for modern day circumstances. The Act provides mechanisms for subsequent storage and destruction of abandoned vehicles that are removed under this duty, and for the recovery of costs from the person responsible. Unfortunately the legislation only empowers



authorities to recover costs from the abandoner and not the keeper or owner of the vehicle. The problem of abandoned vehicles is compounded by the trading in near end of life vehicles by small garages often using the highway to store vehicles and undertake repairs.

4H.34 The Driver and Vehicle Licensing Agency (DVLA) is the Government agency that maintains registers of drivers and vehicles and collects vehicle excise duty. The current rules that exempt motor traders from the requirement to license a vehicle for three months makes it very difficult to trace some abandoned vehicles and those in the ownership of dubious vehicle dealers. Where the DVLA has been successful in prosecuting owners of unregistered or unlicensed vehicles, the fines have been low.

4H.35 It has been recognised that the regulation and enforcement provisions for abandoned vehicles in the UK, needs radical overhaul. On 31 October 2002, the Department of Transport consulted on proposed changes to legislation to improve the current position on abandoned vehicles, these were broken up into short and long term proposals.

4H.36 The short term proposals were:

- reduction of notice periods before removing vehicles
- proposed changes to the legislation⁷
- notice periods for removing unlicensed vehicles
- empowering local authorities to use powers against unlicensed vehicles
- improving local authority access to vehicle information
- disseminating information on best practice

4H.37 The long-term proposals were:

- introduce continued fiscal responsibility of a former keeper until notification of sale has been made to the DVLA
- formalise the registration process when keeper details change

4H.38 The consultation respondents generally supported the proposals with some respondents calling for tougher measures. As a direct result of the consultation legislation⁸ has been amended, reducing the period for which noticed has to be served before a vehicle is removed. In addition Local Authorities are now able to adopt the powers of the DVLA and remove or clamp untaxed vehicles.



- policy 24: The Mayor with waste authorities will seek to ensure that all abandoned vehicles are managed to a high standard and in a way that is compliant to all relevant UK legislation.
- proposal 54: The Mayor will seek an effective regulatory framework in England, for End of Life Vehicles, including incentives to encourage the owner to ensure their vehicle is delivered to an authorised treatment plant and effective regulatory powers and funding to allow waste authorities, to enforce the regulations where they apply.
- proposal 55: The Mayor will work with waste authorities and other key stakeholders, including the British Metals Recycling Association, so that London can respond effectively at the planning and implementation stages of the End of Life Vehicles Directive.
- proposal 56: The Mayor will work with waste authorities and other key stakeholders, to develop a common system of data gathering about abandoned vehicles, their removal, storage and disposal and the costs associated with this issue.

Waste and litter from special events

4H.39 The litter and waste arising from special events⁹ comprise a relatively small percentage of municipal waste. However, the quality of waste management at special events can be a significant factor in the enjoyment of the event by the public and also in the perception by local residents of how litter and waste is managed generally. A high-profile waste reduction and recycling programme at a special event can also act as a cost-effective recycling education initiative.



4H.40 The Mayor will work with the boroughs to develop arrangements for special events where a licence is required from the local authority, or where crowds are likely to gather in the vicinity of stadiums and arenas. Licensing authorities should seek that all organisers¹⁰ should submit details of the measures they plan to take to reduce and recycle litter and trade waste from such events. This should be done no later than 21 days before the event takes place. The strategy should feature the following main components:

Waste reduction

- Organisers should consider greater use of catering which favours 'returnable food-service' delivery options.
- Outdoor events in London should avoid the use of polystyrene disposables, which create more litter through being easily blown by the wind and are easily broken when trampled underfoot. Where disposables are used, biodegradable paper alternatives are preferred.



Recycling/litter control

- Combined recycling and litter-points, and where possible composting points, should be sited around the area of the event. The only exception would be where they are deemed by the police to pose a significant health and safety or security risk, or are agreed to be operationally unserviceable.
- For events that attract a significant amount of ground litter, a strategy should be developed to recover recyclables from the waste stream. Solutions may involve the collection of recyclables in advance of the main litter sweep, or sorting collected litter at a 'Material Reclamation Facility'.

4H.41 The Mayor will investigate working with the London Development Agency to showcase sustainable waste management at the 2012 Olympic Games, if London is successful in its bid to host the event, as an example of best practise at special events. Maximising waste reduction and reuse, attaining the highest possible recycling rates and providing a litter-free event would make the Olympic Games a benchmark for any future events held in London.

policy 25: The Mayor will encourage waste from special events to be reduced, reused and recycled where possible.

proposal 57: As a requirement of the licence, for a special event or where crowds are likely to gather in the vicinity of stadiums and arenas, all organisers should develop their own waste management plan. This should consider the waste that will be produced and look to place requirements for traders to use appropriate materials, and to minimise waste and maximise recycling. Boroughs should provide the Mayor with a list of their special outdoor events, and their plans for the management of waste at the event.



References and notes

- 1 DETR News Release 390/02 'First snapshot of local environmental quality', 30 September 2002
- 2 Fly-tipping Stakeholders Forum – Fly-tipping Guidance, www.environment-agency.gov.uk/commondata/105385/flytip.pdf
- 3 The Environmental Protection (Duty of Care) (England) (Amendment) Regulations 2003
- 4 London Fire Brigade, Non accidental vehicle fires in London 1999/2000, www.london-fire.gov.uk
- 5 Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of life vehicle'. Official Journal of the European Communities, L 269 (2000)
- 6 Enviro 2003, Technical Assessment For Waste Management In

London, April 2003

- 7 Removal and Disposal of Vehicles Regulations 1986
- 8 Amendment to the Removal and Disposal of Vehicles Regulations 1986 in the form of the Removal and Disposal of Vehicles (England)(Amendment) Regulations 2002
- 9 Special events are those major outdoor events whose waste management requirements are normally subject to either a significant extension of the responsibilities of the venue's current waste management/cleansing contractor or a new contract
- 10 For the purpose of the Strategy, the organiser is taken to be anyone who has a primary responsibility for the event, whether its planning, management or supervision

4J Producer responsibility – packaging, electrical and electronic equipment

Producer responsibility obligations (packaging waste) regulations

- 4J.1 The European Community Directive on Packaging and Packaging Waste 94/62/EC was introduced in 1994 and required member states to bring into force regulations to comply with the Directive by 1997. The main aim of the Directive is to reduce the overall impact of packaging on the environment. The identified means of reducing environmental impacts are:
- reducing packaging at source
 - eliminating harmful materials in packaging waste
 - maximising recovery of packaging for reuse, recycling, composting or energy generation
 - minimising the quantity going for final disposal.
- 4J.2 The Directive requires Member States to establish systems for return, collection and recovery of packaging wastes. With these systems in place, each state must meet overall recovery and recycling targets. Packaging is defined in the regulations as 'all products made of any material of any nature to be used for containment, protection, handling, delivery and presentation of goods'.
- 4J.3 A Common Position was adopted on 6 March 2003, with the intention to further reduce the environmental impacts of packaging and packaging waste, and a view to amending the Directive. These increased targets are the proposed amendments and replace Article 6 of the Directive to require achievement of the following by 2008:
- Recover a minimum of 60 per cent of packaging waste
 - Recycle a minimum of 55 per cent and a maximum of 80 percent of packaging waste
 - Recycle a minimum of 60 per cent of each of glass and paper and board packaging
 - Recycle a minimum of 50 per cent of metal packaging
 - Recycle a minimum of 22.5 per cent of plastic packaging, and
 - Recycle a minimum of 15 per cent of wood packaging.
- 4J.4 The Producer Responsibility Obligations (Packaging Waste) Regulations 1997¹ came into force in the UK in March 1997. The regulations aim to meet the requirements of the 1994 Directive on Packaging and Packaging Waste. To implement the Directive fully, the 'Packaging Waste' Regulations have sister regulations, The Packaging (Essential Requirements) Regulations 1998, which require that all packaging put on market in the UK fulfils certain essential requirements and limits on heavy metal content.



- 4J.5 Obligated producers need to obtain Packaging Recovery Notes (PRNs) from accredited reprocessors, to meet the regulations. The notes act as evidence that recycling or recovery has been undertaken in compliance with the obligations. An accredited reprocessor is a company that performs a recognised reprocessing activity (for example, glass recycling or energy recovery), which has been accredited by the Environment Agency, Scottish Environmental Protection Agency (SEPA) or Environment and Heritage Service. Only accredited reprocessors have the legal authority to sell packaging recovery notes to obligated producers.
- 4J.6 The accreditation process requires the reprocessor to re-invest money gained from the packaging recovery note sale into the recycling/recovery infrastructure, with the aim of improving the recycled products and increasing the UK capacity for recovery of secondary materials. Recycling of packaging in the UK is improving and capacity is increasing. When coupled with improvements in the collection of recyclables, it is expected that both the number of suppliers of recyclables, (for example waste collection authorities) and reprocessors of recyclables will increase. These activities, in conjunction with market development to increase the demand for recyclable materials, will help generate a more stable market for both the supply and use of recyclables.
- 4J.7 The national targets for 2001, 56 per cent total recovery, of which 18 per cent is material-specific recycling, were intended to achieve a national recovery rate of 51 per cent of packaging which is one per cent higher than the 1994 Packaging Directive target. The UK achieved 54 per cent recovery of packaging (48 per cent recycling, six per cent energy recovery) in 2002². The majority of this recovered packaging came from the commercial sector. However a consultation paper³ produced by the Department of Trade and Industry (DTI) in 2001 in response to the proposed increased targets for packaging waste, stated that 'in order to achieve the higher targets, we will have to extract more packaging waste from the household waste stream'.
- 4J.8 The Advisory Committee on Packaging (ACP) was created to advise Government on drafting the regulations and implementing the Directive. More recently it was assigned the task of providing input to the consultation changes to the regulations. The recommendations recognise that in order for the UK to meet its targets for recycling/recovery, aluminium, glass and steel will largely have to be extracted from the domestic waste stream. Currently, only about 50 local authorities in collect glass packaging from the doorstep and the committee anticipate that this will have to increase by 80 local authorities each year until all local authorities are committed. However, issues such as the Paper



Industry standards (BSEN 643) present difficulties for the co-collection of dry recyclables, including glass.

- 4J.9 The committee also recommends that if a change in approach to recycling co-collection does not occur, local authority collection targets should be introduced.
- 4J.10 The current packaging legislation does not directly involve local authorities in the packaging chain and does not direct funding towards the recovery of packaging waste from the household waste stream. Other countries, such as France, have established systems whereby companies pay a financial contribution to private sector companies based upon the number of sales unit packages involved, to discharge their obligation. These companies then redistribute the revenue collected among local authorities responsible for collecting household waste to compensate them for having to sort the waste and subsequently extract packaging waste. The sorted waste is then sold to reprocessors.
- 4J.11 The waste authorities therefore have a key role to play in achieving the proposed targets, by expanding recycling collection schemes and the promotion of other recycling schemes and facilities. Waste authorities should work with the reprocessors and/or compliance schemes to realise the benefits of providing the reprocessor with a reliable supply and quality of recyclables feedstock. This may also present an opportunity for the waste authority to work in partnership with the many business obligated under the regulations as well as with reprocessors, as local authorities can develop a reliable source of recyclables.

policy 26: The Mayor will seek to ensure that all waste authorities obtain maximum benefit from contributing towards the targets of the packaging waste regulations on behalf of obligated businesses.

proposal 58: The Mayor requests that all waste authorities investigate the development of their recycling collections (including packaging) through partnerships with reprocessors, obligated businesses and compliance schemes.

Waste Electrical and Electronic Equipment

- 4J.12 The production of electronic and electrical goods is one of the fastest growing manufacturing industries. Modern homes have a large number and variety of electrical and electronic items. Technological innovation and the continuing expansion of markets mean that more electrical and electronic waste is being generated. For example, the average life span of a computer in the 1960s was ten years. Now many may be replaced every



two years or less. It is estimated that electronic and electrical items account for four per cent of the municipal waste stream in the European Union⁴. The volume is also expected to grow at a faster rate than for the whole municipal waste stream, as consumers continue to replace and upgrade equipment.

- 4J.13 Discarded electrical and electronic goods entering the waste stream can also have a significant environmental impact. Many electrical and electronic goods contain materials and components that are hazardous and environmentally damaging when they become waste. These materials include mercury, lead, cadmium, chromium, halogens, chlorofluorocarbons (CFCs), polychlorinated biphenyls (PCBs) and polyvinyl chloride (PVC). A significant amount of waste electrical and electronic equipment is not currently pre-treated before being disposed to landfill or incineration, or entering the metal recycling chain. As a consequence a large proportion of the pollutants found in the municipal waste stream can originate from such items.
- 4J.14 There are huge variations in the proportions of waste electronic and electrical equipment that are recycled. For example, in 1998 the UK recycled 88 per cent of large household appliances, such as refrigerators and cookers, which are generally collected on request by local authorities and recycled. However, smaller items are more likely to be thrown away and less than one per cent of small household items, such as vacuum cleaners, toasters and irons, and only four per cent of radios, televisions and audio equipment, are being recycled⁵.
- 4J.15 In January 2003, the European Commission adopted two separate Directives on Waste Electrical and Electronic Equipment, and the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment⁶. They require implementation into UK legislation by 13 August 2004 and will result in major changes to the way in which waste electrical and electronic equipment is managed.
- 4J.16 The key aspects of the Directives are:
- Prevention of waste including:
 - minimising the use of dangerous substances
 - the phasing out of a number of hazardous materials in product design
 - design of equipment that enables repair
 - upgrading
 - reuse and
 - recycling.



- Collection and treatment including:
 - a free return system for householders, the cost being borne by producers
 - a collection system for non-household users, the cost of which may be covered by producers or by agreements at the time of purchase between producers and users
 - targets to collect 4 kilograms per capita per annum by 2006 (this will equate to around 30,000 tonnes in London) and
 - removal of fluids and treatment of equipment containing certain components.
- Improved recovery including:
 - systems for reuse and recycling of waste electrical and electronic equipment and
 - recycling and recovery targets for certain types of equipment, ranging from 70-80 per cent recovery and 50-75 per cent reuse and recycling.
- Provision of information including:
 - users to be provided with information relating to collection systems available, and their role in contributing to reuse, recycling and recovery and
 - electrical and electronic equipment to be marked with a symbol, denoting that it should be separately collected.

4J.17 The Directive focuses on the environmental impacts of equipment and aims to harmonise requirements concerning the design of electrical and electronic equipment. This will ensure the free movement of these products within the internal market and aims to improve their overall impact on the environment. Ultimately this will provide an efficient use of resources and a high level of environmental protection compatible with sustainable development⁷.

4J.18 The implementation of these Directives could provide a greater incentive for manufacturers to include the costs of the environmental impacts of their products and take waste management issues into account at the design stage. This could result in the use of materials, and the development of final products, that are more easily recyclable. The targets for recycling the components of waste electrical and electronic equipment may also open up new markets and opportunities for materials that have not been recycled in the past due to the costs of collection or reprocessing.

4J.19 The role of local authorities in the collection and storage of waste electrical and electronic equipment has not yet been decided. However, whilst they will not be financially responsible, they are likely to play an



important part. The Directives give member states the ability to decide who should be responsible for establishing collection systems. This could be producers, local authorities or other users. In other European countries, such as Denmark, the responsibility for the systems for collection of such material has been placed with municipal authorities.

- 4J.20 The Government urges local authorities to work with producers and the voluntary sector to ensure the treatment, reuse and recycling targets for electrical and electronic equipment are met⁸. Co-operation and partnership are identified as key aspects of Best Value in waste management.
- 4J.21 Some voluntary partnership schemes between the private and public sector do exist and these should be encouraged. These include take back schemes for mobile phones, lighting units and certain batteries. Reuse and Recycling Centres (Civic Amenity sites) could also play a crucial role in continuing to provide a collection route for large household electrical equipment, such as cookers, refrigerators and freezers (also known as 'white goods'), allowing initial segregation before collection and treatment by producers.
- 4J.22 The Furniture Recycling Network has produced a good practice guide for the reuse and repair of domestic electric appliances - 'Fit for Reuse'. The guide anticipates the introduction of WEEE legislation and sets out a quality control/accreditation systems for these groups to comply with the forthcoming legislation. This scheme is a positive move towards quality assurance and standardisation of services.



policy 27: The Mayor supports the objectives of the Directives on Waste Electrical and Electronic Equipment to avoid the generation of, reduce the pollution and harmfulness of, and increase the recycling opportunities for waste electrical and electronic equipment.

proposal 59: The Mayor will encourage waste authorities to work in partnership with the producers of electrical and electronic equipment, private waste contractors and the voluntary sector, to meet the requirements of the Directives.

proposal 60: The Mayor will investigate opportunities for recycling and establishing markets for waste electrical and electronic goods and their components.



Refrigerators

4J.23 The Ozone Depleting Substances Regulation⁹ (ODS) became directly applicable in UK law in October 2000 and, with effect from 1 January 2002, requires that CFCs be extracted from the insulation foam in domestic fridges and freezers prior to final disposal or recovery. The CFCs themselves must be destroyed. This recovery is in addition to the 'degassing' of cooling circuits that local authorities have carried out for some time. Government cost estimates for local authorities storing and recycling fridges are less than £20 per fridge.



4J.24 In May 2002, the Government issued standards on the emission requirements for the safe disposal of fridges. Technology to recover CFCs from insulation foam are now operational at four static plants in the UK and other plants are being commissioned. The Waste Electronic and Electrical Equipment directive and the new hazardous waste regulations will also have an impact on the way discarded refrigerators will be managed (see below).

4J.25 There is an opportunity for the local authority to enter into agreements with private companies who are able to deal with fridges and freezers. The waste collection authority arrangements will be crucial to ensuring that there is not an increase in the number of fly-tipped fridges and freezers.

4J.26 London Remade has facilitated development of a partnership between European Metal Recycling (EMR) and Ozone Friends to develop a process for recycling fridges, helping to tackle the current fridge-recycling problem.

4J.27 London Remade moved fast to bring together this unlikely partnership, a large recycling corporation and a community-based organisation, to ensure a London-based solution. As a result, the project aims to refurbish ten per cent of old fridges, processing the remaining ones to a higher standard and developing a viable end market for the plastics fraction. This will also help refurbishment become a respected business enterprise.



policy 28: The Mayor will seek to ensure that all waste authorities have made the necessary arrangements to manage all waste refrigerators appropriately and efficiently, meeting the requirements of the ODS Regulations and where possible ensuring reuse options are considered before recycling.

proposal 61: All waste collection authorities should look to work in partnership with neighbouring authorities or their waste disposal authority and those with technology available to deal with refrigerators. This should include working with London Remade, which is already developing partnerships in relation to fridge recycling and other appropriate refurbishers.



Polychlorinated Biphenyls (PCBs)

- 4J.28 The Environmental Protection (Disposal of and other Dangerous Substances) Regulations 2000 came into force on 4 May 2000 in England and Wales. They implement the 1996 EU Directive, which requires the phasing out of PCBs.
- 4J.29 The Regulations distinguish between equipment containing PCBs (such as transformers, circuit breakers and capacitors) and PCB residual stocks (such as oils). Holders of equipment contaminated with a total volume greater than five litres of PCB (or PCB equivalents) or holders of PCB residual stocks, with a PCB concentration of 50 parts per million, had to register with the Environment Agency by 31 July 2000. The holding of any substances to which the Regulation apply is an offence unless registered.
- 4J.30 Registered holders are required to label all PCB containing equipment clearly and had to remove from use and dispose of, all substances covered by the Regulations by 31 December 2000. Registration must be renewed each year by 31 July if contaminated equipment is still held. Permitted holdings of PCB stock after December 2000 include transformers with PCB in oil and concentration below 500ppm. Such transformers can be used until the end of their life.
- 4J.31 Waste Authorities must be able to confirm that all remaining equipment is not PCB contaminated above the five litre or 50 parts per million thresholds. Schools in particular may house older equipment, which may require decontamination. Where decontamination is required, this may have cost implications due to the cost of both the decontamination process and the disposal of the PCB wastes.

policy 29: Waste authorities need to ensure that the Environmental Protection (Disposal of and other Dangerous Substances) Regulations 2000 have been adhered to and that all local authority property potentially housing PCB containing equipment has been investigated.

References and notes

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- 2 DEFRA, News Release May 2003, 'Provisional 2002 Packaging Waste Recycling Figures Announced'
<http://www.defra.gov.uk/news/2003/030516a.htm>
- 3 DTI Consultation Paper on a Proposed Council Directive 2002/0291/(COD) of 11 December 2001 concerning a proposal for the Directive of the European Parliament and of the Council Amending Directive 94/62/EC on Packaging and Packaging Waste, paragraph 2.1

- 4 AEA Technology, Recovery of WEEE: Economic and Environmental Impacts, June 1997
- 5 ICER, UK Status Report on WEEE, 2000
- 6 Proposal for a Directive on Waste Electrical and Electronic Equipment (COM/2000/0347-Final-COD 2000/0158) as amended by COM/2001/0315-Final) and Proposal for a Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (COM/2000/0347-Final-COD 2000/0159) as amended by (COD/2000/0159)
- 7 http://europa.eu.int/comm/enterprise/electr_equipment/eee/index.htm
- 8 DETR, Guidance on Municipal Waste Management Strategies, March 2001
- 9 Regulation 2037/2000 on substances that deplete the ozone layer

4K Hazardous waste

- 4K.1 There is a need to deal with small amount of hazardous waste from households and businesses. Many households use materials such as paint, paint thinners and strippers, medicines and pet care products, garden chemicals, some types of batteries and motor products such as engine oil and brake fluid. Some hobbies, such as photography, can involve the use of chemicals at home. Historically, some building products contained asbestos and many garden sheds and garages were constructed of asbestos cement sheeting. After use or at the end of their life these products need to be safely disposed of. Incorrect handling or disposal presents a risk to health or to the environment. Similar materials can also be produced by businesses. All these materials, which represent about one per cent of household waste, are commonly known as hazardous household waste¹.
- 4K.2 However, the introduction of the new European Waste Catalogue means that some waste streams previously defined as non-hazardous are classified as hazardous. The new European Waste Catalogue has yet to be formally transposed into UK law but when it is, certain household items such as fridges and items with cathode ray tubes (television and computer monitors) will be classified as hazardous. DEFRA is considering how these items will be treated under proposed new regulations for hazardous waste, which are to replace the Special Waste Regulations 1996². Some indication of the requirements of the new regulations is provided in the consultation document published³. A second consultation document is expected shortly. This will include draft regulations and will give a more detailed indication of how the regulations will impact on the management of household hazardous waste.
- 4K.3 During 2002, the Environmental Foods and Rural Affairs (EFRA) Select Committee held an inquiry into hazardous waste⁴. The Environment Agency expressed concerns to the committee about the pressures on disposal outlets for hazardous waste⁵. The banning of the co-disposal of waste arising through the implementation of the Landfill Directive, coupled with an increase in wastes classified as hazardous through forthcoming EU legislation such as the Waste Electrical and Electronic Directive and the End of Life Vehicles Directive will place increased pressure on existing facilities. Additionally, the new Hazardous Waste List is likely to increase the tonnage of waste classified as hazardous. Under the Landfill Directive, landfill sites have to be reclassified as hazardous, non-hazardous or inert. As a consequence the number of landfill sites accepting hazardous waste could fall from 218 to 38⁶. The majority of remaining sites would be located in the Midlands and the North of



England. The Environment Agency believes that this could lead to some hazardous wastes being improperly treated or fly-tipped. The Government has set up a Hazardous Waste Forum to look at these issues in response to the concerns raised by the Select Committee. The Mayor will seek to work with the Forum to address long-term pressures on hazardous waste facilities.



- 4K.4 As we increase the proportion of household and commercial waste that is recycled and is separated at source, it is essential that all hazardous materials are separated from other household and commercial waste and dealt with through separate collection arrangements. Because operational waste staff, engaged in waste collection, recycling and disposal operations, are in close proximity to waste, if hazardous waste is mixed up with normal waste this will increase the risk to their personal health and safety.
- 4K.5 A free door-to-door collection and disposal service for Hazardous Household Waste was first introduced in London in 1972. A similar service has also been available since that time to London's businesses for small amounts of hazardous waste, upon payment of a charge. A collection and disposal service is also available for asbestos cement sheeting and building products containing asbestos from households.
- 4K.6 The current Londonwide Hazardous Household Waste Collection and Disposal Service, is provided under contract, with the Corporation of London acting as lead authority for the service. All London boroughs use the service, with the exception of Hillingdon, who make their own arrangements within their borough. All participating London boroughs jointly fund the service.
- 4K.7 Residents are entitled to one collection of asbestos waste⁷ per household per year (not exceeding 50 kilograms in weight) and up to three collections of 50 litres in volume or 50 kilograms in weight of chemicals per household per year. Currently most boroughs provide a free service but it is not uniformly delivered across London. There is inconsistency in whether customers access the service through their borough or direct to Corporation of London; and the amount of publicity for the service varies between boroughs.
- 4K.8 Most collections are arranged by appointment and can be at short notice where appropriate. In 2002/03, 142 tonnes of asbestos were collected from over 1,007 individual locations and nine tonnes of chemicals collected from over 440 households and other premises.

4K.9 A consistent Londonwide standard is required which should be publicised effectively across London, so that all Londoners are made aware and therefore have the opportunity to use the service. Providing a free service would encourage participation by residents and reduce the risk of contamination, as well as reducing potential health and safety risks to waste operatives collecting and sorting recyclable and other waste. A well-publicised hazardous waste service will have operational and financial implications, as more materials are diverted from the household waste stream. In the light of policy direction from Europe, the amount of hazardous materials in the household stream is also likely to increase. The Mayor will work with the Corporation of London as the lead authority and the waste authorities to investigate the effectiveness of the current household hazardous waste collection scheme, identify future potential use of the service, in the light of future European policy and identify means of funding such a service.

4K.10 Supervised and secure storage points should also be provided at Reuse and Recycling Centres (Civic Amenity sites). Despite space and licensing constraints at some Reuse and Recycling Centres, boroughs should investigate opportunities for separating hazardous materials from their waste stream at their sites in consultation with the Environment Agency. Many sites already collect waste motor oil and car batteries, and there are opportunities for reuse or recycling of waste household emulsion, low solvent and water-based paint. Some types of batteries used in the home are classified as hazardous and may also benefit from collection⁸.



4K.11 Most business, local authorities and some households produce waste fluorescent lighting tubes⁹. These contain hazardous components including mercury. Some responsible companies and local authorities employ specialist contractors to collect tubes at the end of their life, treat and then recycle the mercury, before disposing of the remainder. However, the majority of tubes are disposed to landfill without any special arrangements. There are a number of specialist contractors who are now able to offer competitive prices allowing the recycling of mercury to take place. All local authorities should lead by example by segregating old tubes from general waste and engaging specialist contractors to recycle the mercury and dispose of the remaining contents legally. Boroughs should investigate whether there are sufficient arisings of fluorescent tubes from households as this could be a worthwhile expansion of the Londonwide Hazardous Household Waste collection service. These could be collected from a single point within a borough such as Reuse and Recycling Centres.

- policy 30: The Mayor wishes to achieve the segregation of all Hazardous Household Waste from the normal household waste stream, to enable higher recycling rates through the avoidance of cross-contamination to potentially recyclable materials and to reduce the Health and Safety risk to all and to the environment.
- proposal 62: A Londonwide Hazardous Household Waste Collection service should be delivered through consistent contract arrangements in all London boroughs, so that all Londoners have an equal opportunity to use the service. The current service entitlement for householders should be provided free of charge and should also be available to businesses in London upon payment of a charge to recover costs.
- proposal 63: The Mayor will work with the Corporation of London as the lead authority for the Household Hazardous Waste Collection service and the waste authorities to investigate the existing usage and potential future usage of the service, including the costs of expansion, funding options and providing a high level of publicity, so that all Londoners become aware of the service.
- proposal 64: Reuse and Recycling Centres (Civic Amenity sites) should provide facilities where local residents have the opportunity to deposit items of hazardous household waste at a supervised and secure storage point.
- proposal 65: All waste authorities should lead by example, segregating old fluorescent lighting tubes from general waste and engaging specialist contractors to recycle the mercury and dispose of the remaining contents legally. This service should be promoted to all companies within the local authority area.



References and notes

- 1 Household Hazardous Waste is not currently defined in UK legislation. The Special Waste Regulations 1996 define special rather than hazardous waste and most household waste is excluded.
- 2 The Special Waste Regulations 1996. London: The Stationery Office. ISBN 0 11 054565
- 3 DEFRA, Review of the Special Waste Regulations (Consultation, March 2001)
- 4 <http://www.publications.parliament.uk/pa/cm200102/cmselect/cmenvfru/919/91902.htm>
- 5 <http://www.publications.parliament.uk/pa/cm200102/cmselect/cmenvfru/919/2061701.htm>
- 6 Environment Agency, 2003, 'Hazardous Waste Management Market Pressures and Opportunities: Background Paper'. 218 sites have been

classified as 'interim hazardous' in the period up until July 2004, where co-disposal of hazardous and non-hazardous wastes remains permissible. EA data suggests that beyond July 2004 that operator intend to run 38-41 'hazardous' waste landfill sites

- 7 Waste material containing asbestos fibres bound within a cement matrix waste material sealed within a bag (maximum size 11.5m²)
- 8 Alkaline batteries are not classified as hazardous - only lead, nickel cadmium and mercury containing batteries are classified as hazardous
- 9 Single tubes within waste are not classified as hazardous, however, large quantities of tubes would be classified as hazardous. Source: Environment Agency Special Waste Explanatory note - 'Fluorescent Tubes & Lamps (Containing Sodium)'. However under the revised hazardous waste list all tubes will be considered hazardous.

4L Clinical waste



- 4L.1 Clinical waste is classified¹ as either Group A, B, C, D or E according to its content. Municipal clinical waste is more likely to be Group A (includes human tissue and blood, animal carcasses and soiled surgical dressings), Group B (used syringe needles, scalpel blades and other 'sharps') or group E (items used to dispose of urine and other body fluids as well as incontinence pads and other sanitary products (SanPro) waste).
- 4L.2 Clinical waste produced by individuals who treat themselves at home is classed as household waste. However, clinical waste produced by the activities of a healthcare professional working in the home, is the responsibility of primary care trusts and other local health trusts through an approved contractor and must comply with the requirements of the Duty of Care.
- 4L.3 The Environmental Protection Act 1990 provides the main framework of legislation in respect of the collection of clinical waste. Under the EPA 1990, Section 45², waste collection authorities have a duty to:
- Arrange to collect household waste in their areas at no charge except in prescribed cases. Regulation 4 and Schedule 2 of the Controlled Waste Regulations lists clinical waste from households as one such case.
 - Collect clinical waste from commercial premises if requested. A charge can be made.
- 4L.4 Some clinical waste is classified as special waste, under the Special Waste Regulations 1996 (as amended)³. The Environment Agency's Special Waste Explanatory Note 'Healthcare Waste'⁴ indicates which clinical wastes are to be regulated as special wastes. In order to comply with the regulations, local authorities must keep records of these wastes collected from households. Following advice from the Environment Agency, it may be possible for the requirements for special waste consignment notes to be simplified for collection rounds involving clinical waste from households. The arrangements for record keeping and consignment note registers are an important feature in demonstrating waste is being dealt with in an appropriate manner.
- 4L.5 Waste collection and disposal authorities need to be particularly careful when planning and undertaking the collection of clinical waste to ensure that they evaluate the risks that may be encountered in dealing with clinical waste. The safe disposal of clinical waste recommends that risk assessments be carried out to determine the risks to which those staff handling clinical wastes may be exposed, and how these risks can be reduced or eliminated. Once the risks are identified an action plan should

be produced that clearly addresses all risks, eliminating risk where possible, reducing those that remain and providing operational arrangements for dealing with them.

- 4L.6 Guidance on the safe disposal of clinical waste has been produced jointly by the Environment Agency and the Health and Safety Executive through a Working Group of the Health Services Advisory Committee⁵. An excellent overview of all aspects of this subject is also available in *Healthcare Waste Management and Minimisation*, published by the Institute of Wastes Management⁶.
- 4L.7 The guidance⁷ makes specific requirements for several of the Groups, including specific requirements about how various types of clinical waste should be contained. Most clinical waste other than category E must also comply with the various documents and regulations that regulate the carriage of dangerous goods including the Approved Carriage List – CDGCPL2⁸ and the approved requirements and test methods for the classification and packaging of dangerous goods for carriage⁹. Consideration also needs to be given to vehicle design and waste authorities need to consider in their waste contract specifications the requirements for the construction of specialist vehicles, specifically with respect to a requirement to eliminate leakage of any liquids from the interior.
- 4L.8 Clinical waste must always be collected in suitable sealed UN approved containers/bags (yellow bags are not sealed containers) because of the risk of infection. The waste collection authority has the power to prescribe the type of container that should be used for collecting clinical waste and may charge for these. The authority can also prescribe specific substances and wastes that can be placed in particular types of containers and precautions that should also be taken.
- 4L.9 A wide range of premises in the community, such as nursing homes, residential homes veterinary practices, childcare premises, and first aid rooms on commercial premises may produce clinical waste and a significant number of people living in London produce clinical waste at home. This may be either because they have a long-term medical condition that is treated at home, or because they are recovering from hospital in-patient treatment or are receiving healthcare treatment from a local healthcare professional, who visits their home and provides the treatment. Waste collection authorities in London therefore need to provide a suitably designed waste collection service for both clinical waste produced in the home, and in anticipation of such a service being requested by businesses.



- 4L.10 Syringe needles are often discarded in public places by those using drugs. Street cleansing operatives handling this type of waste will need to be fully trained and equipped with the correct equipment and containers to collect and store them during their sweeping round. The correct arrangements for disposing of needles that have been collected are also an essential element of street cleansing arrangements and contracts.
- 4L.11 The cleansing of streets and open spaces such as parks often involves clearing dog mess. Where authorities have installed special dog-waste bins their contents may need special arrangements for transport and disposal. Specialist contractors can offer a service for the disposal of dog waste through incineration. Bulk loads of dog waste are not suitable for landfill due to health, environmental, operational and regulatory reasons.
- 4L.12 Dog fouling outside parks can also be a particular problem, because it is objectionable, a nuisance and a health hazard, and is additional municipal waste requiring management. Local authorities may wish to consider what legal powers could be used to reduce and control this nuisance. The powers provided under the 'Dogs (Fouling on Land) Act' 1996 should be fully utilised by all authorities, to designate areas where dog owners should clear up after their dogs.
- 4L.13 All waste collection authorities in London were requested by the Mayor to provide information on their waste collection arrangements in August 2000. Of the 33 waste collection authorities, most indicated that they provided a collection service for clinical waste although it is not known if the service was free to householders or what type of containers were used. In the past a number of boroughs have introduced a charge for collection from households, but this policy has been reversed in subsequent years.
- 4L.14 In some London boroughs partnerships already exist with the local National Health Service organisations. Where health care workers visit householders to provide healthcare, clinical waste produced is the responsibility of the primary care trusts or local health trust. Depending upon how the trust arranges for this to be removed and disposed, there may be opportunities for a jointly funded collection service to be provided for all households producing clinical waste.



policy 31: The Mayor will seek to ensure that all waste collection authorities make all necessary arrangements to manage all clinical waste associated with municipal waste arising in London to a high standard.

- proposal 66: The Mayor will request all waste collection authorities to provide a free household clinical waste collection service to a high standard. This will include working with relevant stakeholders to reduce the occurrence of, impacts from and risks associated with discarded waste, including syringe needles and dog mess, in public places and to widely publicise the availability of the collection service to all.
- proposal 67: The Mayor, along with all waste authorities, and other stakeholders such as the strategic health authorities, primary care trusts, other NHS bodies and the waste industry will seek to identify and implement best practice in clinical waste collection. This will include exploring potential partnership opportunities, which may provide economies of scale, such as a Londonwide clinical waste service.
- proposal 68: The Mayor will encourage health authorities to make plans to accommodate any changes resulting from the review of the Special Waste Regulations and the introduction of Hazardous Waste Regulations.

References and notes

- 1 Safe disposal of clinical waste; Health Services Advisory Committee; 2nd Edn 1999; HMSO ISBN 0 7176 2492 7
- 2 Environmental Protection Act 1990. London: The Stationery Office
- 3 The Special Waste Regulations SI 1996 no. 972 as amended by the Special Wastes (Amendment) Regulations 1996 SI no. 2019 and other subsequent amendments
- 4 Healthcare Waste – Special Waste Explanatory Notes – SWEN001; Environment Agency; (1999) ; Eco-Fax Tel: +44 (0) 881 882 288
- 5 Safe disposal of clinical waste; Health Services Advisory Committee; 2nd Edn 1999; HMSO ISBN 0 7176 2492 7
- 6 'Healthcare Waste Management and Minimisation' Institute of Wastes Management; June 2000; ISBN 0902944568.
- 7 Safe Disposal of Clinical Waste Health and Safety Guidance
- 8 Approved Carriage List: Information approved for the carriage of dangerous goods by road and rail other than explosives and radioactive material – L90; HSE Books; 1999; ISBN 0 7176 1681 9
- 9 'Approved requirements and test methods for the classification and packaging of dangerous goods for carriage' – L88; HSE Books; 1996; ISBN 0 7176 1221 X



other issues

4M Education and promotion

Building awareness in London

- 4M.1 The success of the Municipal Waste Management Strategy largely depends on changing attitudes to waste reduction, reuse and recycling. At the local level many waste authorities operate initiatives to raise awareness of their schemes and the need for waste reduction, reuse and recycling. Community and voluntary groups are also at the forefront of education and awareness raising. They encourage waste reduction, reuse and recycling by working directly with local communities and through initiatives such as the Recycling Consortia Community Waste Action project. However, there is a need for greater co-ordination of the messages being communicated to ensure that the variety of initiatives provide a clear and simple message.
- 4M.2 The benefits to the environment or society from sustainable waste management are often indirect and not local. This means Londoners may not directly relate to national messages, or see how they fit into the wider picture, and therefore how they can have a positive impact on the environment and their local community. People are more likely to start recycling or recycle more if they can see, or are aware of, the positive impact their actions are having. In response to the highlights questionnaire in the public consultation on the draft Strategy, 77 per cent of respondents strongly supported promotion of waste reduction and recycling to raise awareness amongst Londoners.
- 4M.3 The Mayor, together with waste authorities and other stakeholders is leading on the development of a Londonwide waste awareness programme. This will develop messages on waste reduction, reuse and recycling that can be promoted across the whole of London. This programme will look to complement and support existing and future initiatives at both a local and national level. It will consider joint working or the establishment of partnerships, where these will be of benefit eg a charity partnership to link increases in recycling to a charitable contribution, as an incentive to recycle.
- 4M.4 Londonwide messages on waste reduction reuse and recycling will aim to enhance and add value to local initiatives, not replace them. There will always be a need for initiatives at the local level, such as promotion about the operation of a local recycling scheme, feedback on how a scheme is doing and working with the community to increase recycling. A Londonwide campaign will compliment this work by increasing general awareness, which will mean people are more receptive to information provided at a local level.



Convenience of services

- 4M.5 Research¹ shows that the absence of convenient recycling services eg collections from the home, has a significant impact on participation in recycling. The best advert for recycling is therefore a simple, well-run, reliable scheme, inclusive and accessible to all. Many would not recycle at all if they didn't have recycling collections from the home. Further, there are indications that fortnightly recycling collections can affect participation as people forget to put their recyclables out for collection or have too much material to store for two weeks². Increasing recycling collections from homes and composting will help achieve greater participation, but 'bring' systems also need to be considered in terms of accessibility.
- 4M.6 The type of recycling scheme, can influence perception and hence participation. Schemes that collect bags of mixed recyclables at the same time as the general waste are convenient for householders, as all recyclables go into one bag. However, there can be a perception by householders that the recycling is not being kept separate, and hence is going to landfill. This can successfully be overcome through education and promotion on how the scheme works. Most recycling collections from homes incorporate some kind of receptacle, which is often brightly coloured to aid collection. Obvious recycling outside properties creates peer pressure and encourages neighbours to participate. It advertises the scheme to people moving into the area and acts as a reminder on collection day.
- 4M.7 Further to this, Section 4B discusses the need to make waste disposal less convenient in comparison to reduction, reuse and recycling.
- 4M.8 As outlined in other parts of this Strategy, the Mayor will work with the Government, London's waste authorities, retailers and manufacturers to put systems in place to make reusing, recycling, composting and responsible shopping easier and more convenient. These improved systems will ensure that increased awareness is turned into action, which will maximise the benefits and participation in the schemes.

Message

- 4M.9 Different messages eg waste reduction, recycling and buying recycled require a different approach when developing a campaign aimed at changing behaviour. For example, the reasons that people don't recycle are not the same reasons why they do not buy recycled products. Barriers to action also differ between households eg someone living in a flat may not recycle because they do not have a convenient service, whilst someone who does have a collection may not be aware of the service.

This means that different messages may be required for different groups of people³.

- 4M.10 When a convenient recycling scheme has been operating for a while, and participation has reached a plateau, the next stage would be to consider targeted promotion for those not participating. This promotion needs to consider the lifestyle of the target audience and their reasons for not participating.
- 4M.11 The 'Recycle for London' campaign has been developed using relevant research and a communications strategy has been produced. The initial 'Recycle for London' campaign is primarily targeted at medium recyclers, those who are doing some recycling but could do more. Sixty-five per cent of this target audience have a recycling collection from home and the majority have access to a car⁴ The advertising message is therefore aimed at getting them to think about the other materials they could be recycling and the media has been chosen to target them when they are most likely to take action.
- 4M.12 In London there is a particular need to overcome potential language barriers, which is likely to involve more than just translating leaflets. Promotion, at a Londonwide level will consider specialist media for minority ethnic groups. Access to further information for the campaign is available using both telephone and internet, and the campaign website has been developed within accessibility guidelines. At the local level, authorities needs to consider new ways to involve different communities such as the use of picture images for leaflets and outreach work, and provide multi-cultural and multi-lingual support and advice services, where appropriate.
- 4M.13 In order to target campaigns effectively information is needed on who is participating, as well as those who are not participating. The 'Rewards for Recycling' pilot (Section 4C), provides this information as it is necessary to collate information about those participating in order to administer the scheme. It is also possible to use participation study information, or basic collection round tonnage information to estimate participation levels. Promotion and information can then be targeted to areas where there is little participation, or specifically to those not participating at all or those only partially using the service.
- 4M.14 Another key issue to sustain participation in a scheme is to provide feedback to residents so that they know that their efforts are making a difference and are being appreciated. Feedback could focus around the local or personal benefit of their action – for example, tonnages collected,

community investment or reductions in council tax. Research⁵ recommends that if waste behaviour is to change, building trust and dialogue with users of recycling services will be as important as providing extra facilities and new services.

- 4M.15 Children are the recyclers of the future, and are also a good way to get messages to parents and develop action back in the home. All schools should have a recycling centre, so that children can get into the habit of recycling. In addition, the Mayor has developed the London Schools Environment Award (LSEA). This will take the form of a series of challenges for primary schools based over four themes of litter, recycling, biodiversity and energy conservation. The two most effective schools from each borough participating will receive a cash reward.
- 4M.16 Many waste authorities already work with schools to encourage children to recycle. Boroughs such as Bexley work in partnership with the community and the voluntary sector and offer practical advice and help on waste reduction and recycling initiatives within schools, through Waste Watch's Schools Waste Action club. The Londonwide programme will aim to develop this further and co-ordinate and enhance initiatives by local authorities and the voluntary and community sector by sharing best practice, introducing common branding where possible and linking into the Londonwide campaign. A Schools and Homes project is being delivered in partnership with Global Action Plan who will run waste reduction programmes in schools around London aimed at educating children about waste and recycling issues.





Recycle for London

The Mayor is working in partnership with London's boroughs, the National Waste Awareness Initiative (NWA), the ALG, London Remade, Cory Environmental and Waste Watch to deliver an advertising campaign in 2003/04. The campaign aims to raise awareness of recycling and ultimately increase the number of Londoners participating in recycling services. The core funding amounts to £1.5 million with additional resources being provided by project partners. A majority of the core funding was secured through a successful bid into the London Recycling Fund.

The campaign is called 'Recycle for London' and has been based on extensive research into Londoner's attitudes to waste. Using this research a detailed Communications Strategy was produced which outlined what the message and who the key target audience should be. Specific targeting of the message is necessary in order to maximise the effectiveness of the campaign within the budget constraints.

The key target audience for the initial campaign will be medium recyclers, Londoners who recycle a little already but could do more. The core campaign message is 'You can recycle more than you think', as many people who do recycle, do not recycle all that they could eg they only recycle paper and glass even though the recycling collection from their homes collects other material, or they recycle their glass bottles but not their glass jars. The campaign will use high profile media eg radio, busbacks and large posters at supermarkets, so the message will be seen/heard by the medium recyclers, targeted as they shop or go about their domestic chores, but will reach other Londoners as well.

The campaign will aim not only to raise awareness about recycling but also to motivate people to take action. A dedicated website (www.recycleforlondon.com) and helpline (08453 31 31 31) will support the campaign so that Londoners can find out what services they have in their area, and how they can take part.

Resources

- 4M.17 Evidence from continental Europe suggests that the provision of quality educational campaigns on the back of comprehensive service provision is essential for increasing recycling and reducing the growth in waste. Not only is it necessary to provide schemes, but their promotion needs to be effectively resourced. Countries with high recycling rates spend much more on promotion than we do in the UK and often have a number of education officers covering each area.

4M.18 In its response to the Strategy Unit report 'Waste not, Want not'⁶ the Government announced that it was expanding the remit of the Waste Resources and Action Programme (WRAP). WRAP has now been tasked with promoting education and awareness of waste issues through a programme of national and targeted local or issue-specific campaigns related to waste minimisation and recycling. Funding of around £3 million has been allocated in 2003/04 for this purpose⁷.

4M.19 The London Recycling Fund includes a priority action programme for information, publicity and feedback initiatives, as well as waste reduction. This has already provided funding for 2003/04 for the 'Recycle for London' campaign and other local awareness projects.

4M.20 The Mayor aims to secure further funding to enable the Recycle for London campaign to continue past March 2004 to build on awareness and target other groups. This is needed to bring about a real change in behaviour, so that recycling is seen as a 'normal' part of every day activity. In future years, campaigns will consider issues such as waste reduction, reuse and buying recycled products. Feedback from the initial 'Recycle for London' campaign will be used to inform the development of future campaigns.

4M.21 The Schools and Homes project being developed by London Remade, has been funded through the landfill tax legacy fund. This project will link into the Londonwide campaign.

4M.22 Local and Londonwide promotion also needs to be properly resourced. When providing waste and recycling services consideration should be given to allocate an amount to be spent on education and promotion. This could either be incorporated into the waste contract and hence provided by the contractor, or provided directly by the authority. Increasingly waste authorities are recognising the importance of education and promotion to help them meet their statutory recycling targets. For example, Western Riverside Waste Authority has built a substantial education and awareness campaign into their new waste disposal contract.



policy 32: The Mayor will seek to secure effective resources for Londonwide promotion to complement local and national initiatives. The Mayor will promote messages on waste reduction, reuse and recycling, through a Londonwide programme to raise awareness of all Londoners but particularly children.



- proposal 69: The Mayor is leading the first phase of a campaign, bringing together the waste authorities and other key stakeholders, to develop Londonwide promotion on recycling and sustainable waste management. The Mayor will explore further funding opportunities to enable campaigns in future years.
- proposal 70: The Mayor will seek to ensure that waste reduction, reuse and recycling is convenient and simple, to aid the communication of Londonwide messages.
- proposal 71: The provision of waste services by an authority should include an amount to be spent on education and promotion. This could either be incorporated into waste and recycling contracts or provided directly by the waste authority.
- proposal 72: The Mayor will work with local education authorities, schools and waste collection authorities to ensure all schools, where practicable, have a mini-recycling centre within their grounds to create an understanding of the environmental importance of waste management and recycling.



References and notes

- 1 Resource Recovery Forum (2002) Household waste behaviour in London. Brook Lyndhurst Ltd/MORI
- 2 Resource Recovery Forum (2003). Household waste behaviour in London – Phase II, Brook Lyndhurst Ltd/MORI (not yet published)
- 3 Resource Recovery Forum (2002) Household waste behaviour in London. Brook Lyndhurst Ltd/MORI
- 4 Resource Recovery Forum (2003). Household waste behaviour in London – Phase II, Brook Lyndhurst Ltd/MORI (Not yet published)
- 5 Resource Recovery Forum (2002) Household waste behaviour in London. Brook Lyndhurst Ltd/MORI
- 6 DEFRA, 'Government Response to Strategy Unit report – Waste not, Want not', 2003
- 7 www.wrap.org.uk

4N Developing markets



- 4N.1 People often presume that once materials have been collected separately for recycling, that they have been 'recycled'. However, collection is only the first stage of the recycling process. Recycling a waste material means reprocessing the material (recyclate) in a production process for its original purpose or for another purpose. To achieve this there needs to be sufficient reprocessing capacity for the materials and a viable end market.
- 4N.2 To meet the household recycling targets for 2005/06 London authorities will need to collect around one million¹ tonnes of recyclables, a massive increase from the 317,000 collected in 2001/02. There is some existing capacity for reprocessing recyclable materials in London, however unless new reprocessing and end-use markets are identified and developed, it will be harder to recycle collected materials.
- 4N.3 The fundamental conditions for the successful building of the recycling and reprocessing sector in London are:
- stimulation of sustainable demand for recyclates
 - the nurturing and support of a new class of green entrepreneurs
 - tackling the barriers to increased business development, including skills, premises and capital investment.
- 4N.4 Environmental legislation is creating an urgent need for an enhanced commitment to recycling and reprocessing. It presents an opportunity for innovative organisations to put reprocessing onto a commercially sustainable footing.
- 4N.5 There has been a steady increase in environmental legislation, such as the Landfill Directive and producer responsibility obligations, which have significant impacts on the way businesses operate and how new business opportunities are generated in the waste processing sector. These legislative changes are already triggering the development of new and innovative business approaches as the case studies below demonstrate.

Case study: Remade

- 4N.6 There are a number of Remade projects running across the UK. All are based on principles of private sector engagement, facilitating market growth and local job creation. The Welsh initiative, Creating Welsh Markets for Recyclates, has sought to expand the sector through stimulating investment and encouraging new enterprises. Support includes financial and management support, supply chain support, technical and marketing support and networking.

Case study: Kalundborg, Denmark

- 4N.7 Kalundborg eco-industrial park in Denmark is probably the most developed example of 'industrial symbiosis'. Six industries, including a power plant and a biotechnology company, trade resources, products and waste, yielding commercial as well as local employment benefits. See www.symbiosis.dk
- 4N.8 The pressure from legislation combined with waste recycling targets has the potential to develop business and job creation opportunities. Evidence from other countries such as Germany, Australia and the US demonstrate how significant job creation at the local level has been achieved through high recycling rates supporting new business formation.
- 4N.9 The London Development Agency, as the Mayor's economic development agency, is working to promote and develop the green economy. A central element of this is support for the waste sector, and particular support for the reprocessing sector to help ensure that the levels of recycling being proposed are economically viable through stimulating demand for recycle.
- 4N.10 The Mayor, through the London Development Agency, can play a leading role in putting in place a framework for the development of the sector. The London Development Agency commissioned a feasibility study into the development of the waste reprocessing sector in London, which builds on its support for London Remade through the Single Regeneration Budget. The report has identified a number of constraints facing the waste reprocessing sector as well as key opportunities for its development in London. The report identified a number of priority materials with particular potential for reprocessing in London. In particular, in the light of forthcoming legislation, Waste Electrical and Electronic and End of Life Vehicles offer particular opportunities. Other priorities include plastics, glass, paper and wood.
- 4N.11 The study, carried out by Brook Lyndhurst consultants, identified a range of factors that need to be addressed in order to move the sector onto a more commercially sustainable footing:
- Stimulating demand for recycled products; quality and cost will be crucial elements
 - Access to finance
 - Range of business support services tailored to the needs of the sector
 - Provision of affordable and appropriate premises, a particular issue in London given high land values
 - Support for technology and innovation
 - Legislative changes- impact of uncertainty of legislative changes
 - Appropriate skills and training



- 4N.12 The list above demonstrates the range of issues facing the sector and the need for a wide range of organisations to work together in order to make real progress.

London Remade

London Remade, funded by the Mayor through the London Development Agency, has been formed to help stimulate and co-ordinate the development of new markets and new uses for recyclable materials, bringing to London the benefits of international best practice and experience. Many of the prospective uses for secondary materials are new and non-traditional. They will often require materials to be processed in different ways to meet the specifications and requirements of the industrial companies using them as part of their raw material feedstock. The technologies used in the processing of these materials will be new to the UK, even though they will in most cases have been proven in other parts of the world.

The organisation is a strategic partnership between the private and public sector and is funded by the Mayor through the London Development Agency. As part of the four-year programme, spanning the years 2000 to 2004, £5.4 million will be invested through the Single Regeneration Budget.

London Remade occupies a unique niche in the waste management industry. Acting as an intermediary body, it is a facilitator; identifying and stimulating demand for recycled products within London's community and working with suppliers to satisfy this need through the manufacture of recycled goods. By identifying a value for London's waste through stimulating demand for products made from recyclates, demand is created for these products. Through support for the reprocessing industry in London, demand can be met, in turn ensuring uses for London's waste.

Creating demand – developing new recycled markets

Through the Mayor's Green Procurement Code, London Remade is developing alternative and sustainable markets made from recycled materials and stimulating demand for recycled materials and products. By encouraging businesses to buy recycled products, and providing a brokerage service to ensure availability of quality products, end markets for recyclates are developed. The London Development Agency is working with London Remade to both broaden the code and to deepen the impact. Next steps include a more targeted approach on specific sectors.





Satisfying supply – developing reprocessing in London

Eco Sites – London Remade highlights opportunities for investment in new manufacturing of waste materials, bringing together investors, manufacturers and waste managers, establishing eco-industrial areas to process materials into new products. Organic waste, paper, glass and construction and demolition waste are currently being processed and re-manufactured at four sites to produce recycled products. These eco-sites were developed with private sector partners, demonstrating a range of technological, cutting-edge techniques to deliver the end product.

Small business support

Through the provision of loan funding and mentoring services, London Remade provides a business support service to start-up and small enterprises, together with community organisations looking to develop opportunities in the recycling sector.

Improving supply of Raw Materials

By working with all London's waste authorities, London Remade's Supply Infrastructure Project aims to improve London's collecting and sorting infrastructure and as a result, improve the supply of recycled materials, ensuring that reprocessors can provide manufacturers with viable alternatives to virgin resources, such as glass, plastic and paper

Progress to date

London Remade has spent more than £4 million of Single Regeneration Budget funding and has also levered in some £10 million of additional funding from the private and public sector. Some 150,000 tonnes of London's waste have been diverted from landfill into (up to 30) new products.

Capital projects with a wide range of organisations have been established including: glass with Day Aggregates; vertical composting with the London Borough of Bromley; composting processes with Cleanaway; recycled stationery with Remarkable; recycled glass tiles with Freeform.

For up to date information on London Remade visit www.londonRemade.com



Waste and Resources Action Programme (WRAP)

- 4N.13 WRAP is an independent body to promote sustainable waste management by tackling barriers to increased recycling and reuse. It was launched in November 2000 and is jointly sponsored by DEFRA, DTI, the Scottish Executive and the National Assembly for Wales. Over £25 million has already been committed for the first three years. WRAP will

address issues such as the waste streams to be tackled and the barriers to greater reuse and recycling of those materials. Additional funding has been allocated to meet three of the Waste Implementation Programme's eight workstreams. This includes £8 million for waste minimisation, £3.5 million for recycling (focusing on organics) and £3 million for education and awareness.

Londonwide consortia

- 4N.14 Londonwide markets or consortia for recyclable materials would help ensure consistent prices, and ensure consistent supply to enable reprocessors to invest in additional capacity. Local authorities are not in as strong a position as large companies who are more able to 'spot sell' materials and the Mayor would like to be able to offer authorities opportunities to overcome these disadvantages if they wish to do so. The Mayor, working with London's waste authorities and experts on markets, will consider the benefits and issues associated with the establishment of consortia for the sale of particular materials and will lead negotiations with reprocessors on a strategic level.

End markets and standards

- 4N.15 In the past, the perception that goods made from recycled materials are inferior to those made from virgin materials has been a barrier to their sale. This is discussed further in Section 4P 'Leading by Example' which looks at the important leadership role of public bodies and major businesses in demanding and purchasing goods made from recycled materials. However, the standard of recycled goods needs to meet the requirements of the user or the goods will not continue to be purchased. Therefore the development of quality standards for recycled goods will also be key in developing consumer confidence and maintaining the market. London Remade has encouraged work on this with regard to some of the new products it has been helping to develop, such as Glasphalt, and this had resulted in boroughs such as Westminster using Glasphalt as an alternative to sand. Sponsored by WRAP and launched in November 2002, the Composting Association has developed a British Standard for composted materials.
- 4N.16 The Paper Federation has introduced a standard (BSEN 643) for recovered paper wastes, which could have major implications for future paper recovery schemes. This proposal may have significant cost implications for the collection of recyclables by authorities if, as is being discussed, there are restrictions on the way material is collected, particularly co-collection with other recyclables or waste. Any standard set should be realistic in terms of the practicalities and the costs of collection, as well as ensuring the quality of the paper to encourage confidence in the standard of



recycled goods. Standards should not just be set to reduce the costs of processing or to 'cherry pick' cleaner sources of material.



- 4N.17 The quality of recycled material delivered to the reprocessor, as well as the reprocessing method, are key in ensuring standards are met and maintained. In some cases, the standard may place restrictions on the method of collection of material, to avoid issues of contamination that cannot be solved through reprocessing. It is in the interest of both the collectors of materials and the reproducers that material can be provided in the form and quantity which will help to build and sustain the market in the long term. The Mayor will work with the waste authorities, reproducers, London Remade, WRAP and other relevant organisations to help to set sustainable standards for recycled goods. This means that unreasonable or impracticable restrictions should not be placed on the collectors of the material or the supply may not be maintainable. Equally the quality of the end product should not be compromised.

Markets taskforce

- 4N.18 The Mayor will bring together a 'markets taskforce' of existing stakeholders, to work with the reprocessing industry. This will consider the markets and reprocessing capacity requirements of recyclables in London in the future. This will build on both the knowledge and the plans of London Remade and WRAP. Considering initially paper, metals, glass, plastic and compostable waste, the taskforce will analyse the current situation and future requirements to identify what London needs, where London need it and when London needs it. The taskforce will also look at any transitional issues for London, such as the source separation of materials prior to reprocessing facilities becoming available locally.

policy 33: The Mayor, through the London Development Agency, will continue to support the development of new reprocessing industries, including new business opportunities and job creation.

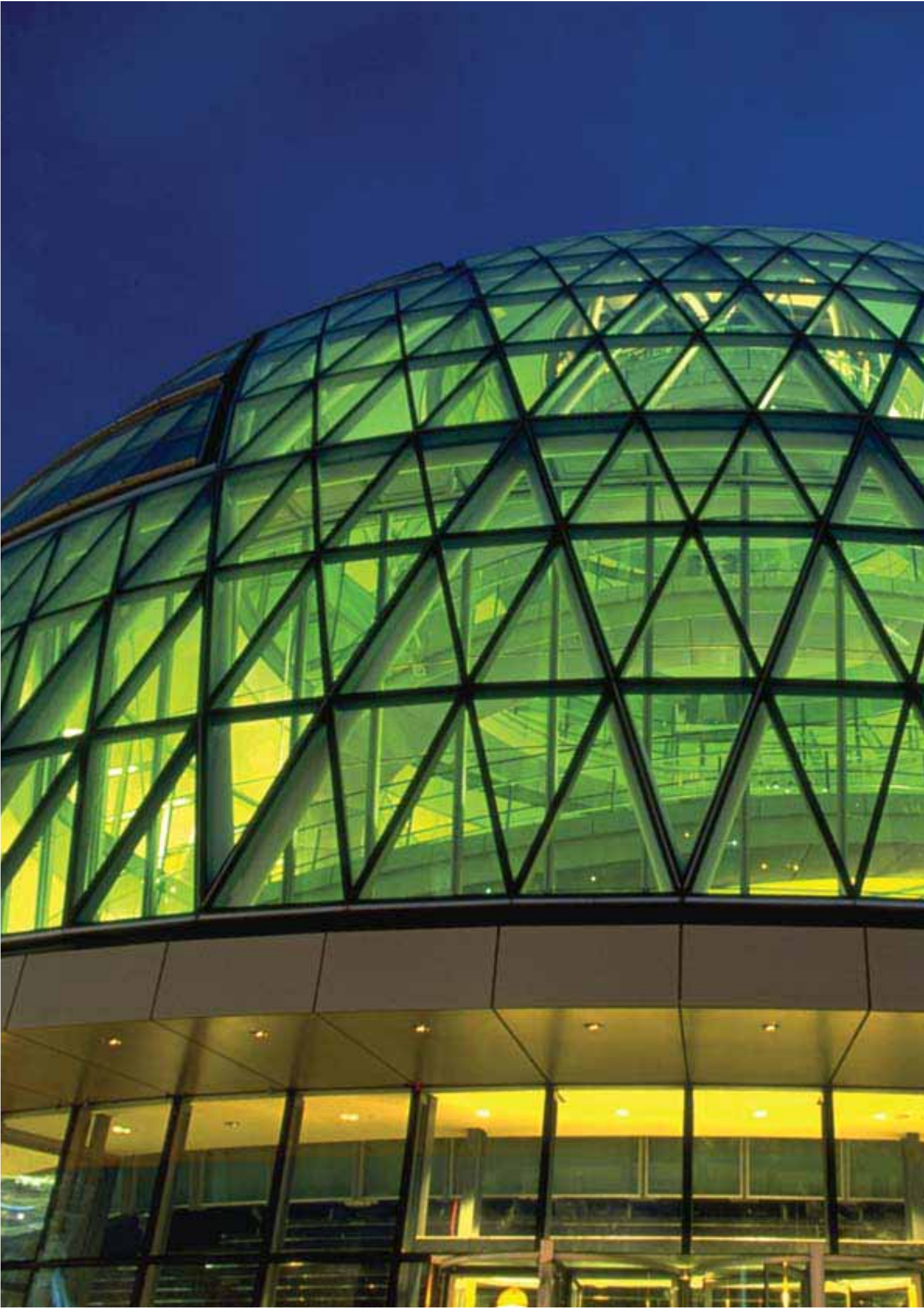
proposal 73: The Mayor, through the London Development Agency, will continue to examine and address the business support needs of the waste reprocessing sector including skills requirements, business advice, finance and land premises.

proposal 74: The Mayor, through the London Development Agency, is the major public sector funder of the London Remade programme, with funding in place until 2004, and will continue to support London Remade as it becomes successful in its role providing leadership and developing partnerships. Through the London Development Agency, the Mayor will also examine requirements for additional support mechanisms for the sector.

- proposal 75: The Mayor and the London Development Agency will help to stimulate demand for recycled products.
- proposal 76: The Mayor will work with the London Development Agency, London Remade and WRAP to continue to develop reprocessing capacity for recyclables and new markets for recycled materials and products. This will include the investigation of the benefits of Londonwide consortia for recyclable materials.
- proposal 77: The Mayor will support and encourage the development of new plastics recycling facilities and related industries in London.
- proposal 78: The Mayor will work with the waste authorities and their contractors, material reprocessors, London Remade, WRAP and other relevant organisations to help to set standards for recycled goods which are sustainable and realistic.
- proposal 79: The Mayor, with key stakeholders including the London Development Agency, will bring together a markets taskforce to:
- consider current and future markets
 - consider current and future reprocessing capacity requirements
 - consider London's needs, including timeframes and locations.

References and notes

- 1 The central waste growth assumption, as detailed in Chapter 2, suggests that four million tonnes of household waste could be produced by 2005/06.



4P Leading by example

Green Procurement Code

- 4P.1 Unless we 'close the loop' – the link between waste material reprocessing and purchasing new goods and products made from reprocessed materials – high rates of recycling will not be sustained. Everyone, businesses and householders alike, must play an active role in demanding and purchasing goods made from recycled materials, or that are remanufactured. All public authorities and major businesses have an important leadership role in adopting and implementing 'green procurement' policies and publicising the fact. The Local Government Improvement and Development Agency (IDeA) have developed guidance for local authorities on sustainable procurement for waste and recycling. Waste and Resources Action Programme (WRAP) with the IDeA are working nationally to seek a commitment from at least half of all local authorities to adopt a 'buy recycled' policy, tailored to suit local circumstances, by the end of 2003/04. At a Green Procurement event in April 2003 it was proposed to the Mayor that he should use this Strategy to set targets and standards for Green Procurement. Further to this, the London Assembly have recommended that the Mayor should seek to persuade the Government to extend Best Value Performance Indicators to cover Green Procurement. As the issue of targets for Green Procurement were not included in the public consultation on this Strategy they will be considered when this Strategy is revised.
- 4P.2 The Mayor through London Remade, which is funded by the London Development Agency, has developed the Green Procurement Code for London. The Code was officially launched on the 4 March 2001. All 33 London boroughs and over 230 of London's key organisations are now signed up with more joining all the time. So far the signatories have spent £11 million on recycled goods¹. These organisations have committed to working with London Remade to explore opportunities for buying recycled products and achieving measurable targets. This is higher than WRAP's national target, but key for London, as all authorities need to close the recycling loop and set a good example if they are to encourage their residents to recycle more. Developing markets and purchasing recycled goods will be key to this. The next step is to ensure that all Government departments, based in London, sign up to the Code.
- 4P.3 The aim of the Code is to create a business solution to the waste crisis and help London become a more sustainable city. The Code will help an organisation to improve its public profile on environmental issues. The public care about the environment as a vital quality-of-life issue, and expect companies to take this much more seriously. The Code will



highlight an organisation's support of recycling through a major publicity campaign which lists all the companies who are working with London Remade. The Mayor's Green Procurement Code is the first step to securing a commitment from London's stakeholders to divert waste from landfill and close the recycling loop, by purchasing products made from recycled materials.

- 4P.4 The Code has four levels, allowing each organisation to make a commitment. These levels are described in the box.



The Mayor's Green Procurement Code

Part A

We are committed to engaging with London Remade to explore practical opportunities for specifying and purchasing products made from recycled materials. In doing so we will:

- A.1: Contribute to general discussions about recycled products.
- A.2: Have specific one-to-one discussions about our experiences and opportunities for specifying and purchasing recycled products.

Part B

Having engaged with London Remade to specify and purchase products made from recycled materials, we will now:

- B.1: Provide baseline data about recycled purchases and specifications.
- B.2: Commit to measurable targets for specifying and buying recycled products.

- 4P.5 An organisation can sign up at any level and London Remade will work with them to progress 'buying recycled' within their organisation. London Remade will provide the organisations with free practical help, including a visit from an expert who will work with the organisation to identify opportunities for buying recycled products. The engagement of organisations with the Mayor's Green Procurement Code allows London Remade to develop markets for recycled products. More products that are price and quality competitive mean more opportunities for organisations to save money while helping the environment.

Recycled products

- 4P.6 There is overwhelming evidence that a range of high-quality, cost-competitive recycled products are currently available. For example, recycled paper is now indistinguishable from virgin paper in appearance and quality. However, research commissioned by London Remade showed

that out of 30 print companies contacted, only three provided quotes for recycled paper at a price competitive to virgin paper. However, recycled paper is manufactured at the same price as virgin paper. Therefore this message needs to be communicated to the public.

- 4P.7 London Remade is also working with many suppliers of high quality products that contain recycled materials. These products are available for offices, construction and building, horticulture and many other uses. London Remade can provide samples of these cost-effective high-quality recycled products. Further details are available on the London Remade website² (www.londonremade.com).
- 4P.8 Other opportunities to follow the Mayor's example, and to 'close the loop' can be adopted through schemes such as the 'Local Paper for London' scheme. This is a scheme where office paper is collected for recycling, and returned as high quality copier and printer paper.
- 4P.9 The intention of leading by example is not only to bring together the purchasing power of organisations in London but also to make Londoners aware of the opportunities that they have as consumers. There is a need to ensure that Londoners are both aware of their power as consumers and are given a choice when purchasing between goods made from recycled materials, products and goods that are remanufactured or refurbished and those which are not. However, goods that are made from recycled materials are seldom labelled or merchandised as such, with a few exceptions, such as office paper. If all goods indicated the content of material that was derived from reprocessed raw materials consumers would have a choice. Retailers could display their goods more clearly using special displays in the same way supermarkets merchandise organic foods. WRAP is working nationally with retailers to promote goods made from recycled materials and will identify companies which already show that buying recycled materials and products makes good business sense. They will also work with other companies in the same sectors to demonstrate how they can adopt similar procurement practices.

Environmental policy

- 4P.10 The GLA aims to lead by example and has developed its own environmental policy. It will conduct its business responsibly and in a manner that gives assurance that sustainability is always central to all business decisions and processes. When assessing businesses for new contracts, the GLA will request all necessary information to ensure that the chain of supply will have as minimal effect on the environment as possible. These will largely consist of assessing companies' environment strategies and those of their subcontractors and suppliers. This includes



seeking to buy recycled products in preference to those from non-recycled sources.

4P.11 Functional bodies, London boroughs and joint statutory waste disposal authorities should also ensure that they have developed and adopted a comprehensive environmental policy covering a wide range of environmental issues and embracing green procurement. This enables contracts to include specifications requiring that, where practicable, the procurement of all plant, equipment, goods, services, materials and supplies is environmentally preferable. This should favour goods made from reused, refurbished, reprocessed or re-manufactured sources, (unless the contractor can demonstrate that such supplies are not available). Contract specifications should also require that, where appropriate, supplies and equipment used do not contain materials that, if released, cause harm to the environment or are difficult to dispose of.



4P.12 To achieve this, the first and second information notices required in accordance with the Public Procurement Regulations 1993 (and any other similar regulations applying to public procurement), intended to publicise the authority's intention to let contracts or inviting interested parties to tender, where it is relevant to waste contracts, will need to include wording similar to the example set out below. The Mayor also urges waste authorities to adopt this approach in all of their other procurement activities.

- The successful contractor will be expected to provide the service or goods in accordance with the authority's environmental policy, which is to conserve energy, water and other resources, reducing waste and phasing out the use of ozone depleting substances and minimising the release of greenhouse gases, Volatile Organic Compounds (VOCs) and other substances damaging to health and the environment.
- Tenderers are therefore asked to submit proposals on how, in the provision of this service, they will contribute to the authority's policy'.

4P.13 Guidance in framing contract requirements and ensuring compliance with EU procurement directives and the Treaty of Rome are available at the sustainable development in government website³. Green procurement requirements in contracts can only legally be required on the back of an overall environmental policy or statement where it can be demonstrated environmental issues are of direct relevance to the contract.

policy 34: The Mayor will lead by example to reduce waste, through reusing and recycling and by using refurbished and recycled products and materials, where available.

- policy 35: The Functional Bodies, London boroughs and joint statutory waste disposal authorities should follow the Mayor's example at the GLA and develop and adopt a comprehensive environmental policy that will embrace green procurement of all goods and services.
- proposal 80: The Mayor and the London Development Agency, in partnership with London Remade, will continue to work on the Mayor's Green Procurement Code to encourage organisations to explore opportunities for buying recycled products.
- proposal 81: The Mayor, through the London Development Agency, will work with key stakeholders to develop a strategic approach to promoting business efficiency through efficient resource use, including encouraging green procurement and sustainable waste management.

References and notes

- 1 Purchase audit by London Remade
- 2 www.londonRemade.com
- 3 www.sustainable-development.gov.uk/sdig/improving/contractf.htm

4Q Planning the waste infrastructure in London



- 4Q.1 The infrastructure of waste management facilities must be able to change with the development of sustainable waste management. Much of the current built waste infrastructure was designed and constructed during the late 1970s and early 1980s. This was at a time when little waste was being recycled, and was based on a strategy of disposing of untreated waste using landfill sites outside of London. From now on there will need to be high levels of recycling and an appreciation that London must aim to become increasingly self-sufficient in the sustainable management of the waste it produces.
- 4Q.2 By 2020 the current position needs to be turned on its head. The logistics and scale of facilities will need to be radically different, with a different built infrastructure, equipment and vehicle fleet. This will be a massive challenge and a tremendous opportunity for the waste industry and in-house workforces, and will require fresh thinking, new approaches and increased capital investment.
- 4Q.3 The future network needs to support reuse, recycling and recovery and safe disposal. It must be strategically located, suitably designed, sized and equipped. These facilities must be in place at the right time, if targets for recycling are to be met.

Pressure on facilities

- 4Q.4 As London grows and recycling performance improves, new facilities will be needed. These include materials recycling facilities and depots, inert waste recycling plants, composting facilities, waste treatment and energy recovery facilities, and reprocessing facilities for recyclables. Modern facilities must be well designed and demonstrate that they achieve the Best Practicable Environmental Option. They need not be bad neighbours and can be a source of new products and new jobs. The proximity principle requires that waste be treated as close to source as possible. Where movement is required, priority should be given to facilities for movement by river or rail.
- 4Q.5 Planning consent for new or relocated waste sites has historically been extremely difficult to obtain. In many parts of London, waste operations, of any sort, are unwelcome neighbours. Land costs in London are very high, which can represent an additional processing cost. However, without facilities the success of recycling in London will be impeded and the costs of waste management will be higher. The value of land and pressure from neighbours, particularly in central parts of London, is resulting in waste facilities being crowded out. There can be a conflict of interest for London

boroughs which own land currently used for waste operations. If the land is redeveloped individual boroughs often realise significant financial gains. Thus, London boroughs, as waste planning authorities, face difficult decisions when protecting existing sites and finding new sites to locate facilities to manage their waste. The lack of sites has, in some cases, resulted in services, such as Civic Amenity sites, being lost through conversion to storage and transfer stations for glass, cans and other recyclables.

Planning responsibilities

- 4Q.6 London boroughs are waste planning authorities for London. Through their Unitary Development Plans and new Local Development Documents, boroughs should make sure that there are adequate sites available for the management of wastes arising in their area. The Government's Planning Policy Guidance Note 10 (PPG10)¹ suggests that, where possible, Unitary Development Plans should identify sites for waste management and disposal facilities over the period of the plan, including facilities for the management of waste with specific requirements, such as special waste. The Government is currently revising PPG10.
- 4Q.7 It should be noted that Unitary Development Plans and the Mayor's Spatial Development Strategy (The London Plan) consider the implications of managing all controlled waste and are not confined to municipal waste. They should therefore, also take account of wastes, including commercial and industrial and construction and demolition waste, as well as small amounts of other wastes. New legislation, such as the End of Life Vehicles (ELV) Directive and the Waste Electrical and Electronic Equipment (WEEE) Directives, will need to be anticipated so that appropriate facilities for metal reprocessing and storage of end of life vehicles are planned for.
- 4Q.8 A consultant was commissioned to undertake a comprehensive review of waste management and policy in London. The Technical Assessment for Waste Management in London², amongst other things, reviewed waste policies contained within boroughs' Unitary Development Plans. The review concluded that, in general, boroughs set criteria by which to assess planning applications for new waste facilities, but were not site specific. Nearly all Unitary Development Plans fail to protect existing waste management sites. London has 750 sites that are used to manage waste or recyclables, yet less than two per cent of these sites are specifically protected in Unitary Development Plans.
- 4Q.9 Current waste planning arrangements in London are inadequate and are not delivering strategically planned waste infrastructure. There is no



evidence that the 33 Unitary Development Plans prepared by the London boroughs, taken together, form the basis of a strategic land-use plan for waste management facilities across London.

- 4Q.10 The lack of adequate land-use planning for waste through Unitary Development Plans, means that there is also no existing strategic land-use plan for waste, no planned strategic framework of sites and a chronic lack of identified individual locations or industrial zones where waste facilities could be developed. The need for more effective Londonwide guidance is particularly apparent for those boroughs that are part of the four joint statutory waste disposal authorities. There has been no mechanism to ensure that the constituent boroughs are taking responsibility for identifying suitable sites in their Unitary Development Plans to help meet the requirements of their statutory joint waste disposal authority. These are all matters of concern.
- 4Q.11 Boroughs must, when preparing or revising their Unitary Development Plans and Local Development Documents, ensure that land resources are available to implement the Mayor's Municipal Waste Management Strategy, Waste Strategy 2000, the London Plan, the Landfill Directive and other EU directives on waste. They should identify the sites within their own borough, or demonstrate that they have made arrangements outside of their borough, which are needed for waste management and disposal facilities over the period of the plan. Such sites should include facilities for the management of waste with specific requirements, such as hazardous waste, ELV and WEEE. Existing waste management sites should be protected, unless appropriate compensatory provision is made. Unitary Development Plans and Local Development Documents should also support appropriate developments for manufacturing related to recycled waste or recovering value from residual waste. Where waste cannot be dealt with locally, transfer or bulking facilities should have good access to sustainable transport. Specific guidance will be provided in the London Plan.
- 4Q.12 There are also opportunities for Unitary Development Plans and Local Development Documents to assist in the delivery of sustainable waste management through the consideration of any requirements for the storage of waste and recycling in both commercial and residential developments. The boroughs should require the provision of suitable waste and recycling storage facilities in all new developments. This should include space for the provision of public recycling sites in large housing or commercial developments, storage space within the home for recyclables, and provision of home composting units when properties with a garden are developed.

- 4Q.13 Supplementary Guidance on Sustainable Design and Construction will complement waste priorities and will further consider and advise on the provision of suitable waste and recycling storage facilities in all new developments, ways to ensure the more efficient use of natural resources in the construction and operation of new or refurbished buildings and the promotion of sustainable waste behaviour in new and existing developments. Therefore, when preparing or revising their Unitary Development Plans and Local Development Documents, boroughs should have regard to this guidance.

Strategic waste planning in London

- 4Q.14 The London Plan and the Mayor's Municipal Waste Management Strategy will provide a strategic framework for the future development of Unitary Development Plans and Local Development Documents. The London Plan is required to evaluate the adequacy of existing strategically important waste management and disposal facilities to meet London's needs and to identify opportunities for location and criteria for the selection of sites³.
- 4Q.15 An assessment of London's future needs is required to provide guidance at the strategic level and to identify the need for new or enhanced facilities required to manage all of London's waste, and identify opportunities to locate these facilities. The Technical Assessment for Waste Management in London has provided a detailed basis from which to develop and appraise strategic waste management options for London. The Mayor is working in partnership with the London Regional Technical Advisory Body on Waste, to produce Londonwide data. This will be included in the London Plan and will form the basis for Sub-Regional Development Frameworks. The development of these frameworks for each sub-region will require a waste management options appraisal. Each Sub Regional Development Framework will then give guidance for the boroughs relating to the number, types, and where appropriate, locations of facilities needed to manage waste and recyclables in their area.
- 4Q.16 Some of this work has already been undertaken for municipal waste. Chapter 2 details a range of scenarios that have been modelled for five waste management options. The approach advocated (option 5) represents a balanced mix of waste management solutions in line with the waste hierarchy, and with recycling and composting rates as recommended by the Government's Strategy Unit's review of Waste Strategy 2000. All approaches except 'Business as Usual', which would largely rely on landfill outside of London, would require a significant increase in waste management infrastructure within London. Some process residues and the remainder of waste produced is assumed to be landfilled, within the diversion requirements of the Landfill Directive. Total landfill capacity



required in 2020 will be 1.3 million tonnes for municipal waste. The capacity of other facilities required under option 5 are set out in Table 26, in Chapter 2.

- 4Q.17 The Mayor is already working with the South East England Regional Assembly and the East of England Regional Assembly to co-ordinate strategic waste management across the three regions and, in particular, to reduce London's dependence on landfill disposal in these regions. The supply of landfill sites around London is likely to be reduced significantly during the London Plan period. The neighbouring regions are also proposing to adopt stringent self-sufficiency policies on waste, limiting London's ability to landfill waste. Landfill of biodegradable untreated mixed waste is also the least sustainable option and London needs to become more self-sufficient in its treatment of waste. The reduction of landfill should be phased over the lifetime of the London Plan whilst facilities are developed.

Equality

- 4Q.18 The Select Committee on Environment, Transport and Regional Affairs in their Fifth Report Delivering Sustainable Waste Management indicated their concern "that incinerators may end up being built according to the 'path of least resistance' rule". This describes the thought that there is a tendency for waste incinerators to be sited in poorer areas, and that areas of greater affluence have been more successful at resisting waste sites, including incineration. The report emphasised that important factors affecting the location for an incinerator should include that they are best able to meet the demand for heat and power. It should be ensured that there is an open process when siting facilities and that communities are publicly funded to examine the details of proposals, thus ensuring that there are no inequalities in the siting of facilities.

policy 36: The Mayor will lead on improving the arrangements for waste planning in London, so that this occurs on a strategic level but also involves local communities.

policy 37: The Mayor will work with relevant stakeholders to encourage inward investment to establish the necessary strategic waste infrastructure across London. This will include seeking to protect existing waste management facilities and the provision of new sites for strategic and local recycling, composting, and other waste processing operations.

proposal 82: When preparing or revising their Unitary Development Plans and Local Development Documents, boroughs must ensure that land resources are available to implement the Mayor's Municipal Waste Management



Strategy, Waste Strategy 2000, the Landfill Directive and other EU Directives on waste. They should identify the sites needed for waste management and disposal facilities over the period of the plan and in conformity with the London Plan, including facilities for the management of waste with specific requirements, such as hazardous waste.

proposal 83: When preparing or revising their Unitary Development Plans and Local Development Documents, boroughs must ensure they conform with the strategic policy framework on planning for waste within the London Plan.

proposal 84: The Mayor will work in partnership with the boroughs and relevant stakeholders to produce detailed waste policy guidance for each Sub-Regional Development Framework, developed under the London Plan, outlining the number, types, and, where appropriate, locations of facilities needed to manage waste and recyclables in their area.

proposal 85: The Mayor will work with the South East England and East England regional assemblies to co-ordinate strategic waste management across the three regions.

References and notes

- 1 Planning Policy Guidance Note 10: Planning and Waste Management; Dept of the Environment, Transport and the Regions; October 1999; ISBN 1 851123 18 0
- 2 Enviro, Technical Assessment for Waste Management in London, Greater London Authority, 2003, ISBN 1 85261 491 2
- 3 Government Office for London (2000) Strategic Planning in London. GoL Circular 1/2000. London: The Stationery Office

4R Longer-term structural changes – a single waste disposal authority



- 4R.1 One of the key strategic roles for the Mayor will be to investigate developments in waste management. This includes identifying best practice and alternative ways of managing waste, both within the UK and abroad, and to consider how they can be applied to London. This role also involves identifying barriers to improving waste management in London, in partnership with stakeholders. If legislation does not allow for improvements in London's waste management to be implemented, then the Mayor's role would be to seek to persuade the Government for changes to national legislation. Where relevant these have been identified and discussed in other sections in Chapter 4, such as changes to the default levy system to encourage waste reduction and reuse which is discussed in Section 4B, as part of the fuller discussion on the topic.
- 4R.2 There are however, longer-term structural changes that the Mayor believes would enable the delivery of sustainable waste management in London, specifically the formation of a single waste disposal authority.
- 4R.3 Prior to 1986, there was only one waste disposal authority for London, namely the Greater London Council, which oversaw the strategic management and disposal of waste for London. After the abolition of the GLC, the waste disposal role was split amongst four statutory waste disposal authorities and 12 unitary authorities, which were organised into three voluntary groupings (central, south and south-eastern) and Bexley on its own. The strategic role was given to the London Waste Regulation Authority, which had a duty to produce a plan for London but no powers to implement it. After 1995 the Environment Agency took over this role until the GLA was created in 2000.
- 4R.4 The Government's Strategy Unit's report 'Waste not, Want not' makes it clear, that for Waste Strategy 2000 to be delivered, massive changes in the way waste is managed have to be made. Boroughs have had some powers since 1990¹ to enable them to increase recycling significantly, such as establishing services and facilities to enable the separation of waste for recycling, but many have not exercised them fully. Waste management creates difficult political decisions for local representatives, who often see things within a borough context rather than taking a strategic, Londonwide view. With the development of strategies on waste by the Regional Technical Advisory Bodies in the South East and Eastern regions, where a significant proportion of London's waste is currently sent for disposal, the need for co-ordinated strategic thinking and implementation is essential.

- 4R.5 The management of London's waste, especially its transport by road in and through London, currently has significant impacts far beyond borough boundaries. The Mayor is unconvinced that the current situation will deliver sustainable waste management as new facilities are not being built strategically, there is not equal access to all reuse and recycling centres across London, and waste is being criss-crossed all over London to disposal and treatment facilities. Waste collection is best placed under the control of local authorities but the Mayor believes the best way to achieve sustainable waste management in London is for waste disposal to be under the control of a single authority. There is support from the general public for this proposal, with 58 per cent of respondents to the highlights questionnaire on the public consultation draft strongly supporting a single authority. This would also bring London into line with other major world cities. Therefore, the Mayor will seek to persuade the Government that this change is required.
- 4R.6 It is proposed that a single authority for London is formed with the responsibility for transferring, reducing, reprocessing, treating and otherwise disposing of waste. The consideration of planning powers to enable the effective working of a single waste disposal authority will need to be considered at the same time.
- 4R.7 This could be done by the responsibility for waste disposal being transferred to the Mayor, through a fifth functional body. Waste collection would remain the responsibility of London boroughs. Waste disposal contracts could be assigned to the single London Waste Disposal Authority, and charges would be levied on a per tonne basis.
- 4R.8 The formation of such an authority would allow for the strategic planning and provision of waste awareness, waste reprocessing, treatment, transfer and disposal facilities in London. In addition, some waste services such as Reuse and Recycling Centres (Civic Amenity sites) would be best provided strategically for the whole of London. Through a single authority, sites could be effectively managed across London to allow residents to use the facility most convenient to them, without incurring additional cost. New facilities could also be planned to take account of large centres of waste arisings across more than one borough. This is discussed further in Section 4G.
- 4R.9 The Mayor will develop an environmental and business case for a single waste disposal authority, looking at the environmental, social and economic benefits and taking account of the views of London's waste authorities. As part of this process, the Mayor will also consider implications for the waste planning structure in London. This will take into



account the adequacy of the Sub-Regional Development Frameworks in delivering strategic waste planning in London and the need for a Londonwide waste local plan if the system is found to be inadequate. The Mayor's position will be presented to Government in 2005/06, for consideration, in the light of London's progress towards waste reduction and reuse, higher levels of recycling, and the requirements of the Landfill Directive.

policy 38: The Mayor, in conjunction with other stakeholders, will seek to identify barriers to sustainable waste management, and will lead on the influencing of national legislation to make changes beneficial to the future of sustainable management of waste in London.

proposal 86: The Mayor believes the best way to achieve sustainable waste management in London is for waste disposal to be under the control of a single authority. The Mayor will develop an environmental and business case and consider the views of London waste authorities. In the light of London's progress towards the 2005/06 targets, the Mayor's position will be presented to Government, to consider appropriate changes to existing legislation.

References and notes

1 Environmental Protection Act, 1990, section 46

4S Transport of waste

- 4S.1 The transportation of source-collected residual waste or recyclables can involve a number of different waste transfer stages. These are typically:
- Direct delivery of the collected waste or recyclables to reprocessors or final disposal facilities.
 - Waste collection vehicles travelling to waste transfer stations where waste and or recyclables are bulked up before being delivered to reprocessors or final disposal facilities.
 - The onward transfer of recycling products.
 - The transfer of residual waste resulting from treatment processes, ie ash resulting from conventional incineration.
- 4S.2 The requirement to meet statutory recycling targets for household waste will probably lead to an increase in the number of vehicles on the road and more local waste transport movements, as waste authorities build up a fleet of vehicles dedicated to recycling. Therefore, it is important to utilise other transport networks wherever possible. However, a benefit of reducing London's dependency on landfill and improving self-sufficiency, through local waste management and recycling facilities, could be a reduction in longer distance movements.
- 4S.3 Many waste authorities are working through their vehicle fleets and their tendering systems to ensure that waste vehicles are as clean as possible (specifying minimum emissions standards for the vehicles). They are also considering the opportunities for using cleaner fuels (such as natural gas) or particulate traps and operating a fuel management programme which would normally include improving fuel consumption of vehicles, considering the length and direction of routes, the number of trips, driver education and re-evaluating other existing operational practices.
- 4S.4 When new waste contracts are being developed, the Mayor expects that all contracts with any waste transport implications consider minimising the effects, including consideration of possible alternative modes. For contracts with significant transportation elements, a full assessment of the effects of the transportation of waste should be carried out, including an assessment of the onward movement of materials after processing. This should also include meaningful and full consideration of the use of water and rail, as alternatives to road transport.



- 4S.5 Where road transport has to be used, the impact can be reduced by ensuring the vehicles are as clean as possible. A series of progressively stringent vehicle emission standards control the emissions from new vehicles and are referred to as 'Euro standards'. For new, heavy-duty vehicles:
- Euro I came into force in 1992
 - Euro II came into force in 1995
 - Euro III came into force in 2000
 - Euro IV will come into force in 2005
 - Euro V will come into force in 2008.
- 4S.6 The Mayor expects waste authorities when awarding new waste contracts to encourage operators to provide as clean vehicles as possible and to specify minimum emissions criteria for the vehicles used. These criteria should comply with either the current applicable Euro standard or the previous Euro standard with suitable after-treatment as a minimum ie Euro II with Reduced Pollution Certificate (or equivalent retrofit equipment) until 2005 and Euro III with Reduced Pollution Certificate after that date. Standards are, however, constantly changing due to technological advancements and flexibility to accommodate these changes should also be incorporated.

Waste Collection

- 4S.7 Minimising noise disturbance should also be taken into account in vehicle specification, maintenance, routes and operating practices, including hours of operation and staff training. For example, gas vehicles, which produce fewer emissions can be used at sensitive times in residential areas as they are quieter than diesel vehicles. Electric vehicles are quieter than all other motorised vehicles. However, noise¹ from other sources, such as from lifting, compaction and body noise, also needs to be addressed, particularly if operating at sensitive times in residential areas.
- 4S.8 Alternatives to motorised road transport are available. For example, electric pedestrian-controlled vehicles for the collection of recyclables from householders. These are currently being used in the London boroughs of Haringey and Islington, following the Capital Challenge programme. In relation particularly to street cleansing, there is the option to use non-powered equipment. This also offers opportunities for job creation, in addition to avoiding fuel consumption and reducing noise and air quality emissions.
- 4S.9 The canal and river network can play a small, but significant, role in the future collection of waste and recyclables. The waterway network crosses Greater London from west to east passing through suburban and densely



developed areas. Every one of the 13 inner London boroughs has access to the waterway network.

- 4S.10 Most of the employment and residential developments along the waterway network have direct access to the water. Indeed in many cases waste and recyclables are stored in yards and areas adjacent to the water.
- 4S.11 A possible option would be to organise a barge with a picker arm, container and compactor (as used in Venice) to collect waste from industrial, office, retail and residential sites along the waterway network. This could contribute towards relieving busy roads from slow-moving heavy vehicular traffic. Such a system would require co-ordination between several waste authorities and the co-operation of businesses and residents, as well as the acquisition of appropriate equipment.

Bulk transfer of waste and recyclables

- 4S.12 Of the municipal waste disposed of outside London, 27 per cent is currently transported by barge, 27 per cent by rail and 46 per cent by road.
- 4S.13 Many waste authorities have led the way in adopting less polluting (cleaner) refuse collection vehicles or utilising the bulking of waste onto the rail or water networks. The Mayor, through Transport for London, will work with the waste authorities, the Strategic Rail Authority and other relevant partners to encourage the movement of waste by rail and water. This will also be encouraged by protecting waste management facilities that have, or may have, water and rail access. The Mayor will encourage the use of less polluting ('cleaner') vehicles, improvements to routing and operating practices, and consideration of the 'proximity principle' to deliver environmental improvements. As such (in line with the proximity principle) and along with other considerations of the Best Practicable Environmental Option, waste management facilities should be located locally to avoid unnecessary transportation and improve local self-sufficiency for waste management, thus ensuring that local communities take responsibility for the management of the waste they produce.
- 4S.14 The GLA Act 1999 requires this Strategy to have regard to the desirability of promoting the use of the River Thames safely for the transportation of freight. In order to realise the potential for the waterway network, to carry a greater proportion of London's waste, it will be necessary to increase the number of facilities located on the waterway network and encourage waste authorities within their waste contracts and strategies to seriously consider the use of water as a transport medium. However, any increased use of the waterways for waste transport should be accompanied by an environmental risk assessment to



ensure there is no potential detrimental effect for example on water quality and habitats.

- 4S.15 Similarly to water, rail currently delivers mostly municipal waste from transfer stations to landfill sites. Three waste transfer stations are currently served by rail: Brentford, Hendon and Ruislip. As with water, all waste is containerised. However, with the move to more local self-sufficiency for waste management and recycling the opportunities for more rail based transport will be reduced.

Barriers to water and rail use

- 4S.16 The primary barrier to maintaining and increasing the proportion of waste carried by water and rail is the lack of waste facilities within London served by the water and rail networks. This Strategy and future planning for land use in relation to waste management will aim to locate as many waste and recycling facilities as possible on the water and rail networks in London.
- 4S.17 Even when waste management facilities are located adjacent to the water and rail networks they are not necessarily used. The incinerator at Edmonton and the glass recycling plant at Greenwich are both located on the waterway network but are not serviced by it. Barriers are largely infrastructure related and can be resolved by using grants to improve or install facilities on the water or rail networks. Although for rail, track path capacity can be an issue.
- 4S.18 The Freight Facilities Grant (FFG) schemes are designed to help pay for the capital costs of freight handling facilities used exclusively by rail and waterborne transport. These grants are available for new facilities as well as for the improvement of existing ones. This is also discussed in Section 4T.
- 4S.19 The London Plan will consider the land use requirements for waste management facilities in London. The transportation of waste to and from these sites will be a key consideration. Therefore, the future role for the canal, river and rail networks needs to be assessed and future viable developments identified.

Opportunities

- 4S.20 Changes in waste transport will occur when waste is diverted away from landfills to deal with the increasing levels of source-separated recycling. This will in turn require new patterns of movement, serving new destinations. We should ensure that the opportunities created by these changes, to improve the sustainability of waste transport are not missed.



- policy 39: The Mayor will, in line with the Best Practicable Environmental Option, aim to minimise the environmental impact of the collection and transportation of waste and recyclables, both before and after processing.
- policy 40: The Mayor will work with all agencies, including TfL and the LDA, to develop the capacity of sustainable modes for the transport of waste and recyclables in London, and will promote new schemes where they are feasible within this overall framework.
- proposal 87: The Mayor will ensure, in his review of contracts, municipal waste management strategies and planning applications for waste facilities, that waste authorities have considered transport implications and, where appropriate, undertaken a full transport assessment of the impacts of the transportation of their waste. Waste authorities should demonstrate that meaningful and full consideration has been given to the use of water and rail transport.
- proposal 88: The Mayor will encourage the use of sustainable modes of transport (particularly, rail, river and canal). Where materials cannot be managed locally, wharves and rail waste transfer stations that are, or can be made viable, for the movement of recyclables and residual waste should be protected through the London Plan.
- proposal 89: The Mayor will seek to ensure that all waste authorities encourage fuel management programmes, and that when waste contracts are reviewed, emissions criteria are specified for the vehicles used. Emissions criteria should comply with the currently applicable Euro standard, or the previous Euro standard with suitable after-treatment as a minimum, ie Euro II with Reduced Pollution Certificate until 2005. Waste authorities should consider all vehicle options, including those which can achieve more stringent emissions standards for air quality, and which may also bring other benefits to the environment such as reduced noise or carbon dioxide emissions.
- proposal 90: The Mayor will encourage waste authorities to consider the potential to clean the exhaust emissions from their vehicle fleets, by retrofitting after treatment technologies (such as particulate traps), using cleaner fuels or purchasing the cleanest new vehicles. The Mayor encourages waste authorities to contact the Energy Savings Trust with regard to relevant grant funding.



proposal 91: The Mayor will encourage waste authorities to minimise the environmental impact of waste transportation, including air pollution, noise (especially night time or early morning collections), energy use and traffic impacts by appropriate vehicle specifications, routeing and operating practices.

References and notes

1 DETR, 2000, 'Control of Body Noise from Commercial Vehicles'.

4T Funding

4T.1 A key barrier to progress towards higher recycling rates is cost. Landfill and incineration are often cheaper, particularly as their prices do not reflect their external social costs¹. As such, market-based choices do not always reflect the waste hierarchy. Overcoming this barrier is vital and the measures introduced by the Government, and discussed in this Strategy, are intended to help correct the current imbalance in the costs of waste management in relation to the waste hierarchy.



Landfill Tax

- 4T.2 Since the introduction of landfill tax in October 1996, the cost of landfilling waste has increased, to reflect some of the external costs to the environment. London waste authorities paid around £42 million in landfill tax in 2001/02². The landfill tax has also increased the value of the recycling credit, paid by waste disposal authorities to waste collection authorities, thus helping to make recycling more economically attractive to waste collection authorities. It was announced in the Budget 2003³ that the landfill tax will increase by £3 per tonne in 2005/06 and at least £3 per tonne each year thereafter up to £35 per tonne.
- 4T.3 The landfill tax has a major financial impact on local authorities as they have contributed around 60 per cent of the gross landfill tax yield. The Landfill Tax Credits scheme was also established in October 1996 and up to 20 per cent of Landfill Tax money could be claimed back for environmental projects via the Landfill Tax Credits scheme.
- 4T.4 Landfill Tax Credits have in the past funded a number of waste related projects within London, including contributing to the investment in markets through London Remade, a number of research projects and pilot projects such as recycling collections in the London borough of Havering and awareness raising in Western Riverside. There will be some continued investment in 2003/04 from Legacy Landfill Tax Credit schemes but a proportion of the funding from the scheme for waste has been redirected to public spending on a new sustainable waste delivery programme.
- 4T.5 It was announced in the March 2001 Budget that the Government would explore how money available through the Landfill Tax Credits scheme could be better used to increase recycling rates, particularly for household waste. This was followed up by a consultation paper on the possible changes to the Landfill Tax Credit Scheme⁴ and subsequently changes to the scheme were announced in the Pre-Budget Report 2002⁵.

- 4T.6 From 1 April 2003, the level of funding for local community environmental projects has been reduced to approximately £47 million. This equates to about one-third of that which was previously available. Projects to encourage the use of more sustainable waste management practises and to develop products from waste or markets for recycled waste will no longer be eligible for funding.
- 4T.7 The £100 million funding, diverted from Landfill Tax Credits, will be allocated to a new sustainable waste delivery programme, to be managed in England by DEFRA. The Waste Implementation Programme's objective⁶ is to divert biodegradable municipal waste away from landfill and will comprise of eight⁷ workstreams:
- local authority support (DEFRA, £1.9 million)
 - local authority funding (DEFRA, £24 million of which £3.6million to London)
 - new technologies (DEFRA, £3.8 million)
 - research (DEFRA, £5 million)
 - data (DEFRA, £3.5 million)
 - waste minimisation (WRAP, £8 million)
 - recycling (focusing on organics) (WRAP, £3.5 million)
 - education and Awareness (WRAP, £3 million).

Other funding

- 4T.8 Other cost or funding issues such as direct charging for waste which is being increasingly used in other countries and the impact of the current default levy for charging by statutory waste disposal authorities, are discussed elsewhere.
- 4T.9 The Producer Responsibility Obligations (Packaging Waste) Regulations encourage reuse and set targets for the recovery and recycling of waste as discussed in Section 4J. Packaging Recovery Notes (PRNs), which provide evidence of compliance with the requirements, are intended to create investment in reprocessing capacity and provide support to the markets for recyclables.
- 4T.10 Chapter 2 describes the distribution of London's £21.3 million share of the national £140 million Waste Minimisation and Recycling Fund in 2002/03 and 2003/04. In addition, it has been announced that London will receive a further £3.6 million⁸, from unallocated landfill tax credit, in 2003/04.
- 4T.11 Further to this, the Budget 2003⁹ announced that the Waste Minimisation and Recycling Fund should be reformed. The new Waste Performance Reward Grant will be introduced in 2005/06¹⁰. This new fund is consistent

with the Government commitment to empowering local government. The budget states that it 'will provide non-ringfenced incentives for local government to deliver a step change in sustainable waste performance for all households'. The waste Minimisation and Recycling Fund will provide £90 million in 2004/05 and £45 million in 2005/06, with other funding made available under a new Waste Performance Reward Grant in that year. Operational details and the potential role for a London allocation are not clear at the time of going to print. Final decisions on the Waste Performance Reward Fund will not be announced until after further consultation with local government stakeholders. The Mayor will continue to seek to persuade Government for the allocation of a share of any new funds on behalf of London.

4T.12 Other waste funding includes the Mayor's continued support the development of markets for recyclables through the London Development Agency, as discussed further in Section 4N. A total of £5.4 million is to be invested from 2000 to 2004 in London Remade through Single Regeneration Budget funds and this commitment has attracted further investment in the programme from the private sector. The London Development Agency has identified the environment as a priority sector under the new Single Programme funding regime. A significant element of the Environment Sector budget will be invested in the development of the waste reprocessing sector from 2003/04.

4T.13 The Government provided additional sources of funding over above that provided through the local authority Standard Spending Assessment. This included investment in 2002/03 and 2003/04, the effects of which are only just starting to be seen. The programme of funding has included:

- £100 million in 2003/04 and £110 million in 2004/05 and 2005/06 - from the reformed Landfill Tax Credit Scheme - redirected to public spending on a new sustainable waste delivery programme.
- £140 million Environmental Protection Vote funding for 2002/03 and 2003/04 ring-fenced for local authority waste and recycling (£21.3 million for London Recycling Fund) and £90 million non-ringfenced Waste Management Performance Fund (following consultation) in 2004/05 and 2005/06.
- £40 million invested in the Waste and Resources Action Programme from 2000 to 2004
- £220 million allocated for waste schemes through the Private Finance Initiative.

- 4T.14 There are also other funding sources including:
- £38.75 million 'Transforming Waste' grant programme from the New Opportunities Fund from April 2003 until March 2007 – for new recycling, reuse or composting projects, focused on ensuring community sector involvement whilst contributing to local waste targets¹¹
 - a Freight Facilities Grant is available to assist with the extra costs generally associated with moving freight by water. It is also available to help companies reinvest in existing water freight facilities. Freight Facilities Grant is also available for freight movements by rail. The amount of grant that will be offered depends on the value of the environmental benefits gained (ie lorry miles saved); and the need for grant support, determined by a financial appraisal of the project comparing water with the road alternative.

Adequacy of funding

- 4T.15 A recent report by the Government's Strategy Unit¹² examined key issues facing London. It noted that the current system of funding for London's public services does not reflect London's needs. This is despite London providing the national exchequer with an estimated net contribution of between £10 to 20 billion, supporting four million jobs in the rest of the country and dealing with one million daily commuters. Additionally, Londoners pay, on average, more in income tax than the rest of England.
- 4T.16 Managing municipal waste in London had a net cost of more than £361 million in 2001/02¹³. The trend for waste management and disposal prices has been upwards, and above the underlying rate of inflation¹⁴. This trend has not been matched by adequate funding, despite the specific additional funding for waste and recycling referred to above. This has hampered waste authorities' ability to improve levels of recycling. The House of Commons Environmental Audit Committee have recently published a report on waste¹⁵ The report notes that funding is a critical barrier to further progress on waste recycling. They conclude that inadequate funding and a lack of clear Government guidance has made it harder for local authorities to reach the targets they have been set.
- 4T.17 However, given that 90 per cent of local authority funding in London comes from or via central Government, London has relatively little financial autonomy and its public services are extremely sensitive to changes in the level of central Government funding. This is especially so in relation to the Environmental, Protective and Cultural Services block (EPCS) through which waste management is funded. In the recent 2003/04 Local Government Finance Settlement, London lost £286 million from its EPCS spending share. More worryingly, the vast bulk of this loss (£211 million) was experienced by inner London boroughs that face

significant challenges in the achievement of their recycling performance standards. If a step change in recycling in London is to be realised, Government must increase the available resources to support recycling services in London. Moreover, the EPCS formulae are inadequate in addressing the serious factors that give rise to higher costs for waste management in the capital and other major urban areas.

4T.18 There is a clear need for London to invest in sustainable waste management and an urgent need for the both waste authorities and the Government to invest more now to make savings in the future.

4T.19 The Mayor will take a leading role in seeking to secure funding for London's waste authorities. The Mayor will work with the Association of London Government and London's waste authorities to determine the required investment to achieve sustainable waste management. A joint case will then be presented to the Government for further investment and funding.

policy 41: The Mayor, will seek to secure for London's waste authorities London's fair share of funding to invest in sustainable waste management and with partners, will seek an increase in the total funding provided.

proposal 92: The Mayor will seek to persuade the Government to provide London with its fair share of funding and also aim to enable waste authorities to develop partnerships and identify external sources of funds and provide a mechanism for significant leverage of other funding sources.

proposal 93: The Mayor will work with the Association of London Government and London's waste authorities to determine the required investment to achieve sustainable waste management. A joint case will then be presented to the Government for further investment and funding.

References and notes

- 1 Commission of the European Communities, Communication from the Commission, 'Towards a Thematic strategy on the prevention and recycling of waste, June 2003 p. 19
- 2 3.228 million tonnes of municipal waste in London were landfilled in 2001/02, at the higher rate of tax (£13) this equates to £42 million
- 3 H M Treasury, 'Budget Report 2003'. Chapter 7 : Protecting the Environment (Improving Waste Management) Section 7.46
- 4 Possible Changes to the Landfill Tax Credit Scheme: Consultation Paper. DEFRA/HM Treasury, April 2002
- 5 Pre-Budget Report 2002: HM Treasury, December 2002
- 6 Waste Implementation Programme: Fact Sheets: DEFRA, May 2003
- 7 Waste Implementation Programme Director, John Burns, Presentation: An introduction to WIP, LWA Stakeholder Conference in association with the Association of London Government and the Greater London Authority, 30 July 2003
- 8 DEFRA news release, 259/03, 'Morley Announces Further Funding for Local Authority Recycling', 4 July 2003
- 9 H M Treasury, 'Budget Report 2003'. Chapter 7: Protecting the Environment (Improving Waste Management) Section 7.49
- 10 DEFRA News Release, 336/0, 'DEFRA gives more money to Local Authorities for sustainable waste management initiatives', 12 August 2003
- 11 RSNC – New Opportunities Fund Partner, 'Community Recycling and Economic Development Guidance Notes - Transforming Waste, England', January 2003
- 12 London: Analytical Report, Strategy Unit, July 2003
- 13 Waste Collection and Disposal Statistics 2001/02 Actuals, CIPFA, 2003, ISSN 1368-325X
- 14 The Environmental Audit Committee, 'Waste – An Audit', Fifth Report of Session 2002-03, vol.I: Report and Proceedings of the Committee, April 2003,p.19
- 15 The Environmental Audit Committee, 'Waste – An Audit', Fifth Report of Session 2002-03, vol.I: Report and Proceedings of the Committee, April 2003

4U Municipal waste contracts

- 4U.1 In order to help the Mayor implement the policies and proposals contained within this Strategy, the Greater London Authority Act 1999 gives the Mayor certain powers for new and existing waste contracts. The Mayor can exercise these powers on contracts that are carried out by waste authorities in performance of their functions under Part II of the Environmental Protection Act 1990, and Part IV in so far as contracts cover both Part II and Part IV. Examples of the types of contract are:
- waste collection
 - waste disposal
 - civic amenity operations
 - recycling – collection, treatment and processing
 - street cleansing.
- 4U.2 This Waste Strategy sets out proposals, to increase substantially the proportion of waste dealt with through recycling and composting. Historically, the arrangements dealing with recycling, from the point of collection to the final contractual agreements with reprocessors, have been of variable quality. These contracts are sometimes still negotiated annually with contract conditions and specifications limited to the contents contained within an exchange of letters. Whilst this previously enabled waste authorities a degree of flexibility, the future will have to be more assured. Therefore, future arrangements need to offer more certainty in dealing with the collection, transportation, treatment and processing of up to 60 per cent of London's waste (currently over two million tonnes). Contracts handling these tonnage levels will have to be more mature, mirroring elements of the contract documentation currently seen in waste collection and disposal contracts. In addition consideration should be given to resources for education and promotion of reuse, recycling and sustainable waste management services. This is discussed further in Section 4M.
- 4U.3 It is becoming increasingly apparent that waste authorities are beginning to combine a number of these services including recycling within a single integrated waste contract.
- 4U.4 An important aspect of working with waste authorities and other waste stakeholders (Environment Service Agency, Environment Agency, Waste Resource Action Programme and Chartered Institute of Wastes Management) is the development and promotion of best practice within waste contracts. Whilst these best practice standards can be tailored to the individual needs of each waste authority, it will nevertheless enable a more consistent approach to be adopted across London in order to ensure that quality waste services are delivered.



4U.5 The Mayor when considering waste contracts wishes to work in partnership with waste authorities. It is essential, in order to develop this relationship, that waste authorities inform the Mayor at the earliest opportunity of their intention to procure a new contract. An example of this early joint working would be to involve the Mayor in the Best Value review of services, with the Mayor offering the external challenge of the review process. This type of early involvement will allow both partners to realise mutual benefits and overcome any concerns, well before a contract is tendered. Nevertheless the Greater London Authority Act 1999 also provides a requirement for waste authorities to notify the Mayor as discussed in 4U.11.

4U.6 The Mayor has two powers of direction in relation to waste contracts:

- a general power of direction
- a power of direction to find out more information about a contract.

4U.7 Certain conditions have been placed upon the Mayor before these powers can be exercised on existing and new contracts. For new contracts there is the added issue of whether a contract has to comply with the Public Procurement Regulations 1993.

General power of direction

4U.8 The Mayor can direct a waste authority to exercise a function in a manner he considers it necessary in order that his Municipal Waste Management Strategy is implemented.

4U.9 For existing waste contracts the Mayor cannot use this power of direction if it would lead to a waste authority:

- breaching any term of its existing waste contract
- prematurely terminating its existing waste contract.

4U.10 For new waste contracts that are required to comply with the Public Procurement Regulations 1993, the Mayor can use this power of direction up until the point when the 2nd Official Journal of the European Community notice (Invitation To Tender/Negotiate) has been sent for publication. Where there is no requirement to comply with the Public Procurement Regulations 1993 the Mayor can use this power of direction up until the award of the contract.

Power to ascertain more information

4U.11 The Mayor may direct a waste authority to provide information so he can determine if a contract is detrimental to the implementation of his Municipal Waste Management Strategy. For existing waste contracts, waste authorities should have already provided information on the expiry



dates, notwithstanding that they must still notify the Mayor, between two and three years beforehand that their contracts are due to end. They must also give notice if their contracts are amended or prematurely terminated. For new waste contracts that are required to comply with the Public Procurement Regulations 1993, waste authorities must notify the Mayor, at least 56 days beforehand that it intends to send its 1st Official Journal of the European Community notice (Prior Information Notice). Where there is no requirement to comply with the Public Procurement Regulations 1993, waste authorities must notify the Mayor 56 days before entering into a contract.

- 4U.12 The Mayor will seek that the principal purposes of the Greater London Authority are addressed in waste contracts, namely:
- to promote economic development and wealth creation
 - to promote social development
 - to promote the improvement of the environment in Greater London
 - to have due regard to the principle that there should be equal opportunity for all people, sustainability and the health of Londoners.
- 4U.13 Specifically, the development of contracts should ensure that waste and recycling services are equally accessible to all sectors of London's community. These include issues such as:
- The provision of convenient recycling services to those in multi-occupancy buildings as well as single family housing.
 - Provision of convenient recycling services to those unable to carry waste or recycling to a specified collection point.
 - Provision of accessible facilities for older and disabled people.
 - Provision of facilities that are safe to use for all.
 - Provision of recycling facilities that do not discriminate against those who do not have access to a car.
 - Provision of high-level of street cleaning, waste and recycling services to all Londoners.
 - Understanding of cultural barriers that may exist in relation to ethnicity and waste management.
 - Provision of accessible information considering using pictures, large type, translations or other communication mediums for hard to reach groups.
- 4U.14 When developing waste contracts, the Mayor will also request that waste authorities have had due regard to his seven other statutory strategies (Spatial Development, Transport, Economic Development, Culture, Biodiversity, Ambient Noise and Air Quality), and other relevant non-statutory strategies (ie Housing and Energy). The central tenet of all these strategies is to promote sustainable economic growth in a manner that

protects the health and environment of those who live or work in London, or visit the city as tourists.

- 4U.15 Should any additional conventional incineration capacity be approved, whatever the size or type, or a new contract be proposed which uses existing incineration capacity, there is a need to avoid signing up to long term contracts with guaranteed minimum tonnages, that could restrict movement up the waste hierarchy. In addition, any new conventional incineration capacity should be constructed as combined heat and power plants, not just as electricity generating plants, with the heat distribution network brought into operation concurrently with the waste plant.
- policy 42: The Mayor will aim to achieve, in liaison with waste authorities, a minimum service level and consistency in waste contracts across London. This will take into account the uniqueness of each London borough and will be developed through the sharing of best practice.
- proposal 94: The Mayor will require waste authorities to include contract conditions and specifications in waste or associated contracts, which:
- Reflect appropriate proposals and targets as set out in the Mayor's Municipal Waste Management Strategy for London. The Mayor's targets should be seen as the minimum contract performance requirements.
 - Enable future flexibility for the waste authority to continue to develop sustainable waste management.
 - Maintain and increase the use of rail and water transport.
 - Reflect best practice, through the tailoring of contract conditions and specifications to the specific requirements of the waste authority.
 - Consider equal opportunity for all.
- proposal 95: The Mayor will develop best practice guidelines to assist waste authorities in the tailoring of contract conditions. The guidelines will be regularly reviewed and updated.
- proposal 96: If considering any proposed new contracts involving the conventional incineration of municipal waste, the Mayor would seek to ensure that as a minimum:
- waste is subjected to pre-treatment to remove as much recyclable materials as is practicable before the residual waste is incinerated
 - to ensure flexibility is maintained in order to allow movement up the waste hierarchy there should be no guaranteed minimum tonnage contracts
 - state of the art emission limiting equipment and monitoring systems are used to reduce any potential health impacts
 - combined heat and power technologies are used.

Best value and contracts

- 4U.16 Best Value places a duty on local authorities to deliver services to clearly defined cost and quality standards, by the most economic, efficient and effective means available to them. All local authorities are required, by order of the Local Government Act (LGA) 1999, to undertake fundamental reviews of their services and produce annual performance plans (in accordance with the provisions of any order made under the LGA 1999) to assist in the delivery of continuous improvement. Best Value provides a framework and tool kit that will enable local authorities to deliver sustainable waste management in London. The Best Value framework for local government services has been set out in Part I of the Local Government Act 1999.
- 4U.17 An important part of the framework to deliver sustainable waste management, will be the Best Value review of waste services in London. The Mayor has a key role within these reviews to enable waste authorities to address the 'five Cs':
- Challenge: the Mayor can provide an external challenge to a service providing a Londonwide strategic perspective and through promoting the use of best practice.
 - Competition: the Mayor can offer advice on the regulatory requirements of the Public Procurement Regulations 1993.
 - Compare: the Mayor in partnership with London Remade has developed a web-site 'capitalwastefacts.com' which will enable London waste authorities to compare data on overall tonnages, recycling facilities, Civic Amenity facilities, details on service provision, materials recycled, some costs and the current Best Value Performance Indicators.
 - Consultation: the Mayor's involvement within a review will provide an effective means of consultation.
 - Co-operation: the Government has emphasised the need for London's collection and disposal authorities to co-operate with the Mayor (DETR Waste Strategy Guidance Best Value and Waste Management). Co-operation will be an essential factor to deliver the Mayor's Municipal Waste Management Strategy together with the waste authorities' waste management strategies. This co-operation should help each waste authority to achieve its Best Value Performance standards thereby enabling London to meet the requirements of the EU Landfill Directive. By working together the Mayor may be able to highlight areas where authorities can pool their resources, achieving economies of scale and providing infrastructure and facilities that they would be unable to support on their own, in terms of investment to build them or the tonnage to run them. By co-operating with each other we can ensure that facilities are placed or used more strategically to ensure they best serve the needs of London as a whole.

- 4U.18 Contracts, particularly integrated and waste disposal contracts, which can be over 20 years in length, need to be flexible enough to cope with the demands of Best Value including the delivery of continuous improvement. Often long-term contracts are secured to facilitate the levels of investment required in waste management and waste authorities need to think carefully about how they can ensure that Best Value principles are reflected. Contracts should be designed to anticipate the need to change or adapt throughout the life of the contract. Contract review and variance mechanisms should tie into the Best Value review cycles so that changes to the service identified through the review or subsequent inspection can be fulfilled. Authorities will need to demonstrate why they have chosen a particular procurement package and length of term and how it will represent Best Value over its life span.
- 4U.19 A key element of Best Value is fully engaging local residents on how their services are provided. This is particularly important where public participation is vital in order to achieve higher levels of recycling and composting. In addition, as recycling activity increases, so will the potential for achieving additional environmental, economic and social benefits. To fully optimise these aims and achieve Best Value, waste authorities could benefit from synergies across activities through partnerships with, for example, community sector organisations that provide recycling services.
- 4U.20 The prescriptive framework imposed on waste disposal authorities in the Environmental Protection Act 1990 (Section 51) for delivering their functions does not necessarily complement the delivery of best value. The Government, in due course, will repeal these prescriptive rules that currently require waste disposal authorities to divest their operational arm and tender their services through a compulsory competitive tender. Once repealed disposal authorities will have greater flexibility in procuring their waste management arrangements with the possibility of packaging their services in new ways, for example waste collection and disposal services could be delivered through one contract.
- policy 43: The Mayor will take into consideration the aims and objectives of Best Value when reviewing waste contracts.
- proposal 97: The Mayor will look to co-operate and seek to work jointly with waste authorities undertaking Best Value reviews of their waste services.
- proposal 98: The Mayor will require that waste contracts are flexible enough to enable the incorporation of changes resulting from Best Value reviews and that the Best Value principle of continuous improvement has been addressed.

- proposal 99: The Mayor requests waste authorities to fully consider the social, environmental and economic benefits when undertaking Best Value reviews of waste management services.

- proposal 100: In order that waste disposal authorities can fully deliver Best Value in waste disposal contracts, the Mayor will encourage the Government to repeal, as soon as possible, Section 51(1)(a) – Schedule 2 of the Environmental Protection Act 1990.

4V Municipal Waste Management Strategies

Guidance

- 4V.1 A requirement for two-tier waste authorities to produce a Joint Municipal Waste Management Strategy is to be introduced through the Waste and Emissions Trading Bill¹. This requirement will not be placed upon unitary authorities. In line with a commitment in the Government's White Paper *Strong Local Leadership – Quality Public Services*², the requirement for Waste Collection Authorities to produce Recycling Plans is to be removed.
- 4V.2 In March 2001, the Government produced guidance on the content and production of Municipal Waste Management Strategies. The guidance helps waste authorities plan, together with their partners, for a more sustainable use of materials and to meet their statutory targets. Further guidance is expected once the Waste and Emissions Trading Bill receives its Royal Assent.
- 4V.3 Joint strategies should be prepared within the context of the wider agenda for modernising local government. The Local Government Act 2000 strengthened the position of local authorities as leaders of their communities, which should open up wider opportunities for effective partnership working. Of particular potential relevance for waste services is the power to strengthen partnership working, by allowing authorities to 'carry out the functions of other statutory bodies – if they agree'.
- 4V.4 In line with the guidance, in London each of the four statutory joint waste disposal authorities should develop one joint strategy, in partnership with all constituent boroughs. This work has already begun in some areas, for example in North London. There may be a need in the future to reconsider the boundaries of the current statutory disposal areas, as these are not necessarily the most suitable grouping for effective partnership working. In the meantime, the statutory joint waste disposal areas may wish to join with other neighbouring waste authorities, but until any boundary changes are made, the current statutory groupings should not have more than one flexible joint strategy covering their area.
- 4V.5 All joint municipal waste management strategies need to demonstrate how waste authorities will meet the objectives and targets in Waste Strategy 2000, and should have regard to the Mayor's Municipal Waste Management Strategy. The joint strategies should set out a programme agreed by both the collection and disposal authorities and they should consider opportunities for working together, such as shared facilities. They should also demonstrate how they will work together and with other key stakeholders, such as the community sector, to deliver the Mayor's proposals for municipal waste.

4V.6 The 12 unitary authorities, each of which is both a collection and disposal authority and currently operate independently, should consider how to work together in groups with other neighbouring waste authorities to develop a joint strategy. Working together to procure goods or services can deliver considerable benefits to local authorities. The London Recycling Fund demonstrated that by taking a partnership approach, waste authorities were able to take advantage of economies of scale. Partnership working also enabled waste authorities to make use of additional resources and expertise in neighbouring authorities. The Mayor believes that there is considerable merit in unitary authorities producing Joint Municipal Waste Management Strategies with neighbouring authorities. However, as a minimum each unitary authority should produce an implementation programme, which details how they will deliver the Mayor's proposals for municipal waste and where appropriate work together with other authorities.

4V.7 Authorities should start to develop draft joint strategies or implementation programmes for their area as soon as possible. To ensure consistency, it would be expected that these are presented to the Mayor for consideration within 12 months of the final publication of the Mayor's Municipal Waste Management Strategy.

policy 44: The Mayor seeks that all two-tier waste authorities in London have a joint municipal waste management strategy, in line with the Government Guidance. This must demonstrate how they will work together to deliver the Mayor's Municipal Waste Management Strategy in their area.

proposal 101: The four statutory joint waste disposal authorities should each have a joint strategy that covers their own area. The 12 unitary authorities should consider how to work together in groups and consider preparing a joint strategy for each group. At a minimum, each unitary authority should produce an 'implementation programme'. Joint strategies or 'implementation programmes' should be presented to the Mayor for consideration within 12 months of the final publication of the Mayor's Municipal Waste Management Strategy.

References and notes

- 1 Letter from ODPM and LGA, To Local Authority Chief Executives, on Reducing Local Authority Plan Requirements, 22 July 2003
- 2 Strong Local Leadership – Quality Public Services, Department for Transport, Local Government and the Regions, December 2001



5 implementation and monitoring progress

This Chapter discusses how the Strategy will be implemented and monitored. The Chapter includes an Implementation Plan for the proposals set out in Chapter 4, including timescales and responsible organisations.

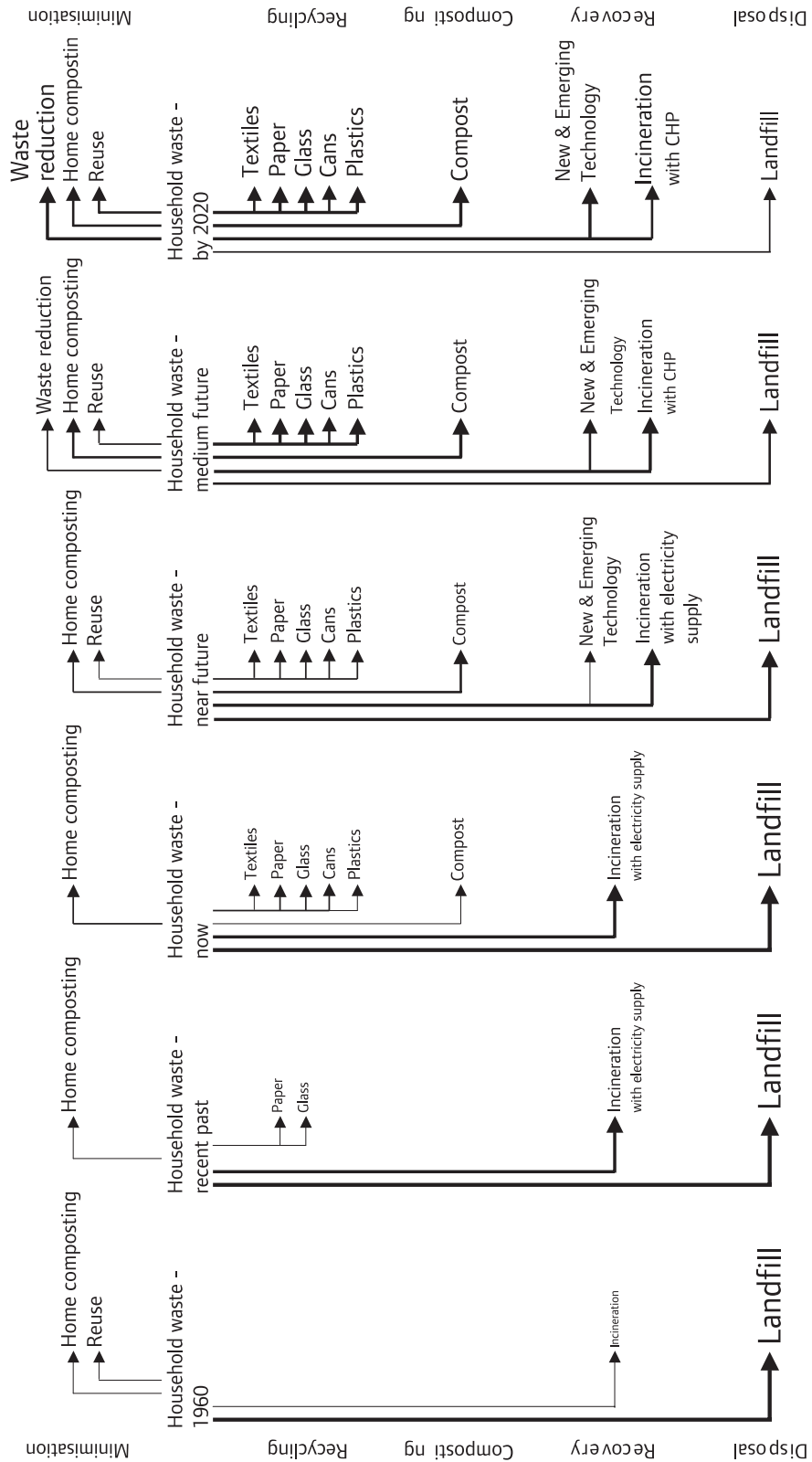
Partners in implementing the Strategy

- 5.1 This Strategy contains policies and proposals to enable a dramatic shift from landfilling London's waste, towards higher levels of recycling and composting. This is illustrated in Figure 30, with emphasis on different waste options indicated through varying font sizes.
- 5.2 The Mayor cannot achieve sustainable waste management in London alone. Working together and developing partnerships with all key stakeholders will be vital in order to deliver the policies and proposals contained within the Mayor's Municipal Waste Management Strategy. The roles that each of the stakeholders can play in implementing the proposals in this Strategy have been set out in the Implementation Plan.

Waste authorities

- 5.3 London's waste authorities have an essential role in the implementation of the Strategy, through their waste contracts, recycling plans and joint municipal waste management strategies and in exercising their statutory duties under Part II of the Environmental Protection Act 1990.
- 5.4 The Mayor when considering waste contracts wishes to work in partnership with waste authorities. It is essential, in order to develop this relationship, that waste authorities inform the Mayor at the earliest opportunity, of their intention to procure a new contract. An example of this early joint working would be to involve the Mayor in the best value review of services.
- 5.5 However, in the absence of co-operation the Mayor can secure implementation through the use of directions made:
 - to influence the tendering process for new contracts
 - to require actions within the terms of existing contracts
 - to influence Recycling Plans or Joint Municipal Waste Management Strategies.
- 5.6 For full details of the Mayor's powers in relation to contracts see Chapter 3 and Section 4U.

Figure 30 Changing the way that waste is managed



source: Greater London Authority

Waste planning authorities

- 5.7 London boroughs are also the waste planning authorities for their areas and as such should plan for a provision of waste management facilities, consistent with forecasts of local and regional requirements, including the proximity principle and regional self-sufficiency. The two areas where the Mayor can influence the planning process within a borough are:
- The development of the Unitary Development Plan (UDP).
 - Referrals under the Town and Country Planning (Mayor of London) Order 2000.
- 5.8 Further details on planning are contained in Chapter 3 and Section 4Q.

Environment Agency

- 5.9 The Mayor will seek advice from the Environment Agency on waste management issues and will work jointly as it develops waste information, such as controlled waste tonnages, waste composition and best practice.

London Development Agency

- 5.10 The London Development Agency's remit is to promote economic development and regeneration in London, and one of its target sectors is the green economy, which will include waste management. The two principal mechanisms of support which will help in the implementation of the Strategy are:
- Through the London Development Agency's promotion of, and support for, the industry, including through skills development, business support, land acquisition and social enterprise. This can help to promote the recycling and materials reprocessing sector and increase associated skills and employment. This work is underway through the London Remade programme, CREATE and other initiatives. The London Development Agency is also examining the potential for clustering activity, including possible eco-industrial parks in Dagenham Dock and Thames Gateway South. The London Development Agency is now looking to build on these initiatives to provide a strategic, Londonwide approach to support this sector.
 - Through the London Development Agency's business support work, including increased enterprise and business development through contributions to enhanced business performance through increased resource efficiency. Work is underway with the London Development Agency to develop the business case for improved environmental management systems in small and medium-sized enterprises.

Costs of implementing the Strategy

- 5.11 In preparing the draft Strategy, a top-down assessment of five waste management scenarios was commissioned. This identified shortfalls in

London's ability to meet the Landfill Directive targets under various scenarios¹. An analysis of the costs of the scenarios modelled demonstrated that 'Business as Usual' would be more costly than other waste management options.

- 5.12 In response to consultation, and following a dedicated stakeholder consultation event, the options appraisal and costings model has been refined. Further modelling work has been carried out that demonstrates the capacity required to achieve the Landfill Directive targets. Further details of the waste management options modelled and their outcomes are in Chapter 2.
- 5.13 A further assessment of costs has been undertaken for this version of the Strategy, taking into account comments raised through stakeholder consultation. The main findings are outlined below. The full report is available on www.london.gov.uk or on request.
- 5.14 The following five waste management options were costed:
- a. Option One: Business as usual
 - b. Option Two: Waste Strategy 2000 Recycling with High Incineration
 - c. Option Three: High Recycling
 - d. Option Four: Waste Strategy 2000 Recycling and Balanced Technology Mix
 - e. Option Five: Government's Strategy Unit Report Recycling and Balanced Technology Mix
- 5.15 The five options were modelled at four different growth rates for household waste. The four growth rates were zero per cent, two per cent linear, a 'combined' rate and a 'central' growth rate. By 2020 London would generate:
- a. 4.4 million tonnes of municipal waste at zero per cent growth
 - b. 5.7 million tonnes of municipal waste at two per cent (linear) growth
 - c. 8.6 million tonnes of municipal waste at the combined growth rate
 - d. 6.5 million tonnes of municipal waste at the central growth rate.
- 5.16 Table 29 shows that the costs of waste management will be significantly higher. The costliest waste management option is business as usual. All other waste management options modelled cost significantly less than 'Business as Usual'.

Table 29 Total waste management costs in 2020

Option	Total cost in 2020 (£ million)			
	0 per cent growth rate	2 per cent linear growth rate	Central growth rate	Combined growth rate
Option One – Business as usual	424	535	634	856
Option Two – Waste Strategy 2000 Recycling with High Incineration	375	467	550	732
Option Three – High Recycling	377	468	550	732
Option Four – Waste Strategy 2000 Recycling and Balanced Technology Mix	370	460	540	718
Option Five – Strategy Report Recycling and Balanced Technology Mix	374	465	546	727

5.17 Whilst there is a high degree of uncertainty associated with predicting future waste management costs, the following conclusions can be drawn from the report:

- The costs of waste management in London will substantially increase between now and 2020.
- The increase in cost is mainly driven by growing quantities of waste, rather than increases in the unit costs of waste management.
- We can say with some confidence that the costliest option for London is the 'do nothing' business as usual option
- The assessment shows that in terms of cost, there is little significant difference between the costs any of the options, other than Option One, 'Business as Usual'.
- A mix of waste management processes could and should be employed to divert waste from landfill.
- High recycling levels can be achieved at relatively low costs, if use of bring sites and Reuse and Recycling Centres are optimised.
- In terms of external costs, under most environmental measures, recycling has a lower impact on the environment than landfill and energy from waste.

Adequacy of funding

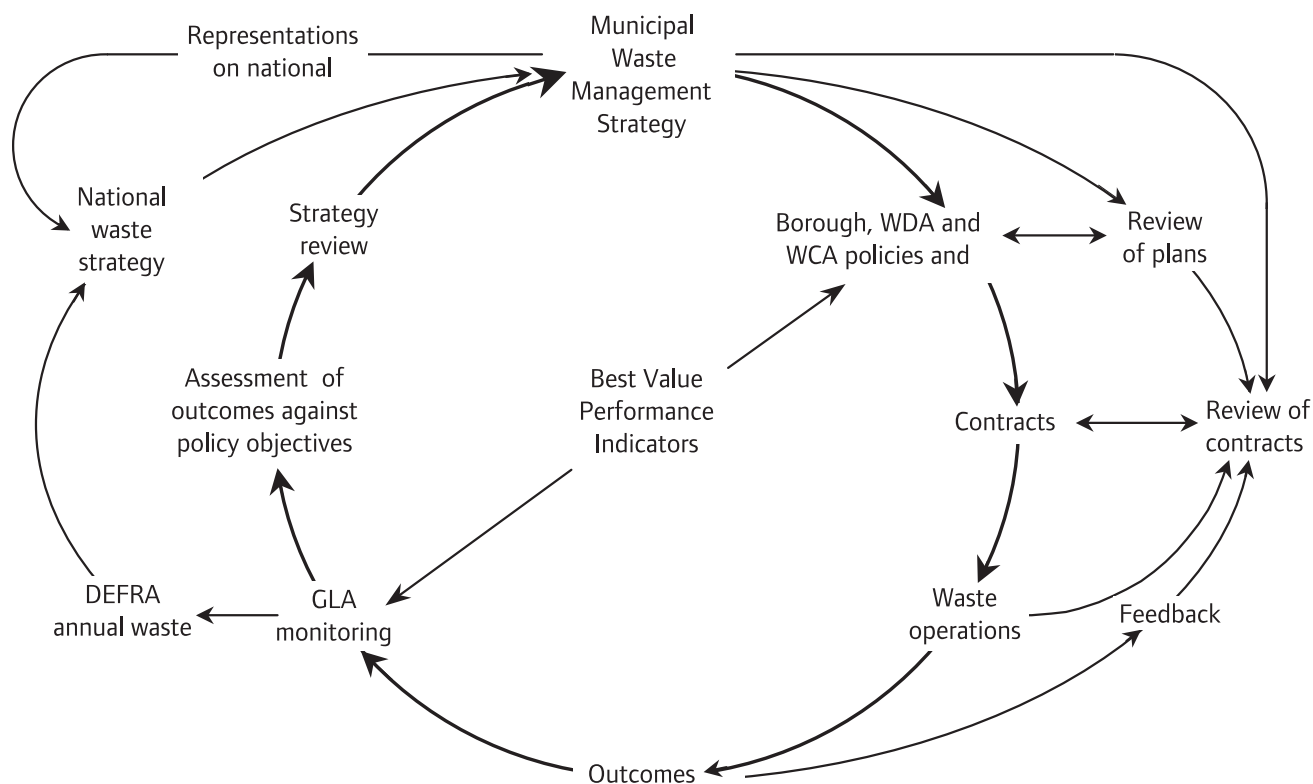
5.18 Section 4T₂ discusses a recent report published by the Government's Strategy Unit². The report noted that the system of funding for London's public services does not reflect London's needs. Managing municipal waste in London had a net cost of more than £322 million in 2000/01.

The trend for waste management and disposal prices has been upwards and above the underlying rate of inflation. This trend has not been matched by adequate funding.

- 5.19 In the 2003/04 Local Government Finance Settlement, London lost £286 million from its Environmental, Protective and Cultural Services (EPCS) spending share. The vast bulk of this loss (£211 million) was experienced by inner London boroughs, which face significant challenges in the achievement of their recycling performance standards. If a step-change in recycling in London is to be realised, Government must increase the available resources to support recycling services in London. Moreover, the EPCS formulae are inadequate in addressing the serious factors that give rise to higher costs for waste management in the capital and other major urban areas.
- 5.20 The Mayor will work with Association of London Government and London's waste authorities to determine the required investment needed to deliver sustainable waste management. A joint case will then be presented to Government for further investment and funding.

Monitoring progress

- 5.21 Another important aspect in the implementation of the Strategy will be to monitor outcomes and feedback information to both stakeholders involved in the implementation and Londoners. This will enable the further refinement of policies and proposals, future strategy and policy development, and important messages to London of success from their efforts, or otherwise. The cycle of strategy development, through implementation and monitoring to Strategy review, is illustrated in Figure 31 below.
- 5.22 An important aspect of monitoring will be measuring the success of London in meeting European and national targets, the aims of the Mayor's Municipal Waste Management Strategy and the recycling and composting standards. Key waste policy milestones for have been set out in Figure 32. The proposal milestones from this Strategy are set out in the Implementation Plan later in this section. This calls for reliable waste management data. Best Value also requires accurate information in order to measure performance, set local targets and allow inter-authority comparisons to be made.
- 5.23 Accurate information is needed for the Greater London Authority and all other waste authorities to enable the most effective management and strategic planning for London's municipal waste, including the development of infrastructure.

Figure 31 The Mayor's Municipal Waste Management Strategy cycle

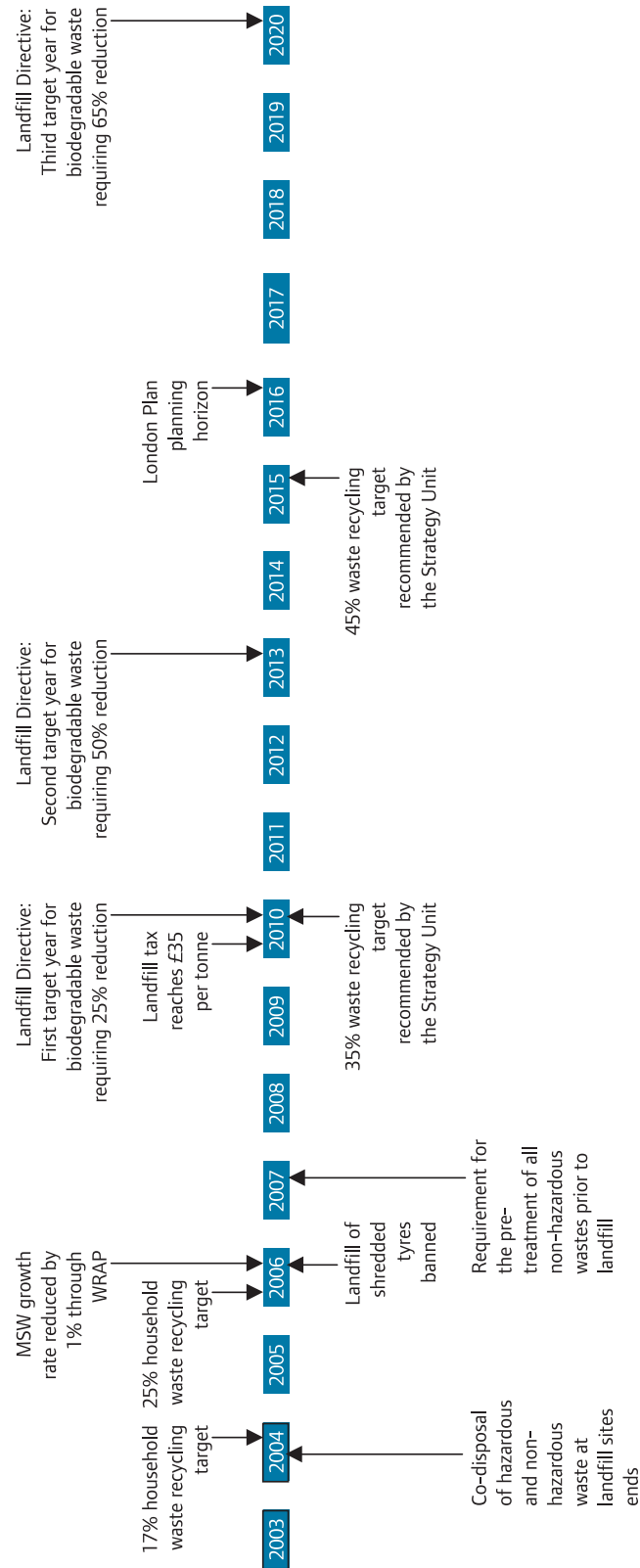
source: Greater London Authority

5.24 Specific policies relating to the provision of up to date information for London were set out in Section 4A. The Mayor, in partnership with London Remade, has established Capitalwastefacts, an online database that provides waste information collected from London waste authorities. Capitalwastefacts has already begun the process of improving the availability, comparability and accuracy of waste data in London. The Mayor wishes to work with London waste authorities to ensure that data collected is accurate, effective and of use to all concerned.

5.25 This information will be used to monitor progress towards achieving the objectives of the Strategy as well as the requirements of the Landfill Directive, the national targets set out in Waste Strategy 2002, and local authorities individual recycling and composting statutory performance standards.

5.26 As discussed in Chapter 4, information will also be collected and made available on best practice in London, and also from other local authorities and international cities where appropriate. Information about good practice by waste authorities should be shared openly and disseminated to all authorities, to help London as a whole to considerably improve the way it manages its waste.

Figure 32 Key waste policy milestones until 2020



source: Greater London Authority

Widening and reviewing the Strategy

- 5.27 The Mayor recognises the need for a wider Strategy on all waste, and the preparation of a London Waste Strategy, covering all controlled wastes, will follow the Municipal Waste Management Strategy.
- 5.28 Whilst providing an overarching framework of policy until 2020, many of the proposals in this Strategy focus on the period to 2005/06. After 2005/06, this Strategy will be reviewed to take into account the experience gained whilst working towards the proposals and policies.

Summary of proposals

- 5.29 Table 30 summarises the proposals in Chapter 4, and specifies timescales for implementation. It also gives an indication of the key organisation(s) responsible for delivering the proposal and also the degree of priority for implementation. The tools to be used to monitor progress towards implementation and evaluate achievement are also indicated. These are listed under their section headings to enable easy reference back to the related policy and full evidence and argument for the proposal.

Table 30 Implementation Plan

No	Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
Chapter 4A: Framework for policies and proposals						
1.	The Mayor intends, through working with the waste authorities and other stakeholders, to exceed the recycling and composting targets for household waste as set out by the Government in the Best Value Performance Standards for waste authorities in London and, as far as possible, achieve the recovery targets for municipal waste through waste reduction, reuse, recycling and composting. The following policies and proposals in this Strategy provide the framework within which these targets can be achieved.	Now until > 2005/6	ALL	Key	Best value performance indicators	Progress towards targets in set years
2.	The Mayor supports the proposal in the Government's Strategy Unit Report to increase the recycling targets for household waste and will seek to persuade the Government to put in place the legislative changes, fiscal framework and other measures necessary, to enable the achievement of and the setting of targets for rates of recycling and composting of municipal waste of 50 per cent by 2010 and 60 per cent by 2015. The Mayor fully supports the House of Commons Select Committee on the Environment, Transport and Regional Affairs recommendations on household recycling targets.	Ongoing	Mayor will seek to persuade the Government	High	Any changes to targets	New targets are set by Government
3.	The Mayor will only accept household recycling and composting rates based on relevant guidance for calculating the statutory Best Value Performance Indicators 82a and 82b.	Annually	Waste authorities and the Mayor	Med	Best Value Performance Indicator Guidance, DEFRA survey	Reduction in differences between reported rates
4.	Waste authorities should return annual data on waste to the Mayor to collate for London. The Mayor will report the breakdown of tonnage, which makes up the recycling and composting rates of each waste authority in London. This information will be published through www.capitalwastefacts.com .	Annually	Waste authorities and the Mayor	Med	DEFRA survey	Timely availability of a complete set of data on www.capitalwastefacts.com

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
5. The Mayor will continue to work with DEFRA, CIPFA and other authorities towards the joint development of an electronic survey format for the return of data, to reduce delays, data entry errors and repetition in the collection of information.	2004/5	Mayor, DEFRA and CIPFA	Med	Development of a joint electronic survey	Joint electronic forms distributed
6. The Mayor will investigate, with London waste authorities, the key factors influencing variations in waste arisings, across different parts of London.	Ongoing	Mayor, Waste authorities	Med	Research and individual surveys	Identification of influencing factors
7. The Mayor will work with the Environment Agency and other partners to undertake a detailed study of the composition of London's municipal waste, applying the same methodology as the National Household Waste Analysis Programme to enable comparison.	Start 2003/04 and ongoing	Mayor, Environment Agency, Waste authorities	High	Composition study	Reliable compositional data available for London
8. When a reliable estimate of London's waste composition exists, further work will be undertaken to establish the influencing factors on composition and recyclability. This will enable the projection of changes to composition and recyclability in the future, for the strategic planning of sustainable waste management.	Start 2004/05 and ongoing	Mayor, Waste authorities	Med	Research	Identification of influencing factors
9. Where appropriate the Mayor will use the power of direction in relation to waste contracts to enforce the consideration of Best Practicable Environmental Option.	Contract reviews as appropriate	Mayor	High	Waste contracts	Consideration of BPEO in waste contracts
10. The Mayor will work with London's waste authorities on new contracts, and seek agreement to amend existing contracts, to ensure options as high up the waste hierarchy as possible are implemented.	As contracts are renewed and ongoing	Mayor, waste authorities, waste service providers	High	Waste	Consideration of options higher on hierarchy in waste contracts
11. The Mayor will require waste authorities to thoroughly explore all partnership and co-operative working opportunities to ensure that the Government's guidelines on Best Value are adopted.	Ongoing	Waste authorities	High	Best value reviews	Development of new partnership working

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4B: Waste reduction and reuse					
12. The Mayor initially will seek to get a voluntary change from the default basis to a tonnage-based levy for the joint statutory waste disposal authorities to recover the cost of disposal from the constituent local authorities in London, including any transitional arrangements to alleviate problems, which may occur because of a changeover. However, if no agreement can be reached, the Mayor will seek to persuade the Government for a change in legislation to change the default system to a per tonne basis.	2004/05	Joint statutory waste disposal authorities and the Mayor	High	Local agreements	Changes to funding arrangements or changes legislation
13. The Mayor will seek to persuade the Government to ensure that effective fiscal instruments are in place for the achievement of waste and high levels of recycling in London.	Ongoing	Mayor will seek Med to persuade the Government		Announcement of new instruments	New fiscal instruments
14. The Mayor will develop a 'Waste Reduction and Reuse Programme for London', in partnership with relevant stakeholders, to co-ordinate, facilitate or undertake to: <ul style="list-style-type: none"> • Produce a plan outlining the detail of the Waste Reduction and Reuse programme. • Research waste growth through the identification of the key influencing factors and hence identification of solutions. • Endorse high profile 'pilots' of new techniques for waste reduction. • Seek to persuade the Government to consider regulatory measures such as extended producer responsibility and economic instruments such as Ecotaxes. • Create an environment for change through communication with consumers, retailers and manufacturers to encourage design for waste reduction. • Promote waste reduction and reuse as part of a wider waste awareness campaign for London. This should link to and complement local promotion activity and educate consumers on their powers to reduce waste and influence retailers. 	Fully developed plan by 2004/05 and ongoing	Mayor, WRAP, LDA, Retailers, Manufacturers, Community Sector, waste authorities	Key	Development of Programme	Development of Programme by 2004/05

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
<ul style="list-style-type: none"> • Encourage the London Development Agency to work with businesses, entrepreneurs, education and design sectors to investigate opportunities for sustainable product design. This should incorporate the concepts of using minimal resources, design for repair, reuse, upgrading, longevity and incorporating design for recycling. • Investigate opportunities to encourage repair facilities. • Support the development of re-manufacturing workshops and centres for brown and white goods³. • Ensure effective co-ordination between the private and community sector of furniture reuse, including the establishment of a database, to match supply and demand for surplus office furniture and equipment. • Develop, with partners, a Londonwide scheme for the refurbishment of computer equipment to ensure affordable equipment for the voluntary and education sectors. • Develop ways to measure waste reduction and reuse and look to develop targets in the future. 					
<p>15. Waste authorities should undertake certain actions to impact on the production of municipal waste including:</p> <ul style="list-style-type: none"> • Consideration of the provision of waste collection services in relation to potential influence on the production of waste by householders and to ensure services for reduction, reuse and recycling are as high profile and convenient as waste collection services. • Vigorous promotion of waste reduction and reuse to raise awareness locally of the need and actions to be taken in order to restrain the growth in the quantity of waste arising. • Increase the awareness of Londoners regarding waste and the impact their 	Ongoing	Waste authorities in conjunction with community sector and service providers	Key	Contracts, DEFRA Survey – waste arisings, survey of activities	Consideration in waste contracts, reduction in waste arisings, new initiatives

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
<p>behaviour has, including how individual decisions affect the amount of waste, costs of waste management and hence Council Tax bills, and the actions they can take to reduce waste and increase recycling.</p> <ul style="list-style-type: none"> • Promotion of home composting through the provision of appropriate information on how to make compost, and the benefits for the environment and making low cost compost bins and wormeries available to all households with gardens by September 2004. • Facilitation of community composting schemes, though the provision of advice, potential sharing of resources such as shredders, and the provision of space on allotments or in parks. • Consider the reuse of wood, rubble and other materials, and promote furniture reuse. This should be done either through the direct provision of a scheme or provision of contact details of other organisations, prior to collecting bulky waste or sending it for disposal from Reuse and Recycling Centres (Civic Amenity sites) • Promote reusable nappies and consider supporting schemes financially through a rebate related to the disposal costs. • Promote the Mailing Preference Service to reduce junk mail. 					

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4C: Recycling collection					
16. The waste authorities must provide all households with recycling collections of at least three materials ⁴ , one of which should be paper, by September 2004, except where impracticable. Consideration must be given to include access to the service for disabled people, children and the elderly.	September 2004	Waste authorities	Key	DEFRA Survey, contracts	Reporting of proportion of households with three materials collected
17. On estates or in multi-occupancy properties where recycling collections from homes may not be practicable, alternative arrangements of easily accessible recycling must be introduced. This should consist of no less than one recycling site per 500 households collecting at least three materials ⁵ , one of which should be paper, by September 2004.	September 2004	Waste authorities	Key	DEFRA Survey, contracts	Reporting of sites to a proportion of one per 500
18. The Mayor will look to identify 'best practice' in recycling, composting and promotion, to assist waste authorities to develop consistent schemes, and to save time and resources on investigating options independently.	Starting 2003/04 and ongoing	Mayor	High	Production of best practice guidance	Implementation of best practice
19. Waste collection authorities should ensure an extensive, well-distributed and full range of recycling banks for all wards within their area and look to provide best practice arrangements for their recycling sites, including where suitable the encouragement of 'adopt a bank' schemes.	2003/04 and ongoing	Waste authorities	High	DEFRA Survey	Reporting on the number of recycling sites
20. Waste authorities should fully explore opportunities for the recycling of street cleansing and trade waste, including trade waste recycling collections.	By 2004/05 and ongoing	Waste authorities	Med	DEFRA Survey	Reported tonnages / services reported / inclusion in contracts
21. The Mayor with waste authorities and their contractors will investigate further the potential impact of incentives to recycle and the 'polluter pays principle' for waste. This is to help increase the levels of participation and recycling from householders but only to be implemented after the development of full boroughwide recycling collections from homes.	2003/04 and ongoing	Mayor, waste authorities, service providers	Med	Trial schemes	Success rate of trials

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
22. The Mayor believes that rebates are the best way in which to increase recycling participation rates. Waste collection authorities should consider introducing schemes to help meet their targets once full boroughwide recycling collections from homes have been developed. Rebate schemes such as these would only be expected to operate for two to three years to increase the participation in recycling schemes and should not constitute a permanent charge/rebate. Any extra revenue raised should be ring-fenced for improvements in the street environment.	2004/05 when boroughwide recycling collections are in place	Waste authorities	Med	Introduction of schemes, DEFRA survey recycling tonnage, local participation study reports	Successfully administered schemes, increased recycling tonnage, increased participation in recycling schemes
4D: Composting					
23. The Mayor will work with the Environment Agency to alleviate current problems of licensing, particularly of small-scale community composting sites. Central composting facilities need to be developed to complement home composting and community composting schemes. The Mayor requests that waste is composted in accordance with regulators requirements and the Animal By-Products Regulations, and will seek the provision of space for facilities through Unitary Development Plans.	Ongoing	Mayor, Environment Agency, waste authorities, community sector, service providers	Med	Contracts and UDPs	Sites being developed
24. All Reuse and Recycling Centres (Civic Amenity sites) should be adapted and operated, so that green waste can be received and segregated on site for composting by the end of 2004.	By end of 2004	Relevant waste authorities	High	DEFRA survey	Reported tonnages of green waste at sites
25. All waste collection authorities must prepare a fully costed feasibility study for the boroughwide collection of separated kitchen vegetable waste and green garden waste; in the case of green garden waste this may be on a seasonal basis. This feasibility study must be presented to the Mayor for consideration by September 2004.	Feasibility study by September 2004 - service implementation 2004/05	London boroughs	High	Feasibility study, contracts and DEFRA Survey	Feasibility of services, contracting of new services and reports of collected tonnage
26. The London boroughs should make arrangements for the composting of compostable park waste, waste from the maintenance of cemeteries, and waste from local authority-run nature reserves.	As soon as feasible	London boroughs	Med	DEFRA survey	Reports of services provided and tonnages collected
27. Waste collection authorities should, where	As soon as	London boroughs	Med	DEFRA	Reports of

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
practicable, work in partnership with local fruit and vegetable markets to introduce arrangements for non-contaminated fruit and vegetable waste to be segregated to facilitate composting.	feasible			survey	services provided and tonnages collected
28. Waste authorities should encourage London residents to use waste-derived compost by providing the opportunity for them to purchase waste-derived compost. The Mayor will look to work with London Remade and WRAP, to investigate further the development of consumer markets for composted waste in London.	By 2004/05	Waste authorities Mayor, London Remade, WRAP	Med	Information from waste authorities	Availability of compost to residents
4E: Recovery and residual waste treatment					
29. The Mayor will support proposals for and work with key stakeholders to introduce new and emerging advanced conversion technologies for waste (for example, anaerobic digestion, gasification, or pyrolysis) which satisfy the requirements of the Renewables Obligation Order 2002, supplying electric power and wherever possible also heat, and minimise the quantity of hazardous solid residues.	Where appropriate	Mayor, technology providers, waste service providers, waste authorities, Environment Agency, DEFRA, ESA, LDA, CIWM	Key	Contracts, planning applications and DEFRA survey	Use of new technologies, tonnage of waste dealt with through new technologies
30. The Mayor will support proposals for and work with key stakeholders to introduce new waste treatment methods such as Mechanical Biological Treatment and the production of biofuels to be used in London.	Where appropriate	Mayor, technology providers, waste service providers, waste authorities, Environment Agency, DEFRA, ESA, LDA, CIWM	High	Contracts, planning applications and DEFRA survey	Number of new facilities, tonnage of waste dealt with through new waste treatment methods
31. The Mayor will encourage the development of anaerobic digestion plants, which treat segregated biodegradable waste and produce a digestate suitable for agricultural and horticultural use.	Where appropriate	Mayor, technology providers, waste service providers, waste authorities, Environment Agency, DEFRA, ESA, LDA, CIWM	High	Contracts, planning applications and DEFRA survey	Number of new facilities, tonnage of waste dealt with through anaerobic digestion
32. The Mayor will continue to press the Government to classify anaerobic digestion plants, which treat segregated biodegradable waste and produce a digestate used for agriculture or horticulture, as	Ongoing	Mayor	Med	BVPIs	Change in definition of BV82b

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
'recycling', as measured by the Best Value Performance Indicators.					
33. The Mayor will support the use of waste wood as a fuel, or for producing fuel. This will contribute to meeting the requirement of the Landfill Directive to reduce biodegradable waste to landfill and will also help London contribute its share to meeting the national renewable energy targets.	Ongoing	Mayor	Low	Contracts, planning applications and DEFRA survey	Number of new facilities, tonnage of wood waste used as a fuel
34. The Mayor will work with LondonWaste Ltd and SELCHP, the waste authorities and local industry to explore the opportunities to develop heat distribution networks to supply heat from the existing incineration plants to housing, commercial and public buildings in the vicinity.	Ongoing	Mayor, SELCHP, London Waste Ltd, relevant waste authorities, local industry	Med	Feasibility study	Development of heat distribution
35. The Mayor will keep developments in emissions control, monitoring and health impacts under review and, where appropriate, press the organisations responsible to adopt the new techniques.	Ongoing and where appropriate	Mayor	High	Monitoring of developments	New techniques adopted where appropriate
36. Having regard to existing incineration capacity in London, and with a view to encouraging an increase in waste reduction, reuse, recycling and composting and the development of new and emerging advanced conversion technologies for waste and new waste treatment methods such as Mechanical Biological Treatment, the Mayor will support and encourage these waste management methods in preference to any increase in conventional incineration capacity. Each case, however, will be treated on its individual merits, having regard to the Best Practicable Environmental Option and whether it meets the requirements of the Renewables Obligation Order 2002. The aim is that existing incinerator capacity will over the lifetime of the plan, become orientated towards non-recyclable residual waste.	Where applicable	Mayor	Key	Planning applications, waste contracts	Number of new facilities

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4F: Landfill					
37. The Mayor will work with the South East of England and the East of England regional assemblies to co-ordinate strategic waste planning in order that London moves towards regional self-sufficiency for waste treatment and a subsequent reduction in landfill exports.	Ongoing	Mayor, London RTAB, South and East regional assemblies and RTAB's, waste authorities	Key	DEFRA survey	Proportion of London's municipal waste managed within London
38. The Mayor will work closely with London's waste authorities to ensure the tradable allowance system works effectively in diverting London's waste from landfill. Waste disposal authorities in London should seek to trade landfill allowances within London in the first instance so that London meets its allocation, without requiring allowances from outside of London.	From introduction of allowances and ongoing	Mayor, waste authorities	Key	Tradable Landfill Allowances, DEFRA survey	Number of waste authorities meeting their requirement, proportion of London's waste being landfilled in comparison to requirements
39. The Mayor will consult with London's waste authorities about arrangements for the co-ordination of trading landfill allowances through the Mayor acting as a broker.	Dependant on timing of introduction of allowances	Mayor, waste authorities	High	Consultation	Outcome of consultation
40. Any contract that includes the landfilling of municipal waste should encourage the use of landfill gas as a renewable energy source (heating or electricity).	Ongoing	Waste disposal authorities	Med	Waste disposal contracts	Number of contracts involving landfill, using landfill gas as a source of energy

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4G: Reuse and recycling centres (Civic Amenity Sites)					
41. The Mayor will seek to persuade the Government to announce the date on which Section 1 of the Refuse Disposal (Amenity) Act 1978 is to be repealed.	Ongoing	Mayor	Med	Announcement of changes	Legislative change
42. The Mayor will work with key stakeholders to develop a 'best practice' design brief. This will provide the template of features to be incorporated into refurbished sites, resulting in facilities that provide a high standard of service and local environmental quality, coupled with a wide choice of reuse and recycling opportunities.	Initiate 2003/04	Mayor,	Med	Development of guidance	Use of guidance in developing, number of reuse and recycling centres developed
43. The Mayor will promote a feasibility study, to be undertaken jointly with key stakeholders, including the Environmental Services Association and waste authorities, to explore the possibility of expanding the existing network of Reuse and Recycling Centres (Civic Amenity sites) in London. This study will explore the possibility of utilising the existing private waste transfer stations operating in London, as well as identifying land and premises for new sites.	By 2004/05	Mayor, Environment Agency, waste authorities, planning authorities, CIWM, ESA	Med	Feasibility Study	Sites identified
44. The Mayor will encourage all Reuse and Recycling Centres (Civic Amenity sites) where practicable to have arrangements for the separation of reusable items and to provide sites that allow convenient and safe pedestrian access.	As contracts are renewed and ongoing	Mayor, waste authorities, service providers	High	Contracts	Reuse arrangements incorporated into contracts
45. Authorities operating Reuse and Recycling Centres (Civic Amenity sites) should not bar the use of or make a charge for the use of their sites by residents of other London boroughs for the deposit of household waste. To this end, such authorities should enter into discussions with other waste authorities whose residents use their sites, with a view to establish reciprocal arrangements whereby costs may be recovered.	In place by 2004/05	Waste authorities	Med	Independent survey, contracts	Report of reciprocal arrangements or removal of charge, contract specifications
46. In order to protect Reuse and Recycling Centres and provide a uniform quality of service across London, the Mayor will, as part of his wider	By 2005/06	Mayor	Med	Consultation, feasibility study	Legislative change

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
consultation on a single waste disposal authority, consult on options for the management and operation of Reuse and Recycling Centres in London.					
4H: Street cleansing and litter					
47. The Mayor will work with his partners in the 'Capital Standards' Programme to raise the standard of London's street environment. This will be a high profile initiative involving the public and private sectors and will reward success.	Ongoing	Mayor, Capital Standards members, ENCAMS, ALG	Key	Capital Standards survey results, BVPI 199 & 89, information scheme	Improved performance
48. The Mayor will work with the partners in the 'Capital Standards' Programme to set standards and targets to guide local authorities, for litter collection and street cleansing and to combat fly-tipping, reduce litter production, and increase recycling of certain types of litter (eg cans and newspapers).	2004/05	Mayor, Capital Standards Members, ENCAMS, ALG	Med	Capital Standards LEQS survey	Capital Standards LEQS survey improvement
49. The Mayor is working with the partners in 'Capital Standards' to produce a Londonwide advertising campaign, highlighting the Government's message of 'war on litter'.	2003/04 and ongoing	Mayor, Capital Standards Members, ENCAMS, ALG	Med	Londoners Survey, Distribution of campaign material	Impression of London in Londoners Survey, profile of campaign material
50. The Mayor will require all London waste authorities to identify ways to minimise the amount of unpaid commercial waste contaminating the household waste stream.	Ongoing	Mayor, waste authorities, service providers	Med	Information scheme, contracts, BVPIs	Increase in enforcement activity, improvements in contracts, reduction in the rate of household waste
51. The Mayor will support changes that enable local authorities to retain the revenue from fines or fixed penalty tickets.	Ongoing	Mayor will seek to persuade the Government	Med	Consultation documents	Changes to legislation
52. The Mayor supports, where suitable, colour-coded systems or designated containers for commercial waste collections and waste authorities should	Contract reviews and ongoing	Mayor, waste authorities, service providers	Med	Contracts	Contract specifications

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
consider these when developing new commercial waste contracts or revising existing contracts. The Mayor will also request that existing contracts should examine the feasibility of changing to a system that allows clearer identification of waste.					
53. The Mayor will require waste collection authorities to have a well advertised bulky waste service to minimise the number of items dumped on the streets. The provision of a free service (for a limited number of items) must be considered where an authority has an issue with the dumping of bulky household waste. All services must maximise opportunities for recycling and reuse and collect such items free of charge.	Contract reviews and ongoing	Mayor, waste authorities, service providers, community sector	Med	Contracts, information scheme	Contracts, reduction in reported flytips
54. The Mayor will seek an effective regulatory framework in England, for End of Life Vehicles, including incentives to encourage the owner to ensure their vehicle is delivered to an authorised treatment plant and effective regulatory powers and funding to allow waste authorities, to enforce the regulations where they apply.	Ongoing	Mayor	Med	Consultation documents	Changes to legislation
55. The Mayor will work with waste authorities and other key stakeholders, including the British Metals Recycling Association, so that London can respond effectively at the planning and implementation stages of the End of Life Vehicles Directive.	By date of implementation of ELV directive	Mayor, waste authorities, British Metals Recycling Association, Environment Agency, planning authorities	Med	Planning applications, contracts	Adequate facilities,
56. The Mayor will work with waste authorities and other key stakeholders, to develop a common system of data gathering about abandoned vehicles, their removal, storage and disposal and the costs associated with this issue.	2004/05	Mayor, waste authorities, vehicle dismantlers, DVLA	Med	To be developed as part of proposal	Improved data reliability
57. As a requirement of the licence, for a special event or where crowds are likely to gather in the vicinity of stadiums and arenas, all organisers should develop their own waste management plan. This should consider the waste that will be produced and look to place requirements for traders to use appropriate materials, and to minimise waste and	2003/04 and ongoing	London boroughs, events organisers	Med	Event management plans	Increased recycling and improved cleanliness at events

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
maximise recycling. Boroughs should provide the Mayor with a list of their special outdoor events, and their plans for the management of waste at the event.					
4J: Producer responsibility – packaging, electrical and electronic equipment					
58. The Mayor will request all waste authorities investigate the development of their recycling collections (including packaging) through partnerships with reprocessors, obligated businesses and compliance schemes.	Ongoing	Waste authorities, Mayor, reprocessors, obligated businesses and compliance schemes	Med	Contracts	Contract arrangements
59. The Mayor will encourage waste authorities to work in partnership with the producers of electrical and electronic equipment, private waste contractors and the voluntary sector, to meet the requirements of the Directives.	2004/05 and ongoing	Mayor, waste authorities, producers, waste industry, voluntary sector	Med	Partnership arrangements	Successful management of WEEE
60. The Mayor will investigate opportunities for recycling and establishing markets for waste electrical and electronic goods and their components.	2004/05 and ongoing	Mayor, service providers, London Development Agency, London Remade	Low	Progress reports	Local markets for waste electrical and electronic equipment
61. All waste collection authorities should look to work in partnership with neighbouring authorities or their waste disposal authority and those with technology available to deal with refrigerators. This should include working with London Remade, which is already developing partnerships in relation to fridge recycling and other appropriate refurbishers.	2003/04 and ongoing	Waste authorities, service providers, London Remade	Low	Contracts	Proximate arrangements made

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4K: Hazardous waste					
62. A Londonwide Hazardous Household Waste Collection service should be delivered through consistent contract arrangements in all London Boroughs, so that all Londoners have an equal opportunity to use the service. The current service entitlement for householders should be provided free of charge and should also be available to businesses in London upon payment of a charge to recover costs.	2003/04 and ongoing	Mayor, Corporation of London and London boroughs	Med	Contracts, service progress reports	Contract conditions, consistent service
63. The Mayor will work with the Corporation of London as the lead authority for the Household Hazardous Waste Collection service and the waste authorities to investigate the existing usage and potential future usage of the service, including the costs of expansion, funding options and providing a high level of publicity, so that all Londoners become aware of the service.	2003/04 and ongoing	Mayor, Corporation of London, waste authorities	Med	Contracts, service progress reports	Improved service, reduction of hazardous waste in domestic waste stream
64. Reuse and Recycling Centres (Civic Amenity sites) should provide facilities where local residents have the opportunity to deposit items of hazardous household waste at a supervised and secure storage point.	2004/05	Waste authorities	Med	Contracts, survey of activity	Contract conditions, facilities provided
65. All waste authorities should lead by example, segregating old fluorescent lighting tubes from general waste and engaging specialist contractors to recycle the mercury and dispose of the remaining contents legally. This service should be promoted to all companies within the local authority area.	2004/05 and ongoing	Waste authorities	Low	Contracts, survey of activity	Service provided

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4L: Clinical waste					
66. The Mayor will request all waste collection authorities to provide a free household clinical waste collection service to a high standard. This will include working with relevant stakeholders to reduce the occurrence of, impacts from and risks associated with discarded waste, including syringe needles and dog mess, in public places and to widely publicise the availability of the collection service to all.	Contract reviews and ongoing	London boroughs	Med	Contracts, local surveys	Contract provisions, Service provision information
67. The Mayor, along with all waste authorities, and other stakeholders such as the strategic health authorities, primary care trusts, other NHS bodies and the waste industry will seek to identify and implement best practice in clinical waste collection. This will include exploring potential partnership opportunities, which may provide economies of scale, such as a Londonwide clinical waste service.	Ongoing	Mayor, Waste authorities, strategic health authorities, primary care trusts, waste industry service providers	Med	Contracts, partnership agreements	Implementation of best practice
68. The Mayor will encourage health authorities to make plans to accommodate any changes resulting from the review of the Special Waste Regulations and the introduction of Hazardous Waste Regulations.	As appropriate	Health authorities	High	Communication with Health Authorities	Plans made accommodate possible changes due to the review of Special Waste Regulations
4M: Education and promotion					
69. The Mayor is leading the first phase of a campaign, bringing together the waste authorities and other key stakeholders, to develop Londonwide promotion on recycling and sustainable waste management. The Mayor will explore further funding opportunities to enable campaigns in future years.	September 2003	Mayor, waste authorities, ALG, Waste Watch, Cory Environmental, London Remade	Key	Awareness campaign targets	Progress against targets
70. The Mayor will seek to ensure that waste reduction, reuse and recycling is convenient and simple, to aid the communication of Londonwide messages.	Contract reviews and ongoing	Mayor, waste authorities, service providers	Med	Contracts	Contract specifications
71. The provision of waste services by an authority should include an amount to be spent on education and promotion. This could either be	Contract reviews and ongoing	Waste authorities	Med	Contracts, waste strategies,	Increased amount spent on education

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
incorporated into waste and recycling contracts or provided directly by the waste authority.				recycling plans	and promotion
72. The Mayor will work with local education authorities, schools and waste collection authorities to ensure all schools, where practicable, have a mini-recycling centre within their grounds to create an understanding of the environmental importance of waste management and recycling.	2004/05 and ongoing	Mayor, local education authorities, London schools, waste collection authorities, service providers	High	DEFRA Survey, potential future awareness campaign targets	Increased number of recycling sites, proportion of schools with sites
4N: Developing markets					
73. The Mayor, through the London Development Agency, will continue to examine and address the business support needs of the waste reprocessing sector including skills requirements, business advice, finance and land premises.	Ongoing	Mayor, London Development Agency	Key	Feasibility work, review of sector, planning applications	Market improvements, increase in reprocessing facilities
74. The Mayor, through the London Development Agency, is the major public sector funder of the London Remade programme, with funding in place until 2004, and will continue to support London Remade as it becomes successful in its role providing leadership and developing partnerships. Through the London Development Agency, the Mayor will also examine requirements for additional support mechanisms for the sector.	2003/04 and ongoing	London Development Agency, Mayor	Key	Feasibility work, review of sector, funding bids	Continued investment in and improvements in the sector
75. The Mayor and the London Development Agency will help to stimulate demand for recycled products.	2003/04 and ongoing	Mayor, London Development Agency - through London Remade	Key	Price of recyclable materials	Stable or increased market price for recyclable materials in London
76. The Mayor will work with the London Development Agency, London Remade and WRAP to continue to develop reprocessing capacity for recyclables and new markets for recycled materials and products. This will include the investigation of the benefits of Londonwide consortia for recyclable materials.	2003/04 and ongoing	Mayor, London Development Agency, London Remade, WRAP	High	Planning applications, monitoring of reprocessing capacity, funding for capacity, development of consortia	Increased reprocessing facilities and capacity, investment in capacity, consortia agreements

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
77. The Mayor will support and encourage the development of new plastics recycling facilities and related industries in London.	Ongoing, where appropriate	Mayor, planning authorities, London Remade, LDA	High	Planning applications	Increased capacity within London
78. The Mayor will work with the waste authorities and their contractors, material reprocessors, London Remade, WRAP and other relevant organisations to help to set standards for recycled goods which are sustainable and realistic.	Ongoing, where appropriate	Mayor, Waste authorities, service providers, London Remade, WRAP, British Standards Institute	High	Standard agreements	Higher quality products, reduced reject rate
79. The Mayor, with key stakeholders including the London Development Agency, will bring together a markets taskforce to: <ul style="list-style-type: none"> • consider current and future markets • consider current and future reprocessing capacity requirements • consider London's needs, including timeframes and locations. 	Completed by 2004/05	Mayor, London Development Agency	High	Taskforce established, issued considered	Information on current and future markets, reprocessing capacity requirements and London's needs available
4P: Leading by example					
80. The Mayor and the London Development Agency, in partnership with London Remade, will continue to work on the Mayor's Green Procurement Code to encourage organisations to explore opportunities for buying recycled products.	2003/04 and ongoing	Mayor, London Development Agency, London Remade	Key	Green procurement code update reports	Increased Green Procurement Code signatories, increased purchase of recycled products
81. The Mayor, through the London Development Agency, will work with key stakeholders to develop a strategic approach to promoting business efficiency through efficient resource use, including encouraging green procurement and sustainable waste management.	Ongoing	Mayor, London Development Agency	High	Survey of businesses	Increased green procurement and sustainable waste management

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4Q: Planning the waste infrastructure in London					
82. When preparing or revising their Unitary Development Plans and Local Development Documents, boroughs must ensure that land resources are available to implement the Mayor's Municipal Waste Management Strategy, Waste Strategy 2000, the Landfill Directive and other EU Directives on waste. They should identify the sites needed for waste management and disposal facilities over the period of the plan and in conformity with the London Plan, including facilities for the management of waste with specific requirements, such as hazardous waste.	As appropriate	London boroughs	Key	Unitary Development Plans	Increase in sites identified in Unitary Development Plans
83. When preparing or revising their Unitary Development Plans and Local Development Documents, boroughs must ensure they conform with the strategic policy framework on planning for waste within the London Plan.	As appropriate when reviewing UDPs or planning applications	London boroughs	Key	UDPs, planning applications	Conformity with guidance
84. The Mayor will work in partnership with the boroughs and relevant stakeholders to produce detailed waste policy guidance for each Sub-Regional Development Framework, developed under the London Plan, outlining the number, types, and, where appropriate, locations of facilities needed to manage waste and recyclables in their area.	2003/04	Mayor, waste authorities, London RTAB	High	Development of guidance	Adoption of policy guidance
85. The Mayor will work with the South East England and East England regional assemblies to co-ordinate strategic waste management across the three regions.	2003/04 as strategies develop and ongoing	Mayor, Regional Assemblies, London RTAB, East and South East RTABs	High	Co-ordination of policy development and co-operative working	Co-ordinated strategic waste management, joint working

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4R: Longer-Term Structural Changes – a single waste disposal authority					
86. The Mayor believes the best way to achieve sustainable waste management in London is for waste disposal to be under the control of a single authority. The Mayor will develop an environmental and business case and consider the views of London waste authorities. In the light of London's progress towards the 2005/06 targets, the Mayor's position will be presented to Government, to consider appropriate changes to existing legislation.	2005/06	Mayor	High	BVPIs, DEFRA Survey, development of business case	Progress towards 25 per cent household waste recycled in London in 2005/06, presentation of business case if appropriate
4S: Transport of waste					
87. The Mayor will ensure, in his review of contracts, municipal waste management strategies and planning applications for waste facilities, that waste authorities have considered transport implications and, where appropriate, undertaken a full transport assessment of the impacts of the transportation of their waste. Waste authorities should demonstrate that meaningful and full consideration has been given to the use of water and rail transport.	Contract reviews as appropriate	Mayor, waste authorities	Med	Contracts, waste strategies, planning applications	Consideration of transport implications, increased use of rail and water transport for waste
88. The Mayor will encourage the use of sustainable modes of transport (particularly, rail, river and canal). Where materials cannot be managed locally, wharves and rail waste transfer stations that are, or can be made viable, for the movement of recyclables and residual waste should be protected through the London Plan.	Contract reviews, UDP reviews and planning applications where appropriate	Mayor, waste authorities, service providers	High	Contracts, Unitary Development Plans, Planning applications	Increased use of sustainable transport modes, protection of viable transfer stations
89. The Mayor will seek to ensure that all waste authorities encourage fuel management programmes, and that when waste contracts are reviewed, emissions criteria are specified for the vehicles used. Emissions criteria should comply with the currently applicable Euro standard, or the previous Euro standard with suitable after-treatment as a minimum, ie Euro II with Reduced Pollution Certificate until 2005. Waste	Contract reviews as appropriate	Mayor, waste authorities, service providers	Med	Contracts	Contract specifications

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
authorities should consider all vehicle options, including those which can achieve more stringent emissions standards for air quality, and which may also bring other benefits to the environment such as reduced noise or carbon dioxide emissions.					
90. The Mayor will encourage waste authorities to consider the potential to clean the exhaust emissions from their vehicle fleets, by retrofitting after treatment technologies (such as particulate traps), using cleaner fuels or purchasing the cleanest new vehicles. The Mayor encourages waste authorities to contact the Energy Savings Trust with regard to relevant grant funding.	2003/04 and ongoing	Mayor, waste authorities, service providers, Energy Savings Trust	High	Enquiries to Energy Savings Trust	Improvements to vehicle fleets
91. The Mayor will encourage waste authorities to minimise the environmental impact of waste transportation, including air pollution, noise (especially night time or early morning collections), energy use and traffic impacts by appropriate vehicle specifications, routing and operating practices.	Contract reviews and ongoing	Waste authorities, Mayor	Med	Contracts, survey of vehicle specifications, routing and operating practices	Contract specifications, reduced environmental impact through specifications and operating practices
4T: Funding					
92. The Mayor will seek to persuade the Government to provide London with its fair share of funding and also aim to enable waste authorities to develop partnerships and identify external sources of funds and provide a mechanism for significant leverage of other funding sources.	2003/04 and ongoing	Mayor will seek to persuade the Government	Key	Funding arrangements	London's share of funding
93. The Mayor will work with the Association of London Government and London's waste authorities to determine the required investment to achieve sustainable waste management. A joint case will then be presented to the Government for further investment and funding.	2003/04 and ongoing	Mayor, ALG, waste authorities	High	Required investment determined, case presented to Government	Appropriate level of funding received

Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
4U: Municipal waste contracts					
<p>94. The Mayor will require waste authorities to include contract conditions and specifications in waste or associated contracts, which:</p> <ul style="list-style-type: none"> • Reflect appropriate proposals and targets as set out in the Mayor's Municipal Waste Management Strategy for London. The Mayor's targets should be seen as the minimum contract performance requirements. • Enable future flexibility for the waste authority to continue to develop sustainable waste management. • Maintain and increase the use of rail and water transport. • Reflect best practice, through the tailoring of contract conditions and specifications to the specific requirements of the waste authority. • Consider equal opportunity for all. 	Contract reviews where appropriate	Mayor, waste authorities	Key	Contract reviews	Contracts specified in accordance with conditions
<p>95. The Mayor will develop best practice guidelines to assist waste authorities in the tailoring of contract conditions. The guidelines will be regularly reviewed and updated.</p>	By 2004/05	Mayor	High	Development of Best Practice Guidelines, contract reviews	Implementation of Best Practice Guidelines in contracts
<p>96. If considering any proposed new contracts involving the conventional incineration of municipal waste the Mayor would seek to ensure that as a minimum:</p> <ul style="list-style-type: none"> • Waste is subjected to pre-treatment to remove as much recyclable materials as is practicable before the residual waste is incinerated. • To ensure flexibility is maintained in order to allow movement up the waste hierarchy there should be no guaranteed minimum tonnage contracts. • State of the art emission limiting equipment and monitoring systems are used to reduce any potential health impacts. • Combined heat and power technologies are used. 	As appropriate	Waste authorities, Mayor, service providers	High	Contract reviews, planning applications	Minimum conditions adhered to

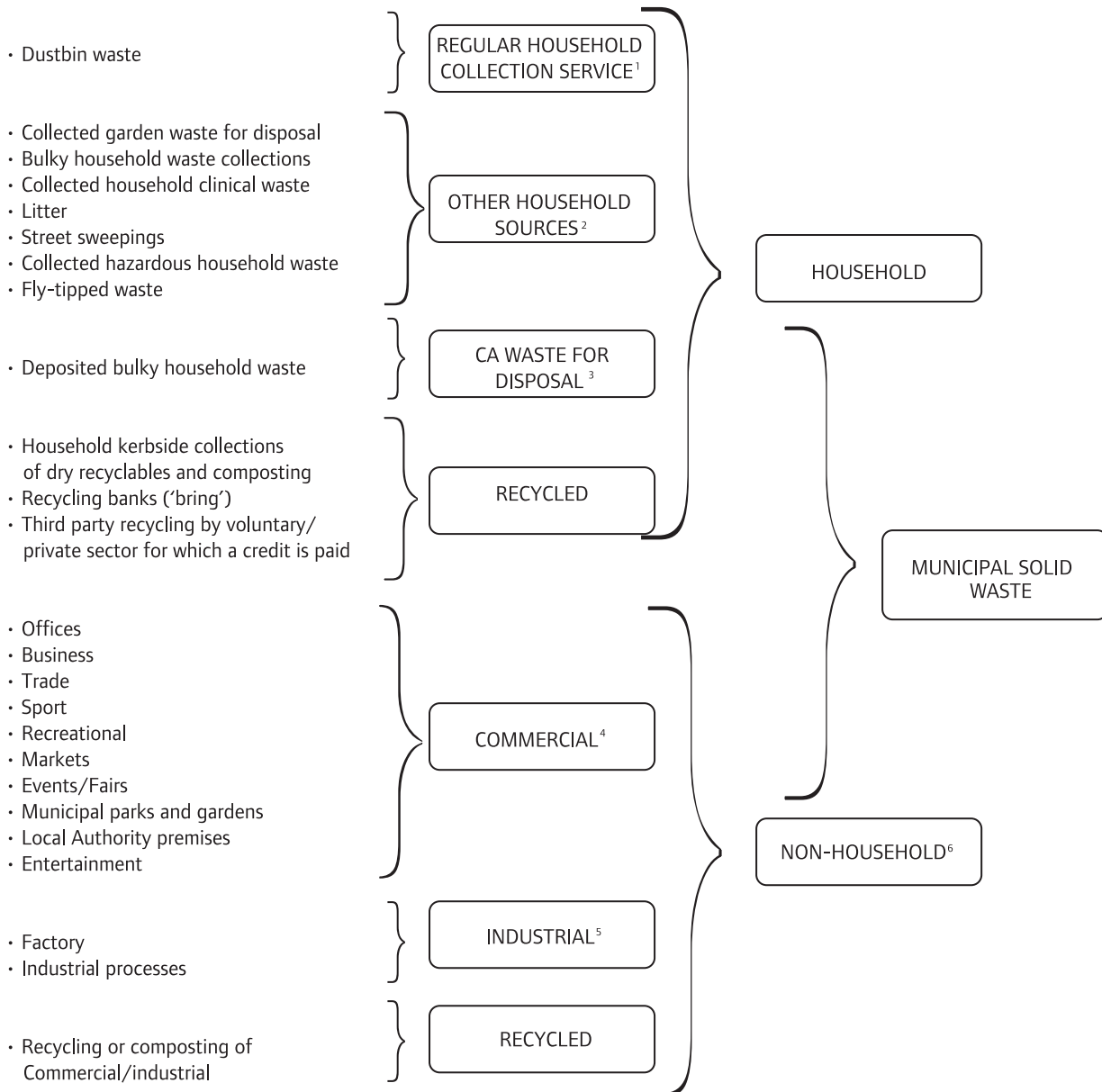
Proposal	Timescale (end of year indicated)	Responsible organisation(s)	Degree of priority	Monitoring	Evaluation
97. The Mayor will look to co-operate and seek to work jointly with waste authorities undertaking Best Value reviews of their waste services.	As appropriate	Mayor, Waste authorities	High	Best Value Reviews	Increased involvement in Best Value reviews
98. The Mayor will require that waste contracts are flexible enough to enable the incorporation of changes resulting from Best Value reviews and that the Best Value principle of continuous improvement has been addressed.	Contract reviews as appropriate	Waste authorities, Mayor	High	Contract reviews	Flexibility built into new and revised contracts
99. The Mayor requests waste authorities to fully consider the social, environmental and economic benefits when undertaking Best Value reviews of waste management services.	As appropriate	Waste authorities, Mayor	Med	Best Value Reviews	Full consideration in reviews
100. In order that waste disposal authorities can fully deliver Best Value in waste disposal contracts, the Mayor will encourage the Government to repeal, as soon as possible, Section 51(1)(a) – Schedule 2 of the Environmental Protection Act 1990.	Ongoing	Mayor, national Government	High	Consultation document on repeal	Repeal of legislation
4V: Municipal Waste Management Strategies					
101. The four statutory joint waste disposal authorities should each have a joint strategy that covers their own area. The 12 unitary authorities should consider how to work together in groups and consider preparing a joint strategy for each group. At a minimum each unitary authority should produce an 'implementation programme'. Joint strategies or 'implementation programmes' should be presented to the Mayor for consideration within 12 months of the final publication of the Mayor's Municipal Waste Management Strategy.	September 2004	Waste authorities	Key	Draft strategies or implementation programmes	Strategies and programmes developed in line with the Strategy

References and notes

- 1 GLA, The Mayors Draft Municipal Waste Management Strategy: Public Consultation Draft, pp. 46-57
- 2 London: Analytical Report, Strategy Unit, July 2003
- 3 Brown goods include items such as televisions and white goods include fridges and cookers
- 4 Please note three colours of glass would count as one material. A centralised collection of compostables would not count as a material this is covered separately. Paper and card collections would count as two separate materials.
- 5 Please note three colours of glass would count as one material. Paper and card collections would count as two separate materials.



appendix 1: What makes up municipal solid waste



- notes
- 1 'Regular household collection service' means wastes within Schedule 1 of the Controlled Waste Regulations 1992 – this may contain small amounts of commercial and industrial wastes in the case of rounds of mixed domestic and commercial hereditaments.
 - 2 'Other household sources' means wastes within Schedule 2 of the Controlled Waste Regulations 1992 – those from sources other than the regular collection service.
 - 3 'Civic Amenity Sites' refers to household wastes collected provided by local authorities under the Refuse Disposal (Amenity) Act 1978 for excess or large household and garden waste.
 - 4 'Commercial' - means wastes that collections authorities collect if requested to do so from sources covered in Schedule 4 of the Controlled Waste Regulations 1992.
 - 5 'Industrial' - means wastes from sources covered in Schedule 3 of the Controlled Waste Regulations 1992, which a collection authority can collect with consent from its waste disposal authority.
 - 6 'Non-household sources' – means any wastes collected by an authority from Schedules 3 and 4 of the Controlled Waste Regulations 1992.

appendix 2: Summary of London Recycling Fund Allocations in 2002/03

Applicant	Project Title	LRF Project Type	DEFRA category	LRF Fund Grant (Total capital and revenue £000's)
Bexley	Regional Bio-waste composting facility - East London	Infrastructure	Partnership	300
Brent	Organic waste kerbside collection	Kerbside	TRLP	490
Corporation of London	Estates recycling	Estates	TRLP	38
Croydon	Community Recycling Officer	Awareness	GP	39
Croydon	Home composting promotion	Waste Minimisation	GP	38
Croydon	Recycling collections from schools	Bring	GP	9
Croydon	Improvements to CA Site (Purley Oaks)	CA	GP	105
Ealing	Greenford Rd CA re-engineering project	CA	TRLP	464
East London Waste Authority	A kerbside bag multi material collection service	Kerbside	TRLP	800
Enfield	Development of N London CA Sites	CA	TRLP	300
Enfield - N London boroughs consortium	Development of Re-use & Recycling centres	CA	TRLP	72
GLA	Londonwide Capital waste awareness campaign	Awareness	General Project	445
GLA	Capital waste awareness campaign	Awareness	Partnership	1,000
Greenwich	SE London regional recycling centre	Infrastructure	Partnership	1,500
Hackney	Estates recycling	Estates	TRLP	310
Hammersmith & Fulham	Multi material kerbside collection system	Kerbside	TRLP	854
Haringey	Extension to kerbside recycling	Kerbside	TRLP	360
Harrow	Separation of green waste at CA site	CA	General Project	190
Harrow	Collection of organic waste	Kerbside	TRLP	481
Hillingdon	Kerbside collection of compostable garden waste	Kerbside	HP/Innovation	428
Hounslow	CA redevelopment-Space Way	CA	General Project	215
Islington led north London boroughs	Joint north London boroughs estates recycling	Estates	TRLP	2,693
Kensington & Chelsea	Increasing recycling participation rates	Awareness	TRLP	383
Kensington & Chelsea	Estates recycling	Estates	TRLP	16
Kingston	Estate and flat recycling service	Estates	HP/Innovation	120
Kingston upon Thames	Information and CA Site enhancements	Awareness	GP	37
Lewisham	Estates recycling	Kerbside	TRLP	1,136
Merton	Expansion of multi-material kerbside collection	Kerbside	General Project	641
Newham	Recycling Education and Promotion Officer	Awareness	TRLP	58
Redbridge	Multi material kerbside collection system	Kerbside	TRLP	111
Richmond	Multi material kerbside expansion	Kerbside	Partnership	558
Southwark	Re-engineering Manor Place CA site	CA	TRLP	364
Southwark	Estates & street recycling	Estates	TRLP	430
Sutton	Green Waste Composting Facility	Infrastructure	Partnership	2,000
Tower Hamlets	Estates Recycling	Estates	TRLP	1,095

Applicant	Project Title	LRF Project Type	DEFRA category	LRF Fund Grant (Total capital and revenue £000's)
Tower Hamlets	Developing London's community recycling initiatives	Awareness	Community	139
Tower Hamlets - CA	Northumberland Wharf – Civic Amenity site improvement plan	CA	Partnership	29
Waltham Forest	Green garden waste collection service	Kerbside	TRLP	400
Wandsworth	"Over the Rainbow" – kerbside recycling	Kerbside	TRLP	1,440
West London Waste Authority	West London joint organics project	Infrastructure	TRLP	1,052
Westminster	Litter and mansion/estate Recycling	Estates	HP/Innovation	160
Total				21,299

notes CA = Civic Amenity Site
 TRLP = Turning around low performers
 GP = General project
 HP = High performance
 LRF = London Recycling Fund

source www.londonwasteaction.org.uk, 2003

appendix 3: Municipal Solid Waste recyclable flows

The following information of waste recycling flows was undertaken by Enviro as part of a Technical Assessment of Waste Management in London in April 2003.

Tracking the flows of recyclable material is more complex than tracking the movements of refuse for a number of reasons:

- Not all waste collection or disposal authorities have detailed information on the destinations of their recyclables.
- Materials can be spot-marketed, meaning that destinations of materials can be changed or, once collected, these may not be subject to a simple contract with one reprocessor.
- Materials may well be sent to more than one destination.
- Organisations handling recyclables further down the recycling chain may be unwilling to provide details of where they send materials for onward management, on the basis of commercial confidentiality.

London Remade has recently undertaken a study to map waste flows from the Western Riverside Area of London (London Remade, 2003), this provided details of where recyclates are sent at each point in the chain, but also highlighted the difficulty in how this material is collected.

The following paragraphs consider key recyclables on a material by material basis, giving details of where these materials are likely to move to.

Cans and other metals

Cans collected for recycling are typically sorted into aluminium and steel types, bulked (to increase density and lower transport costs) and sent either to an intermediate processor or straight to the reprocessor. In the UK, there are a number of reproducers for steel but only one for aluminium cans (Alcan in Warrington). Table A3.1 below summarises information available on each of the steps in the flow of cans from borough recycling and bring collections in London. The table also gives information on flows of other metals.

Table A3.1 Known flows of cans and other metals from London's municipal waste

	Sort/ bulk	Processor	Reprocessors
Cans	Rainham (Sort)	AMG, Llanelli	Alcan, Warrington (Alu)
	Smugglers Way (Sort)	AMG, Hartlepool	AMG, Llanelli (Steel)
	Berryman (Bulk)	GD Metals, Edmonton	AMG, Hartlepool (Steel)
	Ashburton Grove (Bale)	Firbanks, Dunstable	Corus, Newport (Steel)
	LB Richmond (Sort)	Kanacan, Lincs	
	Queensland Place (Bulk)	EMR, Kent	
	Villers Road (Sort)		
	Cremorne Wharf (Bulk)		
	ECT (Bulk)		
	Benedict Wharf (Sort)		
	Brett Waste Mgt, Kent		
	Grosvenor, Crayford (Bulk)		
	Smugglers Way (Bulk)		
Fridges	Ozone Friends, London (Fridges)		
	Trienebens, Germany (Fridges)		
	EMR, Willesden (Fridges)		
Batteries	Darncrest, Essex (Batteries)	EMR, Erith (Metals)	
	G&P Batteries, Wednesbury (Batteries)	EMR, Willesden (Metals)	
	OSS Bridgend (Batteries)	DG Metal, London (Metals)	
	Vinton Metal, Crayford (Batteries)	GD Metal Recycling, Edmonton (Ferrous)	
Metals	ASM (Metals)		
	EMR, Brentford (Metals)		
	EMR, Stratford		

Source: London Remade (2002) London Remade Supply Infrastructure Project 2001/02. Information derived from Capital Waste Facts (2002) Factfiles, DETR (2000) Waste Strategy Materials Recycling Handbook (2003) GLA (2003)

Compost

Green wastes collected for composting in London are typically delivered directly to the composting plant where the material is both 'processed' (shredded) and 'reprocessed' (composted). Key composting plants have been identified for London however, boroughs have identified through the Capital Waste Factfiles (2002) that there are seven key composting plants, outside London, which currently used:

London

- Central Nursery, Croydon
- Cleanaway, Rainham
- Woodlands Farm Trust, Greenwich.

Outside London

- WRG, Dunbrik
- WRG, Chertsey
- Heatherlands, Ongar, Essex
- Pitsea, Essex
- Sevenoaks, Kent
- EQ, St Albans and Staples Corner
- Shorts, Ascot.

Glass

Glass is collected colour-separated or mixed in London. The vast majority of this material is crushed and cleaned (processed) to form cullet and then reprocessed into new containers. A smaller proportion of this material is sent to alternative markets in glass aggregate or glass sand. Table A3.2 lists the facilities known to be used by boroughs.

Table A3.2 Likely flows of glass from London's MSW

Sort bulk	Processor	Reprocessors
Queensland Place	Berryman, Dagenham	British Glass, Harlow (1)
Smugglers Way	Ind. Reclamations, Faversham	Export (1)
Berryman	British Glass, Harlow	Day Aggregates, Greenwich(2)
Cremorne Wharf	Day Aggregates, Greenwich/Brentford	Allied Glass, Leeds(1)
ECT		United Glass, Harlow(1)
		Beatson Clark, Rotherham(1)
		RMC, Dagenham (2)
		South Kirby(1)
		Rockware(1)

notes: (1) Manufacturer of Containers

(2) Manufacturer of Aggregates

source: London Remade (2002) London Remade Supply Infrastructure Project 2001/02. Information derived from Capital Waste Facts (2002) Factfiles, DETR (2000) Waste Strategy Materials Recycling Handbook (2003)

Paper and card

Paper collected for recycling is typically sent for baling and then sold on directly to the paper mill (reprocessor) or to a material merchant. Occasionally, paper is also sorted into grades (processing). Table A3.3 below lists the sites that have been identified in capitalwastefacts.com as locations where paper is baled, and the likely reprocessors (mills) for this material.

Table A3.3 Likely flows of paper and card from London's MSW:

Bulking	Sorting	Reprocessor
Mill Hill Depot	Rainham MRF	Aylesford, Kent
Angel Road, Edmonton	Villers Road, Kingston	BPB Paperboard, Purfleet
Smugglers Way	Grosvenor, Crayford	Cheshire, Ellesmere Port
Jenkins Lane	SITA, Barking	GWM, Kent
Queensland Place		Kemsley, Sittingbourne
Villers Road, Kingston		SCA, Kent
Cremorne Wharf, Shanks, Acton		Sevenside, Croydon
		Sevenside, Sittingbourne
		Sevenside, Beddington
		Sevenside, Berks
		Sevenside, Taplow
		Smurfitt, Kent
		St Regis, Kent

source: London Remade (2002) London Remade Supply Infrastructure Project 2001/02. Information derived from Capital Waste Facts (2002) Factfiles, DETR (2000) Waste Strategy Materials Recycling Handbook (2003), GLA (2003)

Plastics

Plastics collection in London is currently limited, however the material that is collected is generally bulked and then sent for sorting into the different polymer types. Processing is generally washing and granulation or flaking and reprocessing is typically manufacturing new plastics. Table A3.4 lists the locations at which material may be sorted, and likely reprocessors.

Table A3.4 Likely flows of plastic from London's MSW

Sort	Processing	Reprocessor
Villers Road, Kingston	Plastics Recovery Ltd, St Albans	Reprise, St Helens
Cleanaway, Rainham		EPP
Cremorne Wharf		Roydon Granulation
Firbanks, Sevenoaks		LInpac, Yorkshire
		British Polythene Industries
		Plastics Recovery, Preston
		Plysu Recycling
		Centriforce Retex
		Delleve
		Recoup, Peterborough
		Overseas / Small London Reprocessors (1)

Note: (1) Brook Lyndhurst (2002) identifies but does not name 20 London plastics reprocessors
 Source: London Remade (2002) London Remade Supply Infrastructure Project 2001/02.
 Information derived from Capital Waste Facts (2002) Factfiles, DETR (2000) Waste Strategy Materials Recycling Handbook (2003), GLA (2003)

Textiles and shoes

Textiles are typically collected by charitable organisations in London. These materials are then sorted into items that can be worn again (to be sold through charity shops or exported), and items that are made into industrial rags and wipers. See Table A3.5 below.

Table A3.5 Likely flows of textiles from London's MSW

Sort from other recyclables/ bulk	Processor sorting	Reprocessor
Cremorne Wharf	Oxfam, Southampton	Waste saver, Huddersfield
	TRAID, London	LM Barry, Canning Town
	Scope, Croydon	HB Textiles, Yorkshire
	LM Barry, London	John Cotton, Yorkshire
	Planet Aid	Kettering Textiles,
	Salvation Army, Kettering	Wellingborough
	Wastesaver, Huddersfield	European Recycling
	Black Country, West Midlands	Company (Shoes)

note: This is an indicative list only
source: London Remade (2002) London Remade Supply Infrastructure Project 2001/02.
 Information derived from Capital Waste Facts (2002) Factfiles, DETR (2000) Waste Strategy Materials Recycling Handbook (2003)

appendix 4: Recycling plans

The following provides a summary of recycling plan policies contained within London borough recycling plans

Plan	Plan period	Future changes
Barking and Dagenham	Revised 2000	Plans to develop Frizlands Lane CA site as a containerised Recycling Site, to be included in ELWA IWMS contract recycling service to be provided by the ELWA PFI contractor. Operation and management of CA site as part of ELWA IWMS contract. ELWA may require contractor to provide extra CA site facilities.
Barnet		Not available, website checked.
Bexley	1999 to 2004	MRF joint venture with neighbouring boroughs and private company. Attempt to enter into a partnership with the private sector to establish a MRF at one of the WRC sites. Trial green waste collection scheme (underway). Extra Bays planned Expand trial green waste scheme. Introduce plastics in kerbside scheme (dependant on MRF success).
Brent	Created 1993	All policies relate to pre-2000.
Bromley	1999 to 2005	Increasing 'bring' schemes, kerbside collection, encouraging more home composting.
Camden	1999 to 2005	Expand business glass recycling scheme to other areas. Introduce pilot door-to-door multi material scheme. Expand multi-material door-to-door scheme.
Corporation of London	1998 to 2002	Out of date.
Croydon		Not available, website checked.
Ealing	2nd consultation draft Feb 2001	Renew contract with ECTR and include requirement for increased tonnages to be collected. Increase 'bring' bank density for estates/high-rise buildings where kerbside is not effective. Increase recycling at Waste and Recycling Centres through improved layout and employment of extra attendants to enforce waste segregation. Three full-time assistant recycling officers should be appointed.
ELWA		Not available, website checked.
Enfield	April 99 to March 2003	There are no plans for expansion past March 2003 so all are currently in force.
Greenwich		Not available, website checked.
Hackney	Published 1993	Out of date.
Hammersmith and Fulham	1992 to 2000	Plan period ended.
Haringey		Not available, website checked.

Plan	Plan period	Future changes
Harrow	1999 to 2005	Complete introduction of Green Box Scheme across all suitable households. Introduce plastics to green box scheme once fully operational across the borough. Discussions to take place with WLWA to assess feasibility of collecting green waste at the kerbside and deliver to a new centralised composting site.
Havering		Not available, website checked.
Hillingdon	2001 to 2006	Expand kerbside for all paper grades, cans and plastic bottles by 2005/06. Expand kerbside for green waste to all relevant households by 2005/06. Implement trade waste recycling service. Increase the number of home composters distributed. Re-focus 'bring' sites, specifically targeting estates. Convert CA sites into local recycling centres including facilities for green/garden waste collection.
Hounslow	2001 October	Just gives potential options, no specific plan.
Islington	2000 to 2005	Introduce doorstep-recycling collections to properties served by weekly refuse collection. Introduce recycling facilities to medium and high-rise accommodation. Work with NLWA to try and divert more waste through Ashburton grove to the Edmonton Incinerator.
Kensington and Chelsea	2000 to 2005	Introduce at least one blue bin into communal waste storage areas of 95 per cent of mansion blocks and estates.
Kingston upon Thames		Not available, website checked.
Lambeth	2000 to 2005	Working with WRWA along with other boroughs on new waste disposal contract and recycling etc.
Lewisham		Not available, website checked.
Merton		Not available, website checked.
Newham	January 2001 March 2003	Plan period ended.
NLWA		Not available, website checked.
Redbridge	2000 to 2005	Aim to supply door-to-door collections to all suitable households subject to facilities and resources available. Increase the number of bring sites. Investigate having a garden waste facility at the Chigwell Road CA site. Expand estates recycling to 20 sites by April 2001.
Richmond upon Thames	1999 to 2005	Increase recycling facilities in multi-occupancy dwellings by 50 per cent. Expand recycling to meet a 40 per cent target by 2005.
Southwark	1998 to 2003	Door to door collections of paper to all kerbside properties by 2003. Introduce trial door-to-door scheme on estates. Introduce plastics recycling schemes by 2003.

Plan	Plan period	Future changes
Sutton	1999 to 2005	Green garden waste collection service during gardening months and central composting site opened by 2005. Blocks of flats to be provided with recycling banks.
Tower Hamlets	2000 to 2002	Plan period ended.
Waltham Forest	created 1995	Out of date.
Wandsworth	1999 to 2002	Plan period ended.
Westminster		Not available, website checked.
WLWA		Not available, website checked.
WRWA	1998/99	Plan period ended.

appendix 5: Municipal waste in London 2001/02 (thousand tonnes)

Authority	Type	Household waste					Non-household waste			Municipal waste	
		Collection round (bin) waste	Other collected waste	Civic amenity waste	Household recycling	Total household waste	Non-household waste for disposal	Non-household recycling	Total non-household waste	Total municipal recycling	Total municipal waste
Barking and Dagenham	WCA	56.1	9.1	49.7	2.0	116.9	12.0	0.0	12.0	2.0	128.9
Havering	WCA	76.5	8.3	39.9	8.4	133.1	0.0	0.0	0.0	8.4	133.1
Newham	WCA	77.2	13.7	26.8	3.3	121.0	18.0	0.0	18.0	3.3	139.0
Redbridge	WCA	68.0	4.6	22.8	8.2	103.6	12.2	0.0	12.2	8.2	115.8
East London Waste Authority	WDA	275.3	40.1	139.2	30.6	485.2	62.9	0.0	62.9	30.6	548.2
Barnet	WCA	120.1	3.7	7.4	11.5	142.7	19.3	0.1	19.4	11.6	162.2
Camden	WCA	71.7	9.3	2.7	11.2	94.9	39.0	0.2	39.2	11.4	134.1
Enfield	WCA	86.9	0.3	21.8	13.3	122.4	6.8	3.8	10.6	17.1	132.9
Hackney	WCA	84.1	2.2	2.8	1.1	90.2	24.9	0.0	24.9	1.1	115.1
Haringey	WCA	83.3	5.2	6.2	4.4	99.1	24.8	0.0	24.8	4.4	123.9
Islington	WCA	68.3	7.9	5.6	4.5	86.3	28.6	0.0	28.6	4.5	115.0
Waltham Forest	WCA	72.8	5.0	13.7	6.7	98.1	17.8	1.8	19.6	8.4	117.7
North London Waste Authority	WDA	591.4	36.3	60.5	54.0	742.3	175.0	4.8	179.7	58.8	922.0
Brent	WCA	95.1	9.6	7.9	7.0	119.6	0.0	0.0	0.0	7.0	119.6
Ealing	WCA	63.7	20.2	49.2	13.2	146.3	30.7	0.0	30.7	13.2	177.0
Harrow	WCA	64.4	2.6	22.4	9.6	99.0	14.7	0.0	14.7	9.6	113.6
Hillingdon	WCA	69.7	2.0	37.7	20.0	129.4	32.4	0.0	32.4	20.0	161.9
Hounslow	WCA	63.1	5.3	22.9	13.5	104.8	28.5	0.0	28.5	13.5	133.3
Richmond upon Thames	WCA	56.8	0.0	13.6	15.4	85.8	25.7	0.0	25.7	15.4	111.5
West London Waste Authority	WDA	420.8	40.4	157.8	70.3	689.2	149.8	1.1	150.9	71.4	840.1
Hammersmith and Fulham	WCA	48.0	6.2	0.0	5.4	59.6	35.0	0.4	35.4	5.8	95.0
Kensington and Chelsea	WCA	59.7	7.2	0.0	5.6	72.6	34.1	3.7	37.9	9.4	110.5
Lambeth	WCA	74.7	20.6	0.0	8.8	104.1	31.5	0.0	31.5	8.8	135.5
Wandsworth	WCA	70.5	23.7	0.0	7.8	102.0	31.9	4.0	35.9	11.7	137.8
Western Riverside Waste Authority	WDA	240.3	71.6	29.3	34.6	375.9	132.7	1.0	133.7	35.6	509.6

Authority	Type	Household waste					Non-household waste			Municipal waste	
		Collection round (bin) waste	Other collected waste	Civic amenity waste	Household recycling	Total household waste	Non-household waste for disposal	Non-household recycling	Total non-household waste	Total municipal recycling	Total municipal waste
Bexley	UA	73.1	4.4	11.8	22.8	112.1	25.9	2.9	28.8	25.7	140.9
Bromley	UA	86.8	10.7	39.5	22.8	159.8	37.1	0.0	37.1	22.8	197.0
Corporation of London	UA	4.9	1.9	0.0	0.0	6.8	62.0	1.0	63.0	1.0	69.8
Croydon	UA	77.3	15.3	14.4	14.8	121.8	71.1	2.5	73.6	17.3	195.4
Greenwich	UA	90.7	9.4	11.0	8.4	119.4	17.9	0.0	17.9	8.4	137.3
Kingston upon Thames	UA	36.8	3.5	19.3	12.9	72.5	8.6	0.0	8.6	12.9	81.1
Lewisham	UA	88.0	18.6	1.3	6.5	114.4	13.4	0.6	14.0	7.1	128.4
Merton	UA	34.6	9.5	15.0	10.6	69.7	29.2	1.6	30.8	12.2	100.5
Southwark	UA	79.0	12.9	1.5	3.8	97.2	34.7	0.1	34.8	3.9	132.0
Sutton	UA	47.3	14.6	16.5	13.7	92.1	8.3	0.1	8.4	13.7	100.4
Tower Hamlets	UA	66.6	6.3	1.7	2.1	76.7	23.6	0.0	23.6	2.2	100.3
Westminster	UA	49.9	22.7	0.0	6.9	79.4	143.6	3.9	147.5	10.8	226.9
Greater London	n/a	2,262.4	318.3	518.9	317.0	3,416.7	995.8	33.5	1,029.3	350.5	4,446.1

source: www.capitalwastefacts.com, 2003

notes: UA means Unitary Authority
WDA means Statutory Joint Waste Disposal Authority
WCA means Waste Collection Authority

Figures for each Waste Authority are based on their own DEFRA/GLA municipal waste management survey return. As a consequence there may be disparities Statutory Joint Waste Disposal Authorities and those reported by their constituent Waste Collection Authorities.

In aggregating the total for London, tonnages waste arisings (excluding recycling) are derived from UA and Statutory Joint Waste Disposal Authority returns only. Recycling tonnages comprise all London borough recycling and any additional recycling undertaken by Statutory Joint Waste Disposal Authorities (as reported in the DEFRA/GLA municipal waste management survey).

Statutory Joint Waste Disposal Authority household recycling totals include recycling undertaken by constituent Waste Collection Authorities for which a recycling credit is paid by the WDA.

appendix 6: Waste contracts in London

Table A6.1 Waste Collection Contracts

Borough	Contract	Contractor	Renewal date
Barking & Dagenham	Refuse & street cleansing	DSO	2000 (option to extend for four years)
Barnet	Refuse	DSO	Unknown
Bexley	Refuse	DSO	Unknown
Brent	Refuse & street cleansing	Onyx (UK) Ltd	2007
Bromley	Refuse	Onyx	Unknown
Camden Corporation	Refuse & street cleansing	Onyx	2010 (option to extend up to seven years)
	Refuse	MRS Environmental Services	2004
Croydon	Refuse	Cleanaway	Unknown – just started
Ealing	Refuse	Cardinal	2004 (option to extend for two years)
Enfield	Refuse	DSO	2004 (option to extend for three years)
Greenwich	Refuse	DSO	Unknown
Hackney	Refuse & street cleansing	DSO	Unknown
Hammersmith & Fulham	Refuse	DSO	2003 (option to extend for two years and a further two years)
Haringey	Refuse	Accord	2009 (option to extend for up to seven years)
Harrow	Refuse	DSO	2008
Havering	Refuse	Cleanaway Ltd	2004
Hillingdon	Refuse & street cleansing	DSO	Ongoing
Hounslow	Refuse	DSO	2001 (option to extend for two years)
Islington	Refuse & street cleansing	Accord	2013
Kensington & Chelsea	Refuse & street cleansing	SITA (GB) Ltd	2005
Kingston	Refuse	Onyx (UK) Ltd	Expired (out to tender)
Lambeth	Refuse	DSO	2004 (option to extend for two years)
Lewisham	Refuse & street cleansing	MRS Environmental Services	Ongoing
Merton	Refuse	DSO	2005
Newham	Refuse	DSO	Extended (undertaking best value review)
Redbridge	Refuse	MRS Environmental Services	2002 (option to extend for five years)
Richmond	Refuse & street cleansing	DSO	2003 (option to extend for two years)
Southwark	Refuse	DSO	2004/2005
Sutton	Refuse & street cleansing	DSO	2001/02 (undertaking best value review)
Tower Hamlets	Refuse & street cleansing	Onyx (UK) Ltd	2002 (option to extend for two years)
Waltham Forest	Refuse & street cleansing	DSO	2003
Wandsworth	Refuse	Onyx (UK) Ltd	2004
Westminster	Onyx (UK) Ltd	Onyx (UK) Ltd	2002 (option to extend for one year)

Table A6.2 Main Waste Disposal Contracts

Authority Disposal Route	Principal	Contractor	Minimum tonnage requirement (000s)	Renewal date (year in brackets is option to extend)
East London Waste Authority	Currently landfill and incineration/ proposed Mechanical Biological Treatment	Shanks waste Solution		2027
North London Waste Authority	Incineration	LondonWaste Ltd		2017
West London Waste Authority	Landfill Landfill Landfill	Unknown Shanks Hanson		Unknown 2007 2008 (option to extend for two years)
Western Riverside Waste Authority	Currently landfill /proposed incineration	Cory Environmental	none	2032
Bexley	Landfill	Cleanaway Ltd	none	2005 (option to extend for five years)
Bromley Corporation	Landfill Landfill	Onyx (UK) Ltd Cory Environmental		2005 2015
Croydon	Landfill	A&J Bull		2005 (option to extend for three years)
Greenwich	Incineration	No details		2024
Kingston	Landfill	A&J Bull	none	2008
Lewisham	Incineration	No details		2024
Merton	Landfill	A & J Bull		2003
Southwark	Landfill & incineration	No details		2004/2005
Sutton	Landfill	A&J Bull		2014
Tower Hamlets	Landfill	Cory Environmental	78	Expired (out to tender)
Westminster	Incineration and landfill	Onyx (UK) Ltd	120	2016

notes: DSO means Direct Service Organisation

glossary

Advanced conversion technologies are defined in the Renewables Obligation Order 2002 as meaning gasification, pyrolysis or anaerobic digestion, or any combination thereof.

Aggregates granular material used in construction. Aggregates may be natural, artificial or recycled.

Ambient Noise ongoing unwanted sound in the environment such as from transport and industry, as distinct from individual events, such as a noisy all-night party. Unless stated otherwise, noise includes vibration.

Anaerobic Digestion this is the biological degradation of organics in the absence of oxygen, producing biogas (typical composition of 65 per cent methane and 35 per cent CO₂) and residue (digestate) suitable for use as a soil improver.

Association of London Government the Association representing all the London boroughs and the Corporation of London.

Basel Convention the 1989 United Nations Basel Convention on the control of trans-boundary movements of hazardous wastes and their disposal provides a framework for a global system of controls on international movements of hazardous and certain other wastes.

Best Practicable Environmental Option (BPEO) a BPEO is the outcome of a systematic and consultative decision making procedure that emphasises the protection and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable costs, in the long term as well as in the short term.

Best Value Government programme to seek continuous improvement in service quality in the way in which authorities exercise their functions.

Biodegradable waste is defined in Council Directive 1999/31/EC on the landfill of waste as meaning any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard.

Biodiversity the diversity, or variety, of plants, animals and other living things in a particular area or region. It encompasses habitat diversity, species diversity and genetic diversity. Biodiversity has value in its own right and has social and economic value for human society.

Biomass is defined in the Renewables Obligation Order 2002 as meaning fuel used in a generating station of which at least 98 per cent of the energy content (measured over a period of one month) is derived from plant or animal matter or substances derived directly or indirectly therefrom (whether or not such matter or substances are waste) and includes agricultural, forestry or wood wastes or residues, sewage and energy crops (provided that such plant or animal matter is not or is not derived directly or indirectly from fossil fuel).

Bottom Ash burnt out residues from the bottom grate of waste incinerators, which represents between 20 and 25 percent of the processed waste by weight. Ferrous metals can be removed by magnetic separation for recycling and bottom ash itself is being increasingly used in the manufacture of masonry blocks and in road construction.

Bring Recycling refers to a recycling site, see recycling site. Known as such, as the recycler has to 'bring' their materials to the site.

Brownfield any land or premises which has previously been used or developed and is not currently fully in use, although it may be partially occupied or utilised. The land may also be vacant, derelict or contaminated but excludes parks, recreation grounds, allotments and land where the remains of previous use have blended into the landscape, or have been overtaken by nature conservation value or amenity use.

Central Composting large-scale schemes which handle kitchen and garden waste from households and which may also accept suitable waste from parks and gardens.

Certificate of Technical Competence (COTC) a certificate awarded by the Waste Management Industry Training and Advisory Board. The Environment Agency must be satisfied, when considering an application for a waste management licence under Part II of the Environmental Protection Act 1990, that the management of the activity will be in the hands of a technically competent person. In most cases, the person holding a Certificate of Technical Competence demonstrates this.

Civic Amenity Sites sites operated by either the Waste Disposal Authority (under the Environmental Protection Act 1990) or the local waste authority (under the Refuse Disposal (Amenity) Act 1978) where residents within a specified area can dispose of their household waste, in particular bulky waste, free of charge. The focus of these sites is due to change to concentrate on reuse and recycling. Also see Reuse and Recycling Centre.

Civic Amenity Waste a sub-group of household waste, normally delivered by the public direct to sites provided by the local authority. Consists generally of bulky items such as beds, cookers and garden waste as well as recyclables.

Clinical Waste waste which consists of human or animal tissue, bodily fluids, pharmaceuticals, sharps etc. and any waste arising from medical, dental veterinary or similar practices etc.

Combined Heat and Power the combined production of electricity and usable heat. Steam or hot water, which would otherwise be rejected when electricity alone is produced, is used for space or process heating.

Commercial Waste waste arising from premises which are wholly or mainly for trade, business, sport, recreation or entertainment as defined in Schedule 4 of the Controlled Waste Regulations 1992.

Community Sector including charities, campaign organisations and not-for-profit companies.

Composting this is the biological degradation of organic materials, such as garden and kitchen waste, in the presence of oxygen producing gas and residue suitable for use as a soil improver (see anaerobic digestion, central composting and home composting).

Congestion Charging applying charges to reduce the number of vehicles and level of congestion in congested areas.

Contaminated Land land that appears to the local authority (in whose area it is situated) to be in a condition, which is causing or may cause harm (to human health or the environment) or is likely to cause the pollution of controlled waters.

Controlled Waste household, industrial or commercial waste as set out in the Controlled Waste Regulations 1992.

Construction and Demolition Waste waste arising from the construction, repair, maintenance and demolition of buildings and structures, including roads. It consists mostly of brick, concrete, hardcore, subsoil and topsoil, but it can contain quantities of timber, metal, plastics and occasionally special (hazardous) waste materials.

Conventional incineration is the controlled burning of waste in the presence of sufficient air to achieve complete combustion. Unsorted

waste is fed onto a, usually inclined, grate and burnt as a red-hot mass as it moves through the furnace. For this reason the process is also sometimes referred to as 'mass burn'. Plants are generally large-scale, having an annual capacity of 100,000 tonnes or more. The term 'conventional incineration' is used in this Strategy to refer specifically to this type of processes as distinct from other thermal treatment processes such as pyrolysis, where air is absent, or gasification processes. The two existing waste incineration plants in London are both conventional incineration plants, and both plants recover energy in the form of electric power. Electricity generated in conventional incineration plants is not eligible for Renewables Obligation Certificates (ROCs). See also separate definitions of incineration, pyrolysis, gasification, and Renewables Obligation Certificates.

Dioxins polychlorinated dibenzo-para-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are generally referred to as dioxins and furans. They are a group of over 200 related chemicals, a small number of which are highly toxic. They are by products of chemical and combustion processes including waste incineration. Emissions from waste incineration fell by 82 per cent between 1990 and 2000 but this is still the largest source in the UK, accounting for 29 per cent of emissions in 2000.

Duty of Care the Duty of Care (Section 34 of the Environmental Protection Act 1990) places a general duty on waste producers (or anyone else with responsibility for waste) to take all reasonable steps to keep their waste safe. If they transfer their waste to someone else, they must ensure that that person is authorised to take it and can transport (See Registration of Waste Carriers), recycle or disposed of it safely. The duty of care does not apply to waste produced by householders in their own homes.

Energy Recovery from Waste (EfW) includes a number of established and emerging technologies, though most energy recovery is through incineration technologies. Many wastes are combustible, with relatively high calorific values – this energy can be recovered through (for instance) incineration with electricity generation.

Energy Recovery the recovery of useful energy in the form of heat and/or electric power from waste. Includes combined heat and power, combustion of landfill gas and gas produced during anaerobic digestion.

Environment Agency (England and Wales) The Environment Agency for England and Wales was formed by the Environment Act 1995. It took over the functions and responsibilities of its predecessor organisations, the National Rivers Authority, Her Majesty's Inspectorate of Pollution, the

83 Waste Regulators of England and Wales and a number of smaller Waste Technical Departments from the (former) Department for the Environment, Transport and the Regions.

Amongst other things the Agency's functions and duties include the management of radioactive waste, other forms of waste and industrial pollution control.

The Agency has been given a key role in implementing the National Waste Strategy and undertook the National Commercial and Industrial survey of Waste Arisings. It also regulates the waste industry through, amongst other things, the waste management licensing regime.

Environmental Impact Assessment the process whereby information about the environmental effects of a project is collected, assessed and taken into account in reaching a decision on whether the project should go ahead or not (DETR November 2000). See also Environmental Statement.

Environmental Protection Act 1990 (EPA 90) a new regulatory regime that came into force in 1990. It is designed to implement an approach to prevent harm to human health and the environment by ensuring an integrated (air, land and water) approach to environmental regulation and protection.

Environmental Technology Best Practice Programme (ETBPP) aims to demonstrate the benefits of managing resource use and reducing environmental impact to companies across the whole of the UK.

Exemptions from Licensing certain waste reclamation and recycling activities (which are not seen as a threat to human health or the environment) are exempt from waste management licensing requirements. This includes the storage of certain materials for recovery or reuse – although limits on quantities of material apply. These activities must however register with the Environment Agency.

Fly-tipping the illegal deposit of waste on land.

Fuel Cell acts like a constantly recharging battery, electrochemically combining hydrogen and oxygen to generate power. For hydrogen fuel cells, water and heat are the only by-products and there are no direct air pollution or noise emissions. They are suitable for a range of applications, including vehicles and buildings.

Functional Bodies The Mayor has responsibility for appointing members to, and setting budgets for, four new organisations: Transport for London (TfL), London Development Agency (LDA), London Fire and Emergency Planning Authority (LFEPA), Metropolitan Police Authority (MPA).

Gasification is defined in the Renewables Obligation Order 2002 as meaning the substoichiometric oxidation or steam reformation of a substance to produce a gaseous mixture containing two or all of the following: oxides of carbon, methane and hydrogen;

Government Office for London GOL is one of the nine regional offices of Central Government, which co-ordinates the work of Central Government Departments in the Regions.

Greater London The geographical area encompassed by the 32 London boroughs and the City of London, representing most of the continuous built-up area of London and covering 1600 KM².

Greater London Assembly The directly-elected London regional body comprising 14 constituency members and 11 pan-London members. A component of the Greater London Authority.

Greater London Authority The organisation responsible for carrying out the functions set out in the Greater London Authority Act, including the Mayor, Assembly and four functional bodies: the London Development Agency, Transport for London, the Metropolitan Police Authority and the London Fire and Emergency Planning Authority. There is a clear separation of powers within the GLA between the Mayor – who has an executive role, making decisions on behalf of the GLA – and the London Assembly, which has a scrutiny role.

Green Industries the business sector that produces goods or services, which compared to other, generally more commonly used goods and services, are less harmful to the environment.

Gross Domestic Product (GDP) a measure of the total flow of goods and services produced over a specified time period. It is obtained by valuing outputs of goods and services at market prices.

Household Waste all waste collected by Waste Collection Authorities under section 45(1) of the Environmental Protection Act 1990, plus all waste arisings from Civic Amenity sites and waste collected by third parties for which collection or disposal credits are paid under Section 52 of the Environmental Protection Act 1990. Household waste includes

waste from collection rounds of domestic properties (including separate rounds for the collection of recyclables), street cleansing and litter collection, beach cleansing, bulky household waste collections, hazardous household waste collections, household clinical waste collections, garden waste collections, Civic Amenity wastes, drop-off/'bring' systems, clearance of fly-tipped wastes, weekend skip services and any other household waste collected by the waste authorities. Household waste accounts for approximately four-fifths of London's municipal waste.

Home Composting compost can be made at home using a traditional compost heap, a purpose designed container, or a wormery.

Incineration normally refers to the controlled burning of waste in the presence of sufficient air to achieve complete combustion. Energy is usually recovered in the form of electric power and/or heat. The emissions are controlled under EU Directive 2000/76/EC. This Directive also applies to other thermal treatment processes such as pyrolysis and gasification, so the term incineration may be applied to a wider range of thermal waste treatment processes. See also separate definitions of conventional incineration, pyrolysis, and gasification.

Industrial Waste waste from any factory and any premises occupied by industry (excluding mines and quarries) as defined in Schedule 3 of the Controlled Waste Regulations 1992.

Inert waste is defined in Council Directive 1999/31/EC on the landfill of waste as waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.

Integrated Waste Management involves a number of key elements, including: recognising each step in the waste management process as part of a whole; involving all key players in the decision-making process and utilising a mixture of waste management options within the locally determined sustainable waste management system.

Integrated Pollution Prevention and Control (IPPC) the Integrated Pollution Prevention and Control Directive (96/61/EC Directive), as implemented in the Pollution Prevention and Control Regulations 2000, is

designated to prevent or, where that is not possible, to reduce pollution from a range of industrial and other installations, including some waste management facilities, by means of integrated permitting processes based on the application of best available techniques.

Kerbside Collection any regular collection of recyclable from premises, which can include collections from commercial or industrial premises as well as households. Excludes collection services delivered on demand. Also see recycling collections from homes

Land Use Planning the Town and Country Planning system regulates the development and use of land in the public interest, and has an important role to play in achieving sustainable waste management.

Landfill Sites are areas of land in which waste is deposited. Landfill sites are often located in disused quarries or mines. In areas where there are limited, or no ready-made voids, the practice of landraising is sometimes carried out, where some or all of the waste is deposited above ground, and the landscape is contoured.

Landfill Tax landfill operators are liable for tax on all consignments of waste disposed at landfill, except for certain exempt categories of waste. The rate of tax for 2002/03 is £2 per tonne for inert waste and £13 per tonne for non-inert waste (and set to rise to £1 per year to £15 per tonne by 2005).

Landfill Tax Credit Scheme the tax is paid quarterly to the Inland Revenue. The Landfill Tax Credit scheme allows up to 20 per cent of the funds generated by the tax to be channelled into bodies with environmental objectives. The aim of the scheme mirrors those of the tax, in that it aims to help projects which benefit communities in the vicinity of landfill sites, therefore helping to compensate for the local environmental impacts of landfilling. The system of registering Environmental Bodies and approving projects is overseen by ENTRUST.

Landspreading is the spreading of certain types of waste onto agricultural land for soil conditioning purposes. Sewage sludge and wastes from the food, brewery and paper pulp industries can be used for this purpose.

Licensed Site a waste disposal or treatment facility, which is licensed under the Environmental Protection Act for that function.

Life Cycle Analysis/Assessment (LCA) the systematic identification and evaluation of all of the benefits and disbenefits associated with a product or function through its entire life ('cradle to grave'). This can

provide a basis for making strategic decisions on the ways in which particular waste in a given set of circumstances can be most effectively managed, in line with the principles of Best Practicable Environmental Option, the waste hierarchy and the proximity principle. See WISARD.

Local Authority Waste Disposal Company (LAWDC) – s32. of the Environmental Protection Act 1990 required that waste disposal functions be discharged through waste disposal contractors. This could be either a private business or arms length companies formed by the Waste Disposal Authority. LAWDCs are the arms length companies formed from WDA's.

London Plan see 'Spatial Development Strategy'.

Mass burn incineration See conventional incineration.

Mayoral Strategies the Mayor is required by the Greater London Authority Act 1999 to produce eight strategies that together will lay out a blueprint for the future of London. These are Air Quality, Ambient Noise, Biodiversity, Cultural, Economic Development, Spatial Development (the London Plan), Transport and Municipal Waste Management. In addition to these eight statutory strategies, the Mayor (using his general power to do anything which he considers will further one of his three principal purposes) is developing policy initiatives across a wide range of other areas important to Londoners' lives. These include homelessness, domestic violence, drug and alcohol abuse, children and others. There will also be an Energy Strategy.

MRF (Material Reclamation Facility) a transfer station for the storage and segregation of recyclable materials. Also sometimes known as Material Recycling Facility or Materials Recovery Facility.

Multi-Material Kerbside Collection (MMKC) the collection from homes of more than one type of material for recycling. The collection can be made using a box, or boxes, from which materials are sorted into separate containers on a collection vehicle or could be mixed together in a bag and sorted later at a MRF.

Municipal Waste – see Municipal Solid Waste (MSW)

Municipal Solid Waste (MSW) this includes all waste under the control of local authorities or agents acting on their behalf. It includes all household waste, street litter, waste delivered to council recycling points, municipal parks and gardens wastes, council office waste, Civic Amenity waste, and some commercial waste from shops and smaller trading estates

where local authorities have waste collection agreements in place. It can also include industrial waste collected by a waste collection authority with authorisation of the waste disposal authority.

New Deal for Communities a central Government initiative that supports the intensive regeneration schemes that deal with problems such as poor educational attainment and poor job prospects in a small number of deprived local authorities.

New and Emerging Technologies technologies that are either still at a developmental stage or have only recently started operating at a commercial scale. May include new applications of existing technologies. In relation to waste, these include anaerobic digestion, Mechanical Biological Treatment (MBT), pyrolysis and gasification.

Planning Policy Guidance Notes (PPGs) and Mineral Planning Guidance Notes (MPGs) Government Policy Statements on a variety of planning issues, including waste planning issues, to be taken as material considerations, where relevant, in deciding planning applications.

Precautionary Principle where significant environmental damage may occur, but knowledge on the matter is incomplete, decisions made and measures implemented should err on the side of caution.

Producer Responsibility is about producers and others involved in the distribution and sale of goods taking greater responsibility for those goods at the end of the products life.

Proximity Principle dealing with waste as near as practicable to its place of production.

Pyrolysis is defined in the Renewables Obligation Order 2002 as meaning the thermal degradation of a substance in the absence of any oxidising agent (other than that which forms part of the substance itself) to produce char and one or both of gas and liquid;

Recovery is defined in Waste Strategy 2000 as meaning as meaning obtaining value from waste through reuse; recycling; composting; other means of material recovery (such as anaerobic digestion); or energy recovery (combustion with direct or indirect use of the energy produced, manufacture of refuse derived fuel, gasification, pyrolysis and other technologies). In addition, certain operations are defined as recovery operations in Annex IIB of Council Directive 91/156/EEC of 18 March 1991 amending Directive 75/442/EEC on waste.

Recycling involves the reprocessing of waste, either into the same product or a different one. Many non-hazardous industrial wastes such as paper, glass, cardboard, plastics and scrap metals can be recycled. Special wastes such as solvents can also be recycled by specialist companies, or by in-house equipment.

Recycling collections from homes refers to any regular collection of recyclables from households, often using a bag, separate wheeled bin or a box. Excludes collection services delivered on demand. Commonly referred to a 'kerbside' or 'door to door' collections.

Recycling Plans under Section 55. of the EPA 90, WCA's must also draw up a plan for the recycling of waste. This should include details of the amounts and types of (controlled) waste to be recycled, arrangements for dealing with it and the associated costs.

Recycling Site a group of containers for the collection of a variety of materials for recycling. Often located in supermarket or public building car parks or on street corners. Commonly referred to as 'bottle banks' but usually collecting a variety of materials. Also see bring site.

Reduction achieving as much waste reduction as possible is a priority action. Reduction can be accomplished within a manufacturing process involving the review of production processes to optimise utilisation of raw (and secondary) materials and recirculation processes. It can be cost effective, both in terms of lower disposal costs, reduced demand for raw materials and energy costs. It can be carried out by householders through actions such as home composting, reusing products and buying goods with reduced packaging.

Regional Self-sufficiency dealing with wastes within the region or country where they arise.

Registration of Waste Carriers any person who carries (controlled) waste in the course of any business with a view to profit, is required to be registered with the Environment Agency.

Renewables Obligation Certificates are certificates issued when electricity is generated from renewable sources. The Electricity Act 1989 requires electricity suppliers to meet a certain percentage of their total sales from renewable sources. Under the Renewables Obligation Order 2002, only plants that generate electricity from biomass will be eligible although the biomass may be a waste. Plants processing wastes must, however, use advanced conversion technologies in order to be eligible,

and it is only the biomass component of the waste that will earn Renewables Obligation Certificates or ROCs. Advanced conversion technologies are defined in the Order as anaerobic digestion, gasification and pyrolysis. Electricity generated through the conventional incineration of mixed waste is not eligible. See also separate definitions of conventional incineration, gasification, incineration and pyrolysis.

Residual waste is that portion of the waste stream collected by local authorities which is not re-used, recycled or composted and remains to be treated through the recovery of energy and/or materials or through disposal to landfill.

Residues are secondary waste materials requiring further treatment or disposal following a waste recycling, composting or treatment process. For example, bottom ash following the incineration of waste or contaminated recyclable material from Material Reclamation Facility.

Reuse can be practised by the commercial sector with the use of products designed to be used a number of times, such as reusable packaging. Householders can purchase products that use refillable containers, or reuse plastic bags. The processes contribute to sustainable development and can save raw materials, energy and transport costs.

Reuse and Recycling Centres are Civic Amenity sites which have changed their emphasis in operation from disposal towards reuse and recycling. Also see Civic Amenity sites.

Separate Collection recycling collection schemes from homes where materials for recycling are collected either by different vehicle or at a different time to the ordinary household waste collection.

Section 106 Agreements planning obligations on persons with an interest in land in order to achieve the implementation of relevant planning policies as authorised by Section 106 of the Town and Country Planning Act 1990.

Self-sufficiency in relation to waste this means dealing with wastes within the administrative region where they are produced.

Social Exclusion a shorthand term for what can happen when people or areas suffer from a combination of linked problems such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health and family breakdown.

South East Region the South East Region runs in an arc around London from Kent at the South East extremity along the coast to Hampshire, Southampton and Portsmouth in the South West, and then to Milton Keynes and Buckinghamshire in the North. In total it encompasses 19 counties and unitary authorities and 55 district authorities.

Spatial Development Strategy one of the eight strategies for London that the Mayor is required by law to produce (the Greater London Authority Act 1999). It will replace existing Strategic Planning Guidance for London (RPG3). The Mayor has chosen to call it the London Plan.

Special Waste waste which because of the risks posed to human health and the environment (is dangerous to life, has a combustion flashpoint of 21°C or less, or is a medical product) are subject to additional controls under the Special Waste Regulations 1996. Before such waste can be collected, the waste producer must notify the Environment Agency of the waste's final destination through a Consignment Note system. All those party to the waste transfer must retain copies of the completed note on a register for at least three years.

Sustainable Development development that is sustainable is that which can meet the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable Waste Management means using material resources efficiently, to cut down on the amount of waste we produce. And where waste is generated, dealing with it in a way that actively contributes to the economic, social and environmental goals of sustainable development.

Transport for London (TfL) a functional body of the Greater London Authority, accountable to the Mayor for implementing his Transport Strategy, with responsibility for the operation of buses, the Docklands Light Railway, Croydon Tramlink, and in due course the Underground, and for regulating taxis and private hire vehicles, and operation of the Transport for London Road Network.

Treatment involves the chemical or biological processing of certain types of waste for the purposes of rendering them harmless, reducing volumes before landfilling, or recycling certain wastes.

Unitary Authority a local authority, which has the responsibilities of both Waste Collection and Waste Disposal Authorities.

Unitary Development Plans (UDPs) statutory plans produced by each borough that integrate strategic and local planning responsibilities through policies and proposals for development and use of land in their area.

Virgin Aggregates granular material used in construction. Virgin aggregates are natural and have not previously been used.

Waste the strict legal definition of waste is extremely complex but it encompasses most unwanted material which has fallen out of the commercial cycle or chain of utility, which the holder discards, or intends to, or is required to discard.

Waste Arising the amount of waste generated in a given locality over a given period of time.

Waste Collection Authority (WCA) the authority responsible for arranging the collection of household waste in their area (in London this is on a boroughwide basis) and commercial or industrial waste on request. They must also produce a 'Recycling Plan'. (See recycling plans)

Waste Disposal this is defined by the list of operations that constitute disposal (for under Part III of Schedule 4 of the Waste Management Licensing Regulations). This includes landfill, land raising, incineration, permanent storage etc.

Waste Disposal Authority (WDA) the Authority responsible for arranging for the disposal of waste collected in their area by the Waste Collection Authority. They also provide sites where householders can deposit waste free of charge (Civic Amenity sites).

Waste Disposal Authorities are the county councils in non-metropolitan areas. Special arrangements apply in some metropolitan areas and unitary councils, including London and in other metropolitan areas the District Councils are the WDA's. See Local Authority Waste Disposal Company (LAWDC).

Waste Hierarchy suggests that: the most effective environmental solution may often be to reduce the amount of waste generated – reduction; where further reduction is not practicable, products and materials can sometimes be used again, either for the same or a different purpose – reuse; failing that, value should be recovered from waste, through recycling, composting or energy recovery from waste; only if none of the above offer an appropriate solution should waste be disposed.

Waste Management Industry the businesses (and not-for-profit organisations) involved in the collection, management and disposal of waste.

Waste Management Licensing a waste management licence (operated and enforced by the Environment Agency) authorises the treatment, keeping or disposal of waste. These are separate but complimentary to the Land Use Planning System. See Exemptions from Licensing.

Waste Recycling Credits payments have to be made by a Waste Disposal Authority to a Waste Collection Authority who retains waste for recycling. This amount is intended to represent the net saving of expenditure on the disposal should it have been disposed of. There is also provision to pass savings in both collection and disposal costs to voluntary bodies or other who organise recycling schemes.

Waste Transfer Station a site to which waste is delivered for sorting prior to transfer to another place for recycling, treatment or disposal.

WISARD (Waste Integrated Systems Assessment for Recovery and Disposal) a tool developed by the Environment Agency to assist in assessing the LCA of waste management systems.

World City a globally successful location for a range of functions, particularly business, culture and tourism, and headquarters and government functions; currently applying to only a small number of the world's great cities – London, New York, Paris and Tokyo.

abbreviations

ALG	Association of London Government
BPEO	Best Practicable Environmental Option
BVPI	Best Value Performance Indicator
CA	Civic Amenity
CEN	The European Committee for Standardisation
CFC	Chlorofluorocarbons
CHP	Combined Heat and Power
CIPFA	Chartered Institute of Public Finance
CPRE	Council for the Preservation of Rural England
DEFRA	Department for Environment, Food and Rural Affairs
DETR	(former) Department of the Environment, Transport and the Regions
DSO	Direct Service Organisation
DTI	Department of Trade and Industry
DVLA	Driver and Vehicle Licensing Agency
EA	Environment Agency
EfW	Energy from Waste
ELWA	East London Waste Authority
ELV	End of Life Vehicle
ENCAMS	Environment Campaigns (formerly the Tidy Britain Group)
EPA	Environmental Protection Act 1990
EPCS	Environmental, Protective and Cultural Services
EU	European Union
GDP	Gross Domestic Product
GLA	Greater London Authority
GLC	Greater London Council
IDeA	Improvement and Development Agency
LAWDC	Local Authority Waste Disposal Company
LDA	London Development Agency
LWA	London Waste Action
LWRA	London Waste Regulation Authority
MME	Mechanised Metal Extraction
MRF	Materials Reclamation Facility
MSW	Municipal Solid Waste
NFFO	Non-Fossil Fuel Obligation
NGO	Non Governmental Organisation
NLWA	North London Waste Authority
NWAI	National Waste Awareness Initiative
ODS	Ozone Depleting Substance

OECD	Organisation for Economic Co-operation and Development
Ofgem	The Office of Gas and Electrical Markets
PET	Polyethylene terephthalate
PCB	Polychlorinated biphenyls
PFI	Private Finance Initiative
PPG	Planning Policy Guidance
ppm	Parts per million
PVC	Polyvinyl chloride
ROC	Renewables Obligation Certificates
RPG	Regional Planning Guidance
RSPB	Royal Society for Protection of Birds
RTAB	Regional Technical Advisory Body
SAHSU	Small Area Health Statistics Unit
SDS	Spatial Development Strategy
SELCHP	South East London Combined Heat and Power
SERPLAN	South East Regional Planning Conference
SRB	Single Regeneration Budget
SRDF	Sub Regional Development Framework
TfL	Transport for London
UA	Unitary Authority
UDP	Unitary Development Plan
UK	United Kingdom
UN	United Nations
US	United States
USEPA	United States Environmental Protection Agency
WCA	Waste Collection Authority
WDA	Waste Disposal Authority
WEEE	Waste Electrical and Electronic Equipment
WLWA	West London Waste Authority
WRAP	Waste Resources Action Programme
WRWA	Western Riverside Waste Authority

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WISARD (Waste Integrated Systems Assessment for Recovery and Disposal)

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Tiếng Việt
Nếu bạn muốn bản sao của tài liệu này bằng
ngôn ngữ của bạn, hãy gọi điện theo số hoặc
liên lạc với địa chỉ dưới đây.

Greek

Αν θα θέλατε ένα αντίγραφο του
παρόντος εγγράφου στη γλώσσα
σας, παρακαλώ να τηλεφωνήσετε
στον αριθμό ή να επικοινωνήσετε
στην παρακάτω διεύθυνση.

Turkish

Bize telefon ederek ya da yukarıdaki
adrese başvurarak bu belgenin
Türkçe'sini isteyebilirsiniz.

Punjabi

ਜੇ ਤੁਸੀਂ ਇਸ ਦਸਤਾਵੇਜ਼ ਦੀ ਕਾਪੀ ਆਪਣੀ ਮਾਂਝ
ਬੋਲੀ ਵਿੱਚ ਚਾਹੁੰਦੇ ਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਫੋਨ ਨੰਬਰ 'ਤੇ
ਸੰਪਰਕ ਕਰੋ ਜਾਂ ਹੇਠਾਂ ਦਿੱਤੇ ਠਿਕਾਣੇ 'ਤੇ ਸੰਪਰਕ ਕਰੋ।

Hindi

यदि आप इस दस्तावेज़ की प्रति अपनी भाषा में चाहते हैं,
तो कृपया निम्नलिखित नम्बर पर फोन करें अथवा दिये
गये पता पर सम्पर्क करें।

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বা ঠিকানায় অনুগ্রহ করে যোগাযোগ করুন।

Urdu

اگر آپ اس دستاویز کی نقل اپنی زبان میں چاہتے
ہیں، تو براہ کرم نیچے دیئے گئے نمبر پر فون کریں
یا دیئے گئے پتے پر رابطہ قائم کریں۔

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