

***AN ASSESSMENT OF OPTIONS FOR
RECYCLING LANDFILL TAX REVENUE***

Final Report

Prepared by



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EXECUTIVE SUMMARY

This Report presents the results and conclusions of an independent project undertaken by Integrated Skills Limited ("the Consultants") for HM Treasury to provide an evidence-based assessment of the full range of options for recycling revenue from the landfill tax increases from 2005-6 to business, in order to tackle market failures in ways which will help business to reduce the volume of waste which it sends to landfill. The key requirements of the Project Terms of Reference are summarised in Appendix A.

PROJECT BACKGROUND

The landfill tax was introduced in October 1996 in order to encourage efforts aimed at minimising the amount of waste generated, developing more sustainable waste management techniques and contributing to the achievement of the Government's waste strategy targets through the diversion of waste away from landfill.

In line with the five-year escalator announced by the Government in 1999, the landfill tax rate for active waste was increased from £13 to £14 per tonne on 1 April 2003 and will be increased to £15 per tonne from 1 April 2004. Following consultation, the 2003 Budget confirmed that the standard rate of landfill tax will subsequently be increased by £3 in 2005-06 to £18 per tonne, and by at least £3 per tonne in the years thereafter, on the way to a medium-to-long term rate of £35 per tonne. It was also announced that the increase in the standard rate of landfill tax will be introduced in a way that is revenue neutral to business as a whole.

Initial consultations with business and other stakeholder groups indicated that there is broad support for a package of measures to meet the revenue neutrality commitment, including some tailored support to those sectors facing the greatest waste management challenges. This project is intended to inform the process of selecting and developing such a package of measures.

PROJECT OBJECTIVES

The primary objective of this project was therefore to identify and assess options for recycling the revenues from projected increases in landfill tax back to business in ways that will help to achieve revenue neutrality.

The secondary objective was to identify those options that offer the greatest potential for promoting and accelerating the diversion of business waste away from landfill.

KEY ISSUES / DRIVERS

Management of Business Wastes

There are a number of key issues and considerations that influence the management of business wastes:

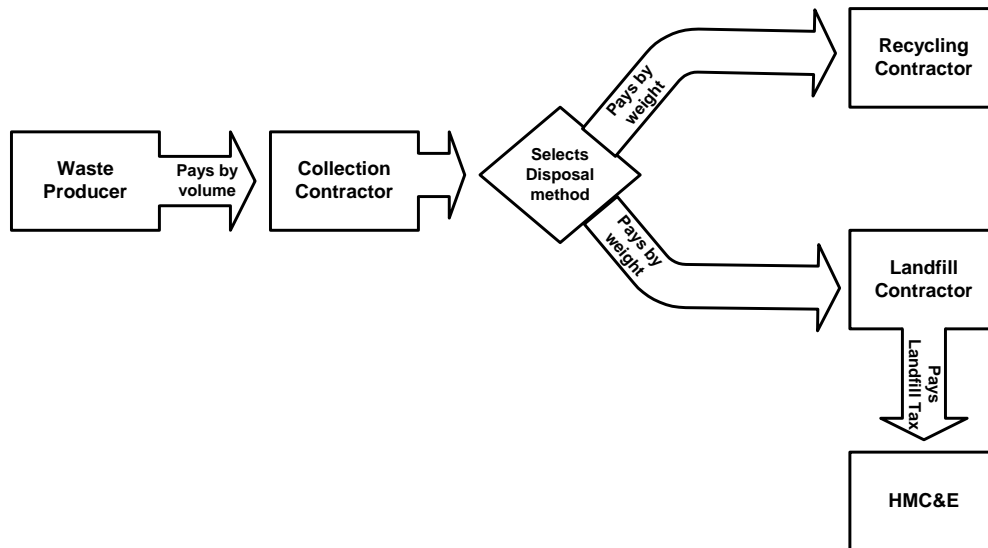
- § Waste management is seldom at the forefront of the average business waste producer's mind. Large companies will frequently employ an environmental manager with an interest in controlling both the cost and even the way in which the waste is managed. However, in the case of small and medium-sized enterprises, waste is often seen simply as a distraction. The perceived cost is small compared to the costs of wages, raw materials and other inputs, and the cost of the energy and resources that are lost when waste is created is seldom taken into account. For this reason, many businesses devote little time or effort to considering how their waste could be reduced or managed more effectively.
- § The methods employed for managing the wastes generated by most businesses are usually decided by waste management service providers. These companies generally provide minimal information to their customers so that, for example, only the very largest waste producers are



likely to know how much landfill tax they actually pay. Typically, charges for managing business waste are made by volume rather than by weight.

- § Local authorities are also significant providers of waste management services to businesses, particularly to smaller commercial waste producers. The wastes that local authorities collect from businesses are normally included in statistics as municipal waste.
- § Landfill tax is paid by the landfill operators. Information from HM Customs and Excise shows there were 715 operating 1,284 landfill sites as at 31 March 2002.
- § Landfill operators may also provide a collection service for business waste producers, but even the largest companies often use landfill facilities operated by other contractors.
- § The UK waste management industry currently has an annual turnover of around £4.2 billion. The top six waste management companies account for at least 40% of the total waste management sector turnover.
- § It has been estimated that some £5 billion of investment is needed in new facilities in order to comply with the requirements of the EU Landfill Directive, the majority of which is required for new facilities to divert biodegradable waste. Of this £5 billion, it has been suggested that about £1 billion has been invested to date, leaving a further £4 billion yet to be invested.
- § At present, the landfill tax is often viewed simply as a burden on business and many smaller companies are unaware of the tax element in their waste management charges.

The following figure illustrates the typical flows of waste and payment arrangements for business waste management services:



Reliance on Landfill

According to a report¹ published by the Advisory Committee on Business and the Environment (ACBE) in 2001, around 52% of the total business waste generated is landfilled. However, this overall figure masks considerable variations in the reliance on landfill between different business sectors. Certain sectors generate considerably more waste than others. Some, such as the motor vehicles industry, have made considerable progress on waste minimisation and send relatively little waste to landfill. Others, such as the food, drink and tobacco and basic metals sectors, send a relatively low proportion of waste to landfill but overall tonnages are high. The commercial sector as a whole proportionally has a significantly greater reliance on landfill than the industrial sector.

¹ Resource Productivity, Waste Minimisation and the Landfill Tax: ACBE, August 2001



Waste Minimisation

The reduction of waste generation at source is an important aspect of the diversion of waste from landfill. Unfortunately, businesses frequently fail to recognise the full costs of the wastes they generate – especially the cost of wasted raw materials and the added value lost on products which fail to meet quality standards and then become waste. Instead, they tend to look only at the costs of collecting and disposing of their waste rather than the broader issue of resource efficiency.

A recent study commissioned by the Environment Agency estimated that the potential for improvement of resource efficiency in the 20% of businesses where opportunities are expected to exist amounts to some £2.4 billion.

Market Development for Recyclables

There are a number of significant barriers to the sustained uptake of materials recovered for recycling:

- § **Market demand.** A lack of demand for products with increased recycled content means that companies have little incentive to manufacture such products.
- § **Feedstock substitution.** Manufacturers are often reluctant to modify their production processes to use recovered materials in place of virgin materials, or to move from the tried and tested to the unknown.
- § **Price differentials.** Recovered materials are not always price competitive with virgin raw materials, particularly when systems for collecting such materials are sub-optimal and the costs of collection are high.
- § **Standards and specifications.** The use of recovered materials is often constrained by the absence of recognised industry standards for such materials, affecting both the adoption of recovered materials as a feedstock and the marketing of products with recycled content.

For these reasons, efforts to develop markets are vital if recycling is to be substantially expanded. Market development is first and foremost a regional economic development issue, aimed at the creation of new jobs and business opportunities at a regional/local level, using recovered materials as a raw material in the development of new products and processes.

Alternatives to Landfill

The main alternatives to landfill are materials recycling, composting and Energy from Waste (EfW).

The engineering and operating costs for **landfill facilities** are increasing due to the impact of the Landfill Directive. These vary geographically due to local conditions, but a typical cost might be £10-£15 per tonne before landfill tax. When the landfill tax rate reaches £15 per tonne, the total cost will be £25-£30 per tonne of waste landfilled, rising to £45-£50 when the tax reaches the medium-to-long term rate of £35 per tonne.

Typical costs for **EfW facilities** lie between £35 and £55 per tonne, depending on plant size and specification. EfW will thus be competitive when the higher rates of landfill tax become effective.

Composting typically costs about £20 per tonne for an open windrow system and £25-45 per tonne for in-vessel composting systems, which are generally more acceptable and for which it is easier to obtain the necessary consents. However, composting can only be used for processing certain types of business waste.

The costs of **materials recycling** are more difficult to estimate, but a recent study for DEFRA identified the following costs per tonne for the sorting and reprocessing of packaging waste, net of the value of the recovered material and excluding the cost of collection:

Paper	£10 - £23
Glass	£17
Steel	£10 - £42
Plastic	£31 - £207
Wood	£5 - £45



The cost ranges reflect differences in the amount of sorting required after collection. In order to attain the lower end of the cost ranges, it is usually necessary for the waste producer to segregate recyclables at source. In the case of paper, for example, this will mean sorting by the different grades of paper. Source segregation involves an additional cost to the waste producer. Furthermore, collection services for such segregated recyclables are not readily available at the present time – especially where the quantities involved are relatively small.

The main implications of the above are that:

- § **Energy from Waste** is currently not competitive in cost terms with landfill and this situation will persist until the landfill tax reaches higher levels.
- § **Composting** has a restricted application to business waste but is beginning to become competitive with landfill.
- § **Recycling** is only competitive with landfill when the materials can be readily source segregated, in which case they are probably already being recycled.
- § There is a need to develop and provide more *cost-effective collection services for recyclables*.
- § If additional capacity for diverting waste from landfill is to be developed more rapidly, there are *significant cost barriers to overcome* and, until landfill tax rates reach the higher levels, some subsidies will be required to trigger the necessary investments.

Policy and Legislation

The Government has set a number of objectives in terms of the environmental standards it wishes to achieve. Some of these are imposed by EU legislation – for example the Landfill Directive and the Packaging and Packaging Waste Directive, the requirements of which have been incorporated into UK law. Others are expressed in strategy documents, notably Waste Strategy 2000 and the Strategy Unit's recent publication "Waste Not Want Not".

In these strategy documents, some targets have been expressed. Most of these relate to Municipal Solid Waste (MSW), and some have been set as statutory targets. There are, however, no statutory targets for businesses. In Waste Strategy 2000, a target of reducing industrial and commercial waste landfilled to 85% of 1998 levels by 2005 was established. This is the only clearly defined target. Nevertheless, there is a general objective to reduce the amount of all waste landfilled, which is the primary goal of the planned landfill tax increases.

Landfill Taxes / Levies in Other EU Member States

Taxes or levies on wastes going to landfill have been introduced in nine other EU member states. The rates applied vary between €9.15 (£6.30) and €73 (£50) per tonne depending on the nature of the waste and other factors. Not surprisingly, those countries, such as Denmark and the Netherlands, that moved early to introduce landfill taxes and which have set relatively high rates of tax, also have the lowest dependency on landfill and the highest levels of waste recovery and recycling in the EU.

Projected Revenues from Landfill Tax Increases

Assuming a £3 per tonne increase per year from 2005-6, the increases in revenues are projected to be £65m, £130m and £190m in the first three years of the new tax regime. The level of revenues thereafter will depend on the increases in the level of the tax, but it is expected that revenues will level out as behavioural changes take effect.

Landfill Tax Incidence

In terms of sectoral Gross Value Added (GVA), the costs of the landfill tax are expected to fall proportionally much more heavily on the manufacturing than the non-manufacturing sectors although, in absolute terms, non-manufacturing businesses are expected to bear a major part of the total costs resulting from the tax increases (around 47% at £35 / tonne). The sector expected to bear the largest part of the overall cost of the tax increases in absolute terms is wholesale and retail trades. However, it is unlikely that the total costs of the landfill tax for any single sector will exceed 1% of sectoral GVA.



EU Rules on State Aid

All state aid in whatever form must be compatible with the legislative framework and guidelines established by the European Union and implemented by the European Commission. A general overview of the so-called “EU Rules on State Aid” is presented in Appendix B.

Any scheme or measure for recycling revenue from landfill tax increases back to business will either need to be approved for EU State Aid purposes by the European Commission or fall within existing notifications or block exemptions. Compatibility with the EU Rules on State Aid is therefore one of the criteria considered in the assessment and comparison of options for recycling revenues from landfill tax increases.

Small & Medium Sized Enterprises (SMEs)

Small and medium-sized enterprises (SMEs) account for over 99% of the total business stock in the UK, and contribute over 50% of the Gross Value Added (GVA) in a number of sectors including real estate, construction, health and social work, education, other services, wholesale and retail, and hotels and restaurants.

Thus, SMEs warrant special consideration both because of the important role they play in the UK economy and because *collectively*, SMEs are significant contributors to the business waste stream and will therefore ultimately bear a substantial part of the overall landfill tax burden. In addition, and in the context of measures to recycle revenues from landfill tax increases back to business, state aid provided to SMEs is covered by one of the block exemptions from notification to the European Commission (see Appendix B).

STRATEGIC OBJECTIVES

In order to ensure that the views of stakeholders were taken into account, a *stakeholder workshop* was held on 29th July 2003. The purpose of the workshop was to identify existing barriers to the diversion of business wastes away from landfill and to define a set of strategic objectives for increasing landfill diversion.

Based on the results of the workshop, it was concluded that the *primary strategic objective* for increasing landfill diversion should be to:

Ensure that alternatives to landfill are, and are perceived to be, competitive in the shortest possible time.

Other subsidiary objectives that emerged from the workshop for possible action through the use of landfill tax revenues were:

- § The actual / perceived gap between the cost of landfill and its alternatives is closed.
 - § Financial assistance to businesses, especially SMEs, supports the provision of reprocessing capacity.
 - § Business management understands the true costs of waste management and the genuine business reasons to change existing practices.
 - § The costs for collecting and handling / processing source-segregated recyclable materials are reduced.
 - § The differentials in prices between virgin and secondary materials are reduced or eliminated.
 - § Standards for the quality and performance of recycled materials are established.
 - § Government and the public sector places more importance on green procurement.
 - § More comprehensive and reliable data about “business” waste are available.
 - § Strategic waste / resource research in the UK is developed and concentrated.
-



OPTIONS FOR RECYCLING REVENUES FROM LANDFILL TAX INCREASES

There is a wide range of instruments potentially available for disbursing revenues from hypothecated taxes, and the choice ultimately depends on the practical constraints, the policy objectives being pursued and the timeframe for achieving those objectives. It therefore follows that some instruments are likely to be more appropriate / effective than others in encouraging certain activities and changes in existing practices in order to achieve a given objective. A clear distinction also needs to be made between the choice of instrument for disbursing support on the one hand and the specific targets for that support on the other.

For the purposes of this project, the following options for recycling revenues from future landfill tax increases were examined and assessed by the Consultants:

- § Expanding financial support for free or subsidised *promotional, capacity building and advisory services*.
- § Providing *interest free loans* for business investment in technologies for sustainable waste management.
- § Providing support for *business R&D* in sustainable waste management technologies.
- § Providing support for a *venture capital fund* for new businesses in sustainable waste management.
- § *Enhanced Capital Allowances (ECAs)* for qualifying investments in technologies / facilities / systems for diverting business waste from landfill.
- § *Tax credits* for qualifying expenditures on technologies / facilities / systems for diverting business waste from landfill.
- § *Targeted grants* for eligible projects or initiatives aimed at diverting business waste from landfill.
- § *Rebates to landfill tax payers* for wastes diverted from landfill.
- § *Rebates to business waste producers* for reductions in the quantities of waste generated.
- § *Incentive bidding schemes or tradable permits* for waste reduction and recycling.
- § *Compensation to communities* hosting waste management facilities other than landfill.

Some of these options were identified in the Terms of Reference for this project, whilst others were included based on the Consultants' own experience and the views of some of the consultees.

ASSESSMENT AND COMPARISON OF OPTIONS

The various options for recycling incremental landfill tax revenues listed above were assessed and compared using the following criteria:

- § Potential for providing cost-effective means of assisting businesses to divert waste from landfill.
- § Capacity to deliver the option effectively.
- § Impact on differing business sectors and sizes.
- § Practicality of implementation.
- § Capacity to involve the community and voluntary sector.
- § Administrative simplicity.
- § The potential for misuse or abuse of public funds.
- § Potential for leveraging increased private sector resources into investments in new systems and facilities for recovering, reusing and recycling wastes.
- § Compatibility with the EU Rules on State Aid.

These are the criteria identified in the project Terms of Reference with the addition of the last four, which were included by the Consultants. Weightings have been given to each criterion and a multi-criteria analysis undertaken. Though inevitably somewhat subjective, this is a useful method of assessing and comparing the disbursement options identified, the majority of which are intrinsically quite different. The Consultants' assessment is presented in the following table.



Assessment and Comparison of Options for Recycling Incremental Landfill Tax Revenues

	Cost-effectiveness	Effective Delivery	Sectoral Impact	Practicality	Community / Voluntary Sector	Simplicity	Potential for Abuse	Leveraging	EU Rules on State Aid	TOTAL SCORE
Weighting	20	5	10	20	5	10	10	10	10	100
Promotional, Capacity Building and Advisory Services	20	4	10	20	5	10	10	0	10	89
Interest free loans	8	3	9	15	3	5	9	7	5	64
Support for business R&D	5	2	5	15	0	5	9	0	8	49
Venture capital fund	5	2	8	15	0	7	9	10	8	64
Enhanced Capital Allowances	10	2	6	15	0	7	9	0	8	57
Tax credits	20	5	4	18	0	7	9	0	5	68
Targeted grants	20	5	10	18	5	7	9	10	5	89
LFT rebates to waste producers	10	4	5	3	0	3	2	0	7	34
LFT rebates to LFT payers	15	4	4	15	0	7	5	0	7	57
Bidding mechanisms / tradable permits	15	4	4	3	0	3	2	0	7	38
Waste Management Facilities Compensation Fund	15	5	4	8	0	5	8	0	10	55

Key: Green shading indicates the Consultants' high priority options. Yellow shading indicates the Consultants' medium priority options. Pink shading shows the highest scoring options under each criterion.



Those options achieving a score of 80 or above (out of a total score of 100) are highlighted in green as high priority, while those scoring more than 60 are indicated in yellow as medium priority. The remaining options are considered by the Consultants to be of relatively low priority in the context of the objectives of this study.

Some options score the maximum achievable under certain criteria. These are shaded pink, and indicate those options that are more appropriate for meeting specific criteria.

High Priority Options

Promotional, Capacity Building and Advisory Services

There is considerable existing evidence to demonstrate that this type of support is very cost-effective, both in achieving waste reductions and also in developing markets for recyclables. It is also unlikely to present a problem with respect to the EU State Aid Rules and can be tailored to meet the needs of particular business sectors – both in terms of size and the sectors expected to bear the heaviest landfill tax burden.

Targeted Grants

Targeted grants are, in the Consultants' view, the most flexible and cost-effective of the available instruments for disbursing revenues to support the development of alternatives to landfill, and can be designed to deliver precisely targeted and quantified support for a wide variety of projects or activities (investment and non-investment) across different priority business sectors. They can present problems in certain circumstances with the EU state aid rules, but are particularly effective in leveraging additional investment from the private sector. They are also effective for the voluntary sector. The effort and costs involved in applying for grants can be reduced by, for example, the introduction of simplified procedures for small grants and the provision of consultancy help and advice to prospective beneficiaries.

Medium Priority Options

Interest Free Loans

The available evidence suggests that the cost of and / or access to loan finance are unlikely to be significant barriers to investment in alternatives to landfill. An interest free loan in effect comprises a grant in the form of avoided interest payments attached to a repayable capital sum. Accordingly, the advantages and benefits of this option can also generally be realised through targeted grants. However, there may be some circumstances where an interest-free loan scheme could be an appropriate instrument for delivering targeted support for start-up businesses or for the development of new technologies.

Tax Credits

Though a somewhat less flexible option than targeted grants, there is considerable evidence to suggest that tax credits are an effective fiscal instrument for stimulating spending by businesses on targeted activities. However, by definition, only those businesses able to make qualifying expenditures and to take advantage of the associated tax credits would benefit from the financial incentive offered by this option., and so the scope for targeting and disbursing support to those business sectors hit hardest by incremental increases in landfill tax would still be somewhat constrained. It is probable, for example, that many small businesses would not be able to benefit (or benefit significantly) from a tax credit scheme. It would also be more difficult to predict or cap the amount of funding that will be required for tax credits, since this will depend on the level of claims made.

Venture Capital Fund

While existing evidence indicates that new or early-stage businesses wishing to develop and commercialise sustainable waste management solutions face considerable difficulties in raising equity finance, this option is unlikely to offer much potential for significantly increasing the volume of waste



diverted from landfill except perhaps over the very long term. Also, risk or equity financing provided through a specialised venture capital fund is only likely to be of potential interest or benefit to new or early-stage SMEs with a primary focus on developing and commercialising new technologies or techniques for sustainable waste management.

This option would therefore appear to offer only limited scope for targeting those business sectors expected to experience the largest incremental tax burden. In our view, a potentially more effective approach would be to offer targeted grant support in order to leverage equity investment from existing venture capital funds.

Low Priority Options

Support for Business R&D

Substantial tax incentives for business R&D already exist. Recent research has confirmed that the benefits of providing support for business R&D tend to be realised only over the longer term. Moreover, experience in some other EU countries suggests that there are no major technological barriers to reducing substantially the volume of waste going to landfill. This option is also only likely to be of benefit to those businesses having both the interest and capacity to undertake or commission R&D into sustainable waste management technologies.

Enhanced Capital Allowances

Due to its inflexibility and because the financial incentive to invest in alternatives to landfill is relatively small, this option has limited potential for recycling landfill tax revenues back to businesses, or for reducing the financial barriers to investment and encouraging major and rapid new investment in facilities for diverting wastes away from landfill. However, as the Government has already introduced ECAs for investments in certain environmentally beneficial energy and water technologies, adding a new category would be relatively straightforward and provide a low cost option that could signal support for technologies to reduce and recycle wastes.

Landfill Tax Rebates to Waste Producers

Due to the very large number of business waste producers, and the difficulties of measuring / verifying rebate claims for reductions in business waste generation, this option is unlikely to be practical.

Landfill Tax Rebates to Tax Payers

Although a rebate scheme for landfill tax payers (who, in the case of business wastes, are mainly private waste management service providers) could have considerable potential for increasing diversion from landfill, business waste producers would be unlikely to derive any significant financial benefit from such a scheme.

Bidding Mechanisms / Tradable Permits

The mechanisms identified and considered are mostly not practical for implementation. A recyclables obligation system similar to the Renewables Obligation is a possibility which could be given consideration, but would not necessarily require funding from landfill tax revenues.

Waste Management Facilities Compensation Fund

Although this option has considerable intrinsic appeal, it would be very difficult to predict the size of the funding required and is also likely to have significant implications for the entire Town and Country Planning Act system. Nevertheless, we believe that a compensation scheme of this kind could make a significant contribution to overcoming widespread resistance to the development of new waste management facilities, and should be investigated further in a broader planning context by the ODPM.



LANDFILL TAX REVENUE DISBURSEMENT MECHANISMS

Existing Environmental Subsidy Disbursement Mechanisms

There are several existing mechanisms and institutions that provide direct or indirect financial support for waste and other environmental / sustainable development projects and initiatives. These include:

- § The **Carbon Trust** – An independent, not-for-profit company set up by the Government in 2001 with support from business to “take the lead on low carbon technology and innovation in this country”. The Carbon Trust's annual funding allocation amounts to approximately £50m a year in grants from DEFRA, the Scottish Executive, the National Assembly for Wales and the Northern Ireland Assembly, and in part from Climate Change levy receipts.
- § The **Waste & Resources Action Programme (WRAP)** – A company limited by guarantee established in 2001 in response to the Government's Waste Strategy 2000 to promote sustainable waste management. Funded primarily by DEFRA, its mission is to promote sustainable waste management by working to create stable and efficient markets for recycled materials and products removing barriers to waste minimisation, re-use and recycling. WRAP'S budget for the next three years is expected to be £17.5m in 2003/4 rising to £49.6m in 2005/6.
- § **Envirowise** – Funded jointly by DEFRA and DTI, Envirowise is the main programme promoting the resource efficiency message to business, with an emphasis on prevention (avoidance and minimisation of production of waste) rather than cure (managing existing wastes by recycling and disposal). Total expenditure on Envirowise is currently £5.4 million per annum.
- § **REWARD** – The REWARD (Regional and Welsh Appraisal of Resources and Development) programme is aimed at building the capacity in the regions and Wales to integrate resource productivity into regional strategies, particularly economic strategies. It is funded through a partnership led by the Environment Agency involving 5 RDAs, the North East Regional Assembly, the Greater London Authority and the Welsh Government Assembly.
- § The **REMADES** – These are regional market development initiatives, some of which ‘badged’ themselves under the name REMADE (**R**egional **M**arket **D**evelopment). The first programme was launched in Scotland (REMADE Scotland) in 1999. Other regional programmes developed in quick succession and there are now nine that are active. The REMADES develop and promote new markets and secondary industries based on the reprocessing and reuse of recycled materials at a local level. Funding structures differ considerably. However, all such programmes have relied to a considerable extent on funding from landfill tax credits (which are no longer available). The best funded programme to date is London Remade which was awarded £5.4 million by the London Development Agency (LDA). In general, however, the REMADES are under-funded.
- § **Regional Development Agencies** – The Regional Development Agencies (RDAs) were established under the Regional Development Agencies Act 1998 and formally launched in eight English regions on 1 April 1999. The ninth, in London, was established in July 2000 following the establishment of the Greater London Authority (GLA). The statutory purposes of the RDAs include promoting business efficiency, investment and competitiveness, and contributing to sustainable development. Since April 2002, RDAs are financed through a Single Programme under which monies from the contributing Departments (DTI, ODPM, DfES, DEFRA and DCMS) are pulled into a single budget. The total budget for 2002-03 is around £1.5 billion. The Government is expected to increase this budget to £2 billion by 2005-06.
- § **ENTRUST / Landfill Tax Credit Scheme** - ENTRUST, a company limited by guarantee, is the appointed regulator for the Landfill Tax Credit Scheme. It approves and enrolls Environmental Bodies and carries out an audit of their activities to ensure that they perform according to the relevant legislation. The Landfill Tax Credit Scheme (LTCS) enables funding to be provided for a number of environmental activities but, following changes to the scheme with effect from 1st April 2003, these activities no longer include projects related to waste management.

These mechanisms have all evolved in response to Government initiatives launched at different times and, with the exception of the Envirowise programme, have all been established relatively recently.



Therefore, in most cases, there is insufficient experience and related data to be able to reach any firm conclusions about the operational performance and effectiveness of individual institutions.

Nevertheless, in the Consultants' opinion, the existing institutional *system* for delivering support aimed specifically at bringing about changes in existing business waste management attitudes and practices suffer from a number of *structural* weaknesses, notably:

- § Institutional roles and responsibilities are rather fragmented and uncoordinated.
- § Communication and other links between institutions are *ad hoc* or non-existent.
- § Individual institutions have differing (and sometimes competing) interests and priorities.
- § There is some degree of functional overlap and duplication.

Of particular concern is the lack of an overall strategic policy and framework for prioritising, allocating and disbursing support, and rigorous and consistent criteria / procedures for managing the disbursement process both within and across institutions (often referred to as the *Project Cycle Management* process).

Possible Approaches to Landfill Tax Revenue Disbursement

There are basically two possible approaches to disbursing incremental landfill tax revenues, at least in the short-to-medium term. These are:

- § Retain and make use of existing institutions essentially unchanged.
- § Rationalise and strengthen the existing institutional system.

The simplest approach to disbursing incremental landfill tax revenues would be to make use of existing institutional arrangements with some minor modifications. The main elements would be:

- § Expansion of Envirowise to provide advice on waste reduction and minimisation to a wider range of sectors / businesses.
- § WRAP continues to undertake its existing activities, such as R&D, standards development and its materials programmes, but without any significant increase in funding.
- § WRAP establishes the national policy and criteria for allocating grants and would also handle any grants that are of national significance.
- § WRAP provides advice and support to the REMADES on applications to the EU for State Aid clearance.
- § The majority of grant funding is made available to the REMADES, which would be re-organised on a regional basis, reporting to the RDAs. The REMADES would identify and evaluate potential targets for grant support, and provide advice to applicants.
- § REWARD provides support to the RDAs.

Such an arrangement would involve minimal disruption to existing institutions but, in our view, is unlikely to be the most efficient and effective approach to disbursing incremental landfill tax revenues.

Actions to rationalise and strengthen the existing institutional system as a whole would need to focus on two main areas:

- § Development and implementation of an overall strategic policy and framework for prioritising, allocating and coordinating the disbursement of support financed by incremental landfill tax revenues.
- § The introduction of rigorous, transparent and consistent criteria and procedures for Project Cycle Management (the term 'Project' here referring to any programme, project or activity financed from incremental landfill tax revenues).

An overall strategic policy and framework for disbursing support would provide an explicit link between the national policies, priorities and objectives that have been set by Government with respect to waste management, and the responsibilities, spending priorities and activities of individual



institutions involved in delivering such support. Such a framework should ideally be prepared on a multi-year basis and be reviewed / updated annually.

The detailed criteria and procedures adopted for Project Cycle Management will need to reflect to some extent the sectors, types of business and projects being targeted and the form in which support is delivered.

KEY CONCLUSIONS & RECOMMENDATIONS

The key *conclusions* to emerge from this project are:

- § Because of their importance to the UK economy and because, *collectively*, they are significant contributors to the business waste stream, SMEs warrant particular attention when considering measures to recycle incremental landfill tax revenues back to business.
- § There is a widespread lack of awareness, particularly amongst SMEs, both of the need to divert business wastes from landfill and the potential commercial benefits of waste reduction.
- § Around half of all business wastes are currently landfilled. The commercial sector as a whole proportionally has a significantly greater reliance on landfill than the industrial sector. SMEs are major contributors to the commercial waste stream.
- § However, in relation to Gross Value Added, the landfill tax burden is expected to fall proportionally more heavily on the industrial sector.
- § There is substantial further scope for achieving reductions in business wastes at source.
- § Further efforts to develop markets for recyclables are vital if recycling is to be substantially expanded.
- § Those EU countries that have had high landfill taxes in place for some time have the lowest reliance on landfill and achieved the highest levels of waste recovery and recycling in the EU. This suggests that there are no major technological barriers to reducing substantially the volume of waste going to landfill.
- § The EU rules on state aid are a significant potential constraint in respect of options for recycling incremental landfill tax revenues back to business. Any scheme or measure for recycling revenue from landfill tax increases back to business will either need to be approved for EU State Aid purposes by the European Commission or fall within existing notifications or block exemptions. In this context, the most important exemptions are those relating to *de minimis* aid and aid provided to SMEs.
- § The general consensus among stakeholders is that the main barrier to increasing the diversion of business waste from landfill is that alternatives to landfill are not, or are not perceived to be, competitive.
- § The existing institutional arrangements for disbursing environmental subsidies are fragmented / uncoordinated, with differing priorities and some degree of functional overlap and duplication, and are therefore unlikely to be the most efficient and effective mechanism for disbursing incremental landfill tax revenues.
- § There would appear to be a need and considerable scope for generally rationalising and strengthening the existing institutional system for disbursing support aimed specifically at bringing about changes in existing business waste management attitudes and practices.

The Consultants' principal *recommendations* are that:

- § In terms of cost-effectiveness, options for recycling incremental landfill tax revenues back to business are considered primarily with respect to their potential for *diverting waste away from landfill* and / or *enabling alternatives to landfill to become more competitive* in the short-to-medium term.
- § Both because of the scope they offer for targeting those sectors expected to bear the heaviest landfill tax burden and their flexibility / cost-effectiveness, the revenues from incremental tax increases are disbursed primarily in the form of *promotional, capacity building and advisory services* to business and *targeted grants*.



-
- § Consideration is also given to *tax credits* as a potentially effective fiscal instrument and to the possibility of establishing a small *venture capital fund*.
- § With respect to *promotional, capacity building and advisory services*, particular emphasis is given to measures aimed at:
- 4 Promoting greater awareness amongst businesses of the need to divert waste from landfill, the potential commercial benefits of waste reduction, and the advice and assistance that is potentially available to them;
 - 4 Advising waste producers on waste reduction at source;
 - 4 Conducting public research targeted at waste streams peculiar to those business sectors which have special problems of diversion from landfill;
 - 4 Establishing technical standards for the quality and performance of recycled materials.
 - 4 Improving the quality and reliability of data on business wastes.
- § With respect to *targeted grants*, priority is given to those types of project or activity that are likely to result in significant and cost-effective diversion of waste from landfill in the short-to-medium term. These include:
- 4 Investments in new processing capacity.
 - 4 R&D for particularly difficult or intractable wastes.
 - 4 Collection of recyclables, especially from SMEs.
- § Priority in disbursing landfill tax revenues is given to the following sectors and, within those sectors, to SMEs:
- Industrial:** Food, beverages and tobacco
Chemicals and chemical products
Other non-metallic mineral products
Basic metals and fabricated metal products
Coke, petroleum products, gas, electricity, water
- Commercial:** Wholesale and retail trades
Hotels and restaurants
Education
Social work and public administration
Other services
- § The revenue from incremental tax increases is allocated approximately as follows:
- 4 Promotional, capacity building and advisory services: - £30 million per annum.
 - 4 Other high and medium priority options (as described above): - the balance of the revenues received each year.
- § Within the ca. £30 million annual allocation for promotional, capacity building and advisory services, up to £20 million is allocated to the kinds of services currently provided by Envirowise with the remainder allocated to the kinds of activities presently undertaken by WRAP and the REMADES.
- § Consideration is given to *rationalising and strengthening the existing institutional system* for delivering support primarily by:
- 4 Developing and implementing an overall strategic policy and framework for prioritising, allocating and coordinating the disbursement of support financed by incremental landfill tax revenues; and
 - 4 Requiring each institution involved in delivering such support to introduce rigorous, transparent and consistent criteria / procedures for Project Cycle Management.
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1. INTRODUCTION

This is the Final Report of an independent project undertaken by Integrated Skills Limited ("the Consultants") for HM Treasury to provide an evidence-based assessment of the full range of options for recycling revenue from the landfill tax increases from 2005-6 to business, in order to tackle market failures in ways which will help business to reduce the volume of waste which it sends to landfill. The key requirements of the Project Terms of Reference are reproduced in Appendix A.

1.1 Project Background

The landfill tax was introduced in October 1996 in order to encourage efforts aimed at minimising the amount of waste generated, developing more sustainable waste management techniques and contributing to the achievement of the Government's waste strategy targets through the diversion of waste away from landfill.

In line with the five-year escalator announced by the Government in 1999, the landfill tax rate for active waste was increased from £13 to £14 per tonne on 1 April 2003 and will be increased to £15 per tonne from 1 April 2004. Following consultation, the 2003 Budget confirmed that the standard rate of landfill tax will subsequently be increased by £3 in 2005-06 to £18 per tonne, and by at least £3 per tonne in the years thereafter, on the way to a medium-to-long term rate of £35 per tonne. It was also announced that the increase in the standard rate of landfill tax will be introduced in a way that is revenue neutral to business as a whole.

Initial consultations with business and other stakeholder groups indicated that there is broad support for a package of measures to meet the revenue neutrality commitment, including some tailored support to those sectors facing the greatest waste management challenges. This project is intended to inform the process of selecting and developing such a package of measures.

1.2 Project Objectives

The primary objective of this project was therefore to identify and assess options for recycling the revenues from projected increases in landfill tax back to business in ways that will help to achieve revenue neutrality. The secondary objective was to identify those options that offer the greatest potential for promoting and accelerating the diversion of business waste away from landfill.

1.3 Report Structure

The remainder of this Report is presented in the following main Sections:

- Section 2:** Discusses the key issues and drivers relating to policy options for recycling revenue from landfill tax increases.
 - Section 3:** Describes the procedure and outcome of a stakeholder workshop and follow-up discussions with principal stakeholders.
 - Section 4:** Assesses and compares the options that have been identified for recycling the revenues from planned increases in landfill tax.
 - Section 5:** Considers possible revenue disbursement mechanisms, and presents the Consultants' proposals for prioritising the disbursement of revenues from future increases in landfill tax.
 - Section 6:** Presents the Consultants' key conclusions and recommendations.
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2. KEY ISSUES / DRIVERS

2.1 Management of Business Wastes

2.1.1 Key Players

Waste management is seldom at the forefront of the average business waste producer's mind. Large companies will frequently employ an environmental manager with an interest in controlling both the cost and even the way in which the waste is managed. However, in the case of small and medium-sized enterprises, waste is often seen simply as a distraction. The perceived cost is small compared to the costs of wages, raw materials and other inputs, and the cost of the energy and resources that are lost when waste is created is seldom taken into account. For this reason, many businesses devote little time or effort to considering how their waste could be reduced or managed more effectively.

The methods employed for managing the wastes generated by most businesses (containerisation, collection, treatment, recycling and disposal) are usually decided by waste management service providers. These companies generally provide minimal information to their customers so that, for example, only the very largest waste producers are likely to know how much landfill tax they actually pay.

Typically, charges for managing business waste are made by volume rather than by weight, because relatively few waste management contractors have on-board weighing equipment on their collection vehicles – and those that do normally use it for their own information, rather than to divulge it to the customer.

In addition to the private sector waste management contractors, local authorities are also significant operators in the provision of waste management services to businesses, particularly to smaller commercial waste producers. The wastes that local authorities collect from businesses are normally included in statistics as municipal waste – even though it actually originates from business sources.

Most of the larger waste management contractors operate their own facilities – landfills, sorting and recycling facilities, energy from waste plants etc. The smaller contractors frequently just undertake the collection task and deliver the waste to other contractors' facilities.

Landfill tax is paid by the landfill operators. Information from HM Customs and Excise shows there were 715 operating 1,284 landfill sites as at 31 March 2002. Landfill operators may also provide a collection service for business waste producers, but even the largest companies often use landfill facilities operated by other contractors.

The UK waste management industry currently has an annual turnover of around £4.2 billion. The top six waste management companies account for at least 40% of the total waste management sector turnover². It has been estimated² that some £5 billion of investment is needed in new facilities in order to comply with the requirements of the EU Landfill Directive, the majority of which is required for new facilities to divert biodegradable waste. Of this £5 billion, it has been suggested that about £1 billion has been invested to date, leaving a further £4 billion yet to be invested.

The voluntary sector plays a relatively small but significant role in the provision of waste management services – mainly in the field of recycling.

² *Financing Sustainable Waste Management: The Challenge of the New Millennium.* Caledonian Economics Ltd, April 2003.

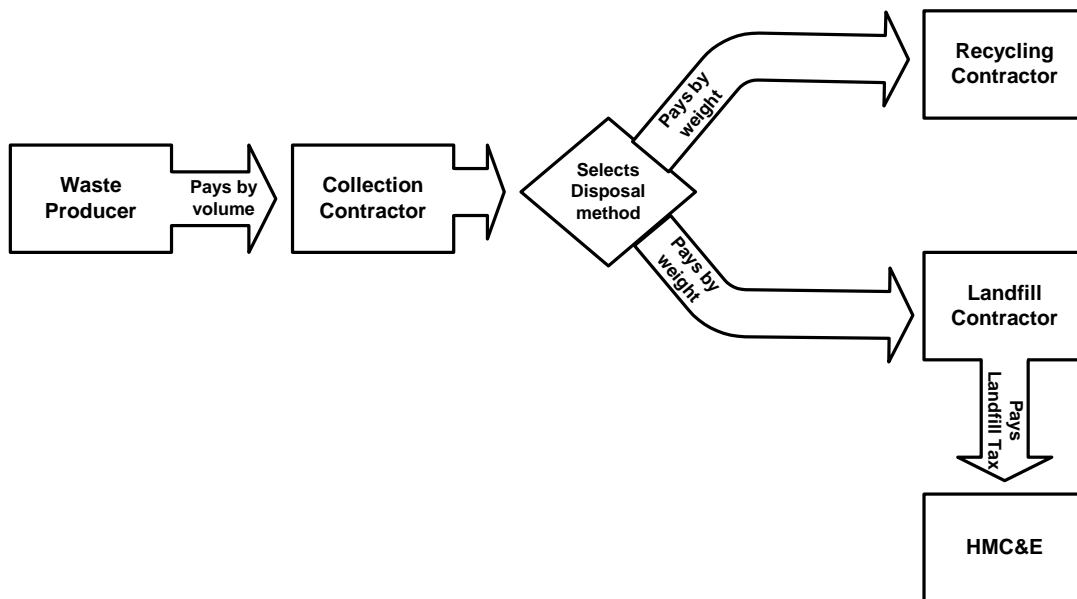


The Community Recycling Network is the national umbrella organisation for community-based, not-for-profit and co-operative waste management groups which work in waste reduction, re-use and recycling. CRN affiliated organisations collect waste from households and businesses for recycling.

The CRN is partly funded by DEFRA through the Environmental Action Fund and, in the past at least, through the landfill tax credits scheme.

Figure 1 illustrates the typical flows of waste and payment arrangements for business waste management services.

Figure 1: Typical Waste Flows and Payment Arrangements for Business Wastes



2.1.2 Perception of the Landfill Tax

It is important that the increases in Landfill Tax are properly understood by business. The following text, extracted from a report³ published by the Advisory Committee on Business and the Environment (ACBE) in August 2001, summarises our opinion on the issue:

For any increase in Landfill Tax to achieve its objective, business needs to be made more aware of its function as an incentive to minimise and recycle waste as well as to seek alternatives to landfill. At present the tax is too often viewed simply as a burden on business and smaller companies may not even be aware of the tax element in their waste charges.

It is therefore recommended that the Government considers with the waste management industry steps to ensure that, at the point where Landfill Tax costs are passed on to waste producers, these costs and the purpose of the tax are better explained.

It is important that the tax is seen as a self-extinguishing measure designed not to put waste producers out of business, but to shift their attention towards waste minimisation, recycling and alternatives to landfill. Businesses of all sizes also need to understand how the tax revenues are being used to help achieve these objectives.

³ Resource Productivity, Waste Minimisation and the Landfill Tax: ACBE, August 2001



It is therefore recommended that it is made clear that any increase in tax income will be directed to help companies develop their resource productivity and to help to find alternative waste management solutions.

2.2 Reliance on Landfill by Sector

The ACBE report also states:

Some sectors of business generate more waste than others. ... Some sectors, such as the motor vehicles industry have made considerable progress on waste minimisation and send relatively little waste to landfill. Others, such as the food, drink and tobacco and basic metals sectors, send a relatively low proportion of waste to landfill but overall tonnages are high.

The rates of recycling, reuse and landfilling by business sector are shown in an appendix to the ACBE report. This is reproduced in Table 1. As can be seen, the commercial sector as a whole proportionally has a significantly greater reliance on landfill than the industrial sector.

2.3 Waste Minimisation

The reduction of waste generation is an important aspect of the diversion of waste from landfill. This was recognised by ACBE in its report³, which states:

“Increased resource productivity is likely to be one of the keys to long term business competitiveness. Waste minimisation is central to the efficient use of resources. However, despite the introduction of the Landfill Tax, the low cost of landfill in the UK and the lack of infrastructure to promote innovation continue to act as significant barriers to adoption of more sophisticated approaches to waste minimisation and recycling. ACBE considers that Government action to tackle these barriers will help both long-term business competitiveness and the environment.”

Unfortunately, businesses frequently fail to recognise the full costs of waste – especially the cost of wasted raw materials and the added value lost on products which fail to meet quality standards and then become waste. Instead they tend to look only at the costs of collecting and disposing of their waste rather than the broader issue of resource efficiency.

A recent study commissioned by the Environment Agency⁴ estimated that the potential for improvement of resource efficiency in the 20% of businesses where opportunities are expected to exist amounts to some £2.4 billion. The sectoral breakdown as a proportion of this figure is as follows:

Food, drink and tobacco	17%
Textiles, leather and clothing	10%
Chemicals and man-made fibres	40%
Basic metal and metal products	6%
Engineering and allied industries	11%
Other manufacturing	16%

⁴ *The Benefits of Greener Business*, Cambridge Econometrics and AEA Technology, April 2003



Table 1: Reliance on Landfill by Sector ('000 tonnes)

Total Waste Produced	Sector	Land Disposal	% Land Disposal	% Recycled	% Reused
7203	Food, drink and tobacco	2677	37	26	17
548	Textiles	356	65	23	3
207	Wearing apparel	164	80	13	1
255	Leather, luggage, handbags and footwear	129	50	27	7
1064	Wood and wood products	405	38	33	10
2265	Pulp, paper and paper products	826	36	31	5
1935	Publishing, printing and recording	745	39	56	1
3870	Chemicals and chemical products	1806	47	25	6
555	Cleaning products, man-made fibres etc.	272	49	28	5
1339	Rubber and plastic products	708	53	30	5
2217	Other non-metallic mineral products	1358	61	31	3
9108	Basic metals	2883	32	34	31
1774	Fabricated metal products	732	41	50	2
1467	Machinery and equipment	618	42	46	2
670	Office machinery, computers and electrical	289	43	50	2
244	Radio, television and communication	137	56	29	3
219	Medical and optical instruments and clocks	165	75	18	2
1283	Motor vehicles	416	32	48	2
825	Other transport equipment	432	52	35	4
1252	Furniture and other manufacturing	654	52	29	5
6585	Coke, oil, gas, electricity, water	3237	49	49	0
3266	Transport, storage, communications	1910	58	24	4
1942	Miscellaneous	1142	59	15	2
50090	Industrial total	22061	44	34	10
3293	Wholesale	2003	61	31	2
1097	Retail - motor vehicles, parts and fuel	656	60	29	3
5654	Retail - others	3544	63	29	2
3596	Hotels, catering	2796	78	17	1
865	Finance	587	68	29	0
2251	Education	1597	71	19	3
4887	Travel agents, other business and others	3630	74	20	1
1013	Real estate and computer	777	77	19	1
2146	Social work and public administration	1472	69	23	1
24802	Commercial total	17063	69	24	2
74892	Grand total	39124	52	31	7

2.4 Market Development for Recyclables

There are a number of principal barriers to the sustained uptake of materials recovered for recycling:

- § *Market demand.* A lack of demand for products with increased recycled content means that companies have little incentive to manufacture such products. This constraint is driving work on green procurement by a number of the regional programmes, most notably in London.
- § *Feedstock substitution.* Manufacturers are often reluctant to modify their production processes to use recovered materials in place of virgin materials, or to move from the tried and tested to the unknown.



- § *Price differentials.* Recovered materials are not always price competitive with virgin raw materials, particularly when recovered material collection systems are sub-optimal and collection costs are high. Increases in landfill tax and related avoided costs will help to improve the competitiveness of recycled materials, as do PRN revenues associated with higher packaging waste recovery.
- § *Standards and specifications.* The use of recovered materials is often constrained by the absence of recognised industry standards for such materials. This affects both the adoption of recovered materials as a feedstock and the marketing of products with recycled content. This is a national issue (if not a European issue) that is already being addressed by WRAP for a number of materials.

For these reasons, efforts to develop markets are vital if recycling is to be substantially expanded.

Market development is first and foremost a regional economic development issue, aimed at the creation of new jobs and business opportunities at a regional/local level, using recovered materials as a raw material in the development of new products and processes.

2.5 Alternatives to Landfill

2.5.1 Costs

The main alternatives to landfill are recycling, composting and Energy from Waste (EfW).

The engineering and operating costs for *landfill facilities* are increasing due to the impact of the Landfill Directive. These vary geographically due to local conditions, but a typical cost might be £10-£15 per tonne⁵ before landfill tax. When the landfill tax rate reaches £15 per tonne, the total cost will be £25-£30 per tonne of waste landfilled, rising to £45-£50 when the tax reaches the medium-to-long term rate of £35 per tonne.

Typical costs for *EfW facilities* lie between £35 and £55^{5,6} per tonne, depending on plant size and specification. EfW will thus be competitive when the higher rates of landfill tax become effective.

Composting typically costs about £20/tonne^{5,6} for an open windrow system and £25-45/tonne^{5,6} for in-vessel composting systems, which are generally more acceptable and for which it is easier to obtain the necessary consents. Composting is only useful for certain types of business waste, which almost always needs to be source segregated to reduce contamination and contrary materials that cannot be composted. In many cases this is difficult to achieve and involves a substantial additional cost. The role of composting is also constrained by the markets for the composted material, although this situation has been somewhat alleviated by the introduction of quality standards for compost. Thus, while composting can already be competitive with landfill in some circumstances, its role for business waste is distinctly limited.

The costs of *materials recycling* are more difficult to estimate, but a recent study for DEFRA⁷ identified the following costs per tonne for the sorting and reprocessing of packaging waste, net of the value of the recovered material and excluding the cost of collection:

⁵ *Costs for Municipal Waste Management in the EU*, Eunomia Research and Consulting, 2001

⁶ *Delivering the Landfill Directive: the Role of New and Emerging Technologies*. A report for the Strategy Unit, Associates in Industrial Ecology, 2002

⁷ *Support to the Regulatory Impact Assessment of Proposed Changes to the Packaging Regulations*, AEA Technology, July 2003.



Paper	£10 - £23
Glass	£17
Steel	£10 - £42
Plastic	£31 - £207
Wood	£5 - £45

The cost ranges reflect differences in the amount of sorting required after collection. These figures would seem to indicate that the recycling of paper, glass and steel is already competitive with landfill in cases where the lower end of the cost ranges applies.

In order to attain the lower end of the cost ranges, it is usually necessary for the waste producer to segregate recyclables at source. In the case of paper, for example, this will mean sorting by the different grades of paper. Source segregation involves an additional cost to the waste producer. Furthermore, collection services for such segregated recyclables are not readily available at the present time – especially where the quantities involved are relatively small – and the costs will be substantially greater than for collecting mixed waste. Large quantities of these materials are already recycled and have been for many years.

2.5.2 Implications

There are several conclusions that can be reached from the information provided in the preceding section:

- § **Energy from Waste** is currently not competitive in cost terms with landfill and this situation will persist until the landfill tax reaches higher levels.
- § **Composting** has a restricted application to business waste but is beginning to become competitive with landfill.
- § **Recycling** is only competitive with landfill when the materials can be readily source segregated, in which case they are probably already being recycled.
- § There is a need to develop and provide more **cost-effective collection services for recyclables**.
- § If additional capacity for diverting waste from landfill is to be developed more rapidly, there are **significant cost barriers to overcome** and, until landfill tax rates reach the higher levels, some subsidies will be required to trigger the necessary investments.

2.6 Policy and Legislation

Waste producers are seldom willing to pay for more sustainable waste management systems unless obliged to do so by legislation. Until recently, the raising of environmental standards in waste management has been entirely legislation-driven. Economic instruments have now started to be introduced, as an alternative way of addressing market failures. Examples are the Packaging Recovery Note (PRN) system for packaging waste and, of course, the landfill tax.

The Government has set a number of objectives in terms of the environmental standards it wishes to achieve. Some of these are imposed by EU legislation – for example the Landfill Directive and the Packaging and Packaging Waste Directive, the requirements of which have been incorporated into UK law. Others are expressed in strategy documents, notably Waste Strategy 2000 and the Strategy Unit’s recent publication “Waste Not Want Not”.

In these strategy documents some targets have been expressed. Most of these relate to Municipal Solid Waste (MSW), and some have been set as statutory targets. There are, however, no statutory targets for businesses.



In Waste Strategy 2000, a target of reducing industrial and commercial waste landfilled to 85% of 1998 levels by 2005 was established. This is the only clearly defined target. Nevertheless, there is a general objective to reduce the amount of all waste landfilled, which is the goal of the planned landfill tax increases.

2.7 Landfill Taxes / Levies in Other EU Member States

Taxes or levies on wastes going to landfill have been introduced in nine other EU member states:

Austria:	€11 - €73 (£8 - £50) / tonne depending on the nature of the waste.
Belgium (Flanders):	€52 (£36) / tonne with energy recovery; €55 (£38) / tonne without.
Denmark:	€50 (£35) / tonne.
Finland:	€15 (£11) / tonne (€270 (£186) / tonne for hazardous waste).
France:	€9.15 (£6.30) / tonne (replaced by a “General Tax on Polluting Activities” in 1999).
Ireland:	€19 (£13) / tonne.
Italy:	Landfill tax is applied on a regional level. Rates vary regionally between €10 – 50 (£7 – 35) / tonne.
Netherlands:	€65 (£45) / tonne for waste with a density less than 1,100 kg/m ³ for specific waste streams; €13 (£9) / tonne for non combustible waste with a density greater than 1,100 kg/m ³ .
Sweden:	€40 (£28) / tonne.

Not surprisingly, those countries, such as Denmark and the Netherlands, that moved early to introduce landfill taxes and which have set relatively high rates of tax, also have the lowest dependency on landfill and the highest levels of waste recovery and recycling in the EU.

2.8 Projected Revenues from LFT Increases

Assuming a £3 per tonne increase per year from 2005-6, the increases in revenues are projected to be £65m, £130m and £190m in the first three years of the new tax regime. The level of revenues thereafter will depend on the increases in the level of the tax, but it is expected that the revenues will level out as behavioural changes take effect.

2.9 Landfill Tax Incidence

Table 2 presents an analysis of the estimated sectoral incidence of the planned increases in landfill tax. Those sectors where the projected total tax burden is expected to exceed 0.5% of sectoral Gross Value Added (GVA) are highlighted.

The manufacturing sectors that are projected ultimately to experience the greatest burden as a proportion of sectoral GVA are:

- § Leather products
- § Wood and wood products
- § Coke, petroleum and nuclear fuel
- § Other non metal mineral products
- § Basic metals and fabricated metal products
- § Transport equipment



§ Other manufacturing

In non-manufacturing, the sectors that are likely to bear the greatest burden as a proportion of sectoral GVA are:

§ Hotels and restaurants

§ Other services

As may be seen, the costs of the landfill tax are expected to fall proportionally much more heavily on the manufacturing than the non-manufacturing sectors although, in absolute terms, non-manufacturing businesses are expected to bear a major part of the total costs resulting from the tax increases (around 47% at £35 / tonne). The sector expected to bear the largest part of the overall cost of the tax increases in absolute terms is wholesale and retail trades. However, it is unlikely that the total costs of the landfill tax for any single sector will exceed 1% of sectoral GVA.

2.10 EU Rules on State Aid

All state aid in whatever form must be compatible with the legislative framework and guidelines established by the European Union and implemented by the European Commission. A general overview of the so-called “EU Rules on State Aid” is presented in Appendix B.

Any scheme or measure for recycling revenue from landfill tax increases back to business will either need to be approved for EU State Aid purposes by the European Commission or fall within existing notifications or block exemptions. Compatibility with the EU Rules on State Aid is therefore one of the criteria considered in the assessment and comparison of options for recycling revenues from landfill tax increases presented in section 4 below.



Table 2: Projected Sectoral Incidence of Landfill Tax Increases as a Proportion of Gross Value Added

Regional Accounts Classification	GVA (£m)	£15 / tonne		£30 / tonne		£35 / tonne	
		Total Tax Burden (£m)	Proportion	Total Tax Burden (£m)	Proportion	Total Tax Burden (£m)	Proportion
Food, Beverages and Tobacco	£16,857	£44,504	0.264%	£71,611	0.425%	£80,647	0.478%
Textiles	£5,797	£8,645	0.149%	£13,910	0.240%	£15,665	0.270%
Leather Products	£769	£2,145	0.279%	£3,451	0.449%	£3,886	0.505%
Wood and Wood Products	£1,941	£6,733	0.347%	£10,834	0.558%	£12,201	0.629%
Pulp, Paper and Paper Products, Publishing & Printing	£17,376	£26,117	0.150%	£42,025	0.242%	£47,328	0.272%
Coke, Petroleum Products & Nuclear Fuel	£16,280	£53,814	0.331%	£86,592	0.532%	£97,518	0.599%
Chemicals, Chemical Products and Man-made Fibres	£13,743	£34,546	0.251%	£55,588	0.404%	£62,602	0.456%
Rubber and Plastic Products	£7,514	£11,770	0.157%	£18,939	0.252%	£21,329	0.284%
Other non-Metal Mineral Products	£4,505	£22,576	0.501%	£36,327	0.806%	£40,911	0.908%
Basic Metals and Fabricated Metal Products	£16,251	£60,098	0.370%	£96,703	0.595%	£108,905	0.670%
Machinery and Equipment not elsewhere classified	£12,410	£15,079	0.121%	£24,263	0.196%	£27,324	0.220%
Electrical and Optical Equipment	£16,647	£5,021	0.030%	£8,079	0.049%	£9,098	0.055%
Transport Equipment	£14,910	£45,851	0.308%	£73,778	0.495%	£83,087	0.557%
Manufacturing not elsewhere classified	£5,856	£29,858	0.510%	£48,044	0.820%	£54,106	0.924%
Total Manufacturing	£150,856	£366,757	0.243%	£590,145	0.391%	£664,608	0.441%
Wholesale and retail trades (including motor trade)	£83,908	£94,111	0.112%	£183,958	0.219%	£213,908	0.255%
Hotels and restaurants	£21,441	£42,420	0.198%	£82,919	0.387%	£96,419	0.450%
Financial intermediation	£41,658	£8,906	0.021%	£17,408	0.042%	£20,242	0.049%
Real estate, renting and business activities	£150,389	£11,789	0.008%	£23,043	0.015%	£26,794	0.018%
Public administration and defence	£33,828	£22,333	0.066%	£43,654	0.129%	£50,761	0.150%
Education	£36,125	£24,229	0.067%	£47,361	0.131%	£55,072	0.152%
Other services	£33,666	£55,074	0.164%	£107,653	0.320%	£125,179	0.372%
Total Non-Manufacturing	£401,015	£258,862	0.065%	£505,997	0.126%	£588,375	0.147%
Total Revenue	£551,871	£625,619	0.113%	£1,096,142	0.199%	£1,252,983	0.227%

Source: HM Customs and Excise



2.11 Small & Medium Sized Enterprises (SMEs)

In the context of this project, small and medium-sized enterprises (SMEs) warrant special consideration because:

- a) SMEs play an important role in the UK economy;
- b) *Collectively*, SMEs are significant contributors to the business waste stream and will therefore ultimately bear a substantial part of the overall landfill tax burden;
- c) With respect to the EU rules on state aid, aid provided to SMEs is covered by one of the block exemptions from notification to the European Commission (see Appendix B).

2.11.1 SME Definitions

The criteria currently used by the European Commission to define an SME are shown in Table 3. To qualify as an SME, both the employee and the independence criteria must be satisfied, and either the turnover or the balance sheet total criterion. Any firm not satisfying these criteria is classified as a large firm.

Table 3: Current EC Definitions of SMEs

Criteria	Micro Firm	Small Firm	Medium Firm
Turnover	Not defined	Max. €7m	Max. €40m
Balance sheet total	Not defined	Max. €5m	Max. €27m
Employees	Max. 10	Max. 50	Max. 250
Independence *	Not defined	25%	25%

* The independence criterion refers to the maximum percentage that may be owned by one, or jointly owned by several, enterprises not satisfying the same criteria.

The European Commission has recommended a new definition for SMEs – see Table 4. It maintains the same employment thresholds that define the categories of micro, small and medium-sized enterprises. However, it also provides for a substantial increase in the financial ceilings (turnover or balance sheet total) to reflect inflation and productivity increases since 1996, the date of the first Community SME definition. In order to allow a smooth transition at EU and national levels, the new definition will be used as of 1 January 2005. The Government announced in the last Budget that the UK plans to revise its measures for SMEs in line with these new definitions.

Table 4: New EC Definitions of SMEs to be Applied from 1 January 2005

Criteria	Micro Firm	Small Firm	Medium Firm
Turnover	Max. €2m	Max. €10m	Max. €50m
Balance sheet total	Max. €2m	Max. €10m	Max. €43m
Employees	Max. 10	Max. 50	Max. 250



2.11.2 Role and Significance of SMEs in the UK

According to statistics recently published by the Small Business Service, there were an estimated 3.8 million business enterprises in the UK at the start of 2002 (including all of the private sector, public corporations and nationalised bodies). As may be seen from Table 5 and Table 6, SMEs account for a significant proportion of the total business stock in the UK, and contribute over 50% of the Gross Value Added (GVA) in the following sectors:- real estate, construction, health and social work, education, other services, wholesale and retail and hotels and restaurants.

Table 5: Composition of the UK Business Stock by Size of Enterprise, 2001 (% of totals)

Criteria	Micro Firm (0-9 staff)	Small Firm (10-49 staff)	Medium Firm (50-249 staff)	Large Firm (250+ staff)
No. of Businesses	94.6	4.5	0.7	0.2
Employment	29.0	14.4	12.0	44.6
Turnover	21.3	15.0	15.1	48.6

Source: SBS Small and Medium Enterprise Statistics for the UK 2002

Table 6: Contribution of SMEs to Gross Value Added by Sector, 1999 – 2001 (%)

Sector	Gross Value Added	
	1999	2001
Mining & quarrying	35.2	42.5
Manufacturing	42.5	44.7
Electricity, gas and water supply	–	13.9
Construction	74.0	71.2
Wholesale & retail	51.3	54.3
Hotels & restaurants	51.0	52.2
Transport, storage & communications	29.4	29.8
Real estate & business activity	77.8	77.0
Education	58.8	60.9
Health & social work	69.6	62.3
Other services	57.8	55.5

Source: ONS Annual Business Inquiry



3. STRATEGIC OBJECTIVES

3.1 Approach

In order to ensure that the views of stakeholders were taken into account, a stakeholder workshop was held on 29th July 2003. The purpose of the workshop was to identify existing barriers to the diversion of business wastes away from landfill and to define a set of strategic objectives for increasing landfill diversion.

The first step was to identify and define clearly all of the significant problems / barriers associated with diverting wastes from landfill, and to establish a hierarchy of cause and effect relationships for the negative features of the existing situation. This was undertaken by inviting all participants to propose what they saw as the key problem(s). Problems were expressed as an existing negative state – which then has the potential to be rectified.

By identifying and defining all of the specific problems to be addressed, a fundamental logic is introduced into the process of formulating strategic objectives. The problems defined, and their related causes and effects, can then be linked and presented hierarchically to produce a "problem analysis matrix".

The problems / barriers were identified under a series of relevant headings, namely:

- § Policy & legislative framework
- § Institutional & organisational arrangements
- § Procurement and standards
- § Financing and costs
- § Data availability & monitoring
- § Awareness and communication
- § Waste Avoidance / Reduction / Reuse
- § Recycling / Reprocessing / Markets
- § Waste Handling / Processing / Treatment

Once all of the problems / barriers to be addressed were identified and precisely defined as negative conditions, the next step was to transpose these into specific objectives that are necessary or desirable, and are realistically achievable within the context of this project. This was accomplished by reformulating the problems contained in the problem analysis matrix into objectives, which are simply the "mirror image" of the problem with the negative condition transformed to a positive condition.

3.2 Stakeholder Workshop – Results & Conclusions

Following the stakeholder workshop, the principal barrier to the increased diversion of waste away from landfill was identified and defined as:

Alternatives to landfill are not, or are not perceived to be, competitive

The "problem analysis matrix" developed from the results of the workshop is presented in Table 7.



Table 7: Diverting Business Waste From Landfill – Problem Analysis Matrix (Page 1)

Area/Activity	Key Problems	Principal Causes	Principal Effects
<p>Policy & Legislative Framework & Institutional / Organisational Arrangements</p>	<p>Existing legislation relating to WM (apart from the Packaging Regulations) does not favour diversion from landfill</p>	<p>Planning consents are not readily secured for waste management installations</p> <p>There is little or no regulation of waste producers, and that which exists is poorly enforced (especially Duty of Care)</p> <p>The waste producer’s identity is not required to be maintained throughout the waste management process</p> <p>Legislative framework is fragmented, implementing individual EU directives without taking an integrated approach.</p> <p>Policy mechanisms are focused on meeting municipal waste management targets rather than promoting wider resource management and resource efficiency</p> <p>UK regulatory systems do not provide sufficiently clear signals of future development long enough in advance to encourage investment</p> <p>The UK interpretation of ‘municipal waste’ under the provisions of the EC landfill directive exempts most business waste from the requirements of this powerful driver</p>	<p>Insufficient pressure or incentive to divert significant quantities of business waste from landfill in order to meet Government and EU targets</p>



Table 7: Diverting Business Waste From Landfill – Problem Analysis Matrix (Page 2)

Area/Activity	Key Problems	Principal Causes	Principal Effects
Procurement & Standards	<p>The absence of performance and quality standards specific to recycled materials present barriers to the expansion of markets for them</p> <p>Market demand for recycled materials are not sufficiently supported by green procurement programmes</p>	<p>There are too many regulatory barriers to the re-use of materials</p> <p>Existing materials performance and quality standards are not always appropriate for recovered materials</p> <p>There are too few standards for the quality and performance of recycled materials</p> <p>Government and the public sector generally places too little importance on green procurement</p> <p>Division of responsibilities between several Government departments</p>	<p>Market prices for some recycled materials are too low, relative to high costs of collection and sorting, leading to uncompetitive supply (This is especially true for post-consumer plastics)</p> <p>Insufficient market demand for products incorporating recycled materials and lack of incentive for producers to develop and market such products</p>
Financing & Costs	<p>The revenue flows from existing WM charges are insufficient to be able to fund the provision of additional capacity in alternatives to landfill</p> <p>No perceived business case to devote resources to waste management</p>	<p>The gap between the cost of landfill and its alternatives is too great</p> <p>Financial assistance to businesses, especially SMEs, could assist in the provision of reprocessing capacity</p> <p>Management perceives the costs of waste management to be relatively low and sees no business reason to change existing practices. The true costs (including the value of raw material losses etc), is all too often opaque and not quantified.</p>	<p>There is no incentive for waste management companies to provide additional capacity in non-landfill waste management processes, leading to insufficient waste being diverted from landfill in order to meet Government and EU targets</p> <p>Business tends to leave the management of its wastes to its contractors, relying on them to provide cost effective solutions. This sector is highly competitive and has little incentive to offer recycling-led solutions that require new investment and higher initial costs.</p>



Table 7: Diverting Business Waste From Landfill – Problem Analysis Matrix (Page 3)

Area/Activity	Key Problems	Principal Causes	Principal Effects
Data Availability / Reporting	Available data & information on the sources, nature, quantities and fate of wastes, and WM facilities, are inaccurate / unreliable, and insufficient to be able to meet all current / future requirements for WM.	<p>Not enough is known about “business” waste - e.g. quantities, trends, sectoral analysis, composition (especially C&D waste)</p> <p>Government failure and fragmentation (ODPM, DTI, DEFRA, EA, LGA) results in a lack of ownership</p> <p>Strategic waste/resource research in the UK is fragmented and underdeveloped, which reduces the effectiveness of data collection methodologies</p>	<p>Current data collection is not adequate for policy formulation and cost effective analysis of policy outcomes</p> <p>Data lacking on collection costs, especially CI recycling collections, leading to insufficient collection of recyclables</p> <p>No information on elasticity of supply and demand within waste sectors</p> <p>There is no reference data on operating costs, profit and payback for new technologies</p>
Awareness & Communication	<p>Businesses have no incentive to select the process for the management of their waste</p> <p>Businesses do not have sufficient tools to achieve the potential for waste reduction</p>	<p>The true cost of waste is not properly perceived by businesses</p> <p>The waste management industry selects the waste management process without consulting the producer</p> <p>Too many businesses do not understand that reducing waste significantly increases competitiveness</p> <p>Professionals are not educated / trained to understand and manage waste problems</p> <p>The public does not accept ownership of its waste</p> <p>Businesses and support agencies do not have the resources to recognise waste and what to do about it as an issue</p> <p>Businesses are not aware of where to go for help</p>	<p>Insufficient waste is diverted from landfill in order to meet Government and EU targets</p> <p>Opportunities for waste reduction are not exploited</p>



Table 7: Diverting Business Waste From Landfill – Problem Analysis Matrix (Page 4)

Area/Activity	Key Problems	Principal Causes	Principal Effects
Waste Avoidance / Reduction / Reuse	<p>Low recognition by management of the costs and benefits of better waste management means that too few businesses give it any attention. This is true notwithstanding ample and consistent evidence from waste minimisation programmes that benefits can be high and payback periods short.</p> <p>There is no incentive for the waste management industry to promote waste minimisation to businesses</p>	<p>Waste management industry cannot see a competitive advantage in providing such a service</p>	<p>Opportunities for waste reduction are not exploited</p>
Recycling / Reprocessing / Markets	<p>Recycling is not price-competitive with landfill</p>	<p>Differentials in prices between virgin and secondary materials favour the use of virgin material</p>	<p>Local economic benefit is lost when materials are disposed of rather than reprocessed locally</p>
Waste Handling / Processing / Treatment	<p>Collection and handling/processing costs for source-segregated recyclable materials are prohibitively high</p>	<p>The quantities of recyclables presented by both households and businesses are too low to achieve economies of scale</p> <p>Collectors do not have sufficient information on costs of collection methodologies</p>	<p>Insufficient quantities of recyclables are collected</p> <p>Little incentive to invest in new collection, sorting and processing infrastructure</p>



3.3 Follow-Up Discussions

3.3.1 Summary

Following the production of the Interim Report, discussions on the Consultants' interim findings and preliminary screening of options were held with a number of stakeholders. Almost all reactions were positive, the only exception being the Federation of Small Businesses (FSB), which has an objection to one of the Consultants' preferred option – targeted grants, on the grounds that it may not be favourable to small businesses. The main reasons are that the FSB sees grants as being aimed principally at larger businesses and that the application process is likely to be complex and beyond the capability of small businesses – because of the demands placed on scarce management time and the need for appropriate knowledge.

We believe that this objection can be overcome by providing assistance in undertaking the application process for small businesses and by ensuring adequate publicity for the programme to ensure that small businesses are aware of it.

Issues which formed part of a recurring theme were:

- § The need to develop collection services for recyclables, as well as additional processing capacity.
- § The need to address a wider range of materials than those currently being tackled by WRAP and the REMADES, to cover the broader needs of business.
- § Poor general awareness of the assistance available from Envirowise, WRAP and the REMADES.

Notes are provided below on the main points raised by each organisation with which follow-up discussions were held.

3.3.2 Department of Trade and Industry (DTI)

The DTI facilitated a meeting with several trade associations, mainly from the metals processing industries, to discuss the issue of hazardous waste landfilling. The main concern of the parties at this meeting was the availability of hazardous waste landfills following the implementation of the EU Landfill Directive and the lack of technically available alternatives.

It was clear that the availability of hazardous waste landfills was of prime concern. The point was also made that some sectors may be adversely affected by increases in the tax and that this matter needs to be carefully considered – for example, by ensuring that finance is made available to assist those industries that produce waste types for which there is currently no alternative but landfill. These industry sectors will require attention in addition to those already being addressed by, for example, WRAP and the REMADES, which are currently focussing mainly on recyclables from the household waste stream.

3.3.3 WRAP

WRAP appreciated the approach taken in the Interim Report and agreed that, as a national body, they could fulfil the role of disbursing additional funding using one or more of the options identified. It has a project evaluation capability and has introduced a comprehensive project monitoring procedure, which is undertaken using appropriate specialist consultants with clear terms of reference appropriate to each specific project.

WRAP does, however, have reservations about any substantial expansion of its activities because its philosophy is to remain focussed on delivery of its existing objectives.



3.3.4 London Remade

A visit was made to London Remade which, as a result of substantial funding and the calibre of its staff, is one of the more active of its kind. It made a number of important points:

- § Getting new market development projects up and running must be the responsibility of private sector companies, which have the necessary in-depth know-how and the financial incentive to ensure success.
- § Identification of suitable companies to which funding should be directed is best done at a regional rather than national level, due to a more intimate knowledge of the local business community.
- § A need exists to fund collection systems for recyclables from businesses, especially small businesses. Identifying an appropriate methodology, however, may present problems.

3.3.5 Confederation of British Industry (CBI)

The CBI favours promoting a change in waste management behaviour among its members and sees this programme as enabling the transitional cost to be minimised. It supports a package of measures and favours particularly grants and interest-free loans, which the Carbon Trust has apparently found effective. It also showed interest in the options of offering rebates to landfill tax payers and in establishing a Waste Management Facilities Compensation Fund.

The CBI sees a particular need to develop additional collection systems, especially covering those materials where collection is either not yet available or is currently uneconomic.

It has some doubts about using the RDAs as a channel for grants as, in the CBI's view, the objectives of the RDAs and their capability to deliver are less than clear.

3.3.6 Federation of Small Businesses (FSB)

The FSB is strongly in favour of both WRAP and Envirowise but feels that they are not well marketed to small businesses and, in the case of the former, focuses on too narrow a range of materials. The REMADES currently offer a variable quality of service in different areas of the country. The relationship between WRAP and the REMADES is seen as poor.

The priorities that FSB favours are:

- § WRAP and Envirowise
- § Interest-free loans
- § Tax credits
- § Venture capital fund

The FSB is opposed to targeted grants on the grounds that they may not be favourable to small businesses. They see grants as being aimed principally at larger businesses and that the application process is likely to be complex and beyond the capability of many small businesses because of the demands placed on scarce management time and the need for appropriate knowledge.

Collection of recyclables from small businesses is an area that the FSB would like to see expanded, possibly via local authorities. Making the recycling facilities at civic amenity sites available to small businesses, possibly for a fee, is another issue which they believe to be important. Separation of more waste types at transfer stations is another feature that they believe would assist in increasing the diversion of waste from landfill.



Awareness is also an issue. Most small businesses are unaware of the need to divert waste from landfill and they do not understand how this can be achieved. They also perceive that they subsidise the cost of MSW management through the charges that they pay to local authorities for waste management services in addition to the business rates.

3.3.7 Engineering Employers Federation (EEF)

The EEF is strongly opposed to recycling landfill tax through a reduction in NICs or business rates, because the rebate goes equally to service industries, which produce less waste. It reacted very positively to the proposals in the Interim Report, particularly in relation to targeted grants.

The issue of awareness, particularly in relation to Envirowise, was raised. The EEF believes that the marketing of Envirowise should stress the need and urgency for waste minimisation, as well as the fact that money can be saved. EEF's members have a mixed reaction to Envirowise. There are still a large number of companies that are not aware of the services Envirowise provides and there is much scope to improve this situation. Not all the companies that have used the service have had a positive experience. Others feel it would be more advantageous to support the initial visits ("Fast Track") with ongoing in-depth advice.

Their members have some very specific problem wastes to which there currently appears to be no alternative to landfill.

3.3.8 Environment Agency

The Environment Agency made a number of helpful suggestions, all of which have potential to increase the diversion of waste from landfill. Many of these, however, are aimed at obtaining additional funding for the existing functions of the Agency itself – in order to expand its level of activity in certain fields – and do not fulfil the fundamental criterion of recycling the tax revenue back to business.

Examples are:

- § Agency assistance to and partnership with Envirowise
- § Training EA inspectors in waste minimisation
- § A waste tracking fund to enable the agency to combat fly-tipping
- § Increased funding of waste regulation

Proposals which fit better with the stated objectives of this project were:

- § Expansion of the REWARD scheme
- § R&D activity into waste reduction and sector benchmarks
- § Resource efficiency ratings for waste reduction equipment
- § Funding for waste minimisation clubs
- § A resource efficiency innovation fund
- § A recycle use obligation fund

These issues are addressed in section 4.

3.4 Strategic Objectives for Increasing Landfill Diversion

In the foregoing analysis, some of the problems and causes identified fall outside the scope of this project since they cannot be directly addressed through the medium of recycling landfill



tax revenue. Those aspirational objectives that could be addressed by funding using landfill tax revenues can be derived directly from the problems / barriers identified in section 3.2 above.

Accordingly, we conclude that the primary strategic objective for increasing landfill diversion should be to:

Ensure that alternatives to landfill are, and are perceived to be, competitive in the shortest possible time.

Other subsidiary objectives that, based on the results of the stakeholder workshop, we believe should be considered for possible action by the use of landfill tax revenue are:

1. The actual / perceived gap between the cost of landfill and its alternatives is closed.
2. Financial assistance to businesses, especially SMEs, supports the provision of reprocessing capacity.
3. Business management understands the true costs of waste management and the genuine business reasons to change existing practices.
4. The costs for collecting and handling/processing source-segregated recyclable materials are reduced.
5. The differentials in prices between virgin and secondary materials are reduced or eliminated.
6. Standards for the quality and performance of recycled materials are established.
7. Government and the public sector places more importance on green procurement.
8. More comprehensive and reliable data about “business” waste are available.
9. Strategic waste / resource research in the UK is developed and concentrated.



4. OPTIONS FOR RECYCLING REVENUES FROM LFT INCREASES

4.1 Design of Disbursement Schemes – General Considerations / Principles

The key criteria used by the Consultants to evaluate possible options for recycling revenues from incremental increases in landfill tax are those specified in the Terms of Reference for this study, together with additional criteria proposed by the Consultants (see section 4.3 below).

However, in planning and designing schemes or measures for disbursing revenues generated from hypothecated environmental taxes / levies, the OECD and some other international organisations have suggested a number of general principles that should be applied to the extent possible⁸. These are summarised in the following text box:

Environmental Effectiveness: Achieving a strategic or overall environmental objective cost-effectively should be the main purpose of a disbursement scheme, but there may be trade-offs between this and other (non-environmental) objectives. The primary aim in this respect should be to maximise the environmental benefits for a given outlay of support. However, it can often be difficult in practice to determine the precise level of support needed to ensure that the desired environmental benefits are achieved.

The criteria for awarding support should preferably be linked to expected *environmental outcomes* rather than particular types of input such as eligible items of capital equipment or technology. Likewise, the cost-effectiveness of expected outcomes should wherever possible be measured and assessed against established quantitative benchmarks.

Administrative / Transaction Costs: All disbursement schemes targeted at businesses involve administrative and transaction costs for both the public and private sectors. Depending on the complexity of the scheme, these costs can be considerable. Generally speaking, the more complex the scheme the greater the administrative and transaction costs are likely to be for the donor and beneficiaries alike. These may in certain circumstances effectively act to discourage prospective beneficiaries from taking advantage of the support offered by a scheme.

Leveraging and Additionality: The financial assistance and support delivered through a disbursement scheme should endeavour as far as possible to leverage additional financial resources from other (private) sources, and not to replace or substitute for other available sources of finance. As a general rule, financial support should only be provided on a minority co-financing basis.

Internal Earmarking: “Internally earmarking” the revenue from an environmental tax or levy to reflect the extent to which the tax is borne by particular groups or sectors, and linking disbursement to tax incidence, should generally be avoided as this is likely to result in the inefficient allocation of resources. An inevitable consequence of an effective economic instrument targeted at businesses is that some businesses or individuals will be financially better off and some worse off. These distributional effects can be important, but are notoriously difficult to measure or predict.

Polluter Pays Principle: Disbursement schemes should aim to reinforce (or at least not undermine) the Polluter Pays Principle, and endeavour to build upon or strengthen existing market mechanisms whenever possible.

⁸ For further information, see the *St Petersburg Guidelines on Environmental Funds in the Transition to a Market Economy*, OECD 1995.



Transparency, Objectivity and Accountability: Schemes involving the use of public funds to provide financial support generally require high standards of transparency, objectivity and accountability if they are to avoid criticism, and be seen and accepted as a desirable and effective intervention measure. Particularly important for ensuring transparency, objectivity and accountability are that such schemes are not subject to direct day-to-day influence or control by government, and eligibility criteria and allocation processes are clearly defined and understood by prospective beneficiaries.

Scheme Duration: Support schemes should be regarded only as transitional instruments intended to overcome specific institutional and / or market failures. They should not become a permanent feature of the system for environmental management and protection.

Potential for Abuse: All disbursement schemes have the potential for abuse and therefore, when devising a scheme, particular care needs to be taken to limit the scope for misuse of public funds. However, the potential for abuse can never be eliminated completely and there is a danger that, in trying to do so, a scheme becomes unduly complicated or unworkable.

Unwanted / Perverse Effects: All disbursement schemes also have the potential for unwanted or perverse side effects. While some unwanted effects may be readily predictable and can be taken into account in designing a scheme, experience suggests that it is seldom possible to identify / predict all unwanted side effects at the planning stage and that the full nature and extent of such effects only become apparent after a scheme has been implemented and operating for some time.

In addition to the above, the potential constraints deriving from the EU rules on state aid also need to be considered (summarised in Appendix B).

Unfortunately, reconciling and accommodating all of the above considerations and principles to create an “ideal” disbursement scheme is virtually impossible, and therefore compromises and trade-offs are usually necessary. In this respect, the experience of implementing similar instruments in other countries can sometimes be useful.

Whereas hypothecated environmental taxes or charges of any kind are still comparatively rare within the EU, many of the EU accession countries in Central and Eastern Europe (CEE) have long-standing and extensive experience of such taxes / charges (including landfill taxes), and of channelling the resulting revenues to provide targeted financial and other forms of assistance in pursuit of environmental policy objectives. A report of a survey of state environmental funding institutions in CEE countries published in 1999⁹ indicated that over 75% of the total revenues generated by hypothecated taxes / charges in these countries were subsequently disbursed in the form of non-repayable grants, with most of the remainder disbursed as soft loans.

4.2 Options for Recycling Revenues from LFT Increases

4.2.1 Options Identified

Some options were identified in the Terms of Reference for this project. Further options have been included, based on our own experience and the views of some of the consultees, notably DEFRA. The list of options examined is as follows:

1. Expanding financial support for free or subsidised *promotional, capacity building and advisory services*.

⁹ Sourcebook on Environmental Funds in Economies in Transition, OECD 1999.



2. Providing *interest free loans* for business investment in technologies for sustainable waste management.
3. Providing *support for business R&D* in sustainable waste management technologies.
4. Providing support for a *venture capital fund* for new businesses in sustainable waste management.
5. *Enhanced Capital Allowances* (ECAs) for qualifying investments in technologies / facilities / systems for diverting business waste from landfill.
6. *Tax credits* for qualifying expenditures on technologies / facilities / systems for diverting business waste from landfill.
7. *Targeted grants* for eligible projects or initiatives aimed at diverting business waste from landfill.
8. *Rebates to landfill tax payers* for wastes diverted from landfill.
9. *Rebates to business waste producers* for reductions in the quantities of waste generated.
10. *Incentive bidding schemes* or *tradable permits* for waste reduction and recycling.
11. *Compensation to communities* hosting waste management facilities other than landfill.

In the following sections, each option is described and discussed in terms of its advantages / disadvantages, potential sectoral impacts and cost-effectiveness.

In view of the very limited experience of applying most of these instruments in the UK, the evaluation of options for recycling revenues from landfill tax increases must inevitably be largely subjective. For example, the *potential sectoral impacts* of an option (i.e. which sectors would benefit and to what extent) will depend partly on how it is designed / targeted and partly on the response and uptake by intended beneficiaries. The latter is difficult if not impossible to predict at this stage. Existing incentive schemes, such as those managed by the Carbon Trust and WRAP (see section 5.1 below), have generally not been in operation long enough to serve as indicators of potential beneficiary interest and uptake.

With respect to *cost-effectiveness*, each option is considered primarily in terms of its potential to divert waste away from landfill in the short-to-medium term and / or enable alternatives to landfill to become more competitive.

4.2.2 Expanded Promotional, Capacity Building & Advisory Services

Description

This option envisages the provision of further financial support for free (or partially subsidised) promotional, capacity building and advisory services to businesses. Such services could be delivered in a wide variety of forms, for example:

- § Programmes to promote greater awareness amongst businesses of the need to divert waste from landfill, and the potential commercial benefits of waste reduction at source.
- § Advice to waste producers on waste minimisation.
- § Provision of training to waste managers.
- § Provision of technical and / or commercial advice to businesses that provide recycling or other services which contribute to the diversion of waste from landfill.



- § Research into new uses for recycled materials the results of which are made publicly available.
- § Support for the development of formal technical standards for recycled materials and products using or containing recycled materials.

Such services can contribute to the diversion of waste from landfill by changing the behaviour of:

- § Waste producers – which may either be encouraged to reduce the amount of waste they produce or else to ensure its diversion from landfill.
- § Waste Managers – to divert waste from landfill.
- § Businesses that have the potential to use recycled products.

Probably the most successful existing programme providing such advice is Envirowise, which concentrates on promoting resource efficiency, of which one of the main aspects is waste reduction.

There are currently no national programmes to provide advice to waste producers about why there is a need to divert waste from landfill or how to do so. Nor are there any programmes for waste managers. Local authorities and RDAs provide some advice on waste reduction and the potential for recycling at a local level but these programmes are generally small and are not coordinated nationally.

WRAP and the REMADES provide advice on the use of recyclables, both as a substitute raw material in manufacturing and also by means of green procurement programmes. This is one of their main functions. They also undertake other work of a capacity building nature, such as the establishment of technical standards for various applications in which recyclables can be used.

WRAP, Envirowise, the REMADES and other existing bodies involved in providing promotional, capacity building and advisory services to businesses are described in more detail in section 5.1.

Advantages

The main advantages of this option are:

- § It is flexible and the services offered can be tailored to address the waste management challenges and constraints faced by particular business sectors.
- § It would assist businesses, especially SMEs, to understand the true costs of waste management, and to realise the potential commercial benefits of waste reduction.
- § Unless the “cash grant equivalent” of the services provided to individual companies were unduly large or generous, it is unlikely to fall foul of the EU rules on state aid.

Disadvantages

Conversely, the principal disadvantage of this option is that it is unlikely to lead directly to major new investment in capacity for diverting business waste away from landfill. However, it may indirectly exert market pressure on waste management service providers to develop additional capacity for both the collection and processing of recyclable materials.

Potential sectoral impacts

This option can be readily targeted at those types of business and / or sectors that are expected to experience the largest incremental tax burden (see section 2.9 above) and delivered in forms appropriate to the waste management needs of these particular sectors.



The advice on waste reduction provided by Envirowise is currently aimed almost entirely at the manufacturing sector and, within that sector, at certain specific industries. Its sectoral impact is, therefore, skewed. The type of advice offered is, in general, tailored to the specific needs and circumstances of manufacturing businesses, although there are some service sectors to which it could also be readily applied, together with the government estate. Envirowise has already been approached by many government organisations asking for direct assistance, which it is not currently in a position to provide. For example, the Health Service has expressed an interest in using programme material to help it minimise its waste. If the service provided by Envirowise were to be expanded and allocated additional resources, the whole of the manufacturing sector could be addressed, together with much of the service and government sectors.

The advisory services currently provided by Envirowise are aimed mainly at SMEs, since large businesses tend to have their own in-house environmental expertise and have little need (or so they believe) of additional assistance.

Advice on the use of recyclables, as provided by WRAP and the REMADES, tends to be focussed on eight material streams (glass, paper, aluminium, steel, plastic, wood, compost, aggregate). Only those businesses which use these materials can benefit from these programmes as they stand. The same applies to the work being undertaken on standards and other market development work.

Cost-effectiveness

The available evidence suggests that expanding financial support for free (or partially subsidised) promotional, capacity building and advisory services to businesses is likely to be very cost-effective, particularly in helping SMEs to reduce the generation of wastes at source.

On the basis of Envirowise’s estimates, which are explained in more detail in section 5.1.3, the cost per tonne of waste diverted would be as follows:

Level of additional funding £ million p.a.	Incremental waste reduction Million tonnes p.a.	Cost per tonne diverted
+ £1 m	0.2	£5.00
+£10 m	3.2	£3.12
+£20 m	5.2	£3.85

Given the very much greater savings which could be achieved taking all savings into account, this would represent very good value for money. Indeed, although diminishing returns may appear towards the top end of the range of increased expenditure, the unit cost per tonne of waste diverted is still lower than for any of the other options where it has been possible to calculate the costs.

It is not possible to be specific about the cost-effectiveness of the promotional, capacity building and advisory activities of WRAP and the REMADES, because they do not differentiate the results of their individual activities. We nevertheless consider that they have the potential to be cost-effective.

4.2.3 Interest Free Loans

Description

This option envisages the provision of interest-free loans for business investment in technologies for sustainable waste management. An interest free loan in effect comprises a grant in the form of avoided interest payments attached to a repayable capital sum. The value of the subsidy (or “grant equivalence”) depends on the difference between the terms of the interest free loan and the terms that would have been offered to the recipient by a bank or



other commercial lending institution. Where, apart from the interest rate, the terms are otherwise identical for a subsidised loan and a commercial loan, the same subsidy or incentive can be offered either in the form of a subsidised loan or as a direct grant.

Depending on the size and term of the loan, the subsidy / incentive element of an interest-free loan could be substantial. For example, for an interest-free loan of £100,000 repayable at the end of 5 years, and assuming a commercial lending rate of 7% per annum, the total amount of interest saved would be a little over £40,000 gross (or between £28,000 and £32,400 net subject to and depending on the borrower's liability for corporation tax). Clearly, the greater the amount of the loan principal and / or the longer the term of the loan, the greater is the value of the subsidy / incentive to the borrower. In principle, this would represent a considerable "carrot" to potential investors in technologies for sustainable waste management.

This option is similar in concept and approach to the "Action Energy" loan scheme managed by the Carbon Trust (see section 5.1.1 below). The Action Energy scheme offers interest-free loans in order to fund the cost of buying energy saving equipment, and is primarily intended for projects to replace inefficient existing equipment with a more efficient alternative that uses less energy. However, other projects can be considered provided they achieve a reduction in carbon dioxide emissions. Prospective borrowers must satisfy a minimum criterion for carbon dioxide emission reductions per £ loaned.

Loans of between £5,000 and £50,000 are available completely interest-free for periods of up to 4 years. Loans are normally repayable in equal monthly instalments. Any investment project promising first five-year energy savings greater than the loan value may qualify for support. Loans under the "Action Energy" scheme are offered to SMEs under the "*de minimis*" exemption to EU rules on state aid, which limits the aid provided to a company to not more than €100,000 (cash grant equivalent) over a three year period. As the scheme only commenced operation in June 2002, it is too early to draw any conclusions about the levels of loan uptake and its overall cost-effectiveness.

Advantages

The principal advantage of interest free loans compared with (say) direct grants is that they exert a discipline on prospective borrowers to think in advance about the viability of their projects over time rather than focusing on the investment (or other initial) costs only. They are also more likely to result in a stronger commitment by the beneficiary to realising the expected project benefits in order to be able to repay the loan.

Disadvantages

On the other hand, subsidised loan schemes suffer from several practical drawbacks, notably:

- § The subsidy element is a direct function of the size and term of the loan, and therefore cannot be readily varied or "fine-tuned" to reflect the level of subsidy actually needed to ensure the financial viability of the proposed investment.
- § The loan principal is effectively "sterilised" until the loan is repaid, i.e. the funds tied up in the principal cannot be used to leverage / support other worthwhile investments. This limits the scope for disbursing the revenue derived from increases in landfill tax in order to encourage and leverage new investments in alternatives to landfill as rapidly as possible.
- § As the loan principal must eventually be repaid to the lender, this also limits the extent to which the revenue derived from increases in landfill tax can be recycled back to business over the short-to-medium term.



- § They require the lender to investigate and assess the credit status of the borrower - as a general principle, loans using public money should not be offered to financially unsound or risky businesses. In other countries, this issue is sometimes addressed by requiring the borrower to furnish a bank guarantee of equivalent value issued by a first-class bank, thereby forcing the borrower to demonstrate his creditworthiness to the satisfaction of a commercial bank. However, requiring a bank guarantee increases the transaction costs of the borrower.
- § By definition, such schemes are not able to provide much in the way of support for measures involving little or no capital investment. In many cases, the opportunities for reducing waste generation at source relate more to changes in processes, working practices and culture rather than investment in new equipment.

Potential sectoral impacts

Through the loan eligibility and project selection criteria, this option could be readily targeted at those types of business and / or sectors that are heavily reliant on landfill and expected to experience the largest incremental tax burden (see section 2.8 above). In order to maximise the uptake and environmental effectiveness of a targeted loan scheme (see below), eligibility would probably need to be extended to larger enterprises. However, this would undoubtedly raise concerns regarding the compatibility of the scheme with EU rules on state aid and, depending on how the eligibility criteria are defined and the aid intensity of any loans offered to larger businesses, may require advance notification and approval by the Commission.

Cost-effectiveness

This option implies that:

- § Interest payments on commercial loans; and / or
- § Access to loan financing; and / or
- § The minimum size of loan available from commercial sources of finance; and / or
- § The maximum term (period) available for loans provided by commercial lenders;

are significant constraints or barriers to investment in alternatives to landfill.

In our experience, these are certainly not barriers for larger enterprises, and the available evidence suggests that they may not be significant constraints even in the case of established SMEs. Two recent reports by the Bank of England^{10,11} have indicated that:

- § Bank lending to SMEs rose in 2002 and there was no real evidence of firms having difficulties accessing bank finance. A recent survey found that only 1% of small firms cited access to finance or the level of interest rates as their main problem.
- § Term loans now account for almost three-quarters of all lending (by value) to small firms, with 40% of term loans to SMEs having a maturity of 10+ years, and 33% a maturity of less than 5 years.
- § The great majority of lending to SMEs is at variable rates – 89% of term lending is at variable margins over base rates and virtually all overdraft lending is similarly variable.
- § The average margin over base rates charged on variable rate lending during 2002 was a little over 3% (3.6% in deprived areas).

¹⁰ *Finance for Small Firms*, Bank of England April 2003

¹¹ *Quarterly Report on Small Business Statistics*, Bank of England July 2003



- § Banks have become increasingly willing to make smaller loans on an unsecured basis (except for start-ups).

In general, it would therefore appear *prima facie* that the cost of and / or access to loan finance are unlikely to be significant barriers to investment in alternatives to landfill.

With little directly comparable experience to draw upon, it is difficult to judge the potential cost-effectiveness of a scheme to provide interest-free loans for business investment in technologies for sustainable waste management. Most SMEs generate relatively small quantities of waste and therefore have limited scope individually for investing in technologies that reduce waste at source or otherwise divert waste away from landfill.

On the other hand, if the loan scheme were made sufficiently attractive (i.e. a strong subsidy element) and eligibility extended to all businesses (i.e. not just SMEs), it would be surprising if this did not result in additional investment in alternatives to landfill. Overall, however, while there may be some circumstances where an interest-free loan scheme could be a useful instrument for delivering targeted support (e.g. for start-up businesses or new technologies), such a scheme is unlikely to result in major new investment in alternatives to landfill over the short-to-medium term.

4.2.4 Support for Business R&D

Description

This option would provide support for business R&D in developing and commercialising sustainable waste management technologies. The possible aims of such a scheme might include:

- § Encouraging research and development into relevant technologies, processes, practices and tools;
- § Creating a small number of business driven, strategic centres of excellence for innovation and exploitation of more sustainable waste management technologies, processes, practices and tools;
- § Assisting technologies, processes, practices and tools to progress through demonstration, and towards commercial adoption and exploitation;
- § Providing a better understanding of the barriers to the diversion of wastes from landfill.

This option is in essence a specialised form of targeted grant programme, similar in concept to the support offered under the Carbon Trust’s “Low Carbon Innovation Programme” (LCIP). LCIP aims to support low carbon focused research and development in the UK, through accelerating R&D already underway and encouraging additional research and development.

LCIP is able to fund R&D that has short, medium and long term outputs. It can also commission research that ranges from “blue sky” to proof-of-product / system concept through to more narrowly focused research that addresses a specific problem. In addition, LCIP offers support for demonstration projects aimed at bridging the gap between R&D and the commercialisation of a technology. The programme is mainly concentrated on small R&D projects, and funding of between 25% and 75% of eligible R&D costs can be provided, up to a limit of £200,000.

WRAP and, to a lesser extent, the REMADES currently provide limited support for R&D aimed at identifying new uses for recycled materials.

Support for business R&D generally is also already available in the form of tax credits for spending on R&D incurred both by SMEs and larger businesses (for further discussion on tax



credits as a disbursement instrument, see section 4.2.7 below). These allow companies to claim enhanced tax relief for their qualifying R&D spending, and are additional to the 100% relief available to companies and individuals for capital spending on R&D.

SMEs are able to claim 150% tax relief for qualifying R&D expenditure, while larger companies can claim 125% relief. They are not available to individuals or partnerships. In the case of SMEs, companies which do not make a profit can surrender their qualifying R&D losses in return for a cash payment (the “payable R&D tax credit”) and is worth £24 for every £100 spent. For both the SME and large company schemes, the company’s qualifying spending on R&D must be not less than £25,000 per year.

Advantages

In our view, there would be little advantage in establishing a programme focused solely on supporting business R&D in developing and commercialising sustainable waste management technologies, particularly in view of the substantial R&D tax incentives already available to companies.

In some cases, there may be a specific need to support business research, for example to develop a more sustainable solution for dealing with an intractable waste generated by a particular business sector or to demonstrate / commercialise a promising waste management technology. However, in such instances, R&D support could be equally (and more flexibly) funded through a broader-ranging targeted grant scheme (see section 4.2.8 below).

Unless the “aid intensity” of the R&D support provided to individual companies were unduly large or offered in a way that “distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods” (see Appendix B), it is unlikely that difficulties would arise concerning the compatibility of this option with the EU rules on state aid.

Disadvantages

The principal disadvantages of this option as a “stand-alone” instrument for recycling incremental revenues from landfill tax increases are its narrow focus and limited scope / potential for achieving significant diversion of business waste from landfill in the short-to-medium term. The benefits of providing support for business R&D tend to be realised only over the longer term. A study undertaken in 2000 by the Institute for Fiscal Studies¹² estimated that a 10% fall in the cost of R&D stimulates just over a 1% rise in the level of R&D in the short-run, and just under a 10% rise in R&D in the long-run.

Potential sectoral impacts

The scope for targeting those business sectors expected to experience the largest incremental tax burden would depend to a considerable extent on how the eligibility criteria for R&D support are set (e.g. type / size of beneficiary, required co-financing, landfill diversion potential, potential for replication, etc).

The businesses most likely to benefit from this option are those having both the interest and capacity to undertake or commission R&D into sustainable waste management technologies. Most SMEs for example would not be in a position to take advantage of this option, and so its impact is likely to be confined mainly to larger businesses operating in those sectors with a strong intrinsic interest in developing and commercialising sustainable waste management technologies, such as the larger providers of waste management services.

¹² *Do R&D Tax Credits Work? Evidence from a Panel of Countries 1979-97*, Institute for Fiscal Studies, November 2000.



Cost-effectiveness

This option is predicated on the assumption that there are major technological barriers to reducing substantially the amount of waste going to landfill that could be overcome by providing support for business R&D. However, evidence from other countries suggests that this is not the case. For example, Austria, Denmark and the Netherlands have already achieved a far lower dependency on landfill for managing active wastes than the UK using existing technologies.

Legislative and other pressures to reduce the amount of waste going to landfill have been the main drivers of business R&D into sustainable waste management technologies in other EU countries. This is particularly the case in countries that, in one way or another, have moved early to implement measures to deter the use of landfill. Most business R&D effort relating to waste management has been concentrated either on improving the technical performance of existing technologies, or endeavouring to commercialise emerging technologies. However, some so-called emerging technologies, such as pyrolysis and gasification have been under development for at least two decades but have yet to become widely accepted as “proven” technologies for reducing the volume of waste going to landfill.

Relatively little fundamental research into waste diversion technologies is currently being undertaken in the UK or elsewhere and, given the long lead times usually required to transform the results of such research into commercially proven technologies, it is highly unlikely that providing support for fundamental R&D would have any significant effect on the amounts of business waste landfilled in the near future.

Thus, although to some extent a matter of conjecture, our view is that this option has very limited potential for significantly increasing the volume of waste diverted from landfill or for enabling alternatives to landfill to become more competitive in the short-to-medium term.

4.2.5 Venture Capital Fund

Description

This option envisages providing support for a specialised venture capital fund for new businesses in sustainable waste management. This would operate in a similar way to a commercial venture capital fund with the important difference that its primary aim would be to invest in new or early stage businesses seeking to develop and commercialise viable alternatives to landfill, rather than to achieve a specific financial return. Commercial venture capital funds provide equity funding to unquoted companies and currently account for over 95% of formal private equity investment in the UK. In this context, “private equity” refers to medium-to-long term finance provided in return for an equity stake in a new or early stage business with high growth potential.

Key characteristics of new or early stage businesses seeking venture capital are:

- § Their value is linked primarily to longer-term growth potential derived from scientific / technical know-how and intellectual property.
- § Early on, they lack tangible assets which may be used as collateral.
- § Their technologies / products initially have little or no track record, are entirely or largely untested in markets and are sometimes subject to high rates of obsolescence.

Although banks do provide finance to new and early stage businesses (often through specialist units), a lack of collateral and market presence generally makes equity finance more appropriate than debt finance for such businesses. But the substantial fixed costs involved, such as underwriting and advisory fees, make it uneconomic for most new or early stage businesses to raise small amounts of equity capital. For many SMEs, moreover, their lack of size and trading record preclude them from meeting the listing criteria of public exchanges.



A report published by the Bank of England in 2001¹³ indicated that, although the UK venture capital industry is the largest and most developed in Europe, it currently invests little more than 5% of funds in start-ups and early-stage finance, compared with 20% in expansion capital and as much as 75% in management buy-outs / buy-ins (MBOs/MBIs). The same report confirmed that, over long periods of time, returns on both early-stage and high-technology UK venture capital funds have fallen short of expectations related to risk, while returns on later-stage and MBO/MBI funds have generally exceeded expectations related to risk i.e. the balance between the UK venture capital industry's involvement in early- and later-stage financing is broadly consistent with the longer-term risk-reward relationship. This suggests that the prospective returns from equity investments in new or early stage businesses have generally been insufficient to compensate investors for the higher risks involved.

It is this equity gap in the provision of start-up and early-stage finance that a venture capital fund for new businesses in sustainable waste management would seek to bridge.

Such a fund is similar in concept to the Carbon Trust's "Carbon Finance" scheme. This scheme operates in a manner comparable to a commercial venture capital fund, and seeks to co-invest in new or existing companies that aim to develop low carbon and energy efficient technologies and have the potential to become commercially self-sufficient and attract further private investment. Initial targets of the Carbon Finance scheme are SMEs seeking investment capital to commercialise technologies, and other public / private sector institutions or funds wishing to establish investment support structures for SMEs in this sector.

WRAP has also established a small venture capital fund.

Advantages

In principle, the potential advantages of equity investment financing compared with other forms of financial support for new or early stage businesses are:

- § Financial support is provided over the medium-to-long term and is committed until "exit".
- § The risks as well as the rewards of the business are shared with the equity investor.
- § It allows existing owners / managers of the company considerable freedom to manage the business as they see fit and to focus on realising the commercial potential of their scientific / technical know-how and intellectual property.
- § Any capital repayments or dividends can be tailored to the cash flow needs of the business and what it can afford.

These attributes are particularly attractive / advantageous to new and early-stage small businesses.

In addition, provided access to financial support from the Fund is open to all eligible businesses on equal terms and that the Fund bears the full commercial risks of its equity investments, it is unlikely that this option would be subject to any constraints stemming from the EU rules on state aid.

Disadvantages

The main potential disadvantages of this option are:

- § Unless the eligibility and selection criteria for equity investments financed by the Fund are carefully defined and applied, the support provided may simply end up replacing or substituting for other available sources of risk finance i.e. it would fail to

¹³

Financing of Technology-Based Small Firms, Bank of England, February 2001.



achieve the "additionality" which normally justifies the creation of a specialised public fund of this kind (see section 4.1 above).

- § Given the long gestation periods and relatively high failure rates typically associated with new or early stage businesses, it is doubtful whether the creation of such a specialised fund would have any significant impact on reducing the amount of waste going to landfill in the short-to-medium term.

Potential sectoral impacts

Almost by definition, risk or equity financing provided through a specialised venture capital fund is only likely to be of potential interest or benefit to new or early-stage SMEs with a primary focus on developing and commercialising new technologies or techniques for sustainable waste management. Accordingly, this option would appear to offer very little scope for targeting those business sectors expected to experience the largest incremental tax burden.

Cost-effectiveness

While it would appear that new or early-stage businesses wishing to develop and commercialise sustainable waste management solutions face considerable difficulties in raising equity finance, our view is that this option offers only limited potential for significantly increasing the volume of waste diverted from landfill except perhaps over the long term. Nevertheless, it may still be considered worthwhile to apply part of the revenues from increases in landfill tax in order to try and bridge this equity finance gap for new or early stage businesses endeavouring to commercialise particularly promising new technologies or techniques.

4.2.6 Enhanced Capital Allowances

Description

This option envisages the introduction of Enhanced Capital Allowances (ECAs) for capital investments that are intended to deliver enduring and measurable benefits in terms of the diversion of waste from landfill. Such schemes already exist for qualifying investments in energy saving and water efficient technologies. ECAs allow businesses that invest in qualifying capital assets to claim an increased rate of first-year allowances against their taxable profits. First-year allowances enable a business to obtain tax relief for its investment earlier than would otherwise be the case. If set at 100%, they enable businesses to deduct the whole of the cost of a qualifying investment from their taxable profits for the period of account during which the expenditure is incurred.

Key requirements of an ECA scheme to encourage diversion of waste from landfill would be likely to include the following:

- § A focus on encouraging innovation and investment in more sustainable waste management technologies.
- § Clear definitions and criteria for qualifying technologies, plant and equipment.
- § Qualifying capital expenditure must be clearly identifiable and readily measurable.
- § It should be designed so as to minimise costs for both claimants and scheme administrators whilst still providing certainty on what can be claimed.
- § Sufficient flexibility to be able to cope with new technologies and evolving circumstances.
- § Compatibility with EU rules on state aid.



Advantages

The main potential advantages of an ECA scheme are:

- § It could help reduce financial barriers to investment, particularly in those cases where the prospective returns on investments in more sustainable technologies are marginal.
- § It would offer a fiscal method of encouraging businesses to invest in more sustainable waste management technologies, and allow individual businesses the freedom to determine the most cost-effective solution on a case-by-case basis.
- § It would provide signals to businesses about the Government's priorities for waste management and influence investment choices and decisions in favour of more sustainable technologies.
- § Once established, it should be comparatively straightforward to administer.

Disadvantages

Potential disadvantages of ECAs include:

- § The financial incentive provided by ECAs is linked to inputs (i.e. eligible capital expenditures) rather than to desired outcomes (e.g. reductions in the volume of business waste going to landfill).
- § In order to benefit from an ECA scheme, a business would need to be generating taxable profits.
- § ECAs do not reduce the overall tax liability of a business. They give higher allowances for the year during which the expenditure is incurred, but lower allowances in later years because the outstanding balance of unrelieved expenditure taken forward to the later years is smaller. As a result, the overall financial benefit of ECAs to a business (and therefore the incentive to invest in more sustainable technologies) is quite small – a first year allowance of 100% provides a cash flow benefit equivalent to a reduction of around 6% of the total cost of a qualifying investment.
- § As the incentive element is fixed in relation to the value of the qualifying investment, ECAs are a relatively inflexible mechanism for allocating subsidies aimed at triggering major new investment in alternatives to landfill.
- § The potential for recycling revenue from landfill tax increases back to business is likely to be limited. For example, in order to disburse £10 million of revenue back to business through an ECA scheme, businesses would need to expend around £170 million on qualifying investments.
- § By definition, ECA schemes only provide support for measures involving capital investment. In many cases, the opportunities for reducing waste generation at source relate more to changes in processes, working practices and culture rather than investment in new equipment.
- § There would be no easy way of ensuring that qualifying investments were focused primarily or exclusively on the management of business wastes as opposed to municipal waste.
- § The definitions and criteria, and the lists of qualifying technologies, plant and equipment, would need to be maintained / updated on an on-going basis. Because waste management involves such a broad range of activities and players, the work and costs involved in undertaking this task would be considerable.



- § An ECA scheme focused on sustainable waste management technologies is unlikely to be of great interest or attraction to SMEs.
- § It would be difficult to predict or cap the amount of funding that would be required, since this would depend on the level of claims made.

Potential sectoral impacts

By definition, only those businesses able to make qualifying capital expenditures and to take advantage of the associated ECAs would benefit from the financial incentive offered by this option. Even if the eligibility criteria and range of qualifying technologies, plant and equipment were cast quite widely, the scope for targeting and disbursing support to those business sectors hit hardest by incremental increases in landfill tax would be severely constrained by the narrow focus and inflexibility of this option.

Cost-effectiveness

Due to its inflexibility and because the financial incentive to invest in alternatives to landfill is relatively small, we consider this instrument to have limited potential for recycling landfill tax revenues back to businesses, or for encouraging major and rapid new investment in facilities for diverting wastes away from landfill. However, as the Government has already introduced ECAs for investments in certain environmentally beneficial energy and water technologies, adding a new category would be relatively straightforward and provide a low cost option that could signal support for technologies to reduce and recycle wastes

4.2.7 Tax Credits

Description

Tax credits are similar in many respects to Enhanced Capital Allowances (ECAs), and share some of the same advantages / disadvantages. However, tax credits differ from ECAs in three important ways:

- § Qualifying expenditure is designated revenue (as opposed to capital) expenditure that would, under normal tax rules, be deductible at 100%. This means that stipulated types of non-investment as well as investment expenditure can be rendered eligible for tax relief.
- § They enhance qualifying revenue expenditure for tax purposes to a level above 100%, thereby significantly boosting the value of the financial incentive. So if, for example, qualifying expenditure is relieved at a rate of 150%, a company incurring qualifying spending of £100,000 can deduct £150,000 from its taxable income.
- § If a company makes a loss that is attributable to qualifying expenditure, it may surrender the loss for a cash payment.

Tax credits are already available for certain qualifying expenditures relating to R&D (see section 4.2.4) and contaminated land.

As with ECAs, a scheme to provide tax credits would need to satisfy certain key requirements:

- § A focus on encouraging innovation and expenditure on more sustainable waste management systems and practices.
 - § Clear definitions and criteria for qualifying expenditures.
 - § Qualifying expenditures must be clearly identifiable and readily measurable.
 - § It should be designed so as to minimise costs for both claimants and scheme administrators whilst still providing certainty on what can be claimed.
-



- § Sufficient flexibility to be able to cope with new methods and evolving needs.
- § Compatibility with EU rules on state aid.

Advantages

A tax credit scheme aimed at increasing diversion of waste from landfill would have two distinct advantages compared with ECAs:

- § Tax credits are a somewhat more flexible instrument for targeting and allocating subsidies.
- § Depending on how they are structured, they can provide a considerably greater incentive for businesses to implement measures targeted by the scheme and, as a result, are likely to be attractive to a greater number and wider range of businesses than ECAs

Disadvantages

The main potential disadvantages of tax credits are:

- § The financial incentive is linked to inputs (i.e. eligible expenditures) rather than to desired outcomes (e.g. reductions in the volume of business waste going to landfill).
- § As the incentive element is fixed in relation to the value of the qualifying expenditures, tax credits are a less flexible mechanism for disbursing subsidies aimed at encouraging more sustainable waste management methods than, for example, targeted grants.
- § There would be no easy way of ensuring that qualifying expenditures were focused primarily or exclusively on the management of business wastes as opposed to municipal waste.
- § The definitions and criteria, and the lists of qualifying expenditures, would need to be maintained / updated on an on-going basis. As waste management involves such a broad range of activities and players, the work and costs involved in undertaking this task would be considerable.
- § It would be difficult to predict or cap the amount of funding that would be required, since this would depend on the level of claims made.

Potential sectoral impacts

By definition, only those businesses able to make qualifying expenditures and to take advantage of the associated tax credits would benefit from the financial incentive offered by this option. Even though tax credits are a rather more flexible instrument than ECAs, the scope for targeting and disbursing support to those business sectors hit hardest by incremental increases in landfill tax would still be somewhat constrained. For example, it is probable that many smaller businesses would not be able to benefit (or benefit significantly) from a tax credit scheme.

Cost-effectiveness

There is a considerable body of evidence to suggest that tax credits are an effective fiscal instrument for stimulating spending by businesses on targeted activities (for example, see reference ¹²).

Therefore, notwithstanding their drawbacks, we consider that tax credits could make a worthwhile and cost-effective contribution to encouraging the adoption of more sustainable methods of managing business wastes and increasing the diversion of waste from landfill.



4.2.8 Targeted Grant Support

Description

Targeted grants are a non-repayable form of financial support aimed at encouraging and accelerating positive changes in existing systems and practices.

Within the EU Member States and in most EU accession countries, targeted non-repayable grants are by far the most widely applied instrument for delivering state aid, and for disbursing subsidies to support the achievement of environmental policy objectives.

The main characteristics of a well-managed and cost-effective environmental grant support scheme are:

- § A clearly defined framework of priorities and eligibility criteria for providing support.
- § A pro-active approach to beneficiary / project identification, involving the use of programmes and competitions focused on specific types of business and project / activity.
- § Strictly professional relations with applicants during project preparation and beneficiaries during implementation.
- § An appraisal process which allows for the rapid screening out and rejection of unsuitable proposals.
- § Appraisal criteria which favour projects using innovative technology and / or best practices, which represent “least-cost” solutions and leverage high levels of co-financing, and which have the potential to yield significant environmental benefits.
- § Thorough appraisal procedures for determining the environmental and cost-effectiveness of proposed projects (including financial assessment of both applicants and project proposals).
- § Activation of awarded grants only upon acceptable evidence from applicants that 100% of the financing needed for project implementation has been secured.
- § Disbursement of grant support only upon completion of contractually agreed milestones / deliverables.
- § Close monitoring of supported projects to ensure proper use of financial resources and the achievement of anticipated environmental benefits.

In other countries, grant schemes are often sub-divided into "small" and "large" grant programmes. Small grant programmes are usually designed to simplify the application process, reduce the effort and costs involved in making an application, and enable decisions on submitted applications to be reached rapidly. National grant programmes (especially small grant programmes) are frequently delivered and administered through regional and / or local intermediaries.

Advantages

Key advantages of well structured and managed grant schemes are:

- § They are by far the most flexible of the available instruments for disbursing subsidies to support the achievement of environmental policy objectives. They can, for example, be designed to deliver precisely targeted and quantified support for a wide variety of projects or activities (investment and non-investment) across different priority business sectors.



- § They are able to respond quickly and flexibly to opportunities and changing needs / circumstances.
- § They allow the available revenues to be disbursed relatively rapidly.
- § They can be highly effective in leveraging additional financial resources from other (private) sources in order to achieve the desired policy objectives.
- § Unlike many of the other options, targeted grants would be equally applicable to the voluntary sector.

Disadvantages

The principal disadvantages of targeted grant schemes are:

- § They are generally more demanding to manage than most other types of subsidy disbursement mechanisms (although usually not more so than a soft or interest-free loan scheme).
- § Because of the potential ‘moral hazards’ associated with providing subsidies in non-repayable forms, they require particularly high standards of transparency, objectivity and accountability.
- § Where most or all of the grant support is provided upon project commencement, there is a risk that once the money is disbursed, the beneficiary has less incentive to complete the project properly and on time. However, this can usually be overcome by disbursing the grant in tranches, with each tranche contingent upon satisfactory completion of contractually agreed milestones / deliverables. This of course requires adequate project monitoring.
- § They require that particular attention is paid to ensuring that awarded grants either fall within the block exemptions for state aid or, where the need arises, that prior clearance is obtained from the European Commission.

Potential sectoral impacts

Through the grant eligibility and award criteria, this option could be readily and flexibly targeted at business sectors that are heavily reliant on landfill and are consequently expected to experience the largest incremental tax burden (see section 2.8 above). In order to maximise the uptake and effectiveness of a targeted grant scheme, eligibility would probably need to be extended to larger enterprises. However, as noted above, this would potentially give rise to concerns regarding the compatibility of the scheme with EU rules on state aid and, depending on how the eligibility criteria are defined and the aid intensity of any grants awarded to larger businesses, may require advance notification and approval by the Commission.

Small businesses have expressed concern about the effort and experience required to make applications for grants. This could be offset by the provision of free consultancy help and advice, as is done by the Carbon Trust.

Cost-effectiveness

Experience elsewhere suggests that, subject to certain conditions, targeted grant schemes are a highly flexible and cost-effective means of disbursing earmarked revenues for achieving environmental objectives. For example, one of the most successful and widely regarded grant giving organisations in Europe (the Polish EcoFund) has demonstrated consistently over the past 10 years how carefully structured and targeted grant programmes can be used to leverage



substantial additional financial resources in order to achieve major environmental benefits at relatively low cost in terms of overhead expenditure and the value of grants disbursed¹⁴.

Accordingly, we consider that, of the various options considered in this report, a well-managed, targeted grant scheme offers broader scope and greater potential for recycling incremental landfill tax revenues to businesses in ways that would encourage the widespread adoption of more sustainable methods of managing business wastes and make a major contribution towards reducing the UK's dependency on landfill over the short-to-medium term.

4.2.9 Landfill Tax Rebates

Description

This option envisages some form of landfill tax rebate scheme whereby either business waste producers or landfill tax payers are able to claim a tax rebate against reductions in the quantities of waste generated or disposed of to landfill. We are unaware of any schemes of this kind operating elsewhere, and so this option would be breaking new ground.

Advantages

Theoretically, a landfill tax rebate scheme for business waste producers would have the advantage that a significant portion of the incremental revenues from future tax increases could be channelled directly back to those businesses that ultimately bear the tax burden. However, for the reasons explained below, such a scheme is likely to be impractical.

On the other hand, a rebate scheme for landfill tax payers could have a number of advantages:

- § Depending on the level of the rebate and how this is applied over time, the financial incentive for landfill tax payers to divert waste from landfill could be considerable.
- § As the number of landfill tax payers is small (around 700 – see section 4.1), such a scheme should in principle be relatively straightforward to administer and police.
- § As all licensed landfill facilities are equipped with weighbridges and accurate data on the quantities of waste incurring landfill tax are available, it should be possible to measure / verify reductions in the taxable quantities of waste disposed of to landfill.

Disadvantages

In the case of rebates to business waste producers, the key disadvantages are likely to be:

- § The difficulties and costs of administering and policing a rebate scheme due to the very large number of business waste producers (especially small producers).
- § Given that landfill tax is tonnage-based and most business waste producers have no means of weighing or otherwise accurately quantifying their wastes, measuring and verifying qualifying reductions in business waste generation would be extremely difficult.
- § The risk that some waste producers may adopt illegal methods of managing their wastes in order to try and qualify for a rebate.

In the case of a rebate scheme for landfill tax payers, the potential drawbacks are likely to include:

¹⁴ For further information about the grant programmes and achievements of the Polish EcoFund, see *Environmental Funds in the Candidate Countries* published by the Regional Environmental Center for Central and Eastern Europe, December 2001.



- § The need to devise a practical system for identifying and accounting for reductions in the quantities of waste disposed of to landfill due to reasons other than increased recovery or recycling.
- § The risk of abuse. Such a scheme would therefore need to be supported by severe penalties for fraudulent claims.
- § The likelihood that such a scheme would require prior state aid clearance by the European Commission. However, it should be possible to design a scheme in a way that would overcome possible concerns about its distortive effects e.g. by tapering the value of the rebate to zero by the year in which the highest rate of landfill tax is reached.

Potential sectoral impacts

Most business waste producers would (theoretically) be able to benefit from a landfill tax rebate scheme for waste producers. But, as already noted, we consider such a scheme to be impractical.

With respect to a rebate scheme for landfill tax payers, as the revenue stream provided by the rebate would presumably be used by landfill operators to finance investments in new waste diversion capacity, the likelihood is that most if not all of the financial benefit of this option would accrue to landfill operators, with very little (if any) benefit being passed back to business waste producers.

Cost-effectiveness

Because waste management generally represents a relatively minor part of the overall costs of most businesses, and as landfill tax in turn constitutes an even smaller element of those costs, a scheme providing tax rebates to business waste producers is unlikely to have any significant impact on the quantities of waste generated. In addition, there are likely to be major practical obstacles to introducing and operating a rebate scheme for business waste producers.

On the other hand, a rebate scheme for landfill tax payers (who, in the case of business wastes, are mainly private waste management service providers) would have considerable potential for increasing diversion from landfill, provided that a practicable scheme can be devised. However, unless landfill tax payers were prepared to pass at least some of the value of the rebates back to their customers, business waste producers would not derive any significant financial benefit from such a scheme.

4.2.10 Bidding Mechanisms / Tradable Permits to Encourage Diversion from Landfill

Description

Four options for what can be loosely termed as bidding mechanisms or tradable permit schemes have been identified. Two of these have been considered by DEFRA and the third by the Environment Agency.

They are:

- § A waste abatement and landfill revenue incentive scheme (WALRIS)
- § A Business Recycling Incentive Credit Scheme (BRICS)
- § A Fund for Resource Efficiency (FRE)
- § A Recyclables Obligation on certain materials manufacturers



WALRIS The Waste Abatement and Landfill Revenue Incentive Scheme, (WALRIS) is a concept developed at DEFRA. It is modelled on the UK Emissions Trading Scheme (UKETS). It is based on a bidding scheme based on reduction in quantities of waste landfilled. A sum would be allocated from landfill tax and businesses would bid a certain price per tonne to divert waste from landfill, either by waste reduction or by recycling or using other waste management processes. An alternative would be that the bidding would be undertaken by waste management companies, who would pass the payment on to waste producers in the course of competition.

BRICS This system is aimed at encouraging recycling. When an accredited recycling facility receives a tonne of waste for recycling / composting they would issue a Waste Recycling Evidence Note (WREN) to the waste management company / business that supplies it. The waste management company could be required to pass the WRENs to the waste producer, although this might present allocation problems. At the end of each accounting period, the administrators of the scheme would total up the number of WRENs issued under BRICS. This would then be divided by the fund set aside by the Government for the BRICS scheme, in order to give the 'price' of each WREN. Increased LFT revenue would thus be allocated back to businesses / waste management companies according to how many WRENs they hold.

FRE A separate fund could be established to target plans to make a step change improvement in the resource productivity of a process or product. This is based on an idea being developed by ACBE in a report to be published in the autumn. The details need further development, but the fund could have the following elements.

Companies could be invited to produce 'resource efficiency business plans' which could be an extension of the waste minimisation plans some companies are providing the Environment Agency under PPC, or a business led initiative to improve the resource productivity of a process and/or product. Some, mostly larger, companies would have the resources to generate the ideas themselves, others could be given Government funded consultancy advice to get the plan developed. Depending on the amount of waste reduction projected, and some overarching criteria similar to that which the Carbon Trust uses, Government could 'invest' some of its fund to help deliver the plan. The fund could be distributed via grants, tax credits or loans, based on a bidding process judged against potential for diversion from landfill and the match funding the money put up by the business themselves.

Some form of assessment board would have to vet bids and allocate the fund, based on the waste reduction being estimated and the feasibility of the project achieving its goals. Awareness of the fund should be raised through mainstream business advice, taking referrals from Environment Agency, Envirowise or other government programmes. Indeed, the availability of some incentive money may act as a spur for companies already making some incremental improvements in efficiency through PPC permits or Envirowise programmes to go one step further.

The plans would have to be distinguished from other programmes such as Envirowise and Environment Agency PPC, by setting a threshold for the levels of resource efficiency and waste reduction that they should achieve. It would also be the assumption that an investment would be required, either in terms of capital equipment or bringing in new staff to run the project. Bids



could come from companies investing in their own business, technology manufacturers selling new equipment, initiatives to link up local firms or innovations turning products into services. The level of match funding could be varied according to the estimated payback time of the investment.

Some form of incentives should be built into the fund that rewards the projects that both aim for, and achieve, the best results in waste reduction. The establishment of a reliable baseline of waste production and resource use will be essential to a successful bid.

Recyclables Obligation

A recyclables obligation scheme could be introduced similar to the Renewables Obligation scheme for energy. Voluntary targets are already in place for the use of recycled paper in newspapers. An obligation would be placed on manufacturers of certain materials with potential for recycling (e.g. paper, glass, steel, aluminium, plastic) to use a certain tonnage of recyclable materials as feedstock. They would then produce certificates of showing the amount of recyclable material that they had purchased or could “buy out” the obligation for a fee to be determined. The certificates would be tradable, either within each material classification or possibly between materials.

It would also be possible to fund the scheme through landfill tax, whereby users of recyclate could bid to increase the proportion of recyclate that they used. This would be a similar process to the UK Greenhouse Gas Trading system, and the commitments could then be traded on a basis to be determined. This could be based on landfill diversion or energy equivalence.

Advantages

Each of these schemes has potential to divert material from landfill. WALRIS and FRE by waste reduction, BRICS by expanding recycling and the Recyclables Obligation by stimulating demand for recyclate.

They are all market-based instruments and therefore in line with Government policy.

Of the four, the recyclables obligation would be the simplest to operate and there is practical experience of similar schemes (Renewables).

Disadvantages

WALRIS has several disadvantages:

- § If applied to all businesses, there would be significant administrative costs associated with bidding, which would probably preclude many SMEs.
- § It would be difficult to measure the amount of waste a given business had sent to landfill – especially in the past, when no such information is typically recorded. This would present a particular problem in setting the baseline.
- § Much business waste is collected in mobile compaction vehicles and no information is recorded about the weight of material collected.
- § Businesses, especially SMEs, do not have direct control over the waste management method selected by waste management contractors. Such a scheme might lead to change in the behaviour of waste management contractors, but record-keeping would be a problem, especially when waste destined for a certain facility is diverted due to, for example, breakdowns.



- § Some reductions in waste landfilled might be due to other causes, e.g. a drop in demand for the waste producer’s product or, in the case that WALRIS was applied to waste management contractors, those companies which were losing market share would receive the benefit of the scheme.
- § There would probably be considerable potential for corruption.
- § If the scheme applied only to waste management contractors, there may also be opportunities for corruption of the scheme.

BRICS offers a better approach, although it does not cover the issue of waste reduction. Nevertheless, it also has drawbacks:

- § WRENs would have to be payable on all recycling, not just incremental recycling. This would lead to a “bonus” for existing recyclers.
- § The price of WRENs could only be calculated after the event, so that there would be no certainty of price levels, which would reduce the value of the incentive. This might be overcome by shorter accounting periods.
- § There would be strong incentives to try and cheat the system as WRENs would have a cash value. Examples are: recyclers inflating the quantities of waste recycled, MSW being treated as business waste, including non-recyclable material into a load for recycling.

It would probably not be practical for small firms to take part in BRICS directly.

The FRE concept is likely to be a complex and bureaucratic procedure, because:

- § It would be difficult to avoid double counting waste reductions.
- § Problems with attributing outcomes to actions taken.
- § Baselines are unlikely to exist.

Potential sectoral impacts

WALRIS and BRICS would not be practical to be applied to small businesses, thus not having any influence on the activities of this sector.

The recyclables obligation would only directly affect a very small number of companies, but it would alter the economics of recycling and thus would have an impact on any company, small or large, that makes use of the materials to which it would be applied, although these are likely to be limited to the main recyclables – paper, glass, metals, plastic

Cost-effectiveness

It is not possible to be specific about the cost-effectiveness of these schemes, with the exception of BRICS. Estimates of the value of WRENs in the case of BRICS have been made by DEFRA. Even with funding of £65 million, the value of a WREN would only be around £3 / tonne, because WRENs would have to be payable on all recycling, not just incremental recycling. We doubt that £3/tonne would be sufficient to encourage a substantial increase in capacity and therefore this scheme is unlikely to be cost-effective.

4.2.11 Waste Management Facilities Compensation Fund

Description

In countries such as France, major infrastructure projects frequently proceed much more rapidly than in the UK because government takes a more active approach towards compensating communities and individuals for the disbenefits that they experience. Thus, whilst in the UK, a business owner is frequently disadvantaged if a motorway is planned to



run through or near his land, in France it may well be in his interests for such a development to go ahead.

Such a scheme could be envisaged for waste management facilities, whereby businesses and domestic residents situated within a certain radius of a new facility would be compensated for the disbenefits associated with such a development. A sum could be allocated from landfill tax into a “Waste Management Facilities Compensation Fund” which could then be disbursed, for example, as a reduction in council tax and business rates over the operating life of the facility.

Advantages

The principal advantage of a scheme of this kind is that it may make it easier to obtain planning consents for new waste management facilities thereby accelerating the process of providing the required additional capacity to divert waste from landfill.

Disadvantages

This option may raise the issue of compensation for other types of major infrastructure development such as roads, which can also give rise to significant adverse effects on businesses and communities situated in close proximity to the development. However, in the case of new waste management facilities intended to reduce the amount of waste landfilled, compensation would be met entirely from revenue derived from a hypothecated tax introduced both to reflect the disbenefits associated with landfill and to encourage the development and application of more sustainable waste management techniques.

A study undertaken recently for DEFRA¹⁵ identified that house prices in the vicinity of landfill facilities were adversely affected, the cost amounting to £1.52 – £2.18 per tonne of waste landfilled. It could therefore be argued that similar (or lower) disamenity costs would accrue for the development of other types of waste processing facility, in which case a compensation payment equivalent to around £2 per tonne would be necessary to enable such facilities to be built, thereby enabling waste to be diverted from landfill. In practice, however, such facilities tend to be constructed in more densely populated areas than landfills, so the disamenity cost may well be higher than this.

This option is also likely to require changes in existing legislation.

Potential sectoral impacts

The financial benefits of this option would accrue only to businesses located within a certain radius of new waste management facilities. However, given the number of such facilities that are likely to be required in future (variously estimated at anywhere between 200 and 1,500 over the next 15 years - see¹⁶), the number of businesses eventually benefiting from such a Compensation Fund could be considerable.

Cost-effectiveness

Although a novel approach in the UK, this option could potentially offer a cost-effective method for compensating communities (including businesses) for the disbenefits associated with waste recovery and recycling facilities, thereby helping to overcome resistance to their development.

¹⁵ *A Study to Estimate the Disamenity Costs of Landfill in Great Britain*, Cambridge Econometrics, EFTEC, WRc, February 2003

¹⁶ *Waste – An Audit*, House of Commons Environmental Audit Committee, April 2003.



4.3 Assessment and Comparison of Options

There is a wide range of instruments potentially available for disbursing revenues from hypothecated taxes, and the choice ultimately depends on the practical constraints, the policy objectives being pursued and the timeframe for achieving those objectives. It therefore follows that some instruments are likely to be more appropriate / effective than others in encouraging certain activities and changes in existing practices in order to achieve a given objective. A clear distinction should also be made between the choice of instrument for disbursing support on the one hand and the specific targets for that support on the other.

In this section, the possible instruments for recycling incremental landfill tax revenues identified and described above are assessed and compared using the following criteria:

- § Potential for providing cost-effective means of assisting businesses to divert waste from landfill.
- § Capacity to deliver the option effectively.
- § Impact on differing business sectors and sizes.
- § Practicality of implementation.
- § Capacity to involve the community and voluntary sector.
- § Administrative simplicity.
- § The potential for misuse or abuse of public funds.
- § Potential for leveraging increased private sector resources into investments in new systems and facilities for recovering, reusing and recycling wastes.
- § Compatibility with the EU Rules on State Aid

These are the criteria identified in the Terms of Reference with the addition of the last four, which have been included by the Consultants. Weightings have been given to each criterion and a multi-criteria analysis matrix has been prepared. This is shown in Table 8.

Though inevitably somewhat subjective, this is a useful method of assessing and comparing the disbursement options identified, the majority of which are intrinsically quite different.

The Consultants' assessment is presented in Table 8, with a further explanation of the underlying reasoning in the sections that follow. Those options achieving a score of 80 or above (out of a total score of 100) are highlighted in green as *high priority*, while those scoring more than 60 are indicated in yellow as *medium priority*. The remaining options are considered by the Consultants to be of relatively low priority in the context of the objectives of this study.

It will be noted that some options score the maximum achievable under some criteria. These are shown shaded pink, and demonstrate that some options are more appropriate for achieving specific criteria.



Table 8: Assessment and Comparison of Options for Recycling Incremental Landfill Tax Revenues

	Cost-effectiveness	Effective Delivery	Sectoral Impact	Practicality	Community / Voluntary Sector	Simplicity	Potential for Abuse	Leveraging Potential	EU Rules on State Aid	TOTAL SCORE
Weighting	20	5	10	20	5	10	10	10	10	100
Promotional, Capacity Building and Advisory Services	20	4	10	20	5	10	10	0	10	89
Interest free loans	8	3	9	15	3	5	9	7	5	64
Support for business R&D	5	2	5	15	0	5	9	0	8	49
Venture capital fund	5	2	8	15	0	7	9	10	8	64
Enhanced Capital Allowances	10	2	6	15	0	7	9	0	8	57
Tax credits	20	5	4	18	0	7	9	0	5	68
Targeted grants	20	5	10	18	5	7	9	10	5	89
LFT rebates to waste producers	10	4	5	3	0	3	2	0	7	34
LFT rebates to LFT payers	15	4	4	15	0	7	5	0	7	57
Bidding mechanisms / tradable permits	15	4	4	3	0	3	2	0	7	38
Waste Management Facilities Compensation Fund	15	5	4	8	0	5	8	0	10	55

Key: Green shading indicates the Consultants' high priority options. Yellow shading indicates the Consultants' medium priority options. Pink shading shows the highest scoring options under each criterion.



4.3.1 High Priority Options

Promotional, Capacity Building and Advisory Services

There is considerable existing evidence to demonstrate that this type of support is very cost-effective, both in achieving waste reductions and also in developing markets for recyclables. It is also unlikely to present a problem with respect to the EU State Aid Rules and can be tailored to meet the needs of particular business sectors – both in terms of size and the sectors expected to bear the heaviest landfill tax burden.

Targeted Grants

Targeted grants are, in our view, the most flexible and cost-effective of the available instruments for disbursing revenues to support the development of alternatives to landfill, and can be designed to deliver precisely targeted and quantified support for a wide variety of projects or activities (investment and non-investment) across different priority business sectors. They can present problems in certain circumstances with the EU state aid rules, but are particularly effective in leveraging additional investment from the private sector. They are also effective for the voluntary sector. The effort and costs involved in applying for grants can be reduced by, for example, the introduction of simplified procedures for small grants and the provision of consultancy help and advice to prospective beneficiaries.

4.3.2 Medium Priority Options

Interest Free Loans

The available evidence suggests that the cost of and / or access to loan finance are unlikely to be significant barriers to investment in alternatives to landfill. An interest free loan in effect comprises a grant in the form of avoided interest payments attached to a repayable capital sum. Accordingly, the advantages and benefits of this option can also generally be realised through targeted grants. However, there may be some circumstances where an interest-free loan scheme could be an appropriate instrument for delivering targeted support for start-up businesses or for the development of new technologies.

Tax Credits

Though a somewhat less flexible option than targeted grants, there is considerable evidence to suggest that tax credits are an effective fiscal instrument for stimulating spending by businesses on targeted activities. However, by definition, only those businesses able to make qualifying expenditures and to take advantage of the associated tax credits would benefit from the financial incentive offered by this option., and so the scope for targeting and disbursing support to those business sectors hit hardest by incremental increases in landfill tax would still be somewhat constrained. It is probable, for example, that many small businesses would not be able to benefit (or benefit significantly) from a tax credit scheme. It would also be more difficult to predict or cap the amount of funding that will be required for tax credits, since this will depend on the level of claims made.

Venture Capital Fund

While existing evidence indicates that new or early-stage businesses wishing to develop and commercialise sustainable waste management solutions face considerable difficulties in raising equity finance, this option is unlikely to offer much potential for significantly increasing the volume of waste diverted from landfill except perhaps over the very long term. Also, risk or equity financing provided through a specialised venture capital fund is only likely to be of potential interest or benefit to new or early-stage SMEs with a primary focus on developing and commercialising new technologies or techniques for sustainable waste



management. This option would therefore appear to offer only limited scope for targeting those business sectors expected to experience the largest incremental tax burden. In our view, a potentially more effective approach would be to offer targeted grant support in order to leverage equity investment from existing venture capital funds

4.3.3 Low Priority Options

Support for Business R&D

Substantial tax incentives for business R&D already exist. Recent research has confirmed that the benefits of providing support for business R&D tend to be realised only over the longer term. Moreover, experience in some other EU countries suggests that there are no major technological barriers to reducing substantially the volume of waste going to landfill. This option is also only likely to be of benefit to those businesses having both the interest and capacity to undertake or commission R&D into sustainable waste management technologies.

Enhanced Capital Allowances

Due to its inflexibility and because the financial incentive to invest in alternatives to landfill is relatively small, this option has very limited potential for recycling landfill tax revenues back to businesses, or for reducing the financial barriers to investment and encouraging major and rapid new investment in facilities for diverting wastes away from landfill. However, as the Government has already introduced ECAs for investments in certain environmentally beneficial energy and water technologies, adding a new category would be relatively straightforward and provide a low cost option that could signal support for technologies to reduce and recycle wastes.

LFT Rebates to Waste Producers

Due to the very large number of business waste producers, and the difficulties of measuring / verifying rebate claims for reductions in business waste generation, this option is unlikely to be practical.

LFT Rebates to LFT Payers

Although a rebate scheme for landfill tax payers (who, in the case of business wastes, are mainly private waste management service providers) could have considerable potential for increasing diversion from landfill, business waste producers would be unlikely to derive any significant financial benefit from such a scheme.

Bidding Mechanisms / Tradable Permits

The mechanisms identified are mostly not practical for implementation. A recyclables obligation system similar to the Renewables Obligation is a possibility which could be given consideration, but would not necessarily require funding from landfill tax revenues.

Waste Management Facilities Compensation Fund

Although this option has considerable intrinsic appeal, it would be very difficult to predict the size of the funding required and is also likely to have significant implications for the entire Town and Country Planning Act system. Nevertheless, we believe that a compensation scheme of this kind could make a significant contribution to overcoming widespread resistance to the development of new waste management facilities, and should be investigated further in a broader planning context by the ODPM.



4.4 Targets for Support

Promotional, capacity building and advisory services and targeted grants are essentially generic (the former being "grant-in-kind"). We therefore consider it helpful to be specific about the types of project or activity for which each could be used. These are outlined below.

4.4.1 Promotional, Capacity Building and Advisory Services

Awareness:

It is very important that businesses are made aware of what is available to them. Criticisms have been received about the degree to which businesses are currently aware of the activities of Envirowise and WRAP and both how and why these are relevant. This situation clearly needs to be improved.

Programmes to promote greater awareness amongst businesses of the need to divert waste from landfill, and the potential commercial benefits of waste reduction at source are particularly important.

Furthermore, if a targeted grant scheme is introduced, this will also need to be widely and regularly publicised, particularly to the business sectors at which it is targeted.

Waste reduction:

Advice to waste producers on waste minimisation should clearly be a priority, particularly for SMEs, many of which form part of the supply chain for larger business.

Provision of technical and / or commercial advice to businesses that provide recycling or other services which contribute to the diversion of waste from landfill:

Advice of this kind is already being provided by both WRAP and the REMADES. This should be an ongoing activity, but one which is unlikely to require significant additional funding.

Research into new uses for recycled materials the results of which are made publicly available:

Again, this type of work is currently undertaken by WRAP and the REMADES. It is currently, however, targeted at the major recyclables in municipal waste together with construction and demolition waste. We believe that specific R&D should also be targeted at waste streams peculiar to those business sectors which have special problems of diversion from landfill. These will need to be determined by further consultation with the relevant trade associations.

Support for the development of formal technical standards for recycled materials and products using or containing recycled materials:

This type of work is also currently undertaken by WRAP, and similar comments apply.

Data on business wastes:

Both the problem analysis workshop and the work undertaken for this project have confirmed that there is a lack of detailed and reliable data on the sources, types, volumes and current fate of business wastes. This makes the planning and implementation of measures aimed at diverting waste from landfill much more difficult, and so this is an area where financial support is clearly needed. A complete resource flow model, of the kind proposed by the Environment Agency, would be even more helpful.



4.4.2 Targeted Grants

Priority for the award of grants should be given to those types of project or activity that are likely to result in significant and cost-effective diversion of waste from landfill in the short-to-medium term. These include:

- § Investments in new processing capacity.
- § R&D for particularly difficult or intractable wastes.
- § Collection of recyclables, especially from SMEs which do not currently receive such a service.

4.4.3 Sectoral Priorities

The report¹⁷ published by the Advisory Committee on Business and the Environment (ACBE) in August 2001 provides a concise summary of the approach that we would advocate to setting sectoral priorities:

Given that the costs of waste disposal, even at higher landfill tax rates, would remain a low proportion of turnover across all sectors, there does not appear to be a strong rationale for discounts for particular sectors. However, given that there are significant variations in the amounts of waste produced by different sectors it seems clear that there is a need for targeted support and advice. Those sectors most reliant on landfill or sending a high total amount of waste to landfill should be a priority for targeted waste minimisation, reuse or recycling initiatives.

Sectoral data does not give an indication of how an increase in the landfill tax would affect SMEs. Any targeting of landfill tax revenues towards support and advice on waste minimisation for particular sectors should take into consideration any additional challenges faced by sectors with large numbers of SMEs and the particular challenges they may face in minimising the waste they send to landfill.

On this basis, the sectors that should be given priority or preference in disbursing landfill tax revenues are:

- Industrial:** Food, beverages and tobacco
Chemicals and chemical products
Other non-metallic mineral products
Basic metals and fabricated metal products
Coke, petroleum products, gas, electricity, water
- Commercial:** Wholesale and retail trades
Hotels and restaurants
Education
Social work and public administration
Other services

SMEs are significant contributors to the Gross Value Added of all the commercial sectors listed above.

4.5 Suggested Funding Allocation

The sums available from incremental landfill tax revenue are likely to build up from about £65 million in the first year to a level of around £190 million after 3 years.

As a general indication, we suggest that the revenue could be allocated as follows:

¹⁷ Resource Productivity, Waste Minimisation and the Landfill Tax: ACBE, August 2001



- § Promotional, Capacity Building and Advisory Services: - ca. £30 million per annum.
- § Other high and medium priority options (as described above): - the balance of the revenues received each year.

Within the ca. £30 million annual allocation for promotional, capacity building and advisory services, we suggest that up to £20 million is allocated to the kinds of services currently provided by Envirowise with the remainder allocated to the kinds of activities presently undertaken by WRAP and the REMADES.

It is likely that the overall disbursement programme proposed above will have a limited life. Within about four or five years of the landfill tax rate reaching £35 per tonne, it may be expected that most of the practical measures for diverting business waste will have been achieved. Thereafter, there will be little or no need for a funded programme. At this point, most of the revenue from landfill tax will need to be allocated for other purposes. Where necessary, a fixed life or “sunset clause” for certain components of the programme is likely to make any related applications to the European Commission for state aid clearance easier to obtain.



5. LFT REVENUE DISBURSEMENT MECHANISMS

5.1 Existing Environmental Subsidy Disbursement Mechanisms

5.1.1 Carbon Trust

The Carbon Trust is an independent, not-for-profit company set up by Government with support from business to “take the lead on low carbon technology and innovation in this country”. It was established in April 2001, taking over management of the non-domestic part of the Energy Efficiency Best Practice Programme (EEBPP) in July 2002 (which it re-launched as Action Energy), and administration of the Enhanced Capital Allowances programme in August 2002.

Its principal objectives are to:

- § Ensure that UK business and the public sector contribute fully to meeting ongoing targets for carbon dioxide emissions.
- § Improve the competitiveness of UK industry through resource efficiency.
- § Develop a UK industry sector supplying low-carbon technologies nationally and internationally.

The financial support offered by the Trust is delivered primarily through the following programmes:

- § Action Energy, an information and advisory service
- § Energy Efficiency Loan Scheme (see section 4.2.3)
- § Carbon Finance, a venture capital fund (see section 4.2.5)
- § Enhanced Capital Allowances programme
- § Low Carbon Innovation Programme, which provides support for low carbon R&D (see section 4.2.4)

The Carbon Trust's annual funding allocation amounts to approximately £50m a year in grants from DEFRA, the Scottish Executive, the National Assembly for Wales and the Northern Ireland Assembly, and in part from Climate Change levy receipts. Its audited expenditure for 2001-02 was £5.5 million.

It maintains offices in London, Glasgow, Cardiff and Lisburn.

5.1.2 WRAP

WRAP was established as an outcome of recommendations from the Market Development Group formed by the Government in 1998 which commented, *inter alia*:

The situation facing waste management in the UK is extremely serious, and will require a step change in behaviour and practice. If the UK is to meet present and future international obligations and deliver its domestic environmental policy objectives, then a significant and sizeable expansion in the outlets for recycled materials is essential in order to secure the required increase in recycling activity.

There was a need for a national focus to this activity, perhaps through a new, proactive national body, that would give it a high profile and stimulate further research and development.



WRAP is a company limited by guarantee, with strong links to DEFRA, which is its main source of funding. DEFRA appears to regard it as an organisation that can be used to implement some of its policies and, in some cases, undertake work on its behalf without the need to provide funding (for example data collection and analysis).

Its mission is to promote sustainable waste management by:

- § Working to create stable and efficient markets for recycled materials and products.
- § Removing barriers to waste minimisation, re-use and recycling.

It does this by means of, *inter alia*:

- § Grants to support investment in new processing capacity.
- § A business development service to provide advice and attract investment into the recycling sector, together with the establishment of a venture capital fund for SMEs.
- § A lease guarantee scheme to assist SMEs to acquire equipment for reprocessing of recyclables.
- § Improving the quality of data about waste arisings, composition and costs.
- § Encouraging the development of standards for recycled products.
- § Research and development into new reprocessing technologies and new markets for recycled products.
- § Encouragement of green procurement schemes, especially with local authorities.

WRAP'S budget for its next three year programme will be £17.5m in 2003/4 rising to £49.6m in 2005/6. The opinion of WRAP's senior management is that current funding levels are adequate for its needs and that additional funding would produce diminishing returns.

WRAP could contribute to achieving the identified objectives by:

- § Narrowing the gap between the cost of landfill and its alternatives by means of grants for the provision of additional capacity and the provision of financial assistance to businesses, especially SMEs.
- § Narrowing the differentials in prices between virgin and secondary materials.
- § Encouraging standards for the quality and performance of recycled materials.
- § Encouraging green procurement.
- § Improving the quality of data about "business" waste.
- § Undertaking strategic waste/resource research.

It also has the potential to administer some of the other options identified in section 4.

It has established a centre of excellence in the field of recycling and has built up an impressive capability in certain fields, notably in business development and assistance to SMEs and also in data gathering, analysis and interpretation.

WRAP considers itself to be an independent organisation, but is clearly strongly linked to DEFRA. Since DEFRA is the Department responsible for implementing the Government's environmental policy, this may be seen to be a benefit.

WRAP's business plan for its first three year programme aims to increase recycling by 1.57 million tonnes (excluding compost). Information provided to HM Treasury by WRAP suggests that, in total, the current programme (until 2004) will achieve a total diversion from landfill of the order of 2 million tonnes p.a. The total programme cost is estimated at £54



million¹⁸ for the period – a cost of £27 per tonne p.a. diverted. Beyond this period it estimates that a further 2.5 million tonnes can be diverted, of which 1.95 million tonnes can be diverted by 2009.

It is not possible, however, to identify how much of this diversion will be achieved by each of the individual programmes (grants, research and development, standards, individual waste stream programmes, etc). Over the three year period, 47% of the total expenditure is expected to be disbursed in the form of grants for capital projects and the equity fund (venture capital), while a further 15% will be used for R&D activities.

It should be pointed out that some of WRAP's activities, while valuable, do not directly contribute to the targets in the business plan and may actually result in further increases in diversion from landfill, so that the unit cost of diversion may be overstated.

Funding for the next three year programme has now been agreed, so that there appears to be no need to provide further funding from incremental landfill tax revenue.

5.1.3 *Envirowise*

The Envirowise programme, funded jointly by DEFRA and DTI, is the main programme promoting the resource efficiency message to business, with an emphasis on prevention (avoidance and minimisation of production of waste) rather than cure (managing existing wastes by recycling and disposal). It addresses a variety of issues relevant to business environmental performance, including the efficiency with which raw materials and water are used, promoting the reduction of waste and effluent and efficient use of solvents and reduction of VOC emissions from business.

The programme has a long term target of achieving a 10:1 ratio of annual business savings to government spend. Total government spending on Envirowise is currently £5.4 million per annum whilst to date, the programme is estimated to have saved UK business £217 million p.a.

Envirowise provides the following principal services to promote its message:

- § A free helpline staffed by consultants.
- § A website offering free advice, information and publications.
- § Contributing to workshops, training courses and exhibitions.
- § Providing a free waste audit service known as a 'Fast Track' visit to SMEs.
- § Providing a free design service ("Design Track") to SMEs on reducing the cost and environmental impact of their products.
- § Running supply chain partnerships.
- § Encouraging waste minimisation clubs – there are over 1,100 companies involved in these clubs, saving over £45m per annum.
- § Training consultants and intermediary organisations to spread the resource efficiency message.
- § Assistance to waste minimisation clubs.
- § Although Envirowise covers all industry and commerce, its resources have been focussed on key manufacturing sectors. Currently it does not specifically address some of the sectors that are expected to be hardest hit by LFT increases.

¹⁸

WRAP annual report and accounts 2002/3.



The greater part of the savings achieved by Envirowise accrues through savings in the cost of raw materials (which is part of the true cost of waste management but tends not to be recognised as such by waste producers). The second largest area of savings is reduced water use and effluent charges, followed by energy savings and finally the cost of waste management.

Each year, Envirowise undertakes an impact assessment survey to determine what savings companies have made with the help of the programme over the previous year. Companies are asked to give the cost savings arising from particular environmental actions. Four of these lead to reduced solid waste. Only savings that will continue to be realised year-on-year are logged.

Table 9 shows the reduction in solid waste since this was first recorded for the programme. The savings only cover about 60% of the programme's activities in any given year and are assumed to continue indefinitely. The cumulative expenditure on the programme (ETBPP and Envirowise) up to the end of 2000/01 was £30 million. This gives a cost of reduction of about £15.67 per tonne p.a. of solid waste.

If the programme continues at current funding levels until 2015, it is estimated that diversion from landfill could amount to 4.3 million tonnes p.a. At this level of funding, it is estimated that 5% of businesses employing 20 or more staff will be covered by the programme.

A recent study commissioned by the Environment Agency¹⁹ estimates that the potential for reduction in waste disposal costs from the 20% of businesses where significant savings are expected to be achievable amounts to some £250 million p.a. This amounts to about 10 million tonnes of waste diverted p.a. The total savings including raw material use etc. are substantially larger – amounting to some £2.4 billion and are expected to require additional investment of about £1.5 billion.

These figures were extrapolated from the experience of 65 of Envirowise's own case studies. In each industry sector, Envirowise made an estimate of the probable number of companies that could make savings similar to those in the case study (the replication rate). For sectors where a case study was not available, the lowest replication rate was used. It is believed that this represents a conservative estimate of the total savings, especially since those companies that make use of Envirowise's services are likely to be the more environmentally aware, where the potential for savings is probably lower than those which do not participate. The detailed methodology can be found in the report¹⁹.

Provision of advice on waste reduction is likely to divert business waste from landfill, since a significant proportion of business waste (54% of commercial waste and 42% of industrial waste²⁰ in 1998) is currently landfilled.

Advice on how and why to divert waste from landfill could also be beneficial, but relies on suitable capacity (both for collection and processing) being available. This will increase demand for such capacity.

Advising companies on how to make greater use of recyclables is clearly important, as one of the major constraints to expanding the amount of recycling is the availability of markets for recyclable materials. The establishment of standards for applications in which recyclables can be used is also an important factor in expanding the market for these materials.

¹⁹ *The Benefits of Greener Business*, Cambridge Econometrics and AEA Technology, April 2003

²⁰ *Key Industrial Pressures – Waste Arisings*, REWARD, 2003 (data obtained from the Environment Agency and other quoted sources)



Table 9: Estimated Waste Reductions Achieved by Envirowise and ETBPP

Financial Year	Solid Waste Impact	Tonnes p.a.
1995/96	Reduction in packaging	31,000
	Reduced sludge to landfill	217,000
	Reductions in foundry sand	55,000
	Reduction in other solid waste	265,000
1995/96	TOTAL	568,000
1996/97	Reduction in packaging	65,000
	Reduced sludge to landfill	220,000
	Reductions in foundry sand	64,000
	Reduction in other solid waste	738,000
1996/97	TOTAL	1,087,000
1997/98	Reduction in packaging	67,000
	Reduced sludge to landfill	220,000
	Reductions in foundry sand	64,000
	Reduction in other solid waste	1,091,000
1997/98	TOTAL	1,442,000
1998/99	Reduction in packaging	68,000
	Reduced sludge to landfill	246,000
	Reductions in foundry sand	64,000
	Reduction in other solid waste	1,384,000
1998/99	TOTAL	1,762,000
1999/00	Reduction in packaging	94,000
	Reduced sludge to landfill	246,000
	Reductions in foundry sand	64,000
	Reduction in other solid waste	1,500,000
1999/00	TOTAL	1,904,000
2000/01	Reduction in packaging	95,000
	Reduced sludge to landfill	246,000
	Reductions in foundry sand	64,000
	Reduction in other solid waste	1,509,000
2000/01	TOTAL	1,914,000

Envirowise has considered three levels of additional funding and the results that might be achieved from each. From the point of view of waste reduction, the estimated results would be as follows:

Level of funding £ million p.a.	Proportion of Businesses Covered	Waste Reduction Million tonnes p.a.
Current	5%	4.8
+ £1 m	7%	5.0
+£10 m	15%	8.0
+£20 m	20%	10.0

The projected cost per tonne diverted is considerably less than previous performance, no doubt because the programme took some time to reach its current level of productivity.

5.1.4 The REWARD Scheme

The REWARD (Regional and Welsh Appraisal of Resources and Development) programme is aimed at building the capacity in the regions and Wales to integrate resource productivity



into regional strategies, particularly economic strategies. It is funded through a partnership led by the Environment Agency involving 5 RDAs²¹, the North East Regional Assembly, the Greater London Authority and the Welsh Government Assembly. It works through:

- § Providing resource efficiency data and analysis.
- § Developing a model (REEIO) to analyse the links between economic activity, resource productivity and environmental pressures.
- § Developing materials and running workshops to demonstrate how resource efficiency considerations can be integrated into regional strategies.

REWARD's services are used mainly by planners and policy makers at Regional level – in the RDAs. It does not, however, currently work in all regions and only serves those regions which have accepted the value of its services.

The REWARD scheme is funded modestly at the present time and its achievements are limited. It does however play a significant role in enabling the environmental impacts of regional strategies to be coordinated and consistent.

An expanded REWARD, covering all regions, could be helpful in ensuring that RDAs have the capacity to provide integrated and strategic leadership at the regional level to promote waste reduction and recycling. Beyond providing strategic direction for REMADES and Envirowise regional activity, RDAs, with REWARD's support, could work to ensure waste reduction and recycling objectives were integrated into regional economic strategies and linked to other regional strategies for waste and energy.

REWARD's three streams of work could be substantially expanded and deepened by:

- § Developing a programme of resource efficiency analysis working with Envirowise and WRAP to link the macro-based analysis in the REWARD: Baseline Assessment report with the micro-based case studies developed by Envirowise and analysis of remanufacturing potential working with WRAP.
- § Expanding REEIO to enhance its capabilities in its current modules (waste, water, energy and air emissions), particularly to cover remanufacturing, working with WRAP.
- § Bringing together current studies on regional mass balance flows and putting in place a programme to update them on a five yearly basis.
- § Extending the materials and capacity building programme to expand regional capacity to integrate resource efficiency, including the appointment of a full-time project manager and technical officer.

In order to do this, REWARD would need a budget for permanent project staff and R&D of the order of £0.5 million p.a.

5.1.5 The REMADES

As explained in section 2.4, market development for recyclables is mainly a regional economic development issue. This was recognised by the Market Development Group, which concluded that:

Developing new markets for recyclate may also have regional benefits. There are advantages in finding new uses locally, since this adds significantly to the value of the material, by

²¹ North West Development Agency, East of England Development Agency, South East of England Development Agency, East Midlands Development Agency, Advantage West Midlands



keeping transportation costs to a minimum, and may create local employment as the need for reprocessing capacity increases. The elimination of the need for transportation to more distant markets will result in more sustainable waste management.

It was this that gave further impetus to the formation of regional market development initiatives, a number of which were already being developed, some of which ‘badged’ themselves under the name of ReMaDe (*Regional Market Development*).

The early regional programmes in the UK were modelled on the success of the Clean Washington Center (CWC) in Seattle, USA. CWC had been created in the late 1980s to address in the State of Washington the problems that Britain was beginning to encounter: rapid expansion of programmes to collect recyclable materials but inadequate capacity or end markets to accept them.

The first programme was that in Scotland (Remade Scotland), launched in 1999 and formed at the time of the creation of the Scottish Parliament and the early stages in the development of the Scottish waste strategy by SEPA. Other regional programmes developed in quick succession and there are now nine that are active:

- § Remade Scotland
- § London Remade
- § ReMaDe Essex
- § CWMre (Creating Welsh Markets for recycle)
- § Clean Merseyside Centre (CMC)
- § ReMaDe Kernow in Cornwall
- § ReMaDe Urban Mines (initiatives in West Yorkshire, Staffordshire, Birmingham)
- § ReMaDe Kent & Medway
- § ReMaDe South West.

The REMADES develop and promote new markets and secondary industries based on the reprocessing and reuse of recycled materials at a local level. There is some overlap with WRAP, which performs the same tasks at a national level, and the coordination between the two is currently less than perfect, although WRAP is now taking some steps to rectify this situation.

It is still too early to reach a firm judgement on the success of most regional market development programmes and the contribution they have made to developing new markets and regional/local economic development. There have undoubtedly been some successes, mainly in developing and demonstrating new end uses for recovered glass and compost, higher value-added products from construction and demolition waste etc. Nevertheless it is clear that a number of the existing programmes suffer from structural weaknesses that will constrain their success.

REMADES can contribute to achievement of the identified objectives by:

- § Providing financial and other assistance to SMEs develop local reprocessing capacity
- § Assisting in the reduction of collection costs for recyclables, especially for SMEs
- § Narrowing the price differentials between virgin and secondary materials
- § Encouraging green procurement

The strengths of REMADES – and of all such activities at a more local level are that they know and understand the local business community. They have the contacts and the knowledge to find suitable private sector partners to carry out the activities that they want to



encourage. From this point of view, they have an advantage over a centralised organisation – such as WRAP – and have the potential, with sufficient funding, to be very effective.

While there are similarities between all of the existing programmes there are also considerable differences. They came into being for different reasons with different priorities. Some are county-level programmes with a strong local authority influence (e.g. ReMaDe Essex), aimed at helping local authorities to meet their statutory recycling/composting targets. Others are national or region-wide in their focus (e.g. Remade Scotland, London Remade) and better resourced than their smaller counterparts.

It is possible to identify some of the structural weaknesses that presently exist:

Geographic scale: There is good reason to believe that county programmes are too small. The most appropriate level for a well-founded market development initiative is almost certainly at Regional level. This combines a suitable scale of operations with programme efficiency and continued engagement with businesses and other organisations at regional and sub-regional level. It would also mesh well with the Government's move towards a more regional approach to waste management.

Programme timescale: Most existing programmes are time constrained, with funding that seldom exceeds three years – running out for many in the next year or so. Such limited timescales work against effective longer term programme planning, create uncertainty and something of a hand-to-mouth existence. The experience of CWC in Seattle suggests that a period of about 7 years is needed if a market development programme is to succeed in achieving sustainable changes in behaviour, with on-going business support thereafter at a lower level of intensity.

Programme funding: Funding structures differ considerably. However, all programmes have, mostly to a significant degree, relied on landfill tax credits from environmental bodies – which are no longer available (except to the extent that they may benefit from the proposed allocation by DEFRA to WRAP of £10 million for regional market development).

The best funded programme to date is London Remade which was awarded £5.4 million by the London Development Agency (LDA) from the Single Regeneration Budget Round 6 (SRB 6)²² in order to stimulate new niche sectors, secondary industries and jobs around recycled materials to assist in the re-industrialisation of the Thames Gateway.

In general, however, the regional market development programmes are under-funded and do not have access to the resources needed to carry out their roles as effectively as they could.

Technical expertise: One of the keys to success of the CWC programme in Seattle was its ability to recruit technical staff with materials-specific expertise combined with a sound understanding of business management and the problems of small businesses.

There is a national scarcity of such people (as WRAP has found in its own recruitment) and it is doubly hard to attract experts into businesses with uncertain futures. It is questionable whether small programmes could justify such recruitment even if qualified people were available. A possible solution might be to recruit nationally, making experts available via Envirowise or WRAP where some relevant experience already exists.

This would mean developing appropriate links between Envirowise, WRAP and the regional programmes, using them to give Envirowise a regional presence (which is one of its objectives) and strengthen its targeting and delivery. It would also sharpen the Envirowise offering in the waste/resource management area, with specific consideration to raw material usage and opportunities for feedstock substitution.

²² As part of the move towards a single budget for RDAs, the Government is no longer inviting any further national bidding rounds of the Single Regeneration Budget.



Cost-effectiveness

It is difficult at this stage to be certain about the cost-effectiveness of REMADES. It would seem, however, that they should be able to achieve similar or better performance to that of WRAP.

The London Remade programme aims to divert an additional 250,000 tonnes from landfill. If this is achieved with the £5.4 million made available through the SRB, the cost will be £21.60/tonne – which is appreciably less costly than WRAP.

5.1.6 Regional Development Agencies (RDAs)

The Regional Development Agencies (RDAs) were established under the Regional Development Agencies Act 1998. RDAs were formally launched in eight English regions on 1 April 1999. The ninth, in London, was established in July 2000 following the establishment of the Greater London Authority (GLA).

Following the 2000 spending review, the Government announced increases in RDA funding and an increased emphasis on the RDAs role as strategic drivers of regional economic development. In line with this, responsibility for sponsorship of the RDAs moved from the former DETR to the DTI following the June 2001 election. RDAs are non-department public bodies with a primary role as strategic drivers of regional economic development. RDAs aim to co-ordinate regional economic development and regeneration, enable the English regions to improve their relative competitiveness and reduce the imbalance that exists within and between regions.

Each RDA has 5 statutory purposes, which are to:

- § Further economic development and regeneration
- § Promote business efficiency, investment and competitiveness
- § Promote employment
- § Enhance development and application of skill relevant to employment
- § Contribute to sustainable development

The RDAs agenda include regional regeneration, taking forward regional competitiveness, taking the lead on regional inward investment and, working with regional partners, ensuring the development of a regional skills action plan to ensure that skills training matches the needs of the labour market.

Since April 2002, RDAs are financed through a Single Programme. This replaces the funding programmes which existed previously, through which each contributing Government Department's allocation was made. Monies from the contributing Departments (DTI, ODPM, DfES, DEFRA and DCMS) are pulled into a single budget. The total budget for 2002-03 is around £1.5 billion. A breakdown of this budget is shown in Table 10. The Government is expected to increase this budget to £2 billion by 2005-06.

The funding, once allocated, is available to the RDAs to spend as they see fit to achieve the regional priorities in their regional economic strategies and the challenging targets in their Corporate Plans.



Table 10: RDA Budgets (net of receipts) 2002/03 - £000s

One North East	184,738
North West Development Agency	273,927
Yorkshire Forward	185,920
Advantage West Midlands	191,519
East Midlands Development Agency	100,947
East of England Development Agency	76,057
South East England Development Agency	100,130
South West of England Regional Development Agency	93,540
London Development Agency	285,396
Total	1,492,174

The Department of Trade and Industry recently published the results of independent regional surveys of stakeholders' perception of the RDAs' performance. The results are generally positive showing that, although RDAs are relatively new organisations, their stakeholders are generally satisfied with RDAs' performance and feel that they are addressing the right priorities. The majority of stakeholders felt that RDAs have been successful at developing coherent Regional Economic Strategies and working effectively as lead partners to deliver regional initiatives. The surveys also highlighted the need for RDAs to work harder to communicate clearly what they are trying to achieve and to better publicise their activities.

5.1.7 ENTRUST/LTCS

ENTRUST, a company limited by guarantee, is the appointed regulator for the Landfill Tax Credit Scheme. It is responsible to its Commissioners, which are HM Customs and Excise. It approves and enrolls Environmental Bodies and carries out an audit of their activities to ensure that they perform according to the relevant legislation.

The organisation was formed to ensure the compliance of Environmental Bodies and does not actually allocate any funding to specific projects, which is the duty of the Environmental Bodies.

The Landfill Tax Credit Scheme enables funding to be provided for a number of environmental activities but, following changes to the scheme with effect from 1st April 2003, these activities no longer include projects related to waste management.

Its objectives are now limited to providing financial support for:

- § Reclaiming land, the use of which has been prevented by some previous activity.
- § Reducing or preventing pollution on land.
- § Providing or maintaining public amenities or parks within 10 miles of a landfill site.
- § Restoring or repairing buildings for religious worship, or of architectural or historical interest within 10 miles of a landfill site.
- § Meeting the costs of administrative, financial or other similar services supplied to other enrolled environmental bodies (EBs).



5.1.8 Observations / Conclusions

As is evident from the preceding sections, there are already a significant number of institutions involved directly or indirectly in disbursing a substantial volume of financial support for environmental purposes in a wide variety of forms. These have evolved in response to government initiatives launched at different times and, with the exception of the Envirowise programme, have all been established relatively recently. Therefore, in most cases, there is insufficient experience and related data to be able to reach any firm conclusions about the operational performance and effectiveness of individual institutions.

Nevertheless, in the Consultants' opinion, the existing institutional *system* for delivering support aimed specifically at bringing about changes in existing business waste management attitudes and practices suffer from a number of *structural* weaknesses, notably:

- § Institutional roles and responsibilities are rather fragmented and uncoordinated.
- § Communication and other links between institutions are *ad hoc* or non-existent.
- § Individual institutions have differing (and sometimes competing) interests and priorities.
- § There is some degree of functional overlap and duplication.

Of particular concern is the lack of an overall *strategic policy and framework* for prioritising, allocating and disbursing support, and *rigorous and consistent criteria / procedures* for managing the disbursement process both within and across institutions (often referred to as the Project Cycle Management process).

5.2 Possible Approaches to LFT Revenue Disbursement

There are basically two possible approaches to disbursing incremental landfill tax revenues, at least in the short-to-medium term.²³ These are:

- § Retain and make use of existing institutions essentially unchanged.
- § Rationalise and strengthen the existing institutional system.

These are briefly discussed below.

5.2.1 Retain Existing Institutions Unchanged

The simplest approach to disbursing incremental landfill tax revenues would be to make use of existing institutional arrangements with some minor modifications. These are illustrated in Figure 2.

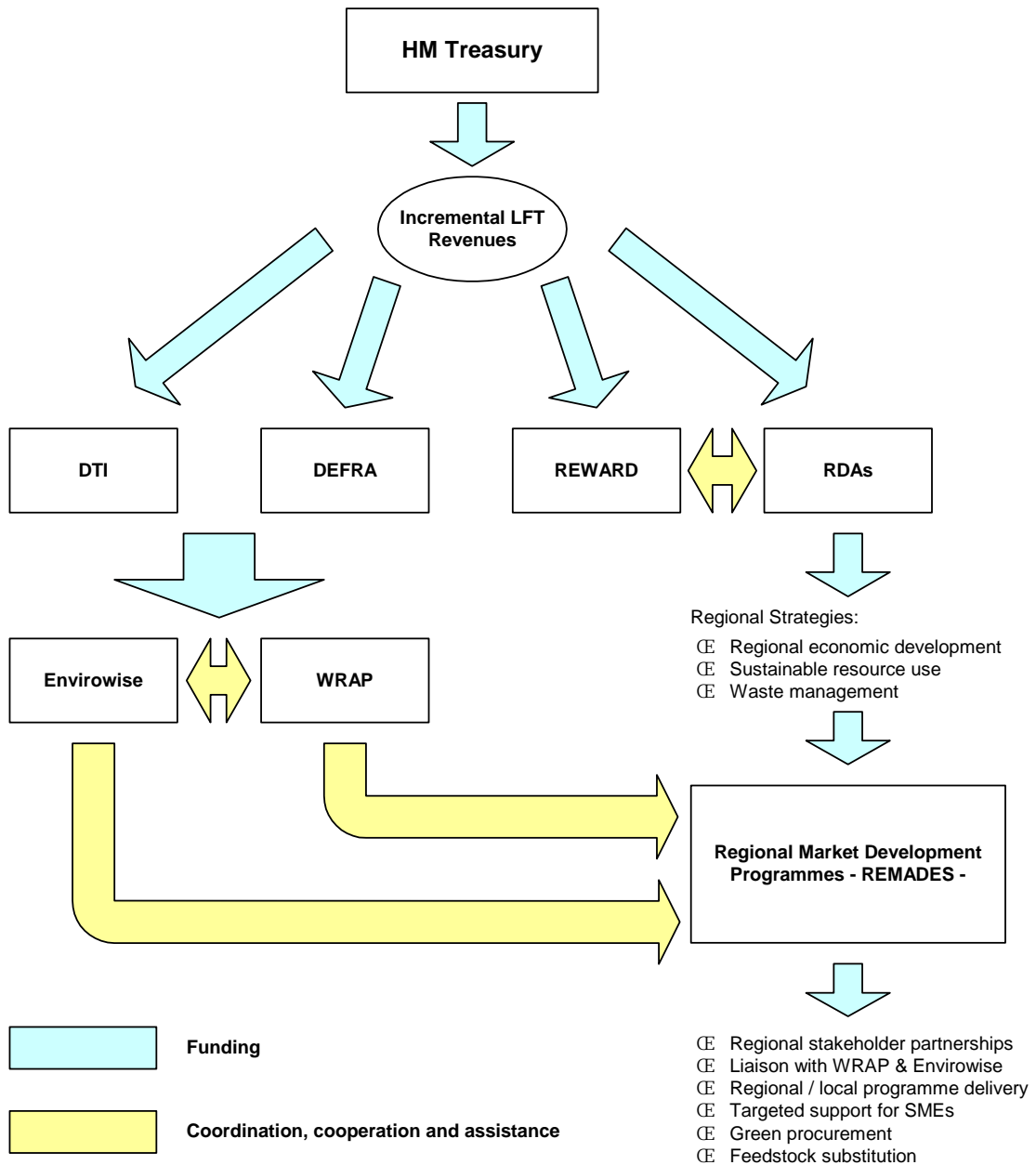
The main elements would be:

- § Expansion of Envirowise to provide advice on waste reduction and minimisation to a wider range of sectors / businesses.
- § WRAP continues to undertake its existing activities, such as R&D, standards and its materials programmes, but without any significant increase in funding.
- § WRAP establishes the national policy and criteria for allocating grants and would also handle any grants that are of national significance.

²³ The possible approaches to disbursing incremental landfill tax revenues discussed in this section would, insofar as they relate to Scotland, Wales and Northern Ireland, be subject to the Devolved Authorities' own decision making processes.



Figure 2: Existing Institutional Arrangements





- § WRAP provides advice and support to the REMADES on applications to the EU for State Aid clearance.
- § The majority of grant funding is made available to the REMADES, which would be re-organised on a regional basis, reporting to the RDAs. The REMADES would identify and evaluate potential targets for grant support, and provide advice to applicants.
- § REWARD provides support to the RDAs.

Such an arrangement would involve minimal disruption to existing institutions but, in our view, is unlikely to be the most efficient and effective approach to disbursing incremental landfill tax revenues.

At the present time, grants appear to be awarded by both WRAP and the REMADES on an individually negotiated basis. The project is identified first and then the amount and terms of the grant are determined by means of negotiation. This is generally an unsatisfactory way of disbursing public grants, and there is a need *inter alia* to establish detailed and consistent procedures, benchmarks and project selection criteria for awarding such grants.

5.2.2 Rationalise / Strengthen the Existing System

Actions to rationalise and strengthen the existing institutional system as a whole would need to focus on two main areas:

- § Development and implementation of an overall strategic policy and framework for prioritising, allocating and coordinating the disbursement of support financed by incremental landfill tax revenues.
- § The introduction of rigorous, transparent and consistent criteria and procedures for Project Cycle Management (the term ‘Project’ here referring to any programme, project or activity financed from incremental landfill tax revenues).

An overall strategic policy and framework for disbursing support would provide an explicit link between the national policies, priorities and objectives that have been set by Government with respect to waste management, and the responsibilities, spending priorities and activities of individual institutions involved in delivering such support. It would *inter alia*:

- § Identify the relevant EU and national policies, priorities, objectives and targets.
- § Establish the basic funding policies and principles to be applied, including:
 - 4 Principles of accountability, transparency and cost-effectiveness;
 - 4 Key requirements for additionality, leveraging and co-financing;
 - 4 Maximum award limits;
 - 4 Financing terms and conditions according to project type and type of beneficiary.
- § Determine national and sectoral priorities for providing support.
- § Specify in general terms the instruments that may be used for disbursing support.
- § Set performance targets and appropriate indicators for each institution / programme.
- § Establish the key criteria and general procedures to be adopted for Project Cycle Management including monitoring and ex-post evaluation (see below).
- § Allocate funding to individual institutions based on roles, agreed plans / programmes and past performance.



- § Establish guidelines and the procedures to be followed for ensuring compliance with the EU rules on state aid.

Such a framework should ideally be prepared on a multi-year basis and be reviewed / updated annually.

The detailed criteria and procedures adopted for Project Cycle Management will need to reflect to some extent the sectors, types of business and projects being targeted and the form in which support is delivered. For example, the detailed criteria and procedures required for managing a small grants programme for SMEs are likely to differ significantly from those required for managing, say, a specialised venture capital fund. Nevertheless, the criteria and procedures for Project Cycle Management would typically need to cover the following sequence of steps:

- § *Project identification* – in particular, the general criteria to be used for deciding which kinds of project / applicant are eligible for support, and which are not. As a general principle, eligibility criteria should be sufficiently broad so to enable a pipeline of potentially suitable projects to be developed, but not so broad as to result in a flood of applications.
- § *Project preparation* – this is normally the responsibility of the applicant, but there may be circumstances in which it is either necessary or appropriate to provide some form of assistance in preparing an application.
- § *Project appraisal and selection* – in particular, the criteria and procedures to be used for assessing the technical, environmental and economic / financial aspects of a proposed project. An approach to project appraisal which has been used successfully elsewhere, and which helps to minimise the costs of project preparation and appraisal for both the institution and prospective beneficiaries, is a two-stage procedure. In the first stage, applicants are required to submit a brief pre-application form which summarises essential information about the project. Project proposals are rapidly screened against the priorities and eligibility criteria for providing support. Proposals which are inadequately developed or inconsistent with established priorities / criteria are rejected at this stage. Proposals that pass this stage then proceed to a more thorough second stage of appraisal.
- § *Negotiation and award* – normally culminating in a written contract or agreement setting out the terms and conditions of support, the obligations and rights of both parties, an implementation schedule incorporating key milestones, and the expected outcomes / deliverables.
- § *Project monitoring* – in order to ensure that the beneficiary continues to meet obligations under the support agreement including timely project implementation. Monitoring is a crucial part of a successful project cycle, since it covers the period when resources are disbursed but not yet yielding a benefit or outcome. Monitoring should continue into the operational phase, when the benefits arising from the project start to be realised.
- § *Ex-post evaluation* - completes the project cycle. This evaluation should assess and document how the project progressed through each stage of the project cycle. Systematic ex-post evaluation (preferably by an independent third party) is a critical learning device and a prerequisite for building institutional capacity and skills for managing future targeted support programmes. A project evaluation report should be prepared indicating any significant problems or mistakes, analysing the causes of success or failure, and assessing the institution's ability to detect and prevent major problems or deficiencies. Where appropriate, the report should contain recommendations for improving the procedures for Project Cycle Management.



6. SUMMARY OF KEY CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

The key conclusions to emerge from this project are:

- § Because of their importance to the UK economy and because, *collectively*, they are significant contributors to the business waste stream, SMEs warrant particular attention when considering measures to recycle incremental landfill tax revenues back to business.
- § There is a widespread lack of awareness, particularly amongst SMEs, both of the need to divert business wastes from landfill and the potential commercial benefits of waste reduction.
- § Around half of all business wastes are currently landfilled. The commercial sector as a whole proportionally has a significantly greater reliance on landfill than the industrial sector. SMEs are major contributors to the commercial waste stream.
- § However, in relation to Gross Value Added, the landfill tax burden is expected to fall proportionally more heavily on the industrial sector.
- § There is substantial further scope for achieving reductions in business wastes at source.
- § Further efforts to develop markets for recyclables are vital if recycling is to be substantially expanded.
- § Those EU countries that have had high landfill taxes in place for some time have the lowest reliance on landfill and achieved the highest levels of waste recovery and recycling in the EU. This suggests that there are no major technological barriers to reducing substantially the volume of waste going to landfill.
- § The EU rules on state aid are a significant potential constraint in respect of options for recycling incremental landfill tax revenues back to business. Any scheme or measure for recycling revenue from landfill tax increases back to business will either need to be approved for EU State Aid purposes by the European Commission or fall within existing notifications or block exemptions. In this context, the most important exemptions are those relating to *de minimis* aid and aid provided to SMEs.
- § The general consensus among stakeholders is that the main barrier to increasing the diversion of business waste from landfill is that alternatives to landfill are not, or are not perceived to be, competitive.
- § The existing institutional arrangements for disbursing environmental subsidies are fragmented / uncoordinated, with differing priorities and some degree of functional overlap and duplication, and are therefore unlikely to be the most efficient and effective mechanism for disbursing incremental landfill tax revenues.
- § There would appear to be a need and considerable scope for generally rationalising and strengthening the existing institutional system for disbursing support aimed specifically at bringing about changes in existing business waste management attitudes and practices.

6.2 Recommendations

The Consultants' principal recommendations are that:



- § In terms of cost-effectiveness, options for recycling incremental landfill tax revenues back to business are considered primarily with respect to their potential for diverting waste away from landfill and / or enabling alternatives to landfill to become more competitive in the short-to-medium term.
 - § Both because of the scope they offer for targeting those sectors expected to bear the heaviest landfill tax burden and their flexibility / cost-effectiveness, the revenues from incremental tax increases are disbursed primarily in the form of *promotional, capacity building and advisory services to business* and *targeted grants*.
 - § Consideration is also given to *tax credits* as a potentially effective fiscal instrument and to the possibility of establishing a small *venture capital fund*.
 - § With respect to *promotional, capacity building and advisory services*, particular emphasis is given to measures aimed at:
 - 4 Promoting greater awareness amongst businesses of the need to divert waste from landfill, the potential commercial benefits of waste reduction, and the advice and assistance that is potentially available to them;
 - 4 Advising waste producers on waste reduction at source;
 - 4 Conducting public research targeted at waste streams peculiar to those business sectors which have special problems of diversion from landfill;
 - 4 Establishing technical standards for the quality and performance of recycled materials.
 - 4 Improving the quality and reliability of data on business wastes.
 - § With respect to *targeted grants*, priority is given to those types of project or activity that are likely to result in significant and cost-effective diversion of waste from landfill in the short-to-medium term. These include:
 - 4 Investments in new processing capacity.
 - 4 R&D for particularly difficult or intractable wastes.
 - 4 Collection of recyclables, especially from SMEs.
 - § Priority in disbursing landfill tax revenues is given to the following sectors and, within those sectors, to SMEs:
 - Industrial:** Food, beverages and tobacco
Chemicals and chemical products
Other non-metallic mineral products
Basic metals and fabricated metal products
Coke, petroleum products, gas, electricity, water
 - Commercial:** Wholesale and retail trades
Hotels and restaurants
Education
Social work and public administration
Other services
 - § The revenue from incremental tax increases is allocated approximately as follows:
 - 4 Promotional, capacity building and advisory services: - £30 million per annum.
 - 4 Other high and medium priority options (as described above): - the balance of the revenues received each year.
-



- § Within the ca. £30 million annual allocation for promotional, capacity building and advisory services, up to £20 million is allocated to the kinds of services currently provided by Envirowise with the remainder allocated to the kinds of activities presently undertaken by WRAP and the REMADES.
- § Consideration is given to rationalising and strengthening the existing institutional system for delivering support primarily by:
 - 4 Developing and implementing an overall strategic policy and framework for prioritising, allocating and coordinating the disbursement of support financed by incremental landfill tax revenues; and
 - 4 Requiring each institution involved in delivering such support to introduce rigorous, transparent and consistent criteria / procedures for Project Cycle Management.

APPENDIX A
PROJECT TERMS OF REFERENCE

Background:

The Budget announced that the standard rate of landfill tax will be increased by £3 per tonne, from £15 to £18, and by at least £3 per year thereafter on the way to a medium- to long-term rate of £35 per tonne. This increase will be introduced in a way that is revenue neutral to business as whole, following consultation with stakeholders. Decisions on a revenue-neutral package will be announced in the 2003 Pre-Budget Report.

HM Treasury is seeking to let a three-month contract to inform policy options for recycling part of the landfill tax increases to business in order to tackle market failures in ways which will help business to reduce the volume of waste which it sends to landfill. These policy options need not necessarily exhaustively cover all the revenue that is to be recycled; rather, the Treasury will be seeking options which provide cost-effective use of revenue in achieving specific improvements in business waste management.

Project Objective:

To provide an evidence-based assessment of the full range of options for recycling revenue from the landfill tax increases from 2005-6 to business, in order to tackle market failures in ways which will help business to reduce the volume of waste which it sends to landfill, covering potential costs and benefits, and identifying the most effective mechanisms for delivering each option, taking account of existing bodies and delivery mechanisms.

Project Analysis:

The project should consider the following options:

- § Providing increased funding for developing markets for secondary materials through the programmes of WRAP;
- § Providing additional advice to business through Envirowise or other schemes such as the Environment Agency's Reward project or delivery agents;
- § Providing interest free loans for business investment in technologies for sustainable waste management;
- § Providing support for business R&D in sustainable waste management technologies;
- § Providing support to local based initiatives such as Remade;
- § Providing support for a venture capital fund for new businesses in sustainable waste management;
- § And any other options which may be relevant.

Options should be assessed on the basis of:

- § Potential for providing cost-effective means of assisting businesses in achieving waste reductions;
- § Costs and benefits of these options relative to each other;
- § Which bodies or organisations would have the capacity to deliver the option effectively;
- § Suitability of options for differing business sectors and sizes;
- § Scope for targeting particular types of business and/or sectors that are expected to experience the largest incremental tax burden;
- § Practicality of implementation, including a consideration of EU State Aid legislation;
- § Capacity to involve the community and voluntary sector, if relevant.

The analysis will need to:

- § Take into account views already expressed by business groups, environmental groups and views of the Environment Agency and other statutory bodies; [NB EA only covers England and Wales]

- § Consider the contribution that could be delivered by existing projects/organisations (e.g. Existing business support organisations, Remade projects and other networks which have been set up through projects under the Landfill Tax Credit Scheme);
- § Make use of existing Government analysis of policy options, so as to avoid duplication of work.

APPENDIX B
OVERVIEW OF EU RULES ON STATE AID

Introduction

The European Union and the European Commission have established a framework through legislation and guidelines within which state aid to industry and business within Member States must operate (the so-called “EU rules on state aid”). These rules have been amplified over the years by secondary legislation and court rulings. All support for industry / business from any public source of funds has to comply with these rules, which are designed to ensure that aid granted by one Member State does not distort trade or affect competitiveness throughout the rest of the Community. An overview of state aid provided by EU Member States in 2001 is provided in Table B1. As may be seen, there are wide disparities between Member States both in the amounts and the objectives of state aid. Table B2 indicates that the majority of state aid provided by EU member states to the manufacturing sector between 1999 and 2001 was in the form of grants.

The legal basis for the EU rules on state aid is derived from the EC Treaty, as amended by the Treaty of Amsterdam. In addition, and of particular relevance to options for recycling revenue from landfill tax increases back to business, are the “Community Guidelines on State Aid for Environmental Protection” (2001/C 37/03), first published by the Commission in 1994 and revised in 2001, and the “Community Framework for State Aid for Research and Development” (96/C 45/06), which was last revised in 1996.

EC Treaty

The legal framework for state aid is laid down primarily in Articles 87 and 88 of the EC Treaty, the substantial condition of the incompatibility of state aid being established in Article 87(1) which states that “any aid granted by a Member State or through state resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market.” However, an absolute ban on state aid is neither desirable nor possible and a number of exceptions are provided in Article 87(2) and (3) which are deemed to be compatible with the internal market:

- § State aid having a social character, granted to individual consumers, provided that it is granted without discrimination related to the origin of the products concerned;
- § Aid to make good the damage caused by natural disasters or exceptional occurrences; and
- § Aid granted to areas of Germany affected by the division of the country.

The following may also be declared compatible with the common market (Article 87(3)):

- § Aid to promote the development of certain activities or regions (regional aid — Article 87(3)(a) and Article 87(3)(c))
- § Aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State
- § Aid to promote culture and conservation of heritage
- § Other categories of aid specified by the Council

The Commission has a legal obligation to ensure that EU competition laws are respected by the Member States and that aid is only granted when it is compatible with the common market. To fulfil these conditions, several rules are laid down in Article 88:

- § Article 88(1): constant reviewing of all existing aid systems in EU Member States
- § Article 88(2): formal investigation procedures
- § Article 88(3): notification requirement i.e. to inform the Commission in advance of any plan to grant state aid.

Table B1: State Aid for Horizontal Objectives and Particular Sectors, 2001

	EU	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Horizontal Objectives	71	99	97	63	99	55	53	78	96	87	90	94	41	97	78	91
Research and Development	13	20	7	13	2	11	14	3	17	22	28	40	3	41	13	11
Environment	13	4	32	27	1	1	2	-	1	2	17	14	-	1	33	6
SMEs	16	18	2	4	7	8	21	1	59	31	6	14	10	12	12	12
Commerce	1	0	0	0	-	0	2	0	0	1	4	-	0	5	-	0
Energy saving	2	0	10	1	-	0	1	0	0	-	28	1	0	18	13	0
Employment aid	3	19	25	1	-	5	1	10	1	-	0	5	8	7	-	-
Training aid	6	3	21	0	-	15	-	3	0	-	-	-	14	0	3	42
Other Objectives ¹	18	35	1	18	90	16	12	61	17	31	8	20	7	13	4	20
Particular Sectors	29	1	3	37	1	45	47	22	4	13	10	6	59	3	22	9
Shipbuilding	0	-	-	0	-	1	-	-	-	-	5	-	-	-	-	0
Other Manufacturing Sectors ²	1	0	0	1	0	3	3	1	1	0	0	2	3	0	0	0
Other Non-manufacturing Sectors	0	-	-	-	-	0	0	0	0	-	-	-	-	-	-	-
Coal	19	-	-	35	-	39	16	-	-	-	-	-	-	-	-	4
Tourism	1	1	-	1	-	0	-	3	3	-	-	4	2	-	-	1
Financial Services	5	-	-	0	-	-	25	15	-	-	-	-	1	-	-	-
Media, Cultural sector & services	3	0	3	0	1	1	4	4	0	13	5	53	3	22	5	5
Total aid (€million)³	33,463	778	1,180	11,853	465	2,623	6,105	706	4,120	33	629	547	902	376	506	2,639

Notes: ¹ Includes aid for general regional development not classified elsewhere.

² Includes aid for the steel sector as well as aid for rescue and restructuring not classified elsewhere.

³ Excluding agriculture, fisheries and transport

Source: DG Competition

Table B2: State Aid to the Manufacturing Sector by Type of Aid Instrument, 1999 – 2001 (in %)

	Grants	Tax Exemptions	Equity Participation	Soft Loans	Tax Deferrals	Guarantees
EU	63.3	26.1	0.3	6.6	0.5	3.1
B	78.7	14.9	0.2	5.5	0.3	0.4
DK	86.7	10.0	-	2.5	-	0.9
D	49.9	35.8	0.2	7.2	0.9	6.1
EL	81.2	18.7	-	0.0	-	0.1
E	88.1	-	0.7	11.1	-	0.1
F	47.1	38.7	-	10.4	0.3	3.5
IRL	18.9	76.8	4.3	-	-	0.0
I	77.9	17.5	0.3	4.1	-	0.3
L	94.3	-	-	5.7	-	-
NL	78.1	8.7	-	5.8	4.9	2.5
A	82.2	-	0.1	12.3	-	5.4
P	78.3	11.0	0.9	8.5	-	1.4
FIN	93.8	1.5	-	4.6	-	0.1
S	73.8	14.2	1.0	10.8	-	0.2
UK	96.2	2.6	1.1	0.1	-	-

Source: DG Competition

A further important regulation is contained in Article 89, which lays down the implementing regulations for the application of Articles 87 and 88. Based on these, the Council adopted a regulation in 1998 giving the Commission the possibility to exempt certain categories of horizontal state aid given to the manufacturing sector from the notification requirement. These include aid to small and medium-sized enterprises (SMEs) for research and development, environmental protection, employment and training; and aid to assist in complying with regulations for granting regional aid.

So far exemptions are only in force for aid to SMEs, aid to training and “de minimis aid.” This last exemption (OJ No. C68, 6.3.1996) is important insofar as it allows the granting of state aid to single commercial undertakings without advance notification to the Commission if the amount of the aid is not more than EUR 100,000 (cash grant equivalent) over a period of three years. However, the ceiling applies to all kinds of public support, which means that a commercial enterprise can receive state aid under different schemes approved by the Commission, with the exception of export aid. The main assumption underlying this rule is that such a small amount of aid support will not affect trade or competition between Member States.

Guidelines on State Aid for Environmental Protection

These guidelines set out the conditions under which aid can be granted to commercial undertakings for environmental protection in all sectors excluding agriculture. They are applicable to aid granted to promote environmental protection since February 2001 and will remain valid until the end of 2007.

EU policy on state aid for environmental protection faces the difficulty that it must fulfil two objectives that are sometimes seen as contradictory. On the one hand, state aid must satisfy the requirements relating to the proper functioning of the internal market (competition policy), and on the other hand it has to ensure that “the requirements of environmental protection are integrated into the definition and implementation of competition policy, in particular in order to promote sustainable development.” The guidelines define environmental protection to mean “any action to remedy or prevent damage to our physical surroundings or natural resources, or to encourage the efficient use of these resources.” The new conditions for granting state aid for environmental protection are more restrictive than under the old scheme. Investment aid is still possible, but the rules regarding aid intensity have changed.

An overview is presented in Table B3.

Aid Type / Scheme	Main Conditions / Beneficiaries	Aid Intensity	Reference
Investment Aid	SMEs: Transitional period of three years from the adoption of new compulsory Community standards	Max 15% of eligible costs	E.1.1.28
	Firms for general environmental investments (air pollution, water, waste): Investment improving on Community standards; or For investment where no mandatory Community standard exists; or To comply with national standards which are more stringent than Community standards.	Max 30% of eligible costs	E.1.2.29
Investment in Energy	Energy saving measures	Max 40% of eligible costs	E.1.3.30
	Combined heat and power	Max 40% of eligible costs	E.1.3.31
	Renewable sources of energy	Max 40% of eligible costs	E.1.3.32
		Bonus of 10% for renewable energy installations for an entire community	E.1.3.32
		Bonus of 10% for SMEs	E.1.5.35
		Investment grants to support renewable energy can comprise up to 100% of eligible costs	E.1.3.32
Regional Bonus	Firms located in regions eligible for national regional aid;	5% bonus for assisted areas under Article 87 (3)a	E.1.4.34(a)
	All firms are eligible for the higher of the two rates	10% bonus for assisted areas under Article 87 (3)c	
		Regional aid rate plus 10 percentage points gross	E.1.4.34(b)
Rehabilitation of Polluted Industrial Sites	Firms repairing environmental damage by rehabilitating polluted industrial sites may be eligible for aid	Up to 100% of eligible costs plus 15% of the cost of the work	E.1.8.38
	Granting of aid for the relocation of firms may be justified under certain specified conditions	Max 30% of eligible costs (see E.1.2.29) and additionally the provisions for SMEs apply (see E.1.5.35)	E.1.9.39

Notes:

An important aspect of the guidelines is that the different bonus schemes can be combined with each other, which means that bonuses for assisted regions (E.1.4 34) can be linked with the bonus applicable for SMEs (E.1.5. 35). An aid intensity of up to 70% of eligible costs can theoretically be provided, but the maximum rate may never exceed 100% of gross eligible costs.

The guidelines look favourably on aid for promoting renewable energy sources, which is in line with the Commission's approach. Specific aid provisions are also granted for the rehabilitation of polluted sites, as well as the relocation of firms.

Investment aid for the rehabilitation of polluted industrial sites can only be granted if the person responsible for the pollution cannot be identified or cannot bear the costs of cleanup.

The basis for the granting of state aid is the calculation of eligible costs. Eligible costs are defined in the guidelines as "... the extra investment costs necessary to meet the environmental objectives (E1.7.37)". The decisive point for this calculation is to define a benchmark which has to be established by the national authorities and reported to the Commission for approval. The establishment of this benchmark or baseline is therefore of considerable importance because it determines the eligible costs and therefore the potential aid intensity. However, the guidelines make it clear that such baselines have to be determined using "objective and transparent methods of calculation e.g. the cost of a technically comparable investment that does not though provide the same degree of environmental protection".

Operating aid is generally not allowed, with the exception of rules applicable for granting aid for the management of waste (E.3.1.42(a)) and aid in the energy-saving field (E.3.1.42(b)). However, aid granted under these regulations has to be phased out after five years and must either be "degressive" i.e. aid may constitute 100 percent of the extra costs in the first year and must fall linearly to zero at the end of the fifth year (E.3.1.45); or "non-degressive," i.e. aid intensity must not exceed 50 percent of the extra costs (E.3.1.46). Furthermore, specific regulations for operating aid are applicable in the form of tax reductions and tax exemptions (E.3.2) and for renewable energy sources (E.3.3).

Significantly, the granting of operating aid for the management of waste covers the management of industrial as well as of non-industrial waste. The main restriction for this type of financial support is that waste management follows the hierarchical classification laid down in the Community strategy for waste management (COM96 (339) final).

Community Framework for State Aid for Research and Development

Article 130(1) of the EC Treaty states that the Community and the Member States are to take action aimed at "fostering better exploitation of the industrial potential of policies of innovation, research and technological development". In addition, Article 130(3) stipulates that the Community is to contribute to the achievement of that objective "through the policies and activities it pursues under other provisions of this Treaty". Accordingly, the framework for aid to research aims to implement the competition rules while contributing to that objective.

As with state aid for environmental protection, EU policy on state aid for research and development (R&D) stems from the principle established in Article 87(1) of the Treaty (see section 2.6.2 above), and assumes that the closer R&D is to the market, the more significant may be the distorting effect of the State aid. In order to determine the proximity to the market of the aided R&D, the Commission defines three categories of research, and levels of permissible aid support are linked to these categories. They are:

- § Fundamental research: this means an activity designed to broaden scientific and technical knowledge not linked to industrial or commercial objectives.
- § Industrial research: this means planned research or critical investigation aimed at the acquisition of new knowledge, the objective being that such knowledge may be useful in developing new products, processes or services or in bringing about a significant improvement in existing products, processes or services.
- § Pre-competitive development activity: this means the shaping of the results of industrial research into a plan, arrangement or design for new, altered or improved products, processes or services, whether they are intended to be sold or used, including the creation of an initial prototype which could not be used commercially. This may also include the conceptual formulation and design of other products, processes or services and initial demonstration projects or pilot projects provided that such projects cannot be converted or used for industrial applications or commercial exploitation. It does not include the routine or periodic changes made to products, production lines, manufacturing processes, existing services and other operations in progress, even if such changes may represent improvements.

The basic rule is that support of up to 100% is permitted for fundamental research; support of up to 50% for industrial research; and support of up to 25% in the case of pre-competitive development activity. However, there are some exceptions, the principal ones being as follows:

- § Where the project spans more than one type of activity, then the aid funding shall be subject to a ceiling of the weighted average of the two types of aid intensity;

- § Where aid is given to an SME, then the aid intensity can be increased by 10 %
- § Where the project is carried out in a region qualifying for special status an increase of 5% or 10% is permissible depending upon its exact status
- § Technical feasibility studies preparatory to industrial research activities may qualify for aid up to 75% of study costs, whilst such studies preparatory to pre-competitive development activities may qualify for support up to 50%
- § Where the project is in accordance with the objectives of a specific project or programme undertaken as part of the EC's current framework programme for R&D, up to 15% increase. However, this may rise to 25% where the project also involves effective cross-border cooperation between firms and public research bodies or between at least two independent partners in two Member States.

Such exceptions are subject to maxima – in the case of industrial research 75%, and for pre-competitive development activities 50%. Similar restrictions apply where a project receives support from both Community and domestic public sources.

General Approach of the Commission to Assessing State Aid

Decisions as to whether or not aid granted by Member States is compatible with the Common Market are taken by the European Commission, in accordance with the Treaty and other relevant EU legislation. In general terms, state aid is only approved if it serves clearly defined objectives such as R&D, environmental protection, regional development, the development of SMEs, employment creation, the promotion of training, etc and if undue distortions of competition are avoided. This requires a balancing of the objectives and effects of the aid, which is generally undertaken by the Commission in close co-operation with the Member State concerned.

In the case of state aid for environmental protection, the assessment is normally made by weighing the adverse effects on competition with the benefits for the environment taking into account both the origin and use of aid funding. Examples of factors the Commission usually takes into account when assessing compatibility of support for environment-related investments / activities with EC state aid rules are:

- § Whether the revenue generated by an environmental tax is spent in the same sector of economic activity as it was collected, or in a different sector i.e. if any sector receives a net benefit
- § Whether the activities financed by the proceeds of the tax can be provided on a normal commercial basis with a satisfactory result, or whether some form of aid is needed
- § Whether the aid support provided to firms can be considered as compensation for undertaking activities that they would otherwise not perform, and that are in the public interest
- § The intended duration of the measure
- § If the aid element is intended to be reduced over time

A recent development which is likely to have a significant influence on the Commission's future approach to state aid was a decision by the Council in November 2002 to adopt a set of conclusions on "an economic approach towards less and better state aid". These invite Member States inter alia to "...consider before granting state aid ... whether an intervention in the form of state aid is the most appropriate and effective way to address these issues (identified market failures)" and to continue to "develop the use of ex-ante and ex-post evaluations of individual state aid and state aid schemes in order to monitor impact on competition and effectiveness of the aid". The Council also requested the Commission to take an active role in following-up the implementation of these conclusions. This may result in increasing attention being paid to the effectiveness of state aid schemes, as well as their impact on trade and competition.

As may be seen, the Commission's approach to assessing the compatibility of state aid is continually evolving and, while EU legislation and policies on state aid provide considerable guidance, predictions about whether or not a particular support measure or scheme is likely to be compatible / acceptable may be subject to a significant degree of uncertainty.