PREVENTING AND RECYCLING WASTE

a policy statement

Delivering Change

PREVENTING AND RECYCLING WASTE

a policy statement

Delivering Change

March 2002

BAILE ÁTHA CLIATH
ARNA FHOILSIÚ AF OIFIG AN tSOLÁTHAIR

Le ceannach díreach ón

OIFIG DHÍOLTA FOILSEACHÁN RIALTAS,
TEACH SUN ALLIANCE, SRÁID THEACH LAIGHEAN,
BAILE ÁTHA CLIATH 2,

nó tríd an bpost ó

FOILSEACHÁN RIALTAS, AN RANNÓG POST-TRÁCHTA,
51 FAICHE STIABHNA, BAILE ÁTHA CLIATH 2,
(Teil 01 647 6000 - Fax 01 647 6843)

nó trí aon díoltóir leabhar.

DUBLIN
PUBLISHED BY THE STATIONERY OFFICE

To be purchased directly from the

GOVERNMENT PUBLICATIONS SALE OFFICE,
SUN ALLIANCE HOUSE, MOLESWORTH STREET,
DUBLIN 2,

or by mail order from,

GOVERNMENT PUBLICATIONS, POSTAL TRADE
SECTION,

51 ST. STEPHENS GREEN, DUBLIN 2
(Tel 01 647 6000 - Fax 01 647 6843)

or through any bookseller

PN no: 11286

ISBN No: 0755712137
€12.00

contents

DELIVERING ON GOOD INTENTIONS

foreword by the Minister

Delivering Change

Repeating ourselves may not be good manners, but sometimes it's important. Prevention, reduction, reuse and recycling are a song I've been singing for a long time.
I believe passionately they must be right at the top of Ireland's waste management agenda. We've got to ensure that everybody's first waste management choice is reducing the amount of waste generated. That means action. It means incentives and structures to make sure the nation delivers on its good intentions.

Having the best of intentions doesn't prevent the debate on waste management boiling down, again and again, to landfill versus incineration. That's not good environmental thinking, because it lets us off too many hooks. It's easy to ignore recycling, waste reduction and prevention and yet feel we're truly 'green' because we object to more landfills or to incinerators. But it's phoney environmentalism.

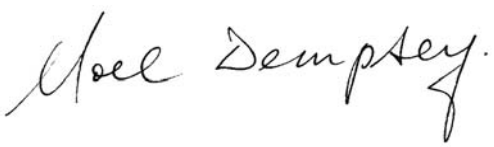
Genuine environmentalism starts with reduction, as did the 1998 policy statement *Changing Our Ways.* If we really care about the environment, and particularly our own local environment, this has to be our focus. We need to look positively towards eliminating as much waste as possible, rather than being so eager to fall on the final sword of 'disposal is necessary'. We're getting there. But not fast enough.

Sometimes it's a question of one step forward, two steps back as markets for recycling may contract or processors may find it difficult to make a profit from their operation. Another reason we haven't moved as quickly as I'd like was the delay in the adoption by some local authorities of local and regional waste management plans.

Nevertheless, we are looking at real progress:–

- **Many local authorities have segregated waste collection. In Dublin, it serves 150,000 households;**
- **We now have over 1,300 bring banks in place – compared to 400 in 1994;**
- **We now have civic amenity centres in most areas of the country;**
- **We have introduced the plastic bag levy;**
- **We reached our national target of recycling 25% of packaging waste in 2001.**

The challenge is to make further, rapid, strides. Together we can do it.



Noel Dempsey TD,
Minister for the Environment and Local Government

executive summary

preventing and recycling waste

Far too much waste is produced annually in Ireland. Continuing growth in waste production is unsustainable. We must break the link between economic development and increasing environmental pressure. This Policy Statement addresses the factors and practical considerations that are relevant to the achievement of Government policy objectives for the prevention of waste and for the re-use and recycling of the waste which is produced.

1. Introduction

The vast bulk of waste arising in Ireland is landfilled. However, landfill should be a last resort after all other options have been exhausted. Only material that cannot be prevented, re-used, recycled, or otherwise treated should be landfilled.

Accordingly, this Policy Statement:

- highlights the necessary disciplines that must be imposed within waste management systems to secure real progress on waste prevention, re-use and recovery;
- outlines a range of measures that will be undertaken in the interests of minimising waste generation and ensuring a sustained expansion in re-use and recycling performance; and
- identifies issues and possible actions which require further systematic consideration.

Following the enactment of the Waste Management (Amendment) Act 2001, all waste management plans have now been adopted. Irish waste management is now moving from plan to implementation. The publication of this Policy Statement complements the implementation of these plans. It also looks forward to the future and establishes systems which will in time further transform and radicalise the way we deal with waste.

This Policy Statement evolves from and is grounded in the 1998 policy statement *Changing Our Ways* which provided a national policy framework for the adoption and implementation of strategic waste management planning. *Changing Our Ways* generated much good will. This must now be translated into action, and action is required from public authorities, business and the general public.

Many of the structural initiatives identified in the Statement will bring new strengths to the

modernisation of waste management practice and will deliver research and policy initiatives in the years ahead. Now that waste management plans are in the process of being implemented, and with a range of additional initiatives being brought forward by this Policy Statement, a clear need exists for consolidating and co-ordinating arrangements across all aspects of waste management policy and performance. Therefore, a National Waste Management Board will be established in 2002 to co-ordinate, monitor, review and advise on all aspects of waste management policy at all levels of the waste hierarchy.

In particular the National Waste Management Board will -

- co-ordinate and monitor the implementation of national and regional waste management policy and planning;
- maintain a broad overview of existing policy as set out in this Statement and in *Changing Our Ways*, and provide ongoing advice in that regard to Government, public authorities and the private sector;
- evaluate the contribution of local and regional waste management plans to the achievement of national waste management targets;
- act as a consultative forum for the consideration of EU legislative initiatives;
- make recommendations regarding the need for/contribute to research and development initiatives in relation to specific waste streams;
- provide advice and recommendations regarding the preparation of the National Strategy on Biodegradable Waste;
- monitor and evaluate international best practice with a view to appropriate application in Ireland, including where necessary calling on the services of independent expert groups to evaluate specific issues;
- support and facilitate the Recycling Consultative Forum and Market Development Group;
- undertake public awareness and education campaigns in relation to waste management;
- carry out regular reviews of this Policy Statement.

This Policy Statement points the way forward and provides for a range of actions to be taken which will affect the way in which we deal with goods and materials at all stages from production to disposal.

2. Waste Prevention and Minimisation

Prevention means reducing the quantity and harmfulness to the environment of materials and the substances contained therein. Waste prevention initiatives can therefore be successfully applied at any time in the life-cycle of a material or substance, including in the production process, the marketing, distribution, or utilisation stages, up to eventual discard at the end-of-life stage.

Prevention is the most desirable method of waste management since the absence of waste totally eliminates the need for handling, transportation and treatment of discarded materials. Prevention of waste provides the highest level of environmental protection, optimises the use of available resources and removes a potential source of pollution.

Minimisation means any technique, process or activity that either avoids, reduces or eliminates waste at its source, or results in re-use or recycling. Waste minimisation requires all stakeholders in the management chain to adopt a proactive role in reducing the quantity and harmfulness of waste ultimately sent for disposal and to choose products which create the least harm to the environment during production, in operation as well as in waste treatment.

Very significant benefits derive from **waste prevention and minimisation,** including:

- reducing the extent of emissions, discharges and pollution associated with the production, management and disposal of waste,
- reducing the overall costs of waste management, and
- conserving energy and natural resources.

The Government will -

- establish a well-resourced National Waste Prevention Programme (NWPP) to deliver substantial results on waste prevention and minimisation;
- establish a "Core Prevention Team" (CPT) within the EPA to drive this initiative;
- establish a Prevention Programme Steering Group, that will co-ordinate/liaise with public authorities at all levels, monitor the overall thrust of the National Waste Prevention Programme, and provide strategic direction to the Core Prevention Team;
- provide seed funding of €1.27 million in 2002, from the Environment Fund, to facilitate the immediate establishment of the Core Prevention Team and provide ongoing support for the Team;
- commit funding from the Environment Fund to support specific prevention initiatives;
- introduce a system of mandatory waste audits and waste reduction programmes for businesses which fall below the threshold for Integrated Pollution Prevention and Control licensing.

3. Re-use

Re-use means the use of a product on more than one occasion, either for the same purpose or for a different purpose, without the need for reprocessing. Re-use avoids discarding a material to a waste stream when the initial use of the product has concluded. It is more preferable that a product be re-used in the same state, since it will not then require additional processing involving a further input of energy and raw materials.

Re-use can be increased through the repair and renovation of products, their donation to charitable causes or by direct resale of the used materials.

The Government will -

- promote voluntary action by relevant sectors of industry to implement re-use systems or where necessary, apply appropriate policy instruments to ensure the implementation of re-use systems in situations where this practice represents the Best Practical Environmental Option;
- implement the 15 cent levy on plastic shopping bags and encourage their substitution by re-usable bags;
- support EU initiatives to increase re-use, including where appropriate mandatory re-use targets;
- encourage the re-use of non-packaging products;
- promote the use of internet "waste exchanges" and "swap shops";
- develop guidance on refurbishment and re-use of IT equipment, including computers.

4. Recycling

Recycling involves the treatment of a discarded waste material to make it suitable for subsequent re-use. Recycling involves a certain amount of reprocessing.

The Government will -

- establish a Recycling Consultative Forum to be supported by the National Waste Management Board, and to act as a consultative and advisory body on all aspects of recycling;
- provide €127 million in EU/Exchequer support for waste recovery infrastructure, including recycling infrastructure, in the period 2002 – 2006;
- introduce a landfill levy in 2002 and begin implementing national bans on landfilling specific materials;
- utilise revenues from the new plastic bag and landfill levies, through the Environment Fund (provided for under the Waste Management (Amendment) Act 2001) to assist waste recycling activities;
- in addition, provide €0.635 million seed funding for establishment in 2002 of a Market Development Programme which will identify and promote markets for recyclable material;
- under the direction of the North/South Ministerial Council co-operate with the Department of the Environment in Northern Ireland on the development of an all-island approach to developing markets for recyclable material;
- exempt from planning permission, subject to

conditions, the provision of bring banks;

- through Enterprise Ireland provide support for development of indigenous reprocessing industry.

5. Producer Responsibility

The **Producer Responsibility** concept recognises that the producers of goods and materials need to take responsibility for the environmental impact of placing goods and services on the market.

The Government will, in co-operation with business -

- put in place measures to support Ireland's attainment of 50% recovery of packaging waste by 2005, (including dedicated arrangements for specific materials such as PET and Tetra Pak);
- carry out a comprehensive review of the Waste Management (Packaging) Regulations, 1997;
- put in place measures to ensure that end-of-life vehicles and waste electrical and electronic equipment are recovered and recycled in accordance with, and within the timescales set out in, the relevant EU Directives;
- put in place an effective system to ensure that the recycling targets for Construction and Demolition Waste, of 50% by 2003 and 85% by 2013, are met by the construction industry;
- establish producer responsibility initiatives in 2002 to recycle newsprint, tyres and batteries;
- where necessary, require problematic sectors to introduce waste recovery schemes using powers under the Waste Management Acts;
- ensure an effective enforcement regime for Regulations made under the Waste Management Acts in support of producer responsibility initiatives;
- establish a Producer Responsibility Unit within the EPA to carry out research, monitor performance under specific producer responsibility initiatives, and secure better enforcement and promote good practice.

6. Biological Treatment of Organic Waste

The Government will -

- draw up a National Strategy on Biodegradable Waste in the Municipal Waste Stream in 2002;
- support the provision by local authorities of infrastructure for the biological treatment of organic waste;
- introduce product standards for compost derived from municipal waste;
- encourage the development of markets for those products;
- support the development of widespread home composting.

7. Public Service Waste Management Programme

The Government will -

- develop a public service waste management programme;
- promote, in particular, the use of recycled material in public procurement policies, including ensuring that within 2 years, all public authorities use recycled paper for routine use;
- strengthen the green networks which exist between Government Departments and between local authority Environmental Awareness officers.

waste

chapter one
a framework for action

1

Far too much waste is produced in Ireland. Continuing growth in waste production is unsustainable.

1.1 Waste and Sustainable Development

Breaking the link between economic development and increasing environmental pressure is a critical challenge for modern society. Increasing quantities of waste represent a highly visible and intensifying example of environmental pressure. The issues associated with the generation and management of waste are linked to economic activity, industrial development, lifestyle and consumption patterns. Societal values emphasise consumption and convenience, with less consideration of the environmental consequences. Social factors and technological development reinforce this trend.

Environmental Protection Agency (EPA) publications show a continuing steady increase in waste production in Ireland, substantially in line with economic growth. In particular, reported municipal solid waste (MSW) arisings have doubled over the past fourteen years, and the bulk of this waste is being consigned to landfill. While successes have been recorded in some areas, such as recovery of packaging waste and farm plastics, considerable progress remains to be achieved in the areas of waste prevention, minimisation and recycling.

Waste material can either be downgraded by disposal or upgraded through utilisation as a resource. Many discarded materials present a clear opportunity for further beneficial uses, and the overall achievement of more efficient management of resources.

A high priority must therefore be placed on the integration of waste management issues into the production/consumption cycle, so that waste arisings are stabilised and current trends in waste production reversed. An adequate waste recovery infrastructure, staffed by suitably competent and trained personnel, is also essential to ensure that the management of unavoidable waste is conducted in a responsible and environmentally sensitive manner.

Irish waste trends mirror those throughout Europe. Reported total waste generation within EU and European Free Trade Association countries increased by nearly 10% between 1990 and 1995, in comparison with real economic growth of 6.5% over the same period[1]. Generation of paper/cardboard, glass and plastic waste is expected to increase by between 40% to 60% over the period 1990 – 2010. The quantities of waste produced within Europe are now becoming so large that waste transport represents a significant proportion of total transport activity.

Ireland needs to –

- place greater emphasis on waste prevention and minimisation, to restrain, stabilise and reverse the growth in waste generation;
- change both its production and consumption patterns, and greatly improve its management of waste that is generated;
- recognise that much unavoidable waste is a resource, which, if re-used or properly exploited for its materials and energy content, can reduce the use of natural resources and minimise the environmental impacts of waste disposal.

More sustainable waste management options must be carefully regulated and controlled, to achieve high standards of environmental protection.

1.2 Objectives of this Policy Statement

This Policy Statement addresses the factors and practical considerations that are relevant to the achievement of Government policy objectives and for the prevention and recovery of waste. Overall waste management policy targets are set out in *An Action Programme for the Millennium* and related policy documents, including *Waste Management: Changing Our Ways.* It is firmly grounded in the internationally recognised hierarchy of waste management options, which prioritises, respectively -

- prevention and minimisation;
- re-use;
- recycling and biological treatment;
- energy recovery; and
- environmentally sound disposal, either by thermal treatment (without energy recovery) or by landfill.

Under this hierarchy, landfilling should be a last resort after all the higher options have been exhausted, i.e. only material that cannot be prevented, re-used, recycled, or otherwise treated should be landfilled.

Accordingly, this Policy Statement: -

- highlights the necessary disciplines that must be imposed within waste management systems to secure real progress on waste prevention, re-use,

[1] *Environment in the EU at the turn of the Century (EEA, 2000)*

and recovery;

- outlines a range of measures that will be undertaken in the interests of minimising waste generation and ensuring a sustained expansion in re-use and recycling performance; and
- identifies issues and possible actions which require further systematic consideration.

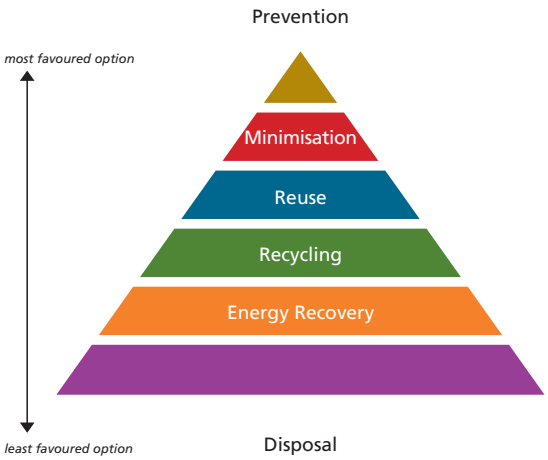
The proposed measures will have a particular relevance for municipal wastes (MSW). Municipal waste is the most diverse waste stream and is therefore liable to give rise to more complex end products. The National Waste Database report for 1998, published by the EPA, estimates that only 9.0% of municipal waste is recycled, in sharp contrast to the reported recovery rate of almost 27% achieved for industrial wastes.

This Statement concentrates on the 3 highest steps on the waste hierarchy recognising, as do the local and regional waste management plans, that emphasis must be given to the widest practicable realisation of waste prevention, minimisation, re-use, materials recycling and biological treatment, before energy recovery through thermal treatment, and final disposal in landfill.

1.3 National Waste Management Board

Local authorities have a pivotal role in changing Irish waste practice, and the waste management plans now adopted, and being implemented by them, provide the strategic framework within which better waste management practices can be delivered.

Waste Management Hierarchy



However, changing our waste management culture requires determined and ambitious measures involving producers and consumers, as well as local and other public authorities. More sustainable practices need to be applied by public authorities, business and the public in relation to the prevention and management of waste.

A range of specific actions are set out in this Statement which will support improved national performance at the higher levels of the waste hierarchy referred to above. With regional and local waste management plans in place, a modern waste management system for Ireland, in line with the vision in *Changing Our Ways,* can now take shape. The Policy Statement provides for the establishment of appropriate dedicated institutional arrangements to support new and innovative action. Recognising the linkages between all levels of the waste hierarchy, and in the context of more sophisticated responses to prevention, re-use, recycling, treatment and final disposal, a mechanism to co-ordinate action in all these areas will be essential. A National Waste Management Board will be established in 2002 to co-ordinate, monitor, review and advise on all aspects of waste management policy at all levels of the waste hierarchy.

In particular the National Waste Management Board will:

- Co-ordinate and monitor the implementation of national and regional waste management policy and planning;
- Maintain a broad overview of existing policy as set out in this Statement and in *Changing Our Ways*, and provide ongoing advice in that regard to Government, public authorities and the private sector;
- Evaluate the contribution of local and regional waste management plans to the achievement of national waste management targets;
- Act as a consultative forum for the consideration of EU legislative initiatives;
- Make recommendations regarding the need for/contribute to research and development initiatives in relation to specific waste streams;
- Provide advice and recommendations regarding the preparation of the National Strategy on Biodegradable Waste;
- Monitor and evaluate international best practice with a view to appropriate application in Ireland, including where necessary calling on the services of independent expert groups to evaluate specific issues;

- Support and facilitate the Recycling Consultative Forum and Market Development Group;
- Undertake public awareness and education campaigns in relation to waste management;
- Carry out regular reviews of this Policy Statement.

1.4 National Recycling Strategy *Recycling for Ireland*

The 1994 Strategy Statement, *Recycling for Ireland,* sought to mobilise support for recycling across the widest possible spectrum of Irish society over the period 1994 to 1999. It acknowledged the shared responsibility of waste producers and advocated the co-operation of Government, local authorities, consumers and voluntary agencies to secure progress on recycling in Ireland.

The principal focus of the Strategy was the domestic and commercial waste streams, with a particular emphasis on packaging waste. It looked to an improved and intensified recycling performance by local authorities, and was designed to provide a stimulus for increased efforts to that end. Overall, the Strategy anticipated –

- greater public awareness leading to more positive behaviour;
- the provision of accurate, reliable information on waste quantities and composition, and on recycling techniques;
- a more competitive cost base for recycling as landfill became more expensive; and,
- improved recycling systems and product market development.

In the intervening 8 years since publication of *Recycling for Ireland:*

- comprehensive waste management legislation has been enacted;
- financial support has been provided to assist local authorities in the formulation of ambitious waste management plans;
- some €13.97m. in grant assistance was allocated to support private and local authority investment in recycling and hazardous waste management infrastructure;
- good progress has been made in extending a network of "bring" centres for recyclables, up from around 400 in 1994 to an estimated 1,300 in 2001;
- Repak Ltd. was established by industry, as Ireland's first producer responsibility initiative, for the recycling of packaging waste. By 2001 Repak reported achieving the target of recycling 25% of packaging waste as set down in the EU Packaging Directive;
- An increasing number of segregated domestic collection schemes and civic amenity sites are being provided by local authorities;
- Comprehensive National Waste Databases have been published by the EPA for 1995 and 1998.

However, in some respects, the broad thrust of policy contained in *Recycling for Ireland* has been overtaken by events. The increasing cost of landfill services has only recently begun to provide a stimulus towards the routine development of prevention, re-use and recycling practices. *Recycling for Ireland* may also have under-estimated the extent of preparation and effort necessary to implement successful recycling systems that are capable of yielding substantial levels of performance. Notably, while the volume of waste being recycled increased substantially, a very limited increase in overall recycling rates was achieved over the period – recycling figures of municipal waste rose from an estimated 7.4% in 1994 to 9.0% in 1998. A successful approach to waste minimisation and recovery must involve a wider range of initiatives and support measures than was heretofore envisaged. This includes, where appropriate, the use of disincentives as well as incentives.

1.5 Changing Our Ways

The Policy Statement *Changing Our Ways* was published by the Minister for the Environment and Local Government in October 1998. This was addressed chiefly to local authorities, and provided a national policy framework for the adoption and implementation by them of strategic waste management plans, under which specific national objectives and targets would be attained. The following targets over a fifteen-year timescale were established:

- diversion of 50% of household waste from landfill;
- the development of composting and other biological treatment facilities capable of treating up to 300,000 tonnes of biodegradable waste per annum;
- recycling of 35% of municipal waste;
- recycling of at least 50% of construction and

demolition (C&D) waste within a five year period, with a progressive increase to at least 85% over fifteen years.

Alternative systems for the collection and treatment of wastes, involving the provision of an integrated waste management infrastructure, are prerequisites if these targets are to be realised.

While numerical targets were not set in relation to waste prevention and re-use, progress towards meeting the overall objective of stabilising and reversing growth in waste generation will be measured by the National Waste Database Report.

1.6 Waste Management Planning

Meaningful and comprehensive waste management planning is an essential basis for improved waste management performance. Much effort has been devoted at national, regional and local level since 1996 to delivering effective results in this regard.

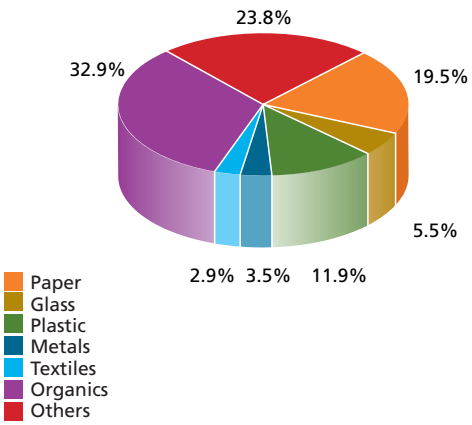
From the outset, most local authorities (31 out of 34) have adopted a regional approach to this planning process, with a view to the more efficient provision of services and infrastructure. Financial assistance, through Structural Funds, supported authorities in commissioning or carrying out preliminary waste management strategy studies, which created an informed context for evaluating available options and identifying the measures, most likely to optimise waste management.

Irish waste management is now moving from plan to implementation, following the Waste Management (Amendment) Act 2001, and taking full account of the waste hierarchy. The statutory objectives of the waste management plans made under the Waste Management Acts, 1996 and 2001 are to:

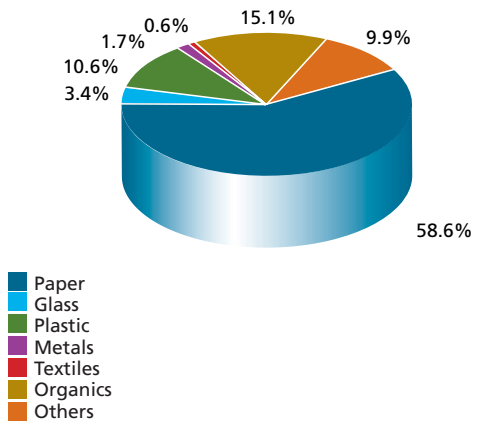
- prevent or minimise the production and harmful nature of waste;
- encourage and support the recovery (including recycling) of waste;
- ensure that such waste as cannot be prevented or recovered is safely disposed of; and
- address the need to give effect to the polluter pays principle.

In general, the regional plans provide for comprehensive and integrated waste services and infrastructure to meet current and anticipated needs. Local authorities now need to deliver early and sustained progress in the implementation of all aspects of these plans, particularly those dealing with segregated collection services, waste minimisation, local waste recycling infrastructure and public education and awareness.

Compostition of Household Waste Landfilled in Ireland



Estimated Compostition of Commercial Waste Landfilled in Ireland



1.7 The EU Context

Much of the law in relation to waste management in Ireland derives from measures adopted at an EU level. Therefore, measures undertaken by Ireland in support of an improved waste performance must also-

- have regard to certain broad principles that form the basis of EU environmental and waste policies; and
- respect the obligations of the Single Market.

The main EU legislative initiatives in relation to waste management are listed in Appendix I.

1.8 Implementation: Supporting Considerations

Regulation

A sophisticated and effective waste management regime requires sound legislative and regulatory support. Ireland has a modern, up to date legislative framework for waste management under the Waste Management Acts 1996 and 2001. Detailed implementation is generally provided for by regulations made under those Acts. This Policy Statement outlines a number of areas where further regulatory control, as envisaged under the Acts, may be introduced in support of prevention, re-use and recycling initiatives. The necessity for further legislation will be kept under review. New Directives and other initiatives at EU level will continue to influence policy development in Ireland and will necessitate continuous regulatory innovation to comply with EU law.

Enforcement

The introduction of a modern regulatory regime in recent years requires a major cultural change in relation to enforcement on the part of regulators and operators. Performance in this regard has not kept pace with regulatory reform. On the local authority side, the reforms introduced by *Better Local Government* will support improved enforcement performance. Recent Supreme Court clarification of local authority prosecution powers will also assist. Paragraph 6.2 outlines enforcement measures to be taken in support of producer responsibility initiatives. Assistance will also be applied from the Environment Fund to strengthen local authority enforcement. Consideration is being given to strengthening the enforcement provisions of the Waste Management Acts.

Use of Fiscal and Market Based Instruments

Fiscal measures, either by use of incentives or disincentives, can play an important role in the achievement of national waste management objectives.

Fiscal measures can be successful in generating high levels of waste prevention and recycling:

- by providing a source of revenue (e.g. through product charges, taxes on raw materials etc.) that can be used to fund waste minimisation and recycling initiatives; and
- by incentivising behaviour which will seek to prevent waste generation or encourage re-use and recycling as alternatives to disposal.

The Government has already acted to introduce fiscal measures under the Waste Management (Amendment) Act 2001. The Act provides for the introduction of two levies: a levy on plastic shopping bags and a levy on the landfilling of waste. A 15 cent levy on plastic shopping bags took effect on 4 March, 2002 with the landfill levy due to come into effect later on in the year. The Act provides that further levies may be applied to other goods and products subject to confirmation by the Oireachtas.

Producer responsibility initiatives, whereby individual economic sectors put in place mechanisms to recover and recycle the waste which they generate, generally require a financing mechanism to pay for the initiative (see Chapter 6).

The imposition of levies and other fiscal measures may also have negative side effects. For example, high landfill charges can lead to unauthorised disposal unless the penalties, and the risk of being caught, are such to discourage such activity. Fiscal measures must also respect the operation of the Single Market. Therefore, the introduction of a levy in any particular instance must be judged carefully on the merits of the individual case.

While subsidies can also support best practice in waste management, the use of direct Government operational subsidy is not envisaged. In line with the producer responsibility principle, the sectors which give rise to waste should pay the full costs of recovery and/or disposal. Producer responsibility initiatives require producers to take steps to recover waste or alternatively to contribute to, and participate in compliance schemes set up to recover the waste in question. These schemes in

turn provide a subsidy for the collection and recovery of material for recycling, which provides economic support for the recycling sector. Such initiatives, together with the increasing cost of landfilling waste, stimulate and improve the economics of recycling.

The provision of grant assistance for capital investment will, however, be provided for under the National Development Plan and Environment Fund. Enterprise Ireland will also provide assistance under its programmes for innovative business initiatives in this sector.

1.9 Economic Impacts of Policy Statement

It is recognised that the full cost of a modern waste management system must be borne by the polluter in line with the polluter pays principle. Each player in the chain must share these costs from the manufacturer, distributor, retailer and final consumer. The introduction of waste charges in all areas of the State is recognition of this internationally accepted principle. In implementing the policies in this Statement, the Government recognises the need to avoid any disproportionate impact on persons in poverty or at risk of poverty. In fact the Policy Statement, in advocating the introduction of charging on the basis of weight/volume, presents an opportunity to reduce waste disposal costs through greater recycling rates. In turn, business will continue to subsidise the householder's recycling activities through the development of producer responsibility schemes such as the Repak scheme, which subsidises the cost of recycling packaging waste.

The continued development of a more sophisticated waste management system, with a high degree of segregation, recovery and recycling, will lead to many opportunities to establish new businesses in the waste management sector. This sector has already seen much development in recent years and it can be expected that implementation of the policies in this Statement will lead to further job creation in the years to come.

1.10 Timeframe and Review

The measures outlined in this policy statement will support the achievement of the targets set out in *Changing our Ways*. Regular monitoring of progress will be undertaken and appropriate adjustments made as necessary, regard being had to any advice and recommendations from the National Waste Management Board. Published review and reporting on performance will take place at 3 yearly intervals.

preventing and minimising waste

chapter two

prevention

Prevention means reducing the quantity and harmfulness to the environment of waste and the materials and the substances contained therein. Waste prevention initiatives can therefore be successfully applied at any time in the life-cycle of a material or substance, including in the production process, the marketing, distribution, or utilisation stages, up to eventual discard at the end of life stage.

Prevention is the most desirable method of waste management since the absence of waste totally eliminates the need for handling, transportation and treatment of discarded materials. Prevention of waste provides the highest level of environmental protection, optimises the use of available resources and removes a potential source of pollution.

Minimisation means any technique, process or activity that either avoids, reduces or eliminates waste at its source, or results in re-use or recycling. Waste minimisation requires all stakeholders in the management chain to adopt a proactive role in reducing the quantity and harmfulness of waste ultimately sent for disposal and by choosing products which create the least harm to the environment during production, in operation as well as in waste treatment.

Very significant benefits derive from waste prevention and minimisation, including:

- **reducing the extent of emissions, discharges and pollution associated with the production, management and disposal of waste;**
- **reducing the overall costs of waste management; and**
- **conserving energy and natural resources.**

2.1 Key actions

Waste prevention and minimisation are the preferred management options on the waste hierarchy.

The Government will –

- establish a well-resourced National Waste Prevention Programme (NWPP) to deliver substantial results on waste prevention and minimisation;
- establish a "Core Prevention Team" (CPT) within the EPA to drive this initiative;
- establish a Prevention Programme Steering Group, that will co-ordinate/liaise with public authorities at all levels, monitor the overall thrust of the National Waste Prevention Programme, and provide strategic direction to the Core Prevention Team;
- provide seed funding of €1.27 million in 2002 from the Environment Fund to facilitate the immediate establishment of the Core Prevention Team and provide ongoing support for the Team;
- commit funding from the Environment Fund to support specific prevention initiatives;
- introduce a system of mandatory waste audits and waste reduction programmes for businesses which fall below the threshold for Integrated Pollution Prevention and Control licensing.

2.2 The Current Situation

Prevention is one of the most challenging aspects of waste management because it demands a wide range of linked initiatives, presenting a direct challenge to householders as well as commercial and industrial waste producers. Excessive waste is generated through poor product development, inefficient production or manufacturing processes, creation of disposable or short-duration goods, and unsustainable consumption patterns - for example, by purchasing excessively packaged products. Taking action to prevent waste being generated in the first place is fundamental to the overriding objective of de-coupling economic growth from growth in waste arisings.

The Waste Management Act 1996, provides a legal framework for waste prevention and minimisation. A number of cleaner technology and waste prevention and minimisation initiatives have already been implemented including by, or under the aegis of, the EPA, Enterprise Ireland and the

Clean Technology Centre (Cork). For example, under the National Development Plan 2000 - 2006 and through the Cleaner Greener Production Programme (CGPP), the EPA is offering grant aid to selected businesses, which seek to improve their environmental performance. A total of €4.57 million has been provided for this scheme.

An intensive and well structured waste prevention programme must now be put in place with the overall objective of stabilising, and in the longer term reversing, the growth in waste generation.

2.3 National Waste Prevention Programme

The Government will now establish an ambitious and well-resourced National Waste Prevention Programme to deliver substantive results on waste prevention and minimisation across all waste streams. The Programme, based in the EPA, will be comprehensive, integrating a range of initiatives, addressing education and awareness measures, technical, training and financial assistance, and incentivisation mechanisms.

The Waste Prevention Programme will encompass the Hazardous Waste Prevention Programme, the establishment of which is recommended in the National Hazardous Waste Management Plan published in July, 2001. A Prevention Programme focusing solely on hazardous waste arisings would be unnecessarily limited in scope. Measures with potential to impact on the generation of hazardous waste from production processes should equally result in the prevention and minimisation of non-hazardous waste arisings from industry.

Under the Prevention Programme, significant financial investment and technical assistance will be necessary to achieve an overall "win-win" situation for both industry and the environment.

In general, there is more opportunity to secure prompt and significant results from prevention initiatives in the commercial and industrial sectors than for waste arisings from households. However, changes in personal behaviour, applied in the household, can also secure behavioural changes in the workplace towards the adoption of preventative practices.

2.3.1 Core Prevention Team

A Core Prevention Team (CPT) will be established and resourced as a distinct unit within the EPA, to draw up and implement the new National Waste Prevention Programme, in close co-operation with other key stakeholders.

2.3.2 Prevention Programme Steering Group

While the Core Prevention Team will be the key driver of the NWPP, it will also engage with and co-ordinate the activities of relevant public authorities at all levels, and ensure productive liaison with other relevant bodies. A Prevention Programme Steering Group will facilitate such co-ordination and liaison, monitor the overall thrust of the National Waste Prevention Programme and provide strategic direction for the Core Prevention Team. This Prevention Programme Steering Group will involve representation from or on behalf of -

- Enterprise Ireland;
- EPA;
- the Clean Technology Centre;
- local authority representative associations;
- the Departments of the Environment and Local Government, Agriculture, Food and Rural Development, Marine and Natural Resources, Enterprise, Trade and Employment;
- the Irish Business and Employers Federation (IBEC);
- the Small Firms Association (SFA);
- Chambers of Commerce of Ireland;
- Comhar (the National Sustainable Development Partnership); and
- environmental NGOs.

2.3.3 Functions of the Core Prevention Team

The National Waste Prevention Programme will have two principal strands:

- **A Sustainable Production Programme:** This initiative will consider how waste can be eliminated or reduced in manufacturing and industrial processes, and at the packaging stage. A range of instruments and methodologies exist to assist in the implementation of such an initiative;
- **A Product Waste Programme:** Products are diverse in function, characteristics and processing requirements. Accordingly, product waste needs to be tackled in a different manner to process waste, through the use of initiatives and instruments such as awareness raising, incentives and disincentives. Product waste is generated in

response to products being placed on the market.

It is therefore important to place the onus on producers who have the capability to make product changes.

The primary task of the Core Prevention Team will be to generate practical, meaningful and measurable waste prevention by all stakeholders and, where appropriate, to initiate and implement necessary actions to this end. Accordingly, its remit will include –

- developing and prioritising programme objectives, with the goal of stabilising waste arisings and reversing current trends in waste production;
- identifying the key organisations best placed (either individually or collectively) to contribute to the achievement of these objectives, and pursuing their engagement in support of the programme;
- identifying and prioritising necessary actions to be initiated directly by or on behalf of the Core Prevention Team in pursuit of the programme objectives;
- co-ordinating the activities of the different stakeholders;
- identifying appropriate targets or performance indicators, and devising a representative methodology for the measurement of national performance in relation to waste prevention and minimisation.

In implementing a progressive and ambitious Prevention Programme, the Core Prevention Team will –

- advise and contribute to policy development and action in relation to waste prevention and minimisation, including the provision of advice to the Minister with regard to actions within the remit of Government which are necessary or desirable in support of improved national performance;
- prioritise and target relevant activities within the industrial/commercial sector;
- provide financial support for significant waste prevention initiatives;
- support the establishment of local or regional Waste Minimisation Clubs and Networks;
- initiate or facilitate research to identify potential constraints and incentives with regard to waste prevention/minimisation initiatives;
- provide advice and support on all aspects of waste prevention and minimisation to relevant stakeholders, by means of
  - training programmes,
  - the provision of help-line services, and
  - the publication of procedural manuals and other relevant guidance;
- finance or initiate appropriate R&D and demonstration projects that can provide visible and factual evidence of the benefits of specific waste prevention and minimisation initiatives;
- monitor and evaluate international developments in relation to best practice;
- establish and finance a best practice programme and ensure effective dissemination of results;
- monitor and evaluate waste audits and waste reduction programmes submitted on foot of statutory requirements (see paragraph 2.4.2), engage with businesses concerned to support consequent waste reduction initiatives, and liaise with local authorities in support of their enforcement function in this area; and
- report annually on progress achieved.

2.3.4 Funding

All relevant stakeholders with a developmental or promotional role will be expected to provide complementary funding by means of direct subvention of the Prevention Programme or through increased financial commitments to enhance service delivery within the overall scope of the Programme.

The Principle of Producer Responsibility requires industry and business to contribute to the cost of minimising the environmental impact of their activities. In any event, experience indicates that a successful Prevention Programme will result in cost savings, to industry in particular, through reduced waste treatment and disposal costs, greater process efficiencies and better innovation. Accordingly, an equitable mechanism will be developed through which an acceptable level of financial contribution will be provided, directly or indirectly, by industry in support of the National Waste Prevention Programme. IBEC and the SFA, as well as the Enterprise Agencies, are being invited to make proposals in this regard. As benefits will accrue to business utilising the services of the Prevention Programme it is expected that business will significantly fund its cost by purchasing those services.

Arrangements for the Core Prevention Team will

be put in place in 2002.

2.4 Legislative and Other Government measures

A number of initiatives will now be undertaken to underpin the National Waste Prevention Programme. The business community has most to gain in supporting waste prevention measures in terms of efficiency in production costs and reduction in waste management expenditure. The Government, therefore, invites the business community to support and participate in the National Waste Prevention Programme.

Initiatives to support the programme are outlined below:

2.4.1 General Obligation regarding Waste Prevention and Minimisation

Under the Waste Management Act 1996, there is a general legal obligation on those carrying out any agricultural, commercial, industrial and manufacturing activity to take all reasonable steps (including better product design) to minimise the production of waste from their activities and from any product manufactured as a result. The Minister for the Environment and Local Government is empowered to regulate any particular activity for the purposes of preventing or minimising waste. Research will be commissioned under the National Waste Prevention Programme to determine an appropriate approach and methodology to implement this legal requirement in a systematic manner, and to provide clear guidance to various sectors as to how best they may fulfil their legal obligations in this area.

2.4.2 Waste Audits and Waste Reduction Programmes

A Waste Audit represents a systematic study of the waste management practices of an organisation. It promotes efficient use of resources within the organisation and contributes to a greater awareness of present and potential problems and the means of solving them.

The main objectives of a Waste Audit are to:

- identify and document the management of waste and the use of resources within an organisation;
- improve the overall environmental performance of an organisation in relation to waste management;
- identify cost savings (in terms of resource usage, waste minimisation, etc.) within an organisation; and
- promote environmental awareness within the organisation.

A Waste Audit is an essential first step in identifying and documenting the baseline situation and the conditions that exist within an organisation. Such audits will also serve to accelerate the development and implementation of an effective Waste Reduction Programme and Environmental Management System within organisations.

Based on advice from the Core Prevention Team, regulations will be introduced to require businesses to conduct waste audits, and implement consequent waste reduction programmes, in relation to their activities. These obligations will apply to concerns which do not already operate a recognised environmental management system or which are not subject to IPC licensing by the EPA. The Core Prevention Team will be asked as a priority to develop criteria for the introduction of waste audits and for the proper and effective conduct of waste audits by the business sectors involved.

The Public sector must also play its part in reducing the production of waste. See Chapter 8 on Public Sector Waste Management .

2.4.3 Awareness of the Benefits of Waste Prevention and Minimisation

Creating awareness of the benefits of waste prevention and minimisation initiatives is a key element in promoting sustainable processes and products. Part of the Core Prevention Team's remit will be to ensure that business is made aware of the advantages of participating in the Programme.

The National Waste Management Board will be mandated to take on a strong role in developing waste management awareness raising and educational campaigns generally. In this regard it is recognised that schools should be a major target of such campaigns as this is a particularly effective way of building up long term benefits of environmental awareness.

The Department of the Environment and Local Government will, as a part of its environmental awareness campaigns ensure that the waste prevention and minimisation message is delivered effectively.

In addition, ENFO, the environmental information service of the Department, provides a substantial resource for awareness, education and research on environmental matters within Ireland. Special emphasis will be placed on waste prevention and minimisation initiatives in the design of future programmes and exhibitions.

A systematic programme will be put in place to deliver better waste management performance by all public authorities; this will encompass measures for the prevention and minimisation of waste arisings. The programme is outlined in more detail in Chapter 8.

2.4.4 Implementation of waste management plans

The regional waste management plans identify the need for local authority action in relation to the prevention and minimisation of waste, and typically provide for the appointment of -

- Environmental Education Officers within each authority, to promote and foster waste minimisation in communities, schools, industry etc.; and

- Regional Industrial Waste Minimisation Officers to increase awareness, especially among small-to-medium enterprises (SMEs) and provide training and support for local minimisation initiatives.

The Core Prevention Team will be able to reach a wider audience in the SME sector by using the Regional Waste Minimisation Officers as contact points. In turn the Waste Minimisation Officers may need to refer SMEs to the Core Prevention Team for the provision of specialist advice and services.

chapter three

the current situation

recycling waste

3

recycle

Constraints on the Improvement of Irish Recycling Performance

The European Experience - How We Compare

Challenges for the Future

Collection Infrastructure

Reprocessing and Recycling Infrastructure

Current Recycling Performance in Relation to Priority Waste Streams

Overview of Ireland's Infrastructural Deficit

This Chapter discusses the current status of waste recycling in Ireland. Detailed actions to promote re-use and recycling (including biological treatment) are set out in Chapters 4 to 7.

Where reference is made to waste recovery, this encompasses the recovery of waste to facilitate re-use, recycling (including biological treatment) or energy recovery.

3.1 Constraints on the Improvement of Irish Recycling Performance

Some of the more significant constraints on recycling activity in Ireland, historically, have been:

- the ready availability of cheap landfill facilities;
- public and business indifference to waste management and the absence of a tradition of recycling within society;
- a perception of the inconvenience of recycling;
- the degree of contamination within material collected for recycling;
- undeveloped and fluctuating markets for recyclables;
- the absence of an adequate system of waste charges;
- low population which has hampered economies of scale;
- the lack of available recycling and reprocessing facilities and lack of access to the facilities which do exist.

There have been major changes in the Irish economy in recent years. The demographic structure and settlement patterns of the country are also changing. There is considerable potential for enhanced North/South and East/West co-operation to create economies of scale for recycling initiatives. Accordingly, earlier reasons for poor performance should not now impede the necessary measures that must be undertaken to increase the level of recycling within Ireland.

3.2 The European Experience – how we compare

A European Commission report in 1999 (see table opposite) on the implementation of waste legislation within the European Union, based on official data from Member States, indicates that -

- Ireland falls within the middle range for the generation of waste arisings per capita;
- The percentages of *reported* waste recycling differ widely from 0% to 44%. Only three Member States achieved a recycling rate of 40% or above whereas 3 States did not report any recycling. The EU mean was 15%. Ireland at 7.8% in 1995 falls in the lower range for recycling;
- thermal treatment with energy recovery is utilised by almost all other EU Member States and plays a significant role in waste management practice within most of these (seven Member States reported thermal treatment of between 23% and 55% of municipal solid waste arisings); and
- the target of 35% recycling of municipal solid waste set out in *Changing Our Ways* is a realistic ambition.

It should be noted that there are inconsistencies within the data submitted to the EU by individual Member States which are reflected in the table. These make direct comparisons difficult. The figures do not measure the extent of recovery by re-use in individual states.

The European Commission has also published data on the management of packaging waste within the European Union, which indicate that Ireland's recycling rate for packaging waste is very much in the lower range of EU performance, although Ireland expects to have met the target of 25% recovery of packaging waste in 2001.

Centralised composting facilities for the treatment of organic wastes are well established in other EU countries. In 1997 around 15% of the organic waste fraction of municipal solid waste in the EU was centrally composted. Within this average, Holland, Denmark, Austria and Germany achieved high composting levels of between 45% and 90%. There is clearly good potential for a greatly improved performance in the composting of organic waste in Ireland.

Management of Municipal Solid Waste within EU Member States

Country	Population (million)	Total Arisings (tpa)	Unit Arisings (kg/head)	Recycled (tpa)	Thermal Treatment (tpa)	Landfilled (tpa)	Other Treatment (tpa)	Date of Data
Austria	7.7	2,775,000 (100%)	360	1,263,000 (45.5%)	431,000 (15.5%)	1,261,000 (45.4%)	0	
Belgium	10	4,632,562 (100%)	463	1,828,359 (39.5%)	1,323,336 (28.6%)	1,480,867 (32.0%)	0	1997
Denmark	5.2	2,767,000 (100%)	532	777,000 (28.1%)	1,545,000 (55.8%)	428,000 (15.5%)	16,000 (0.6%)	1996
Finland	5.0	980,000 (100%)	196	169,669 (17.3%)	32,013 (3.2%)	560,229 (57.2%)	218,089 (22.3%)	1997
France	56.0	26,000,000 (100%)	464	1,500,000 (5.8%)	10,500,000 (40.4%)	12,200,000 (46.9%)	1,800,000 (6.9%)	
Germany	79.0	39,068,000 (100%)	495	11,562,000 (29.6%)	8,992,000 (23.0%)	17,904,000 (45.8%)	-	1997
Greece	10.0	3,197,000 (100%)	320	226,000 (7.1%)	1,000 (0.0%)	2,970,000 (92.9%)	-	1992
Ireland	3.5	1,503,171 (100%)	429	117,732 (7.8%)	0 (0%)	1,383,439 (92.2%)	-	1995
Italy	58.0	25,400,000 (100%)	438	-	1,400,000 (5.5%)	24,000,000 (94.5%)	-	1995
Luxembourg	0.4	207,534 (100%)	519	14,952 (7.2%)	115,559 (55.7%)	77,023 (37.1%)	-	1997
Holland	15.0	7,945,000 (100%)	530	3,520,000 (44.3%)	3,220,000 (40.5%)	1,205,000 (15.2%)	-	1997
Portugal	10.0	3,480,000 (100%)	348	-	-	3,060,000 (87.9%)	420,000 (12.1%)	1994
Spain	39.0	14,296,000 (100%)	367	-	625,000 (4.4%)	11,901,000 (83.2%)	1,770,000 (12.4%)	1994
Sweden	8.5	3,200,000 (100%)	376	500,000 (15.6%)	1,300,000 (40.6%)	1,200,000 (37.5%)	200,000 (6.3%)	1994/ 1995
UK	57.0	26,500,000 (100%)	465	1,868,000 (7.0%)	2,316,000 (8.7%)	22,080,000 (83.3%)	236,000 (0.9%)	1995/ 1996
EU	364	161,951,260 (100%)	445	23,346,712 (14.4%)	31,800,908 (19.6%)	101,710,550 (62.8%)	4,660,089 (2.9%)	-

Source: Implementation of Waste Legislation within the European Union [Report COM (1999) 752 Final], prepared by the European Commission and issued 10th January 2000.

3.3 Challenges for the Future

If Ireland is to achieve waste recycling levels comparable to best European Union practice, the challenges to be overcome include:

- creating appropriate social, economic and environmental conditions to facilitate increased levels of waste re-use, recycling and energy recovery, including, where necessary, by the appropriate use of economic instruments such as levies to create those conditions;
- influencing public attitudes so that a recycling culture replaces the 'throw away' society;
- motivating business and industry to practice responsible behaviour in waste prevention/recycling;
- implementing separate collections systems for waste that is segregated at source by producers (including householders);
- undertaking sorting and pre-treatment of separately collected wastes at appropriate facilities;
- reprocessing of wastes delivered to required specifications into useful recycled products;
- ensuring that mechanisms are put in place to overcome fluctuations in market prices for recyclable material; and
- successful marketing of the recycled products.

3.4 Collection Infrastructure

Waste collection practice is set to change significantly, and there has already been a steady improvement in infrastructure for the collection of recyclable materials. There are basically two distinct types of collection systems for recyclables –

- "bring" systems, which entail the provision and servicing of "bring banks" for the collection of glass, metals, paper, plastics and textiles, and "civic amenity facilities" where the public can additionally deposit bulky waste items such as electrical goods and DIY waste as well as hazardous materials such as batteries and waste oils; and
- "collect" systems, where a specialist vehicle is provided for the collection of recyclable waste materials that have been segregated at source. This includes both "kerbside" (domestic) and "commercial" collections.

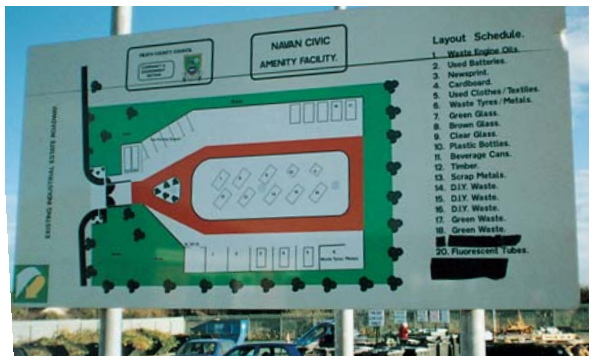
3.4.1 Bring banks

There are now an estimated 1,300 Bring Banks throughout the country. This indicates a density of one facility for every 3,000 population, though there are significant variations. Only one local authority area has achieved a density of 1:1000 population. It is estimated that the EU average is 1:1200.

There are a small number of integrated recycling schemes which have been developed in partnership with private enterprise in rural population centres in certain areas; where these operate they provide a dense network of convenience bring centres for use by the public. The regional waste management plans provide for an expanded network of multi-material Bring Banks, particularly in rural areas which are unsuited to kerbside collection systems, with a typical target density of between 1:500 population and 1:1000 population.

3.4.2 Civic Amenity Facilities

The National Waste Database reported that, in 1998, there were a total of 38 Civic Amenity Facilities. A number of additional facilities have been opened in the interim. Considerable efforts have been made in recent years to improve both the standards of design and operation as well as the range of materials accepted at these facilities. The regional waste management plans provide for an expanded network of an estimated 85 modern civic amenity centres strategically situated throughout the country. This network will provide the public with convenient and accessible facilities to cater for the reception, storage and transfer to appropriate processing facilities of a wide range of



recyclable materials and "green" wastes, as well as household hazardous wastes.

3.4.3 Separate Collection of "Dry" Recyclables

The former "Kerbside Dublin" pilot scheme for the collection of segregated dry (i.e. non-organic) recyclables from households has now been replaced with a considerably upgraded kerbside collection scheme (initially for paper and metals) in the Dublin Region. The scheme, which is operated by a private concern on behalf of the Dublin local authorities, serviced some 156,000 households in the region by December 2001, and progressively will extend up to 280,000 households (80% of those in the Region). Segregated collection schemes have also been introduced in Galway, Nenagh and parts of Louth and Meath. The regional waste management plans generally provide for the progressive establishment of segregated collection services for dry recyclables in all urban areas where it is economically feasible.

3.4.4 Separate Collection of Organic Waste

Pilot segregated collection services for household organic waste (kitchen (food) and garden (green) waste) have been established in Cork, Waterford, Limerick, Galway, Nenagh and Tralee, and experience to date has been very encouraging. The Regional Waste Management Plans generally provide for the progressive development of the segregated collection schemes, to include source separated biowaste from both households and commercial/institutional producers.

3.4.5 Collection of hazardous wastes

Large industry utilises commercial hazardous waste collection services which transfer hazardous wastes to recovery and disposal facilities in Ireland and abroad. However these services are generally not availed of by generators of small amounts of such waste which arise in Small to Medium Enterprises (SMEs), services, agriculture sectors or by households.

Local authorities are increasingly contracting for the provision of mobile collection services ("chemcars") which make regular collections of hazardous wastes from householders and small businesses at pre-determined drop-off points.

3.4.6 Material Recovery Facilities

There are currently a number of Material Recovery Facilities (MRFs) in operation to facilitate the separation and recovery of mixed or partially commingled dry recyclables (paper, glass, metals and plastics). These Material Recovery Facilities are generally compact and place considerable reliance on manual sorting. In addition, there are a number of private facilities for the segregation of commercial and construction & demolition (C&D) waste streams. These facilities have historically operated on a strictly commercial basis and have been routinely taken out of commission during periods of depressed market price for materials such as cardboard and paper. The Repak Payment Scheme (see paragraph 6.4.1), has improved the economics of such facilities and helps to ensure that cash flow can be maintained during periods of low market value for recyclables. The Regional Waste Management Plans provide for a network of

10 strategically situated MRFs throughout the country to cater for the reception, separation, pre-treatment and transfer to reprocessors of all dry recyclables originating from municipal Bring Banks, Civic Amenity Facilities and "kerbside" collection services.

3.5 Reprocessing and Recycling Infrastructure

Recycling infrastructure for commercial and domestic waste is relatively undeveloped in Ireland. The EU-funded Operational Programme for Environmental Services 1994-99, administered by the Department of the Environment and Local Government, allocated a total of nearly €10.16 million to assist some 70 or so private sector and local authority recycling projects, supporting total expenditure in excess of €25.4 million. Almost €3.8 million was also allocated to 10 projects involving handling and treatment facilities for hazardous wastes. However, there are still significant infrastructural deficits.

A Recycling Directory of Ireland – A Guide to the Reprocessors and Recyclers in Ireland was published by NI 2000 and the Tipperary Rural and Business Development Institute in February, 2001. This provides comprehensive information on material recyclers and reprocessors operating throughout the island of Ireland. Details are available on *www.irelandrecycling.ie.*

3.5.1 Glass Processing Facilities

Virtually all container glass (bottles and jars) collected within Ireland has been used for the production of cullet.

To date, the primary outlet for glass recyclate in Ireland has been the Irish Glass Bottle Company (IGB), which accepted glass in crushed form (i.e. cullet). However, the announcement on 28 February, 2002 that the Irish Glass Bottle Company in Ringsend was to close presents a challenge to identify alternative outlets for glass. Use of cullet in glass manufacture has been estimated at approximately 50,000 tonnes.

A modern cullet production plant has been developed by the Rehab Recycling Partnership (RRP), with a potential capacity of up to 40,000 tonnes of cullet per annum, depending on its intensity of operation (actual output is about 25,000 tonnes per annum). This plant can produce cullet in accordance with the stringent colour and material specifications, through an almost entirely automated process. Rehab Recycling Partnership proposes to expand its overall output considerably over the next two years. A modern glass manufacturing plant has also been developed in Northern Ireland, which receives a small amount of glass cullet originating from the South. There are also a number of less sophisticated glass crushing plants in operation.

While most of the glass collected for recovery is green (mainly wine and beer bottles), there is greater demand for clear glass cullet for the production of new containers. A growing imbalance between supply and demand is resulting in a surplus of green cullet for which it is difficult to obtain markets. This is the case in other northern EU countries also. A pilot project on the N2 in Co. Monaghan has used green glass as an element of the aggregate within the bituminous road base. While this offers a potential new outlet, the use of glass is more expensive than traditional materials.

There have traditionally been few collections organised in Ireland to facilitate the recovery of flat or plate glass. Waste plate or flat glass is technically suitable for use in the remanufacture of glass containers, but the segregation, collection and reprocessing operations would require very strict control and management so that the material could be used to produce a consistent quality of cullet capable of meeting the stringent specifications for container glass. However, there appears to be adequate international demand for flat glass to cater for all such glass that can realistically be collected within Ireland (primarily from the manufacturing and construction and demolition industries).

3.5.2 Paper Reprocessing Facilities

There are currently around 37 private companies operating in Ireland which collect paper for recycling. There is only one commercial paper mill in Ireland, which is operating at full processing capacity of c. 40,000 tonnes per annum and can accommodate no additional recycled paper. Export markets have been identified which will accept all waste paper materials that are generated. International markets for recyclable paper are currently recovering from a cyclical downturn in demand and market price. However, the value of waste paper on these markets is variable and a significant charge can be imposed by collectors to cover the cost of paper recycling when prices are depressed. Some small enterprises have developed shredding facilities to supply animal bedding and there is a growing market in shredded paper for this use.

3.5.3 Metal Reprocessing Facilities

In 2000, some 184,000 tonnes of ferrous metals were collected for recycling in Ireland. Approximately half of the collected metals were sent abroad for reprocessing with most of the remainder being processed by the Irish Ispat steel mill in Cork. With the closure of Irish Ispat, all this metal must now be exported. Recovered steel cans must currently be sent to the UK for reprocessing.

There is some limited domestic reprocessing capacity for non-ferrous metals (e.g. aluminium and tin). Non ferrous metals are also exported abroad for reprocessing.

The market for metal recyclables is currently at a low level, at a time when scrap metal merchants also face increased costs in upgrading existing facilities to meet higher environmental protection requirements arising under new permitting obligations.

Paradoxically, increased landfill costs can adversely affect metal recycling. Waste generators, seeking to avoid high landfill charges, are now diverting to metal recyclers scrap which contains less recoverable metal than heretofore. Accordingly, a greater amount of unavoidable residue is produced by metal recyclers, with associated cost implications.

3.5.4 Plastic Reprocessing Facilities

There are a number of commercial plastic granulation plants in operation in Ireland which concentrate on significant sources of plastic waste materials. A network of suppliers who typically collect industrial and supermarket plastic waste as well as plastics accumulated from "bring" centre and kerbside collections generally service these plants. Some of these operations also reprocess the granulated material into products such as plastic refuse sacks and shopping bags.

Around 6,000 tonnes of farm plastics (bale wrap) are recovered annually – representing some 40% of farm plastics placed on the market. Most of this plastic is sent to the UK for reprocessing.

One factory in Co. Cavan manufactures fibres for use as insulation material in jackets etc. from recycled PET fibres (derived from recycled plastic soft drink bottles). The PET bottles are processed initially in Holland from reclaimed beverage containers.

Collected waste plastics are generally regranulated for subsequent use in the manufacture of new plastic products. However, collection and recycling of plastics is especially problematic. This is because there are a large number of different plastic materials within the waste stream, and these are difficult to distinguish - many items also contain a number of different grades of plastic. End market specifications for recycled plastic are very high - in many situations, segregation into individual plastic material types must be absolute. In addition, the weight to volume ratio of the plastic is very low - this creates problems for economic transportation of recyclate.

As plastics are a derivative of the oil refining industry, the cost of virgin plastic is closely related to the "spot price" of oil, and this largely determines the market value of recycled plastic granulate, thereby creating an obstacle to the development of long term contracts and forward business planning.

3.5.5 Timber

There is a healthy market in shredded timber for use in the manufacture of medium density fibreboard (MDF). Most major Waste Contractors have suitable equipment and routinely undertake the shredding of waste timber. A number of Waste Services' Contractors and Recycling Enterprises are actively engaged in the shredding of timber pallets. First Grade (unimpregnated) shredded timber is typically sold to the chipboard manufacturing companies. Second Grade wood chippings (impregnated) can be used as an industrial boiler fuel. Unimpregnated shredded timber can also be used to produce compost.

3.5.6 Textiles

There are a number of facilities for the sorting and grading of collected textiles. High quality garments are offered for resale in second-hand retail outlets, while the lighter fabrics are exported to Third World countries for re-use. Textiles of marginal quality are cut into uniform pieces for use as industrial cleaning cloths.

3.5.7 Biological Treatment Facilities

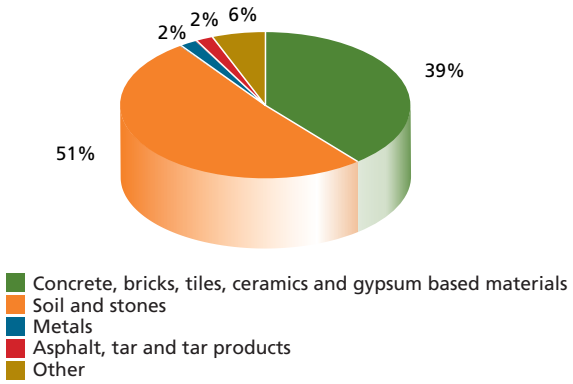
As mentioned in paragraph 3.4.4, there are a number of small centralised composting facilities supporting the pilot biowaste collection services in Limerick and Kerry, as well as a number of "green waste" composting facilities which cater for the processing of clean garden and landscaping wastes.

The Regional Waste Management Plans provide for the construction of 16 – 17 central composting facilities strategically situated in each region. In addition, some local authorities have introduced, or intend to introduce, pilot home composting systems.

3.5.8 Construction and Demolition (C&D) Waste Recycling Facilities

Two facilities with significant capacity have been established for the processing of the construction and demolition waste that is delivered to municipal landfill sites in Dublin and Cork. There has also been an increased trend towards the crushing of demolition concrete and masonry for beneficial re-use as recycled aggregates on individual construction sites. The Regional Waste Management Plans provide for the development of around 18 C&D waste recycling facilities, to be located close to major raw material sources and potential product markets. This network will be supported by the provision of mobile crushing plant to serve population centres in rural areas where stockpiles of C&D waste are accumulated. The 1998 National Waste Database Report notes that some 2.7 million tonnes of C&D waste was reported as having been accepted at landfill sites in Ireland. It is estimated that some 1.17 million tonnes (43%) of this waste was beneficially used in landfill sites for engineering purposes, as daily cover material and for final capping to facilitate landfill restoration.

Estimated Compostition of Construction & Demolition Waste in Ireland



3.6 Current recycling performance in relation to priority waste streams

In a resolution in 1990 on waste management policy, the European Council of Ministers asked the European Commission to draw up action programmes on specific categories of waste. These waste streams include End-of-Life Vehicles, used tyres, construction and demolition waste, waste from electrical and electronic equipment, packaging waste, batteries and accumulators, PCBs and waste oils. These are known as priority waste streams. (See also Chapter 6 on Producer Responsibility initiatives.)

3.6.1 End of Life Vehicles (ELVs) and Waste Tyres

Statistics indicate that the number of End-of-Life Vehicles (ELVs) has risen dramatically over the last number of years in Ireland, from some 55,000 in 1993 to 160,000 in 1999. In Ireland today, it has been estimated that some 75% of ELVs are recovered/recycled, mainly for metals. The sector operates on two levels. End-of-Life vehicles are usually sent to dismantlers where useful components are recovered. The dismantling business consists of many small scale operators with widespread distribution throughout the country. Once dismantled, the hulk of the vehicle (either crushed or whole) is sent to a specialised shredder operation where metals are extracted. The remaining shredder waste (plastics, foams, textiles etc) must be sent for disposal. Shredders exist in Dublin, Cork and Limerick. Some ELVs in the Border area are also sent to Belfast for shredding. While the dismantling and shredding sector is long established and efficient, new standards required under the EU Directive on ELVs will require higher environmental treatment of end-of-life vehicles and greater recycling/recovery rates for parts and materials.

An Irish Tyre Industry Association survey in 1999 found that approximately 70% of waste tyres are used by farmers for compacting and covering silage pits, 18% are suitable for retreading and the remaining 12 % are used for other purposes or landfilled. There are no reports of widespread fly tipping of tyres. Farming use will decline as plastic wrap is increasingly used for silage baling. Furthermore, the EU Landfill Directive will require used whole tyres to be banned from landfill from 2003 and shredded tyres to be banned from 2006. Alternative outlets will have to be developed, in accordance with the principle of producer responsibility, to cater for the recycling/recovery of waste tyres – see Chapter 6.

3.6.2 Electric and Electronic Waste

Ferrous and non-ferrous metals constitute the largest proportions of electric and electronic waste. As a consequence, the well-established scrap metal industry targets these items for recovery. This waste is shredded and subjected to separation processes – the metal from a large range of "white" goods is extracted for recycling in this manner. Non metallic residues are normally sent for disposal and there is also a limited amount of illegal dumping or fly-tipping. However, new EU regulations requiring the extraction and destruction of insulating foam in fridge and freezers containing ozone depleting substances mean that alternate ways of dealing with this waste stream must be developed.

There is also a growing refurbishment sector which repairs and upgrades existing computer equipment which can be passed on to schools, charities and voluntary groups. Used printer cartridges are also collected for remanufacture.

Funding was provided in 2001 under the EU *Life Environment Programme* for a proposal by Dublin City Council, (Heatsun) for Community Based Action for prevention, re-use and recycling of waste electronic and electrical equipment.

3.6.3 Batteries

Batteries consume more than 35 times the amount of energy during production than they are capable of producing in their life-time. They also have the potential to cause significant problems for the environment at the end of life stage as a consequence of their toxic and hazardous constituents.

Lead acid batteries

A battery collection service for waste lead acid batteries has been established on a commercial basis by the private sector. This initiative entails the provision of collection containers at convenient locations throughout the country, including garages and industrial premises. A number of facilities are also available for use by the public at municipal Recycling Centres and petrol service stations. The mixed plastic fraction is exported and the lead recovered. This waste stream is targeted by scrap merchants, and a number of businesses are involved in the export of whole waste lead-acid batteries.

There are a number of processing facilities within Ireland that have significant additional capacity for the crushing and baling of all lead-acid battery arisings.

Small batteries

There is limited infrastructure available for the collection of small batteries, though some waste contractors collect such batteries from customers as an additional service. A Schools Battery Recycling scheme operates in County Kildare. These are exported for treatment in an environmentally responsible manner. The vast majority of small size batteries are disposed of within the normal municipal waste stream.

3.6.4 Waste Oils

In excess of 35,000 tonnes of lubrication oil are used annually in Ireland, from which some 24,000 tonnes of waste oil arises. Some 50 % of waste oil is recycled.

Waste oil recovery is carried out on a commercial basis at Portlaoise, and collection services are directly available to industry, shipping companies and garages. Waste oil collection receptacles are usually provided at local authority civic amenity facilities and are also available at a number of recycling centres situated within service stations.

3.7 Overview of Ireland's infrastructural deficit

Strategic waste management planning, in line with *Changing our Ways*, has identified that there is a clear need rapidly to develop an integrated network of appropriate facilities for the collection, sorting and treatment of recyclables. They must be designed to generate good quality segregated

waste that is suitable for delivery to reprocessing and biological treatment facilities.

- The primary collection infrastructure can readily be provided by or on behalf of local authorities, or by the private waste industry;
- A network of centralised biological treatment facilities is required to deal with organic and green wastes. This requirement is only now beginning to be addressed, but the provision of the necessary capacity is readily within the scope of local authorities and the private waste industry, once segregated collection services are implemented;
- Ireland has relatively little indigenous reprocessing capacity for materials, with the exception of wood.
- Following the announcement of the proposed closure of the glass manufacturing facility in Ringsend, alternative outlets for glass need to be identified;
- A significant amount of recovered paper is sent abroad for reprocessing, and additional reprocessing capacity represents a potential business opportunity in Ireland to cater for the increasing amount of paper being recovered. However, the installation of further reprocessing capacity in this sector would be costly and will be driven by clear commercial considerations on the part of the paper industry;
- The metal recycling industry in Ireland is well developed and has the capacity to recover waste metals. Following the closure of Ispat, all ferrous metals must now be exported for reprocessing and it is difficult to envisage an economic case for the provision of reprocessing capacity in Ireland;
- Reprocessing capacity for plastics is very limited. However, such facilities can typically operate on a much smaller scale than, for instance, paper or steel mills. Relatively small-scale specialist facilities are technically and economically feasible, if an adequate and reliable supply of good quality waste plastics can be assured.

The waste management plans are radically altering the manner in which we deal with waste with a major emphasis being placed on prevention, re-use and recycling initiatives. The following chapters set out the Government's proposals for action to support these plans so as to recover and recycle more of the waste which we create.

chapter four
promoting re-use

4

re-use

Re-use means the use of a product on more than one occasion, either for the same purpose or for a different purpose, without the need for reprocessing. Re-use avoids discarding a material to a waste stream when the initial use of the product has concluded. It is more preferable that a product be re-used in the same state, since it will not then require additional processing involving a further input of energy and raw materials.

Re-use can be increased through the repair and renovation of products, their donation to charitable causes or by direct resale of the used materials.

Key Actions
Re-use of waste is the next preferred option on the waste hierarchy after prevention and minimisation.

The Government will –

- **Promote voluntary action by relevant sectors of industry to implement re-use systems or where necessary, apply appropriate policy instruments to ensure the implementation of re-use systems in situations where this practice represents the Best Practicable Environmental Option;**
- **Implement the 15 cent levy on plastic shopping bags and encourage their substitution by re-usable bags;**
- **Support EU initiatives to increase re-use, including where appropriate mandatory re-use targets;**
- **Encourage the re-use of non-packaging products;**
- **Promote the use of internet "waste exchanges" and "swap shops";**
- **Develop guidance on refurbishment and re-use of IT equipment, including computers.**

4.1 The Challenge of Promoting Re-use Systems

Organised re-use systems can lead to employment opportunities - international studies indicate that the use of reusable packaging can create up to 75% more jobs than corresponding one-way packaging systems. However, a number of factors have contributed to the decline of traditional re-use systems –

- increased automation and high labour costs, together with cheap primary raw materials, have placed labour intensive dismantling, recuperation and refurbishment activities at a competitive disadvantage;
- increasing centralisation of production results in greater transport distances for re-usable product systems, increasing costs and reducing environmental benefits;
- increasing marketing convenience and "built in obsolescence" in product design.

Re-use will not necessarily provide the Best Practicable Environmental Option (BPEO) in every circumstance. It may be environmentally preferable to pursue a recycling or energy recovery option, where there is extensive transport, energy use or chemical washing associated with the collection, recuperation and redistribution processes that are necessary to facilitate the re-use of a material or product. In this regard, national and local circumstances must be taken into consideration when deciding upon the Best Practicable Environmental Option. However, a number of available policy instruments have potential to promote more economically viable conditions for re-use of discarded materials where this represents the Best Practicable Environmental Option. These are primarily -

- economic instruments which increase the cost of primary raw materials and waste disposal; and
- the introduction of specific producer responsibility obligations.

It should be noted that work undertaken under the National Waste Prevention Programme (Chapter 2) in relation to product design will also contribute to increasing the re-usability of products and components contained in products. Similarly, measures undertaken in support of increased recycling (Chapter 5) will support wider re-use by ensuring that greater amounts of material are made available for recovery instead of being sent for disposal.

4.2 Re-Use of Packaging Products

In principle, apart from a few exceptions, all goods that are delivered in primary one-way packaging can technically be packaged in reusable packaging. The principal types of reusable packaging are glass containers, for example bottles and jars, as well as large volume metal and plastic transport packaging such as pallets, barrels and crates. Rigid packaging which also fulfils a secondary storage function while awaiting use at the consumer's premises is the predominant reusable product stream. This type of usable packaging can be used extensively for beverage products.

Regional products, characterised by distribution over short distances, are particularly well suited to re-use systems from both an economic and environmental perspective. Re-use packaging is established in more than 50% of the beverage markets in Europe, operating satisfactorily and resulting in a high economic and environmental benefit. However, technological development (e.g. new preservation techniques for milk) and the growth in non-carbonated beverage markets have facilitated the use of an alternative lightweight, flexible one-way packaging for this range of products. In addition, the high cost of property has reduced the attractiveness of re-use systems that require the provision of storage facilities within retail outlets. Accordingly, traditional re-use systems have, for commercial reasons, been abandoned for many beverages and are no longer available to consumers within Ireland.

The EU and Irish performance in relation to re-use packaging for beverages is indicated in the Table below.

There may be scope for improvement in the use of reusable containers (e.g. glass) in the Irish beverage market. However, increased re-use can also lead to environmental disbenefits caused by the transport of significant additional weight and by additional transport and treatment required to facilitate re-use. Life Cycle Analysis is required to determine whether increased re-use in this situation represents the Best Practicable Environmental Option.

The obligations arising from the implementation of the Packaging Directive, and other proposed initiatives such as mandatory waste audits, will encourage business to reduce the amount of packaging which it places on the market. Mandatory re-use systems will be considered in appropriate circumstances in order to ensure that the requirements under the Packaging Directive are fulfilled.

Fiscal measures, such as the 15 cent levy on plastic shopping bags, can also be effective. In this case the levy reduces our dependence on disposable plastic shopping bags and encourages the reuse of bags.

Beverage	Percentage of Containers Reused in EU	Percentage of Containers Reused in Ireland
Mineral Water	41% (1997)	0%
Soft Drinks	38.5% (1996	< 10%
Beer	60% (1997)	17%
Milk	9%	0%
Wine	27%	0%

Source: Report on "Re-use of Primary Packaging" by Abfallberatung Müllvermeidung & Recycling for the European Commission (DG III) (2000)

4.3 Support for Initiatives at EU Level

One constraint on the use of policy instruments is that these should not restrict the movement of goods for trade in a free EU market, particularly in the case of imports and exports, or unnecessarily constrain industry. Individual Member States are therefore limited in the action which can be taken to prevent certain products or packaging being used.

At EU level, Ireland will support the development of specific obligations, Community-wide re-use targets and measures in circumstances where the re-use of certain discarded materials constitutes the Best Practicable Environmental Option (BPEO) in Irish circumstances and is both appropriate and desirable in waste management terms.

Product design can also facilitate re-use. The EU Directive on end-of–life vehicles will facilitate the dismantling sector in ensuring that cars can be more easily dismantled and components reused. The requirement to allow end-of-life vehicles to be taken back without cost to the final owner will also assist in maximising re-use. Similar provisions are contained in the proposed Directive on waste electronic and electrical equipment which will be adopted in 2002.

4.4 Re-Use of Non-Packaging Products

The re-use of products other than packaging can be less complicated as it is not always necessary to set up dedicated systems for collection, recuperation and redistribution. Basically, to secure the re-use of such items, it is necessary to:

- Identify a source of commonly discarded reusable items;
- Introduce arrangements efficiently to collect the targeted items before they are consigned for disposal; and
- Establish distribution organisations or retail outlets that can succeed in transferring the collected items (either free of charge or through resale) to individuals that are willing to use them again.

Useful items that are being discarded can be readily sourced through the introduction of well-focused door to door collections or the wider availability of convenient "drop off" centres. Civic amenity centres can also provide facilities for collecting goods which can be re-used. The materials can then be distributed through charitable organisations (e.g. St. Vincent de Paul) or alternatively sold at specialised retail outlets (e.g. Simon, Oxfam etc.). The success of these shops depends on the support which consumers give to them.

Re-use can be encouraged through educating the public in relation to the range of products which can be re-used and also regarding the operation of those organisations which accept products for re-use and resale. Individual consumers can maximise the re-use of materials in their daily lives by adopting a few simple techniques –

- use of a reusable shopping bag in preference to a disposable one;
- use of resealable containers for food in preference to disposable wrappings;
- use of rechargeable batteries;
- servicing and repair of household equipment in preference to the purchase of new equipment; and
- avoidance of the use of disposable products e.g. cups, plates, cutlery, razors, cameras etc.

The National Waste Management Board will be asked to advise on what practical measures can be taken to encourage further the re-use of non-packaged products.

4.5 Waste Exchanges and Swap Shops

Re-use can also be encouraged through the use of "waste exchanges" on the Internet. This is a virtual activity where the material, quantity and location of materials available for use are advertised on a website. This alerts people to the availability of reusable items and facilitates the operation of the market for recyclable materials. This is in addition to the well-developed specialised magazine and local newspaper sector which facilitates the re-sale of used products and goods.

A number of physical premises still remain (e.g. architectural salvage yards) where the public can purchase discarded items for beneficial re-use.

A "bring and buy" or a "swap shop" is a premises where people can both bring discarded goods to facilitate beneficial re-use and purchase products and goods for further use which have already been discarded by others.

Workshop facilities can also be provided at both swap-shops and waste exchange premises to enable discarded products to be recuperated for future re-use.

A number of these waste exchanges exist and their use will be encouraged, for example,through awareness campaigns, ENFO, environmental awareness officers etc. Consideration will also be given to providing support from the Environment Fund for viable swap shops.

4.6 Re-use of IT Equipment

A number of initiatives have been taken in various countries to refurbish redundant computers and other IT equipment for use by the voluntary sector, community groups and schools. The National Waste Management Board will be tasked to develop guidance for public authorities and business generally on how such initiatives can be developed.

promoting recycling of non-organic waste

chapter five

5 non-organic waste

Recycling involves the processing or treatment of a discarded waste material to make it suitable, in whole or in part, for subsequent re-use.

There are three distinct types of recycling;

- **mechanical or materials recycling, i.e. the reprocessing of waste without altering its chemical structure,**

- **feedstock recycling (also known as chemical recycling) of waste plastic materials, which involves altering the chemical structure of the materials; and**

- **biological treatment of organic materials (food and garden waste, paper), either by composting or technologies such as anaerobic digestion.**

Recycling has significant employment potential and supports the activities of voluntary and charitable organisations, as well as the Travelling Community. It is estimated that up to 85% of all household and commercial wastes are technically recyclable, although recycling performance is affected by many factors which impact on the feasibility of reaching such recycling rates, for example contamination of waste. It is therefore estimated that recycling is restricted to 70% of the potentially recyclable materials or 60% of the total waste streams.

The use of certain recycled materials in production processes can achieve significant energy savings. This is especially the case with glass, steel, aluminium and PET plastic. Recycling is the preferred waste management option after prevention and re-use, since it recognises and exploits the resource value of waste.

Key Actions
The Government will-

- **establish and support a Recycling Consultative Forum, operating under the aegis of the National Waste Management Board, to act as a consultative and advisory body on all aspects of recycling;**

- **provide €127 million in EU/Exchequer support for waste recovery infrastructure, including recycling infrastructure, in the period 2002 – 2006;**

- **introduce a landfill levy in 2002 and begin implementing national bans on landfilling specific materials;**

- **utilise revenues from the new plastic bag and landfill levies, through the Environment Fund (provided for under the Waste Management (Amendment) Act 2001) to assist waste recycling activities;**

- **in addition, provide €635, 000 seed funding for the establishment in 2002 of a Market Development Programme under the aegis of the National Waste Management Board which will identify and promote markets for recyclable material;**

- **under the direction of the North/South Ministerial Council co-operate with the**

Department of the Environment in Northern Ireland on the development of an all-island approach to developing markets for recyclable material;

- **exempt from planning permission, subject to conditions, the provision of bring banks;**

- **through Enterprise Ireland provide support for development of indigenous reprocessing industry.**

5.1 The Challenge of Promoting Recycling

Four key areas have to be addressed if Ireland's recycling performance is to be radically improved –

- better separation and sorting of waste at source, allied to segregated collection, to provide cleaner waste fractions and single material waste streams;
- provision of an adequate infrastructure for the collection and management of waste arisings;
- greater reprocessing capacity to convert waste into usable products or raw materials; and
- generation of markets and improved demand for recycled or recyclable materials, especially in the manufacturing and construction sectors.

Successful recycling of waste materials generally involves the development of a system that incorporates –

- the promotion of producer/consumer awareness so that the recycling of a discarded material is clearly recognised as preferable to disposal and that every reasonable effort is made to have it recycled;
- the education/training of producers/consumers to secure introduction of discarded material into the recycling system chain at the most convenient point and in the most appropriate form;
- collection of the recyclable materials (e.g. factory, supermarket, restaurant, household) as far as possible segregated at source;
- where necessary, sorting and separation (i.e. segregation) of co-mingled recyclables into individual recyclable material fractions;
- pre-treatment of recyclable materials (e.g. baling of cans, crushing of glass) into the form of marketable commodities for a manufacturing process;
- reprocessing of the recyclable materials (recyclate) into new product; and
- securing markets, and marketing the manufactured products.

Sustained commitment is required by public service agencies, waste services' industry, industrial commercial enterprises and domestic consumers to incorporate recycling practices into daily routine activities.

Failure or inefficiency in any of the above component activities mean that successful or effective materials recycling may be compromised.

Further details on recycling methodologies are contained in Appendix II.

5.2 Establishment of a Recycling Consultative Forum

A Recycling Consultative Forum will be established under the aegis of the National Waste Management Board to support the overall functions of the Board while providing a particular focus on recycling. The Recycling Forum will be broadly based and will include representatives of practitioners, regulators and NGOs.

Some of the more significant functions of the Recycling Consultative Forum will be to -

- prioritise the implementation of actions that have the potential to stimulate and encourage recycling - but are not yet being undertaken;
- provide policy advice on all aspects of recycling;
- investigate difficulties and constraints which exist in the recycling system and make recommendations on how these problems can best be overcome;
- co-ordinate and support the work of local authority environmental officers.

The Recycling Forum will be serviced by the National Waste Management Board.

5.3 Funding for Recovery Infrastructure

5.3.1 Assistance under the National Development Plan

The National Development Plan (NDP) anticipates some €825.5 million of capital investment in waste management in the period to 2006. The bulk of this investment will be in waste recovery facilities provided for in the regional waste management plans. Major infrastructural requirements under the NDP can best be addressed through the establishment of public private partnerships (PPP) delivering integrated regional solutions, and it is anticipated that at least €571.5 million of investment would be forthcoming under PPP arrangements. Additionally, local authorities will directly provide, or arrange for the provision of, supporting waste collection and management infrastructure.

Within this overall context, EU/Exchequer finance of some €127 million will be available under the NDP to support the provision of waste recovery infrastructure. Financial support will be made available towards -

- the capital cost of recycling infrastructure, for instance civic amenity sites, transfer stations, and biological treatment and materials recovery facilities, as provided for in regional plans; and
- the planning/procurement costs associated with the delivery of major regional infrastructure.

Up to €88.9 million will be made available in respect of recycling infrastructure over the period of the plan, with €38.1 million provided to support local authorities in the planning and procurement of major public private partnership projects.

5.3.2 Environment Fund

Revenues generated from the levies on the landfill of waste (see paragraph 5.6.2) and plastic shopping bags will be assigned to a central Environment Fund in support of appropriate waste management and environmental protection initiatives which could not previously be undertaken because of resource limitations. The Fund will facilitate the implementation of a range of initiatives in support of waste recycling, including -

- market development initiatives;
- support for waste recycling infrastructure (not otherwise supported under the NDP); and
- incentivisation of recycling performance by local authorities;
- research and development including demonstration projects;
- education and awareness raising, and public information etc.

Revenues from both levies may be expected to decline significantly over time as alternatives to single use plastic shopping bags are utilised and a range of policy initiatives substantially diminish the volumes of waste consigned to landfill. Environmental levies may however be extended to articles other than plastic bags, by way of provisional order made by the Minister for the Environment and Local Government and subject to confirmation by an Act of the Oireachtas. The desirability of extending environmental levies to further articles will be kept under review.

5.4 Source separation and segregated collection

Regional waste management plans generally provide for the development of segregated household waste collection services in all major urban areas. Householders will be required to segregate their waste into a number of distinct types of material waste. Initially, this will involve the segregation of specified dry recyclables and residual waste (i.e. non dry recyclables) in separate receptacles. When biological treatment facilities are available, biodegradable kitchen and garden waste will also be segregated and separately collected. Further source separation requirements (e.g. in relation to household hazardous wastes) may also arise in the longer term.

As indicated in Chapter 3, large-scale segregated collection services have already been launched in a number of areas. The collection service in the Dublin region is initially focusing on segregated collection of newsprint, cardboard packaging and cans (waste glass is not collected under these systems because of the risk of contamination of other materials by broken glass).

Local authorities should also avail of existing bye-law powers under the Waste Management Act 1996 to require commercial businesses to segregate waste at source, to facilitate subsequent recovery.

Under the permitting system for commercial waste collectors, authorities now have power to require

permitted commercial collectors to introduce and operate segregated collection services for householders and commercial outlets. These powers should be used in support of segregated collection schemes, as the requisite handling and treatment facilities become available.

As part of its commitment to recover packaging waste, Repak will provide an element of financial support for the development of segregated household collection services (see Chapter 6) in addition to its support of segregated collection from the commercial sector.

5.5 Supports for Increased Recycling

5.5.1 Extending the "bring" network

Regional waste management plans provide for the extension and upgrading of the "bring bank" networks, especially in rural areas that will not be served by segregated household collection schemes. In particular this will assist in maximising the recovery of glass. An increase in glass recycling is the most cost effective way to increase our overall recovery rate for packaging waste, due to high weight to volume ratio and the availability of reprocessing capacity both here and in Northern Ireland. (Additional capacity to produce cullet is also required to support the existing reprocessing capacity). Accordingly, it is important to build upon the progress achieved over the past number of years and improve the density of bring banks as soon as possible. Typically, a target density of one bank for every 500 to 1,000 households is intended, which would bring Ireland much closer to European norms than is currently the case.

Under the Planning and Development Act 2000, a planning authority may include, as a condition of a planning permission, requirements in respect of the provision of facilities for the collection and storage of recyclables. Planning authorities should routinely consider the scope for exercise of such powers, to facilitate the provision of bring banks when deciding on proposed developments such as shopping or service stations, as well as housing, and other developments.

To facilitate the rapid development of the bring bank network, the provision of such bring banks will be exempted from the requirement to obtain planning permission. This exemption is being made subject to certain siting and size restrictions to avoid the creation of nuisance.

5.5.2 Support for Recycling Business

The increased availability of recyclable materials for reprocessing, as regional waste management plans are implemented, will represent a clear business opportunity and encourage the development by industry of additional reprocessing facilities and capacity. Reprocessing activities that convert recyclable materials into new products or materials are equivalent to any other sector of manufacturing industry. Enterprise Ireland provides a range of financial and technical supports for indigenous manufacturing industry and will provide equivalent assistance for the development of indigenous reprocessing activities.

5.5.3 Grant scheme for small scale recycling projects

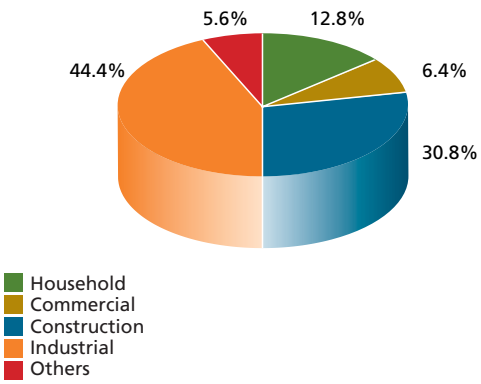
Certain thresholds apply before activities are eligible for support from Enterprise Ireland. Small-scale projects or proposals may also emerge which, directly or indirectly, have the potential to contribute to an improved recycling performance, but which require seed funding or general financial support. A grant scheme for such small scale recycling initiatives will be set up during 2002, with the advice of the Recycling Forum, and financed from the Environment Fund.

5.6 Diversion of waste from landfill

5.6.1 User Based waste charges

Waste charges levied by local authorities have not in the past reflected the full economic costs of the waste management services provided. Most households are now required to pay waste charges, and these are increasingly reflecting the economic cost of the provision of those services. Waste charges levied on commercial interests have increased significantly in recent times and

Summary of Major Waste Types Landfilled in Ireland in 1998



weighing of commercial waste presented by individual producers is now increasingly common among waste contractors.

As a matter of equity, and to directly incentivise waste prevention/minimisation and recycling, the level of waste charges imposed on households and businesses, either directly or through gate fees, should be based on usage. Accordingly, the Government expects that all local authorities will move towards introducing weight/volume related charging to the fullest extent possible within the next three years. This is in addition to the landfill levy which has been provided for under the Waste Management (Amendment) Act, 2001 and which will be introduced in 2002.

Research is underway on "The effects of weight-based charges for solid waste disposal" as an integral part of the Environmental Research, Technological Development and Innovation (RTDI) Programme (2000 – 2006). The outputs from this research project will add significantly to the information available on the subject and will improve the knowledge base in relation to the potential impact of weight related charges on Irish waste management practice.

5.6.2 Introduction of a Landfill Levy

The Government will apply a levy in respect of the landfill of specified wastes, to be introduced with effect from early 2002. This has been provided for in the Waste Management (Amendment) Act 2001.

Making the landfill disposal of waste more expensive will -

- incentivise the diversion of waste from landfill, especially towards options which are higher in the waste hierarchy;
- help offset the differential between the cost of waste disposal and of waste recovery, in particular materials recycling;
- encourage waste reduction measures by business and the general public;
- help internalise the external environmental costs of landfill; and
- generate revenues that can be applied in support of waste minimisation, recycling and other desirable waste management, awareness and enforcement initiatives.

It is intended that this levy will be payable by all landfill operators (local authority and private) and collected by local authorities, in accordance with new regulatory requirements. Consultants were appointed to review practice in EU Member States regarding landfill taxes, consider issues relevant to the design of the proposed levy – in particular issues such as its scope, levels or rates, exemptions, timing and use of revenues – and to make recommendations regarding its design, implementation and review.

Based on their findings and recommendations, clear and transparent proposals for the implementation of this levy have been published. It is intended to provide a framework of certainty, which will allow necessary investments in infrastructure to take place against a background of clear guidance on the introduction, rates of escalation of, and final levels of, the proposed levy.

5.6.3 Restrictions on access to landfill

A significant number of local authorities have short-term problems with landfill capacity. In a number of cases local authorities have decided to ban or restrict the landfilling of commercial waste to conserve capacity and extend the life of landfill facilities. This has provided an impetus for a more focused effort on the part of commercial waste producers and private sector collectors to recycle such waste.

In view of the current constraints, the Government expects local authorities, especially those committed to the joint implementation of regional waste management plans, to co-operate as far as possible in utilising existing capacity. In introducing restrictions on landfill access, local authorities should closely consult at an early stage with commercial interests in the areas affected, in order to secure mutual agreement on the orderly introduction of alternative arrangements.

Regional Waste Management Plans recommend a prohibition on the landfill of specific fractions of waste in appropriate circumstances (e.g. glass, paper, aluminium, construction/demolition waste, etc.) so as to develop and maintain a demand for the recycling of these materials. Such bans will also conserve landfill capacity.

To the extent that they operate landfills, local authorities will be in a position to institute such restrictions on a local level, as circumstances permit. However, alongside the provision of recycling infrastructure under the waste management plans, the Government will begin introducing national bans on landfilling of specific materials, utilising new powers provided under the Waste Management (Amendment) Act 2001.

5.7 Market Development for Recyclables

5.7.1 End Markets for Recyclables

The significant cost and effort associated with the segregation, collection, sorting, pre-treatment and reprocessing of recyclable materials demands that markets be developed to realise the full resource value of all recyclable material that is reclaimed. The market ultimately dictates the manner in which a material must be processed, which in turn determines the method by which the material must be collected and presented by producers and consumers. End markets for recyclables therefore play a fundamental role in the design of an integrated recycling system.

One of the main barriers to an improved and sustainable recycling performance is the lack of stable and economically attractive markets and outlets for recyclable materials. Market demand in Ireland is susceptible to instability and price volatility arising from developments in wider European and World markets. When demand for recyclate is high, prices for materials can rise rapidly to very attractive levels, but reduced demand, caused for instance by global economic or market developments, can lead equally rapidly to a very significant collapse in prices. This instability is an impediment to long term investment in the development of the reprocessing industry.

While improved waste collection services and infrastructure will ensure the availability of significant volumes of good quality recyclate from households and commercial enterprises, this greater availability does not necessarily mean that the materials collected can be recycled or put to some beneficial use in the absence of markets for the material.

It is important that every reasonable effort is made to incorporate recycled material into new products. Items in common use that can be successfully manufactured with a significant content of recyclate include glass beverage containers, paper, plastic and safety matting in leisure centres, street furniture etc.. Recycled materials generally should not cost more than goods manufactured from virgin materials. However, for some recycled products, the lack of economies of scale associated with large volume turnover can result in higher prices being charged to consumers. This is why it is important for consumers to establish a demand for recycled products and thereby help reduce the unit costs involved.

Though there is scope for further developing the capacity of the traditional reprocessing sector, it will be necessary to develop new and innovative applications for recyclate, which will complement existing outlets. This can best be achieved by working closely with indigenous industry, especially in the SME sector, to –

- fully exploit the inherent properties and characteristics of recyclable materials;
- identify new and diverse uses and applications; and
- facilitate implementation of new applications through applied research, technical and advisory support, and the development of appropriate standards and procedures.

5.7.2 Market Development Programme

To progress development of new markets for recyclables, a Market Development Group will be set up under the aegis of the National Waste Management Board to drive a new Market Development Programme. The Market Development Group will be a focused group comprising representatives from the EPA, Enterprise Ireland, the National Standards Authority of Ireland and representatives of business and industry interests, as well as the Departments of the Environment and Local Government and Enterprise, Trade and Employment.

The National Waste Management Board will provide strategic direction for the operation of the Group.

5.7.3 Key Tasks of Market Development Group

The Market Development Programme will initially focus on those materials and markets which are likely to yield early and substantial success. It will aim at identifying new applications and markets for recyclables and secondary recycled products. The Group will also be asked to identify barriers to the use and marketing of recyclable material and to make recommendations to address these.

Enterprise Ireland, as a key member of the Market Development Group, will be specifically tasked to assign assistance to those areas identified by the Group as being of most potential.

The National Standards Authority of Ireland, another key member, will be tasked to develop standards and guidance on the use of secondary raw materials in design and manufacture.

The Market Development Group will build upon the research work already being carried out by the Clean Technology Centre in Cork which has been commissioned by the EPA to –

- assess and evaluate existing and potential markets for materials that can be recovered from municipal waste;
- assess instruments and tools to develop new markets and outlets; and
- prepare a strategic approach for such development.

In support of its key tasks, the Market Development Group will also carry out the following specific functions:

- evaluation of international research in relation to market development, and identification of research gaps from an Irish perspective;
- financing and commissioning Research & Development and Demonstration Projects in relation to remanufacturing and markets for recyclables, and dissemination of results;
- development of best practice guides for business and industry;
- provision of technical, engineering and financial advice and assistance to industry to facilitate new and innovative uses for recyclate, including through voluntary recycled content agreements;
- evaluation of ongoing EPA projects on outlets for recycled materials and compost from municipal waste;
- evaluation of the potential for the adoption of targets for minimum recycled contents in locally manufactured products, in co-operation with the relevant organisations;
- identification of specific requirements necessary to facilitate the extensive implementation of "green procurement" procedures in the public and private sectors;
- development of Waste Exchanges to stimulate a demand for discarded materials that have the potential to be recycled for beneficial re-use.

Seed funding of €0.635 million will be provided in 2002 to support this initiative.

5.7.4 North/South and East/West synergies

Similar initiatives in relation to Market Development are underway or are being developed in Northern Ireland and Great Britain.

A Waste and Resources Action Programme (WRAP) has been established for England and Wales, to overcome market barriers to promoting re-use and recycling.

In Scotland, the REMADE (Recycling and Market Development) Scotland Project - a partnership between the public and private sectors - has been set up to strengthen, stimulate and develop recyclate material markets. The objectives of the programme are to:

- recycle substantial additional waste material that arises within Scotland;
- generate opportunities for indigenous employment; and
- stimulate the development of additional recycling infrastructure.

The initial priority will be devoted to glass, non-glossy paper and wood and plastics. Biodegradable waste, glossy papers and plastics are more medium term priorities.

The Northern Ireland Waste Management Strategy proposes a Market Development Programme to stimulate local demand for recycled materials by promoting uptake of products, developing specifications and exercising the purchasing power of Government and local authorities.

Co-operation on an all-island basis in relation to Market Development would create greater economies of scale. To this end the North/South Ministerial Council has agreed a co-operative approach to develop a market for the use of recyclates for the island and work will be taken forward on developing a structured approach to market development on an all-island basis.

5.8 Other initiatives in support of a better recycling performance

5.8.1 Community Initiatives

Individuals and communities have an important role to play in avoiding over-packaged products and in purchasing recyclable and recycled products. Where relevant facilities are provided, they also play a crucial role in segregating discarded materials at source and directing these materials to the most appropriate re-use or recycling facility.

In implementing the waste management plans, local authorities should give priority to building

on the widespread good will which exists among communities to actively contribute to a better recycling performance. The plans specifically task local authority environment awareness officers with this role.

Local authorities can also assist communities in developing local projects. This can be done in terms of the provision of finance, facilities and advice. The Environment Fund will support 'partnership projects' between local authorities and local organisations/communities towards the development of good quality local projects.

The Northern Ireland Waste to Resources Partnership (WaRP) and Earthwatch in Ireland have developed preliminary proposals to establish an all-island Community Recycling Network. Environment Ministers, North and South, through the North/South Ministerial Council have asked that detailed proposals be developed in this regard. This initiative will be pursued through the North/South Ministerial Council.

5.8.2 Recycling in the Travelling Community

The Report of the Task Force on the Travelling Community recommended that Waste Management Policy and Legislation should be adapted to take account of the traditional approach to recycling adopted by the Travelling Community. In particular, the Task Force recommended that priority should be given to the targeting of recycling initiatives through which the skills of the Travelling Community could make a significant contribution to the fulfilment of national objectives. The Task Force also raised issues concerning the necessity for consultation at national and local levels regarding the various new waste management regimes which are being introduced.

There is, therefore, considerable potential for the Travelling Community to contribute to the national recycling effort. The establishment of the Environment Fund, in particular, will present an opportunity for that Community to come forward with sustainable projects which both benefit the environment and provide potential sources of new employment.

There is no doubt but that developments in the area of waste management present both a challenge to, and an opportunity for, the Travelling Community. On the one hand Ireland is obliged to introduce higher safety and environmental standards of operation for local authority waste management facilities (for example, landfill sites) and for private facilities (for example, car dismantler premises). These measures could impact on some traditional Traveller activities. On the other hand increased recycling of a wider range of materials in future years will provide an opportunity for the Travelling Community to apply their knowledge, industry and expertise in relation to recycling. To gain from these benefits, the Travelling Community must make serious endeavours to enter into the mainstream of recycling activity and to formally register and co-operate with local authorities.

In recognition of the role of the Travelling Community in the recycling sector a representative of the Travelling Community will be appointed to the Recycling Consultative Forum.

5.8.3 Establishment of performance indicators

Performance indicators have a role in measuring how local authorities are succeeding in transforming their waste management policies and practices. While local authorities are not in a position directly to control all aspects of waste activity, they can exert considerable influence, directly and indirectly, over the pace and extent of developments. Appropriate indicators on the state of current practice would provide useful information for making decisions on investment and grant aid and in identifying areas requiring ongoing management and service development.

Certain overall performance targets are known, insofar as national recycling targets are set out in *Changing Our Ways*, which in turn are reflected in the local and regional waste management plans. The Department of the Environment and Local Government has already asked local authorities to report on a number of performance indicators in relation to the services that they deliver to the community. In regard to waste management the indicators should, as an absolute minimum relate to the provision of bring facilities. The development of performance indicators will also feed into the ongoing development of the National Waste Database, operated by the EPA, and which is an essential tool in measuring Ireland's waste management performance generally and in regard to the attainment of targets laid down at EU level.

The National Waste Management Board will be asked to recommend how performance indicators in the waste management area should best be developed and extended. Some of the more

significant performance indicators recommended in the 1998 National Waste Database include the following –

- number of households receiving collection services;
- amount of household waste collected, per capita, per annum;
- percentage recycled, of the various waste streams;
- percentage of the various waste streams biologically treated;
- percentage otherwise recovered;
- percentage landfilled;
- cost of waste collection per household;
- cost of municipal waste disposal, per tonne;
- number of "bring facilities" relative to population;
- percentage of population served by segregated collection services or in convenient proximity to "bring facilities";
- enforcement performance; and
- public satisfaction ratings.

chapter six

producer responsibility

6 responsibility

Polluter Pays Principle

Enforcement

Producer Responsibility Unit in EPA

Sectoral Initiatives

The Producer Responsibility concept recognises that the producers of goods and materials need to take responsibility for the environmental impact of placing goods and services on the market.

Key Actions
The Government will, in co-operation with business-

- **put in place measures to support Ireland's attainment of 50% recovery of packaging waste by 2005, (including dedicated arrangements for specific materials such as PET and used beverage cartons);**

- **carry out a comprehensive review of the Waste Management (Packaging) Regulations, 1997;**

- **put in place measures to ensure that end-of-life vehicles and waste electrical and electronic equipment are recovered and recycled in accordance with, and within the timescales set out in the relevant EU Directives;**

- **put in place an effective system to ensure that the recycling targets for Construction and Demolition Waste, of 50% by 2003 and 85% by 2013, are met by the construction industry;**

- **establish producer responsibility initiatives in 2002 to recycle newsprint, tyres and batteries;**

- **where necessary, require problematic sectors to introduce waste recovery schemes using powers under the Waste Management Acts;**

- **ensure an effective enforcement regime for Regulations made under the Waste Management Acts in support of producer responsibility initiatives;**

- **establish a Producer Responsibility Unit within the EPA to carry out research, monitor performance under specific producer responsibility initiatives, secure better enforcement and promote good practice.**

6.1 Polluter Pays Principle

The *polluter pays* is a fundamental principle of environmental protection: waste generators should pay the full costs of waste management services provided including collection, treatment and disposal. Responsibility for the costs of waste management focuses attention on the implications of waste generation and also provides a direct economic incentive for waste prevention. Application of the principle also ensures that the waste management costs arising during the life of a product are internalised in the price charged to consumers. Such costs can be minimised where materials and products are managed in an environmentally effective manner throughout their life cycle. Producers, in particular have considerable scope to reduce waste arisings and the amount of discarded material that is sent for disposal e.g. through the development of products utilising recycled materials, products which are recyclable or contain recyclable components, or products using less packaging.

The *producer responsibility* approach to the environmental management of products forms the basis of a number of EU Directives, both in force and to come into force in the coming years. *Integrated Product Policy* (IPP) implies a more comprehensive approach to environmental performance of products taking a life cycle (cradle-to-cradle) perspective and focusing on improving environmental performance in the most cost effective way. It offers both environmental and economic benefits.

Improving the environmental management of goods and products involves a number of different elements, including:

- reducing wastage and energy use in the manufacturing process, with resultant efficiencies for business;
- reducing the environmental threat from products by avoiding, reducing or ceasing the use of hazardous substances or processes in manufacturing, e.g. eliminating the use of heavy metals such as cadmium;
- establishing efficient systems for the collection of products at the end of their useful life; and
- putting in place effective recycling systems for those products which have been collected.

6.1.1 Legislating for Producer Responsibility

The Waste Management Act 1996 delivered on the commitments in *Recycling for Ireland* (1994) to provide a legislative basis for producer responsibility initiatives. This element of the Act is an increasingly important instrument in Ireland's waste management policies, facilitating implementation of EU and national initiatives as set out below.

6.1.2 Producer Responsibility Initiatives

Producer responsibility initiatives allow producers to devise schemes that have the capacity to fulfil the basic objectives of waste management legislation without resort to a "command and control" approach. In effect, producers develop a *Compliance Scheme* to meet general objectives which would otherwise be imposed by regulation. Compliance Schemes enable business to use its expertise to devise workable, effective and least-cost arrangements that are sensitive both to commercial and environmental requirements. They also have the advantage of promoting a pro-active attitude by business and facilitating an accelerated and smoother achievement of objectives.

Producer responsibility initiatives, which are well designed and properly monitored are the preferred choice of the Government. In the absence of a responsive approach by business, mandatory producer responsibility obligations will be applied under the Waste Management Act 1996 in respect of appropriate products.

Producer responsibility initiatives must be underpinned by legal obligations so that individual businesses which may opt out of a scheme cannot opt out of their obligations, or the costs associated with those obligations. The existing compliance schemes in Ireland, dealing with packaging waste and farm plastics, are supported by regulations made under the 1996 Act.

There are many forms of producer responsibility agreement and typical models can vary in range between:

- a *commitment* (where participation is not made a legal requirement) to meet specified targets in response to Government policy. In these situations, industry generally sets its own implementation programme and agrees to undertake appropriate monitoring, auditing and reporting of performance. Such industry pledges may be exchanged for corresponding benefits from Government including technical support, financial incentives or exemptions from specific mandatory requirements, and
- *a legally binding negotiated agreement* which stipulates unambiguous commitments and clearly stated time schedules for all participating parties. The term "negotiated agreement" is commonly applied to agreements that are legally binding.

In practice, the success of producer responsibility agreements is highly dependent on the effective representation and participation of key industry stakeholders in the negotiation and implementation process.

Transparency of agreements between Government and business is also an issue, and the European Commission has issued general guidelines[2] in this regard. In addition, recent EU Directive proposals increasingly provide that voluntary agreements between competent authorities and the relevant economic sectors should meet certain basic criteria. These typically include the following:

- agreements should be enforceable;
- agreements need to specify objectives with corresponding deadlines;
- agreements should be published in official documents accessible to the public;
- provision should be made to examine progress reached under the agreement; and
- in the case of non-compliance with the agreement, relevant Directive provisions should be implemented by legislative, regulatory or administrative measures.

6.2 Enforcement

Effective enforcement of regulatory requirements is essential to the success of producer responsibility initiatives, irrespective of whether they comprise industry commitments or legally binding negotiated agreements. Compliance schemes require members to contribute financially to support the scheme. Such support is undermined where self-complying producers, outside a scheme, are able to evade their responsibilities through poor – or no - enforcement of regulations. "Free riders" also increase the costs for members of the compliance scheme. The Government is therefore committed to putting in place an effective regime to ensure that producer responsibility initiatives are backed up by effective enforcement.

To intensify enforcement of the Packaging Regulations, a network of enforcement officers,

[2] *Communication, COM (96) 561 final*

co-ordinated by the Department of the Environment and Local Government, has been established in the three Dublin County Councils and the five City Councils. The network facilitates the sharing of experience and also serves to support and encourage the development of an enforcement culture. This network will ensure that a systematic approach is taken by the local authorities involved. The network will be expanded to include all local authorities by the end of 2002.

Producer responsibility initiatives are a relatively recent development in Ireland – first introduced in 1997 for packaging waste and farm plastics. Valuable lessons have been learned from the experience gained in these initial years; revised Farm Plastics Regulations were made in July, 2001 and the Packaging Regulations 1997 are also under review. In light of experience a strong regulatory regime will underpin all further producer responsibility schemes.

6.3 Producer Responsibility Unit in EPA

The Government will establish a Unit within the EPA to co-ordinate and secure better enforcement of producer responsibility initiatives. This unit will build on the Packaging Regulations enforcement network which has already been established by the Department of the Environment and Local Government (paragraph 6.2 above). While better enforcement will be its primary function, the Unit will also have a specific brief covering information collection and reporting, research, provision of guidance and assistance and promotion of best practice. It will build national expertise in the area of producer responsibility and its work will complement the work of the Core Prevention Team (see paragraph 2.3.1). The Producer Responsibility Unit will be tasked with identifying suitable waste streams/materials for future producer responsibility initiatives.

6.4 Sectoral Initiatives

6.4.1 Packaging and Packaging Waste

Directive 94/62/EC on Packaging and Packaging Waste required return, collection and recovery systems for used packaging and packaging waste to be put in place to provide for reuse or recycling. Packaging is broadly defined, ranging from wooden crates, pallets and cardboard boxes used to package commercial goods to glass and plastic bottles, aluminium and steel cans and paper and board packaging which wrap everyday consumer foodstuffs and other products.

Under the Directive the following targets were set for Ireland:

30 June 2001:	25% recovery (minimum),
31 December 2005:	Between 50% to 65% recovery and 25% to 45% recycling (including a minimum of 15% of each individual packaging material).

The Directive is being revised, and substantially increased recycling and recovery targets are likely to be set for the period beyond 2005.

The Waste Management (Packaging) Regulations 1997 require all producers of packaging waste to take certain steps to recover packaging waste. Particular obligations are imposed on 'major producers' i.e. businesses with an annual turnover

in excess of €1.27 million and placing more than 25 tonnes of packaging on the Irish market. Major Producers may themselves comply with their obligations under the Regulations (self-compliance) or may secure an exemption from the Regulations by becoming a member of an approved compliance scheme.

Repak

Repak Ltd., established by Irish industry in 1997 as a compliance scheme to support the attainment of Ireland's packaging waste recovery targets, is the only approved compliance scheme in the State for packaging waste. The members pay a fee based on the material-specific tonnage of packaging waste which they place on the market and must also participate in the compliance scheme in a satisfactory manner.

In its role as a compliance scheme, Repak Ltd. now supports -

- the expanding network of "bring facilities" for glass and metals from the domestic sector;
- the ongoing roll-out of household segregation and separate collection systems in urban centres including Dublin, Nenagh and Galway; and
- the recovery of packaging waste from the commercial/industrial sector through the operation of the Repak Payment Subsidy (RPS) scheme.

(Under the RPS scheme, a subsidy is available from REPAK to independent waste contractors throughout Ireland for every tonne of packaging waste they collect and send for recycling. The aim is to maintain additional packaging waste collection on an economic footing even when the current market value of packaging materials is insufficient to cover costs.)

The 1998 National Waste Database Report, published by the EPA in February 2000, estimated packaging waste arisings at over 680,000 tonnes (a considerable increase on the 1995 figure, attributable to more robust data as well as increased economic activity). Total packaging waste recycled was estimated at just over 100,000 tonnes in 1998, a recovery rate of 14.8%. Repak Ltd. reported that members recycled 114,000 tonnes and 146,000 tonnes of packaging waste in 1999 and 2000 respectively. The Directive's target of 25% recovery by 30 June 2001, amounting to around 200,000 tonnes, will have been achieved in 2001.

Now that Ireland has met the 2001 target, momentum must be maintained and attention must immediately turn to meeting the 50% recovery target for 2005. Repak is putting in place a 5 Year Strategy to meet its obligations. This will require positive business support. Steps are also being taken to ensure that effective enforcement arrangements prevent "free riders" evading their obligations. A task force has been established to review, and recommend measures to strengthen the 1997 Waste Packaging Regulations.

In meeting the waste packaging recovery targets to date, particular reliance has been placed on recovery from the commercial sector (around 80%). To reach the 2005 targets greater emphasis will have to be placed on recovery from the domestic waste stream. It is anticipated that as much as 40% of the packaging waste will need to be recovered from the domestic waste stream by this time. Specific materials such as PET bottles (for plastic soft drinks) and Tetra Pak containers will be targeted with support from Repak and local authorities for additional recovery/recycling initiatives.

6.4.2 Farm Plastic

Since 1997, Irish Farm Film Plastics Group (IFFPG) has operated a successful scheme to recover farm plastics i.e. bale wrap etc. As with the general packaging waste scheme operated by Repak, this voluntary compliance scheme is backed by Regulations made under the Waste Management Act 1996.[3] Under the regulations, manufacturers, importers and suppliers are required to participate in a waste collection and recovery scheme operated by an approved body, and funded by a levy on the sale of farm plastic, or alternatively to take steps individually to collect and recover farm plastic waste which they have placed on the market, to be funded by the operation of a deposit-and-refund scheme.

The IFFPG, to which virtually all manufacturers and importers in the Irish market have been affiliated, is the sole approved body under the regulations. It recovered around 6,000 tonnes of waste farm plastic in 2000, i.e 40-45% of the amount of farm plastic placed on the market during that year.

The Department of the Environment and Local Government substantially strengthened the Farm Plastics Regulations in 2001, and will continue to keep the operation of this scheme under review.

6.4.3 End-of-Life Vehicles

The Directive on End of Life Vehicles (ELVs) contains measures, applicable from 21 April 2002, is aimed at:

- preventing waste from vehicles;
- minimising the use of hazardous substances in vehicles, including restricting the use of certain specified substances;
- collecting and treating ELVs in an environmentally sound manner;
- meeting recovery and recycling targets of 85% reuse/recovery and 80% reuse/recycling by 2006, increasing to 95% reuse/recovery and 85% reuse/recycling by 2015;
- ensuring that the delivery of the ELV to an

[3] *The Waste Management (Farm Plastics) Regulations 1997 (S.I. No 315 of 1997) were replaced by the Waste Management (Farm Plastics) Regulations 2001 (S.I. No 341 of 2001)*

authorised treatment facility occurs without any cost for the last holder/owner and ensuring that the producers (including professional importers) meet all, or a significant part, of the costs of the implementation of these measures from

1 July 2002 for vehicles put on the market as from that date, and

1 January 2007 for vehicles put on the market before 1 July 2002.

In addition, the Directive requires that Certificates of Destruction are issued to the last owner of a vehicle and that those who dismantle vehicles are properly licensed and maintain premises to an environmentally by acceptable standard. This last element will require major upgrading of car dismantler premises in Ireland.

The Department of the Environment and Local Government has been in dialogue with the various sectors in the motor industry with a view to establishing a producer responsibility initiative. It is intended that all aspects of the Directive will be addressed by the transposition date of 21 April, 2002.

6.4.4 Waste from Electrical and Electronic Equipment

Directives on waste from electrical and electronic equipment (WEEE) and on the restriction on the use of certain hazardous substances in electrical and electronic equipment are expected to be adopted in 2002. These are designed to secure responsible management of electrical and electronic equipment and cover commercial and household equipment, including, computers, telephones, televisions, radios, mobile phones, fridges and washing machines (white goods), electrical toys etc.

The proposed Directives contain measures aimed at:

- preventing the quantity and harmfulness of waste from electrical and electronic equipment;
- increasing re-use, recycling and other forms of recovery of waste electrical and electronic equipment; and
- improving the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, particularly those involved in the treatment of electrical and electronic waste.

Householders will be entitled to return waste electrical and electronic equipment free of charge either to the place of purchase or authorised collection point, and producers will be required to provide for the collection of waste equipment from holders other than private households. Producers will be obliged to recover/recycle certain percentages of the collected WEEE, ranging between 60% to 80% depending on the equipment collected. The obligations on producers to finance the collection, treatment, recovery and disposal of WEEE will arise no later than 5 years after the entry into force of the Directive.

The proposed Directive on hazardous substances requires, with certain specified exemptions, the substitution of lead, mercury, cadmium, hexavalent chromium, and certain flame retardants (polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)) in electrical and electronic equipment before 1 January 2008.

Industry is now being invited to develop proposals to implement the provisions of the Directives on the basis of a producer responsibility initiative.

6.4.5 Construction and Demolition Waste

Changing our Ways (1998) challenged the construction industry to treat C&D waste as a resource and to take practical steps to achieve the recycling of at least 50% of such waste by 2003, with a subsequent progressive increase to at least 85% by 2013. In response, a dedicated Task Force, comprising representatives of all the major sectors in the Construction and Demolition industry, was established by the Forum for the Construction Industry to co-ordinate the development of an agreed construction industry programme to meet the specified recycling targets. The Task Force has reported to the Minister for the Environment and Local Government and the industry is now being asked to take financial responsibility for

implementing its recommendations.

The Task Force report contains a comprehensive programme of measures aimed at achieving significant increases in the recycling of C&D waste. In all, 66 recommendations are made. These will be taken forward through the establishment of the National Construction and Demolition Waste Council recommended in the Report. The Council will largely consist of representatives of the organisations represented on the Task Force together with other parties identified as having a contribution to make, such as the National Roads Authority, which has an important role in determining specifications for road works. Funding will be shared by the participants.

6.4.6 Tyres

Council Directive 1999/31/EC on the landfill of waste requires Member States to prohibit the acceptance of most whole used tyres at landfills with effect from July 2003 and shredded used tyres with effect from July 2006. On foot of this imminent landfill restriction alternative arrangements for the recovery of waste tyres must be put in place. The Department of the Environment and Local Government has asked the Irish Tyre Industry Association (ITIA) to develop a producer responsibility initiative, by the end of 2002, in relation to the recovery of waste tyres. In the absence of an agreed scheme mandatory obligations will be imposed.

6.4.7 Newsprint

It has been estimated that around 150,000 tonnes of newsprint are being generated in Ireland each year. Most of that newsprint ends up in landfill. It is proposed that a suitable producer responsibility scheme be developed to divert newsprint from landfill. The Department of the Environment and Local Government has initiated dialogue with producers and distributors to consider the development of such a scheme in 2002. In the absence of an agreed scheme mandatory obligations will be imposed.

6.4.8 Batteries

Common EU rules on the marketing, marking, separate collection, recovery and disposal of certain types of batteries containing specified levels of heavy metals (mercury, cadmium and lead) were transposed into Irish law by the Waste Management (Hazardous Waste) Regulations 1998. As discussed in paragraph 3.6.3 there are a number of collection systems in place to recover used batteries. However, more systematic collection and reporting arrangements are required. This can be achieved through producer responsibility and the Department is initiating dialogue with the relevant sectors to devise and agree a suitable scheme.

chapter seven

promoting biological treatment of organic waste

biological treatment

7

Biological treatment of organic waste encompasses both composting (aerobic) and anaerobic digestion.

Key Actions
The Government will-

- **draw up a National Strategy on Biodegradable Waste in the Municipal Waste Stream in 2002;**
- **support the provision by local authorities of infrastructure for the biological treatment of organic waste;**
- **introduce product standards for compost derived from municipal waste;**
- **encourage the development of markets for those products;**
- **support the development of widespread home composting.**

7.1 Background

Biodegradable materials comprise a significant element of the municipal waste stream, and include putrescible food and garden wastes, paper, cardboard and to some extent wood and textiles ("organic" wastes). It is estimated that organic wastes amount to some 60% of total municipal waste arisings. Virtually all of this waste is currently landfilled. However, a small number of municipal composting facilities have now been established by local authorities. Efforts are also being made to further promote home composting.

7.2 National Strategy on Biodegradable Waste

The Government will draw up a National Strategy on Biodegradable Waste in 2002 in consultation with the National Waste Management Board. This will meet the requirement of the EU Landfill Directive to have such a strategy in place by July 2003. In particular, the Directive requires Member States to take steps progressively to divert biodegradable waste from landfill. Relevant targets are –

Year	Maximum Permitted to Landfill
2006	75% of 1995 tonnage of municipal biodegradable waste
2009	50% of 1995 tonnage
2016	35% of 1995 tonnage

Increased diversion of organic waste from landfill does not have to await the preparation of the National Strategy on Biodegradable Waste. The regional and local waste management plans already provide generally for the introduction of segregated collection systems for dry and organic recyclables (which is essential to ensure a clean feedstock and a quality, uncontaminated compost product), and the development of a network of –

- centralised biological treatment facilities for organic municipal waste - mainly food/kitchen wastes; and
- separate smaller facilities for composting garden (green) wastes.

These measures will be supported by the funding provided under the National Development Plan.

A number of the pilot composting projects undertaken by local authorities to date have had very positive results and local authorities will be encouraged to disseminate and share information on these projects.

The relative merits of anaerobic digestion and composting as biological treatment options for municipal biodegradable waste are generally dependent upon the availability and characteristics of the relevant waste materials, prevailing local conditions and the scope for the beneficial use of the products derived from the process. The choice of the particular form of biological treatment will be case specific and will generally need to be assessed on the basis of a number of criteria, including:

- the capability to control the quality of raw material inputs;
- flexibility of available anaerobic digestion and composting systems;
- initial capital costs;
- proven reliability of performance of technology of the required capacity;
- security of supply of raw material;
- adaptability of the national power grid to the availability of alternative energies;
- economies of scale; and
- the need for the provision of strategically situated facilities.

Anaerobic digestion may have particular appeal in some regions. The process offers high operational flexibility and can cater for the treatment of other non municipal biodegradable wastes such as slurries and industrial food-based materials, which may arise in substantial quantities in particular parts of the country.

Both the energy and nutrient contents of biodegradable waste are recovered through anaerobic digestion - the generation of electricity from the biogas that is produced in the process has the potential to replace non-renewable power sources such as fossil fuels.

Anaerobic digestion ultimately produces lesser amounts of fertiliser than the composting of biodegradable waste - this may be very attractive in those regions that are producing substantial supplies of solid compost, derived from other local sources, in quantities that are already surplus to the nutrient requirements of the area.

7.3 Objectives of National Strategy on Biodegradable Waste

7.3.1 Objectives of National Strategy on Biodegradable Waste

The National Strategy on Biodegradable Waste will address:

- the overall infrastructural requirements to meet the targets in the Landfill Directive;
- the provision of clear guidance regarding the environmental standards and requirements which will be applied in the authorisation of composting activities;
- the development and application of the operational and quality control standards to produce a marketable high-quality product;
- the provision of an effective and clearly understood regulatory system;
- the dissemination of information on international best practice.

7.3.2 Obstacles to the development of composting

Compost derived from municipal waste can have widespread application as an organic mulch/fertiliser in many areas such as parks maintenance, landscaping, landfill restoration and site-remediation purposes.

Ultimately however, composting, whether carried out by the private sector or public authorities, should generate a product with a clear market value. To do so, it must be developed as a high quality product capable of competing with existing organic products (peat, manure) in terms of price and quality. It will be necessary to create a clear identity for waste derived compost products, and build public confidence and trust in their suitability for use, through ensuring consistent quality.

In applying composting standards particular regard will be had to issues of public and animal health. The spread of BSE and Foot and Mouth Disease in recent years has led to a heightened awareness of biological by-product and waste control issues. The application of additional controls on agricultural and animal food wastes in particular will increase the complexity of developing the composting sector. In this regard a draft EU Regulation laying down health rules concerning animal by-products not intended for human consumption is expected to be adopted in 2002. Newer technologies and improved standards for composting and digestion will therefore be required.

The European Commission is undertaking technical discussions with Member States and other stakeholders on the development, in the interests of environmental protection, of a proposed Community Initiative on the Biological Treatment of Biodegradable Waste. This proposed Community Initiative is likely to contain measures for:

- Collection of Biowaste;
- Treatment of Biowaste;
- Production of Treated Biowaste;
- Trade of Treated Biowaste; and
- Transport of Treated Biowaste.

7.3.3 Regulatory system

As part of the development of the National Strategy on Biodegradable Waste, the Department, in consultation with the EPA, will examine the scope for a more streamlined authorisation system for composting activities. This would facilitate the early development of the requisite treatment capacity, while respecting essential EU requirements and the need to ensure effective environmental protection. A number of facilities have already been licensed by the EPA.

7.3.4 Product development, marketing and standards

The National Waste Management Board will be asked to commission studies into the development of high quality compost products. The development of standards in Ireland can draw on work already carried out domestically and internationally. Such standards need to identify relevant market-driven parameters (e.g. particle size, nutrients, etc.) and the means to achieve consistent product quality standards (these are standards related to the suitability of products for specified uses, as distinct from minimum regulatory standards laid down for the purposes of environmental protection).

The Board will also be requested to consider the options for developing a comprehensive quality assurance scheme which will address –

- feedstock requirements;
- process requirements and controls;
- agreed product quality standards (relating to pathogens, heavy metals, physical and other contaminants);
- standardised testing methods;
- criteria for marking and labelling;
- designation of an appropriate certification body.

The Market Development Programme (see paragraph 5.7.2) will also be tasked to stimulate and develop market demand for waste derived compost, of varying qualities and characteristics.

7.4 Home Composting

The local and regional waste management plans provide for the introduction of a home composting programme for organic waste in rural areas unsuitable for the provision of a separate biowaste collection. Home composting is equally suited to urban areas provided that sufficient garden space is available.

Home composting need not be particularly sophisticated and can be usefully undertaken in many basic forms within;

- an open pit dug in the soil to contain the organic waste material during the course of the composting process;
- a compost box constructed above ground to contain the organic waste material during the course of the composting process;
- a compost pile of organic waste material above ground, or
- a special compost unit container that is designed to intensify and accelerate composting through the natural process of degradation of the organic waste material.

Natural composting of well blended and graded organic waste typically takes some 12 months, provided that a supply of air is available and the appropriate proportions of carbon and nitrogen are present within the constituent materials. However, the maturation time can be reduced to approximately 6 months through the appropriate and efficient use of compost unit containers.

Home composting has the potential to reduce significantly the volume of waste presented at the kerbside by householders for collection and treatment by the relevant agencies, and a number of local authorities have begun actively to encourage this practice by promoting and selling composting units at a subsidised cost.

The actual composting of organic waste is a particularly important activity for schools. Not only do many schools possess sufficient land on which to initiate suitable composting initiatives, but the actual composting process itself is highly relevant to the wider science curriculum and provides a focus for awareness raising.

Local authorities will be encouraged to further develop these initiatives.

chapter eight
public service waste
management

8 public service

Key Actions
The Government will-

- **develop a public service waste management programme;**

- **promote, in particular, the use of recycled and recyclable materials in public procurement policies, including ensuring that within 2 years, all public authorities routinely use recycled paper;**

- **strengthen the green networks which exist between Government Departments and between Local Authority Environmental Awareness Officers.**

Public authorities have responsibility to show good example in the area of waste prevention, minimisation and recovery. The Department of the Environment and Local Government, in consultation with the Environmental Network of Government Departments, will develop a public service waste management programme in accordance with Section 30 of the Waste Management Act 1996. Guidelines will also be prepared to assist in the implementation of the programme.

The programme will, in particular, deal with-

- optimal waste prevention, re-use and recycling practice;
- corporate waste management planning;
- the setting of objectives in relation to the management of specific waste types; and
- public reporting on the performance of the relevant authorities.

The Programme will also consider public procurement policies. Public procurement accounts for 14% of the Gross Domestic Product of the EU and this sector offers significant potential in encouraging greater use of recyclates. In particular, the Government will ensure that, within 2 years, all public authorities will routinely use recycled paper.

"Green Housekeeping" Guidelines were issued to all Government Departments in 1996. However the public authority waste programme will be aimed at the broader public service, including local authorities, health boards, educational institutions, harbour authorities and statutory boards and authorities.

chapter nine

looking forward

9 the future

National policy on waste management generally was set out in *Changing Our Ways*, and this in turn informed the local and regional waste management planning process which was completed in 2001. This Policy Statement complements and extends the policies outlined in *Changing Our Ways* and focuses on the higher levels of the waste hierarchy. It recognises that success with implementing an ambitious prevention, re-use and recycling programme will have a predominant influence on decisions on the implementation of waste management plans, on actual disposal of waste and on the levels of investment required for final disposal.

Given the complexity of the challenges involved in waste management, the policies contained in the Statement must remain flexible, responsive to developing needs and open to further enhancement and development.

Many of the structural initiatives identified here will bring new strengths to the modernisation of waste management practice and will deliver research and policy initiatives in the years ahead.

Alongside the structural initiatives, industry and commercial sectors are now challenged to respond through deeper and wider acceptance of *producer responsibility*. The Government has begun to use fiscal measures (plastic bag and landfill levies) and consideration will be given to further application of environmental levies as provided for under the Waste Management Acts 1996 and 2001, where such measures are warranted. Recycling depends on public support and commitment. Many of the measures set out in this Statement, and in the local and regional waste management plans, will make prevention and recycling easier for the public and should command a high level of public support and participation.

The policies and measures contained in this Statement will be subject to a published review and report at 3 yearly intervals.

Appendix I

Main EU Instruments relating to Waste Management

Framework Legislation on Waste

Council Directive 75/442/EEC of 15 July 1975 on waste, as amended by Council Directive 91/156/EEC of 18 March 1991.

Commission Decision 96/350/EC of 24 May 1996 adapting Annexes IIA and IIB to Council Directive 75/442/EEC on waste (Text with EEA relevance).

Derogation provided through Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT).

Commission Decision 76/431/EEC of 21 April 1976 setting up a Committee on Waste Management.

Council Recommendation 81/972/EEC of 3 December 1981 concerning the re-use of waste paper and the use of recycled paper.

Framework Legislation on Hazardous Waste

Council Directive 91/689/EEC of 12 December 1991 on hazardous waste (amended by Council Directive 94/31/EC of 27 June 1994 amending Directive 91/689/EEC on hazardous waste).

Commission Decision 96/302/EC of 17 April 1996 establishing a format in which information is to be provided pursuant to Article 8 (3) of Council Directive 91/689/EEC on hazardous waste (Text with EEA relevance).

Landfill of Waste

Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste.

Commission Decision 2000/738/EC of 17 November 2000 concerning a questionnaire for Member States reports on the implementation of Directive 1999/31/EC on the landfill of waste.

End-of-Life Vehicles

Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles.

Packaging and Packaging Waste

European Parliament and Council Directive 94/62/EC of 20 December 1994 on Packaging and Packaging Waste.

Commission Decision 97/129/EC of 28 January 1997 establishing the identification system for packaging materials pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste .

97/138/EC: Commission Decision of 3 February 1997 establishing the formats relating to the database system pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste .

Commission Decision 1999/177/EC of 8 February 1999 establishing the conditions for a derogation for plastic crates and plastic pallets in relation to the heavy metal concentration levels established in Directive 94/62/EC on packaging and packaging waste.

Commission Decision 2001/171/EC of 19 February 2001 establishing the conditions for a derogation for glass packaging in relation to the heavy metal concentration levels established in Directive 94/62/EC on packaging and packaging waste .

Commission Decision 2001/524/EC of 28 June 2001 relating to the publication of references for standards EN 13428:2000, EN 13429:2000, EN 13430:2000, EN 13431:2000 and EN 13432:2000 in the Official Journal of the European Communities in connection with Directive 94/62/EC on packaging and packaging waste .

Waste Oils

Council Directive 75/439/EEC of 16 June 1975 on the Disposal of Waste Oils (amended by Council Directive 87/101/EEC of 22 December 1986)

Batteries and Accumulators

Council Directive 91/157/EEC of 18 March 1991 on batteries and accumulators containing certain dangerous substances.

Commission Directive 93/86/EEC of 4 October 1993 adapting to technical progress Council Directive 91/157/EEC on batteries and accumulators containing certain dangerous substances.

Commission Directive 98/101/EC of 22 December 1998 adapting to technical progress Council Directive 91/157/EEC on batteries and accumulators containing certain dangerous substances (Text with EEA relevance).

Incineration of Waste

Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste.

Council Directive 94/67/EC of 16 December 1994 on the incineration of hazardous waste.

Commission Decision 97/283/EC of 21 April 1997 on harmonised measurement methods to determine the mass concentration of dioxins and furans in atmospheric emissions in accordance with Article 7 (2) of Directive 94/67/EC on the incineration of hazardous waste.

Commission Decision 98/184/EC of 25 February 1998 concerning a questionnaire for Member States' reports on the implementation of Council Directive 94/67/EC on the incineration of hazardous waste (implementation of Council Directive 91/692/EEC)

Supervision and Control of Shipments of Waste

Council Resolution of 21 December 1988 concerning transfrontier movements of hazardous waste to third countries.

Council Regulation (EEC) No 259/93 of 1 February 1993 on the Supervision and Control of Shipments of Waste within, into and out of the European Community [amended by Council Regulation (EC) No 120/97 of 20 January 1997 amending Regulation (EC) No 259/93 on the supervision and control of shipments of waste within, into and out of the European Community].

Commission Decision 94/774/EC of 24 November 1994 concerning the standard consignment note referred to in Council Regulation (EEC) No 259/93 on the supervision and control of shipments of waste within, into and out of the European Community.

Council Decision 97/640/EC of 22 September 1997 on the approval, on behalf of the Community, of the amendment to the Convention on the control of transboundary movements of hazardous wastes and their disposal (Basle Convention), as laid down in Decision III/1 of the Conference of the Parties.

Commission Decision 1999/412/EC of 3 June 1999 concerning a questionnaire for the reporting obligation of Member States pursuant to Article 41(2) of Council Regulation (EEC) No 259/93.

Council Regulation (EC) No 1420/1999 of 29 April 1999 establishing common rules and procedures to apply to shipments to certain non-OECD countries of certain types of waste, as amended by:

- Commission Regulation (EC) No 1208/2000 of 8 June 2000 amending Council Regulation (EC) No 1420/1999 establishing common rules and procedures to apply to shipments of certain types of waste from the European Community to Bulgaria and Nigeria;
- Commission Regulation (EC) No 2630/2000 of 30 November 2000 amending Council Regulation (EC) No 1420/1999 establishing common rules and procedures to apply to shipments of certain types of waste from the European Community to Bahrain, Haiti, Honduras, Libya, Namibia, Qatar, Uzbekistan and the Vatican City (Text with EEA relevance); and
- Commission Regulation (EC) No 1800/2001 of 13 September 2001 amending Council Regulation (EC) No 1420/1999.

Commission Regulation (EC) No 1547/1999 of 12 July 1999 determining the control procedures under Council Regulation (EEC) No 259/93 to apply to shipments of certain types of waste to certain countries to which OECD Decision C(92)39 final does not apply, as amended by:

- Commission Regulation (EC) No 334/2000 of 14 February 2000 amending Regulation (EC) No 1547/1999 as regards the control procedures to apply to shipments of certain types of waste to Malaysia;
- Commission Regulation (EC) No 354/2000 of 16 February 2000 amending Regulation (EC) No 1547/1999 concerning the control procedures to apply to shipments of certain types of waste to China;
- Commission Regulation (EC) No 1547/1999 concerning the control procedures to apply to shipments of certain types of waste to Bulgaria and Nigeria; and

- Commission Regulation (EC) No 1552/2000 of 14 July 2000 amending Regulation (EC) No 1547/1999 concerning the control procedures to apply to shipments of certain types of waste to: Estonia, Hong Kong, Hungary, Indonesia; Lithuania, San Marino and Thailand; and
- Commission Regulation (EC) No 1547/1999 as regards shipments of certain types of waste to Guinea .

Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues.

European Waste Catalogue

Commission Decision 94/3/EC of 20 December 1993 establishing a List of Wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste.

Commission Decision 2000/532/EC of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended by:

- Commission Decision 2001/118/EC of 16 January 2001 amending Decision 2000/532/EC as regards the list of wastes;
- Commission Decision 2001/119/EC of 22 January 2001 amending Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste; and
- Council Decision 2001/573/EC of 23 July 2001 amending Commission Decision 2000/532/EC as regards the list of wastes.

Reporting Requirements on Waste Management Performance

Council Directive 91/692/EEC of 23 December 1991 Standardising and Rationalising reports on the implementation of certain Directives relating to the Environment.

Commission Decision 94/741/EC of 24 October 1994 concerning questionnaires for Member States reports on the implementation of certain Directives in the waste sector (implementation of Council Directive 91/692/EEC).

Commission Decision 97/622/EC of 27 May 1997 concerning questionnaires for Member States reports on the implementation of certain Directives in the waste sector (implementation of Council Directive 91/692/EEC).

Apppendix II

Basic Methodologies of Recycling
1. Dry recyclables

Different materials within the waste stream require different treatment. The conventional methods of recycling of the principal materials present within the various waste streams are outlined below.

However, these largely reflect the traditional approach whereby recyclable materials are often directed towards those industrial activities that originally generated them (e.g. glass). It is essential that additional uses for recyclables are explored and developed, having regard to the intrinsic properties of a given recyclate. A more diverse range of viable uses and secondary products will lead to higher demand, stable markets and better economic return for the recycling industry.

Glass

Gross contaminants (e.g. labels and caps) are firstly removed from waste glass and the remaining glass is crushed to a high specification into what is termed cullet. Minor contaminants (e.g. impurities) are deliberately removed in the course of the crushing process. The cullet is then delivered to a glass container manufacturer where it is fed into a furnace along with virgin raw materials. The mixed material is melted in the furnace and the molten glass is formed into containers by an automated process.

Every tonne of glass that is recycled conserves over one tonne of raw materials, consisting primarily of sand and limestone. Glass recycling also saves energy – the energy required to melt glass cullet is some 30% less than that needed to melt virgin raw materials. This corresponds to a reduction of 0.25 tonnes of carbon dioxide emissions per tonne of glass recycled. Glass can also be reprocessed repeatedly without loss in quality. Glass recycling fulfils a very important role in heightening awareness, as each individual can readily make a contribution to recycling by simply availing of the extensive bottle bank network – this often represents the first step towards becoming an environmentally aware consumer.

Paper

Waste paper is typically saturated and turned into pulp, which can then be mixed with an adequate proportion of virgin wood pulp fibres for use in the manufacture of recycled paper and cardboard. Paper recyclate does suffer from some reduction in quality during recycling due to a shortening of fibres during reprocessing and this limits the number of times that the material can be recycled.

It is estimated that each tonne of recycled paper eliminates the need to harvest 15 medium-sized trees for use in the manufacture of virgin paper. The manufacture of recycled paper also results in significant reductions both in emissions to the atmosphere and effluent discharges in comparison with production from virgin material.

Aluminium

Aluminium cans can be melted in a furnace and the molten liquid formed into ingots. These ingots can then be reprocessed in the manufacture of new aluminium products.

There are significant energy savings associated with the recycling of metals. For aluminium, reprocessing is estimated to be 95% more energy efficient than production of aluminium from raw materials, corresponding to reduced emissions of some 10 tonnes of carbon dioxide emissions per tonne of aluminium reprocessed. Aluminium can also be recycled repeatedly without any loss in quality.

Steel

Scrap steel can be melted and used in the manufacture of steel products. Used steel cans are problematic to recycle as they must generally undergo a process to remove the tin coating before they are suitable for use in the manufacture of recycled steel.

The recycling of steel is estimated to use 25% of the energy required to produce steel from virgin raw materials, giving rise to an estimated saving of some 1.5 tonnes of carbon dioxide emissions per tonne of steel reprocessed.

Plastics

Material recycling of plastics into high grade products requires that the waste plastic is completely segregated into discrete types of plastic e.g. PET, HDPE etc.. A very high degree of purity is essential and the degree of segregation is frequently required to be absolute. It is also possible to materially recycle mixed plastics into a lower grade of plastic.

In mechanical recycling, gross contaminants (e.g. labels, caps, etc.) are firstly removed from waste plastics. Dirty plastic may also need to be washed. Clean plastic is subsequently shredded, melted, extruded and regranulated. The regranulate can then be reprocessed into recycled plastic products through an almost entirely automated process. There are more sophisticated processes available to enable plastics to be recycled into a wide variety of products e.g. PET plastics (for example, from soft drink plastic bottles) can be converted into a polymer that can be used to produce fibres that are suitable for use in many applications, including the manufacture of clothing, roofing felts and home furnishings.

Plastic recycling and related emissions has significant potential to save energy. The displacement of virgin PET material has been roughly estimated to provide a reduction of 3 tonnes of carbon dioxide emissions per tonne of material recycled.

Timber

First grade (unimpregnated) shredded timber is typically sold to the chipboard manufacturing industry. Second grade wood chippings (impregnated) can be used as an industrial boiler fuel. Unimpregnated shredded timber can also be used to produce compost.

Textiles

Higher quality garments are distributed to Charity Shops and certain textiles of marginal quality are used in the manufacture of industrial cleaning cloths. Some of the lighter clothing textiles are exported to Third World countries.

2.Organic wastes

The organic proportion of the municipal waste stream can generally be divided into two distinct fractions:

- Organic Waste consisting of mixed kitchen type wastes and garden wastes, and
- Green Waste consisting solely of clean garden and landscaping wastes.

The organic fraction of municipal waste can generally be treated biologically through composting or anaerobic digestion.

Composting

Composting is a natural, aerobic treatment process, involving the controlled biological decomposition of organic waste into a soil-like material known as humus that can be used beneficially by gardeners and farmers. The process is well suited to dealing with the biodegradable organic fraction of household waste, and is readily within the scope of most local authorities. Two options may be employed - centralised composting facilities, which are generally only viable if servicing areas of high population density, and home composting schemes, which are more suited to low density rural areas.

In centralised composting, biodegradable wastes are usually segregated at source, by means of a collection system, which employs a separate bin for biodegradable waste. The alternative to the separate collection system is through mechanical separation of the organic fraction following the collection of mixed municipal waste and the subsequent biological stabilisation of the biodegradable material. Separation at source will provide the potential to produce high quality compost which is suitable for a wide range of applications. Careful site selection and the application of appropriate technologies to control emissions can readily address potential environmental impacts. In developed waste management systems, composting has successfully evolved from a low technology outdoor process to an enclosed, automated, high technology operation, where the waste is placed in a sealed building or chamber and the climate conditions are externally controlled to optimise the levels of oxygen, temperature and the moisture content. Modern enclosed facilities are generally managed with the assistance of a computer-controlled system.

The compost product can be used as a soil conditioner or as a mulch for the suppression of weed growth. There is a ready market for finished compost in the rehabilitation of landfill sites – mature compost can also be made available to

consumers by the local authority.

Green Waste composting can also be carried out at a central location that is designed to facilitate the controlled production of compost in the open air through the introduction of optimised conditions of temperature, moisture and oxygen to the process. Materials delivered to these central facilities by landscape gardeners and the public are formed into tidy heaps termed "open windrows" and compost is typically produced within a period of 6 months.

Green Waste and certain kitchen wastes can be composted within the domestic garden over a period of 6 to 12 months and provides the dedicated gardener with a ready supply of compost for use as a nutrient, soil conditioner or weed suppressant. The composting process can be assisted by the use of compost containers that are designed to intensify and accelerate the natural composting process.

Anaerobic Digestion

This process has been used for many years to treat agricultural waste and sewage sludge. Its use in the treatment of organic municipal wastes is more recent but there are now a number of such plants in operation outside Ireland. Though more expensive plant is required for anaerobic digestion than for composting, it has the advantages of recovering energy from the methane that is produced by the process. Sludges and other wastes from the food industry are also amenable to treatment by the process.

Appendix III

Glossary of terms

Anaerobic Digestion means "the biological decomposition of biowaste in the absence of oxygen and under controlled conditions by the action of micro-organisms (including methanogenic bacteria) in order to produce biogas and digestate".

Biodegradable Waste (Biowaste) means "any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard".

Biogas means "the mixture of carbon dioxide, methane and trace gases resulting from the controlled anaerobic digestion of biowaste".

Biological Treatment means "composting, anaerobic digestion, mechanical/biological treatment or any other biological process which is specifically designed for sanitising biowaste".

Bring Centre means "a conveniently situated selection of material-specific receptacles to which members of the public can bring their various recyclables for subsequent collection and delivery to material recovery facilities".

Civic Amenity Facility means "a reception facility provided at a central location to enable householders to directly deposit recyclable and non-recyclable materials, bulky household wastes and certain categories of household hazardous waste".

Commercial Waste means "waste from premises used wholly or mainly for the purposes of a trade or business or for the purposes of sport, recreation, education or entertainment but does not include household, agricultural or industrial waste".

Composting "means the autothermic and thermophilic biological decomposition of separately collected biowaste in the presence of oxygen and under controlled conditions by the action of micro-and macro-organisms in order to produce compost"

Compost means "the stable, sanitised and humus-like material rich in organic matter and free from offensive odours resulting from the composting process of separately collected biowaste, which complies with specified minimum standards of environmental quality".

Construction and Demolition Waste means "all waste that arises from construction, renovation and demolition activities, including all wastes mentioned in Chapter 17 of the European Waste Catalogue".

Core Prevention Team (CPT) means "a distinct unit, established and resourced within the Environmental Protection Agency, that is tasked with the planning and implementation of the new National Waste Prevention Programme".

Cullet means "recycled glass which has been pretreated to a very stringent specification and is in a form suitable for use as a secondary raw material in glass reprocessing".

Digestate means "the material resulting from the anaerobic digestion of separately collected biowaste, which complies with specified minimum standards of environmental quality".

Disposal includes "any of the activities specified in the Third Schedule to the Waste Management Act 1996".

End-of-Life Vehicles means "a vehicle which is waste within the meaning of Article 1(a) of Directive 75/442/EEC on Waste".

Environment Fund means "a fund consisting of such accounts as the Minister may determine that has been established under the Waste Management (Amendment) Act 2001, managed by or on behalf of the Minister, that will generally be available for use for purposes of environmental protection".

Environmental Management System means "a system of management that is designed to control the operation and maintenance of an activity with regard to its effects on the environment".

European Waste Catalogue means "a list of wastes (including the Hazardous Waste List) established, pursuant to Council Directive 75/442/EEC on Waste, by Commission Decision 94/3/EC and which has been replaced since 1st January 2002 by Commission Decision 2000/532/EC (as amended by Commission Decisions 2001/118/EC and 2001/119/EC)".

Facility means "in relation to the recovery or disposal of waste, any site or premises used for such purpose".

Green Waste means "vegetable waste from gardens and parks, tree cuttings, branches, grass, leaves (with the exception of street sweepings), sawdust, wood chips and other wood waste not treated with heavy metals or organic compounds".

Hazardous Waste means "waste of a class listed in the current Hazardous Waste Catalogue, which either:

- constitutes Category I type waste as specified in Part I of the Second Schedule to the Waste Management Act 1996 and has any of the properties specified in Part III of the same Schedule; or
- constitutes Category II type waste as specified in Part I of the Second Schedule to the Waste Management Act 1996 that contains any of the constituents specified in Part II of the same Schedule and has any of the properties specified in Part III of the same Schedule;

or any other waste having any of the properties specified in Part III of the Second Schedule to the Waste Management Act, 1996 that may be prescribed as hazardous waste".

Hazardous Waste List (HWL) means "a list of hazardous waste established, pursuant to Council Directive 91/689/EEC on Hazardous Waste, by Council Decision 94/904/EC and which has been replaced since 1st January 2002 by Commission Decision 2000/532/EC (as amended by Commission Decisions 2001/118/EC and 2001/119/EC)".

Home Composting means "the composting of the biowaste as well as the use of the compost in a garden belonging to a private household".

Household Waste means "waste produced within the curtilage of a building or self-contained part of a building used for living accommodation".

Industrial Waste means "waste produced or arising from manufacturing or industrial activities or processes".

Life Cycle Assessment of a Product means "an assessment of the effects on the environment of the manufacture, distribution, marketing and use of the product and the recovery or, as appropriate, the disposal thereof (including the use of energy and raw materials in, and the production of waste from, any of the said activities)".

Material Recovery Facility means "a central facility where discarded recyclable waste materials may be taken for segregation and pre-treatment".

Mechanical/Biological Treatment means "the treatment of residual municipal waste, unsorted waste or any other biowaste unfit for composting or anaerobic digestion in order to stabilise and reduce the volume of the waste".

Minimisation of Waste means "any technique, process or activity that either avoids, reduces or eliminates waste at its source or results in re-use or recycling of the waste".

Municipal Waste means "household waste as well as commercial and other waste which, because of its nature and composition, is similar to household waste".

Organic Waste means "any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard".

Packaging means "any material, container or wrapping, used for or in connection with the containment, transport, handling, protection, promotion, marketing or sale of any product or substance, including marketing as may be prescribed".

The Polluter Pays Principle means "the principle set out in Council Recommendation 75/436/Euratom, ECSC, EEC of 3rd March 1975 regarding cost allocation and action by public authorities on environmental matters".

Pre-Treatment of Recyclables means "the further separation and processing to which collected recyclable materials must be subjected in order to meet the required specifications for use in a reprocessing operation".

Prevention of Waste means "measures aimed at reducing the quantity and the harmfulness to the environment of waste and the materials and substances contained therein". (Based on WEEE)

Processing means "performing a series of operations in the course of the manufacture or treatment of a product". (Derived from dictionary definition)

Producer Responsibility means "a requirement to take steps for the purpose of the prevention, minimisation, limitation or recovery of waste as respects the class or classes of product to which the requirement relates and may include a requirement to achieve specified targets in relation to those matters".

Recovery means "any activity carried on for the purposes of reclaiming, recycling or re-using, in whole or in part, the waste and any activities related to such reclamation, recycling or re-use, including any of the activities specified in the Fourth Schedule to the Waste Management Act 1996".

Recycling of Waste means "the subjection of waste to any process or treatment to make it re-usable in whole or in part".

Residual Municipal Waste means "the fraction of municipal waste remaining after the source separation of municipal waste fractions, such as food and garden waste, packaging, paper and paperboard, metals, glass, and unsuitable for the production of compost because it is mixed, combined or contaminated with potentially polluting products or materials".

Re-use means "the use of a product on more than one occasion, either for the same purpose or for a different purpose, without the need for reprocessing".

Reprocessing means "to subject to special or additional processing before reuse". (Derived from dictionary definition)

Source Separation means "taking steps in a systematic manner for the purpose of separating specified waste types from other waste materials and the holding of such waste so separated prior to its collection, recovery or disposal".

Stabilised Biowaste means "the waste resulting from the mechanical/biological treatment of unsorted waste or residual municipal waste as well as any other treated biowaste which does not comply with specified minimum standards of environmental quality".

Sustainable Development means "Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs".

Treatment of Waste means "any thermal, physical, chemical or biological processes that change the characteristics of waste in order to reduce its volume or hazardous nature or facilitate its handling, disposal or recovery".

Waste Audit means "an evaluation of the manner in which an activity is carried on with a view to identifying opportunities for-

- preventing or minimising the production of waste from the activity concerned or the harmfulness of any waste produced from the activity; and
- recovering any waste so produced,

having regard to the results of a waste audit conducted in relation to the activity".

Waste from Electrical and Electronic Equipment (WEEE) means "equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields falling under certain specified categories and designed for use with a voltage rating not exceeding 1000 Volt for alternating current and 1500 Volt for direct current and which is waste within the meaning of Article 1(a) of Directive 75/442/EEC, including all components, sub-assemblies and consumables, which are part of the product at the time of discarding".

Waste Licence means "a licence issued by the Environmental Protection Agency for a waste facility in accordance with the Waste Management Act 1996".

Waste Permit means "a permit issued by a local authority for a waste facility in accordance with the Waste Management Act 1996".

Waste Minimisation Club means "a partnership consisting of a number of organisations that are interested in reducing waste production and improving overall environmental performance and who are collectively seeking to achieve these common objectives more efficiently through mutual co-operation".

Windrow means "an elongated heap in which biowaste is placed for the purpose of composting, and which is periodically turned by mechanical means in order to increase the porosity of the heap and the homogeneity of the waste"