

## PART 3



## **14 POLICY AND LEGISLATIVE CHANGES**

### **14.1 INTRODUCTION**

The previous Waste Management Plans adopted throughout Ireland have had a dramatic impact on the approach to managing waste throughout the country over the past five years. The majority of Local Authorities now cooperate on a Regional basis to deal with waste issues. Infrastructure has been developed on the basis of Regional waste figures and needs. Regional Steering Committees meet to monitor and ensure continued progress on the implementation of the Waste Plan recommendations. This section assesses overall developments in Waste Management and looks at likely future trends, programmes and legislation.

### **14.2 WASTE MANAGEMENT INITIATIVES AT GOVERNMENT LEVEL**

#### **14.2.1 National Waste Prevention Programme**

The National Waste Prevention Programme (NWPP) was launched in April 2004 by the Minister for the Environment, Heritage and Local Government and is to be implemented by the Environmental Protection Agency. It is a four year programme and aims to deliver substantive results on waste prevention and minimisation and will integrate a range of initiatives addressing awareness raising, technical and financial assistance, training and incentive mechanisms. Currently the most relevant component of the NWPP for the Dublin Region is the development of the Local Authority Prevention Demonstration Programme (LAPD). This programme to be launched in 2006 provides Local Authorities with an opportunity to apply for funding for prevention projects/programmes that demonstrate practical measures for preventing waste. The first Annual Report for the NWPP was published in July 2005. The report details the progress and achievements to date and proposals for future initiatives and programmes. The Annual Report is available on the EPA website [www.epa.ie](http://www.epa.ie) \*

#### **14.2.2 Producer Responsibility Initiatives**

Following the publication of the Government policy statement 'Delivering Change' in 2002, 'Producer Responsibility Initiatives' are being implemented in a number of sectors, promoted by the Department of Environment Heritage and Local Government. The concept of producer responsibility means that industries producing goods and materials need to take responsibility for the environmental impact of placing these goods on the market. The concept is at the core of EU environmental policy. Some of the current and proposed schemes are listed below.

##### **Packaging**

The REPAK scheme has been underway since 1997, with legislative backing. REPAK is an 'approved body' representing industry and provides subsidies to assist in recycling of packaging waste, in order to meet obligations under the EU Packaging Waste Directive. Irish legislation is being updated to improve performance

##### **Newspapers/ Newsprint**

The Irish newspaper industry is finalising a voluntary scheme with DoEHLG for recycling of 'unsold' newspapers at newsagent level. A scheme for post-consumer waste to support household recycling is also being proposed.

### **Construction/Demolition Waste**

The National Construction and Demolition Waste Council has developed a voluntary initiative to improve performance regarding C&D waste in order to meet National recycling targets. Implementation will involve the Local Authorities in a regulatory role at the planning permission stage for significant projects.

### **Waste Electrical and Electronic Equipment**

Following the adoption of EU Directive 2002/96/EC, from August 2005 householders will be able to return 'WEEE' such as fridges, video players, radios etc. free of charge either to the shop (new-for-old) or to a Local Authority Recycling Centre. The industry is currently establishing a system to collect and manage this waste.

### **End of Life Vehicles (Scrap cars)**

Under EU Directive 2000/53/EC, car manufacturers are being required to manage the collection and management of old vehicles. This will mean free-of-charge return of vehicles by the public. Legislation will be introduced by the DoEHLG to support the scheme.

### **Tyres**

The DOEHLG is currently negotiating the introduction of a scheme to ensure proper management of tyres under a producer responsibility initiative with the Irish Tyre Industry Association.



### **Farm Plastics**

Farming has become one of the largest regular users of plastic film in the country. New Irish Legislation now places obligations on manufacturers and importers of farm plastics to arrange for environmentally acceptable ways of collecting and disposing of used plastic film. Irish Farm Films Producers Group (IFFPG) has been formed by farmers and the plastics industry to minimise the cost of disposal.

### **Other Producer Responsibility Schemes**

Further proposals are expected to be developed for materials such as batteries, telephone directories, paints, medicines, and junk mail as well as achieving greater cost recovery and effective recycling for packaging wastes such as plastic bottles.

The implications of these schemes should be positive for the average business or household. The responsibility for managing these waste streams will transfer to the producer rather than the public. This means cost of recovery or disposal will increasingly be included in the purchase price rather than being imposed on whoever ends up with the material. The schemes will also encourage industries to 'design out' waste at source and to design products that are more easily recycled.

For the Local Authorities, there will be increased responsibilities to regulate the various schemes (inspections, data collections, enforcement measures, reporting to the EPA and DoEHLG) to ensure the producers are conforming to the legislation. For WEEE, Local Authorities will have to invest in improving collection facilities at Recycling Centres.

### 14.2.3 Market Development Group

The ultimate objective of the recycling recommendations in this Plan is 'resource recovery', whereby recycled materials are used to create new products and in so doing reduce the consumption of resources. While recycling has improved dramatically in recent years, concerns have been expressed that we export almost 70% of waste abroad for recycling (over 850,000 tonnes). While export of materials for recycling is acceptable in terms of global flows in materials, for a number of waste streams, the lack of home markets continues to make recycling less viable. In recognition of these issues the Government has established a Market Development Group to drive a market development programme for recyclable materials. This is being funded from the Environment Fund. Three working groups have been established from relevant sectors (including industry, waste companies and the public sector) to work on specific materials: plastics, paper and compost. One of the objectives will be development of indigenous reprocessing capacity whereby less transport is required and more employment is retained in Ireland.

Local Authorities will also need to support market development measures by taking a lead where possible in demonstration of opportunities and pilot schemes. Co-operation from the various industry sectors will also be required.

### 14.2.4 North-South Co-Operation for Waste Management

The potential benefits of addressing waste management on an all-island basis has been highlighted at Government level and through the research of the North-South Ministerial Council. The IBEC-CRI Joint Business Council prepared an assessment of waste management from the perspective of SMEs north and south. By considering recyclable materials on an All-Ireland basis, some potential 'economies of scale' become apparent – for example the economic viability of facilities to recover WEEE, waste tyres, or waste paper improves as the volume of material available increases. There is also the opportunity to share expertise and technology resources in the waste management sector. A number of successful recycling companies already operate on an all-island basis. Recently, cases of unauthorised waste movement and disposal have come to light, which highlights the need for communication and co-operation between Local Authorities and enforcement bodies in both jurisdictions.

### 14.2.5 Improvements in Waste Regulations and Enforcement

Without question, one of the biggest challenges in waste management in Ireland over the coming five years is regulation and enforcement. Since the mid 1990's the volume of legislation in place in the waste management sector has increased dramatically. Most of the day-to-day implementation falls to the Local Authorities. This new role of *regulator* has gradually taken over from the traditional function of 'service provider' in many Local Authorities. The past five years have seen an escalation in waste facility gate fees, a rapid growth in waste, and a shortage of disposal capacity. Problems of unauthorised disposal have occurred in many Regions. Waste management is increasingly being carried out by private companies, all of whom have to be regulated. The first obligation is to ensure that waste is not handled in a manner that can create pollution. In addition, the ability to plan properly for waste management depends on accurate and up to date statistics. All Local Authorities face a challenge to ensure they have the management systems and resources in place to fulfil all the requirements. With high charges for waste collection, and the recent introduction of use-related charging for household waste, greater emphasis on regulation of waste producers – household and businesses - is also needed.

As identified in the Draft National Biodegradable Waste Strategy (April 2004) some additional legislation is expected at national level to provide an effective on-the-ground remedy to the current negative trend towards the use of back-yard incinerators and in-sink macerator units, both of which cause pollution. Again local enforcement will be required. In 2003/2004 significant additional resources

were provided by the DoEHLG to assist in staffing the regulation and enforcement units. The EPA is carrying out two studies aimed at improving the effectiveness of waste regulation and enforcement across the Country. These projects – a Review of Unauthorised Waste Disposal, and a Review of Waste Permitting - will lead to training programmes for Local Authority staff and new protocols to be used in day-to-day activities. In addition to this, the EPA is co-ordinating a number of useful ‘working groups’ to assist in efficient and consistent implementation of the Packaging Regulations and the movement of waste internationally under the Trans Frontier Shipment legislation.

#### **14.2.6 Use of Economic Instruments**

2002 saw the introduction of the Plastic Bag Levy, which has had a dramatic impact on Irish shopping lifestyles. The Local Authorities are required to enforce the regulations behind the levy. Some of the gains made in the initial phase are now being eroded as people become used to accepting disposable paper bags. Ongoing promotion of reusable shopping bags is needed. A Landfill Levy is also in place in Ireland, and the money collected with each tonne of waste landfilled has been pooled into an Environment Fund, which has benefited the public through the funding of new recycling facilities and environmental awareness programmes. Further economic instruments are being considered – for example to help recover costs of litter from fast food and chewing gum. An economic levy is also an option when ‘producer responsibility’ schemes are being developed. In some countries, a levy is also imposed on incineration plants, in order to keep the emphasis on waste reduction and recycling. In such case the landfill levy is usually set even higher, to support the recovery of energy from waste over landfilling, in accordance with the waste hierarchy.

### **14.3 ENERGY POLICIES AND WASTE MANAGEMENT**

With Ireland under severe pressure to improve performance in relation to Kyoto protocol targets, increasing focus is likely on improving performance in the waste management sector. As well as objective outlined above, it is expected that energy policies will increasingly favour use of renewable resources such as:

- Using food waste, agricultural wastes and industrial sludges to generate biogas for energy generation
- Using wood chips – including residues of clean wood - for energy from boilers
- Developing biodiesel from waste cooking oil
- In power plants and cement kilns, substituting fossil fuels with alternative waste derived materials
- Employing energy efficient district heating systems

The Waste Management Plan needs to retain flexibility to enable such proposals where appropriate.

### **14.4 LEGISLATION AND POLICY AT EU AND NATIONAL LEVEL**

European policy on waste management is embodied in a number of Directives, some of which contain statutory targets for minimising, reusing, recycling or recovering of waste, and have set out a certain timeframe for which these targets must be achieved by member states. Much of the legislation governing waste management in Ireland is based on transposing the EU Directives into law.

### **14.4.1 Recent EU Legislation**

#### **EU Directive (2000/76/EC) on the Incineration of Waste**

This Directive supersedes EU Directives (89/368/EEC and 89/429/EEC) on the incineration of non-hazardous waste, and EU Directive (94/67/EC) on the incineration of hazardous wastes., addressing previous omissions in these Directives. The Directive aims to prevent or limit negative effects on the environment and the resulting risks to human health from the incineration or co-incineration of waste. It sets limit values for the emissions of dioxins, mercury and dusts arising from waste incineration, along with monitoring and operational requirements. The Directive sets out minimum operational requirements in order to guarantee complete waste combustion. The quantity and harmfulness of incineration residues must be kept to a minimum and residues must, as far as possible, be recycled.

All incineration or co-incineration plants planned for Ireland will be Licensed and monitored by the EPA, who will specify the type and quantity of waste allowed to be treated in such plants.

#### **EU Directive on End-of-Life Vehicles**

The EU Directive on End-of-Life Vehicles (2000/53/EC) was introduced in 2000. This Directive proposes to introduce the concept of producer-responsibility in the disposal of end-of-life vehicles by applying a levy to the cost of production of each car that will then be used to recycle and dispose of the vehicle in an environmentally sustainable manner. In addition, Producers must endeavour to reduce the amount of hazardous materials used in the production of vehicles in a way that allows them to be easily dismantled.

#### **EU Directive on Waste Electrical and Electronic Equipment**

The aim of this Directive (2002/96/EC) is to increase recovery rates for waste/scrap items, and to reduce the quantities of this waste stream consigned to landfill. Producers of WEEE are responsible for the recovery of End-of-life equipment such as computers, televisions, vacuum cleaners etc, deemed a priority waste by the EU. The directive includes a target of a minimum of 4kg of WEEE to be collected per inhabitant per year by 2006.

#### **EU Regulation on Animal By-Products**

The Animal By-Products Directive (1774/2002/EC) is important in a waste context in that it regulates the disposal and use of animal by-products that are not intended for human consumption. The Animal By-Products Regulation came into force on May 2nd 2003, and divides by-products into 3 categories, specifying the means of disposal for each category.

## **14.5 RECENT NATIONAL LEGISLATION**

Since the making of the last Plan in 2001, the following legislation has been introduced with relevance to Waste Planning issues. Additional relevant legislation is listed in Appendix B

#### **Waste Management (Use of Sewage Sludge in Agriculture) (Amendment) Regulations 2002**

These replaced the 1991 Regulations on the protection of the environment, and in particular of soil, when sewage sludge is used in agriculture.

### **Waste Management (Licensing) (Amendment) Regulations, 2002**

These Regulations clarify definitions of a number of relevant terms, classify different types of landfills allowed to operate under the licensing system, and stipulates a phasing out of certain types of waste from being accepted at landfills.

### **Protection of the Environment Act 2003**

This Act updates and improves the legislation governing the Integrated Pollution Control (IPC) licensing regime, such that it is replaced by Integrated Pollution Prevention and Control (IPPC) licensing (in order to comply with EU legislation) and provides a statutory basis for incorporating improved groundwater protection requirements. In specific waste management terms, the Act provided for a number of new measures, including the review, variation or replacement of a waste management plan to be an executive function, and the introduction of explicit new powers for Local Authorities to charge for waste services.

### **Waste Management (Licensing) (Amendment) Regulations, 2004**

These Regulations now allow for waste licences to be issued on the basis of Best Available Techniques (BAT) rather than Best Available Technology Not Entailing Excessive Cost (BATNEEC). The application of BAT will further improve the environmental performance from future waste facilities in Ireland. In addition, changes were made to the amount of information to be supplied by applicants to ensure greater transparency in relation to waste activities. Energy Efficiency is now also a consideration in deciding on waste licence applications, and new powers to revoke or suspend a licence based on "fit and proper person" have been introduced.

In general, several amendments have been made to Waste Management legislation over the past five years, primarily aimed at reducing certain waste streams from being landfilled, on limiting the inclusion of harmful materials in the production of goods and products and on a more comprehensive permitting and licensing system.

## **14.6 PENDING WASTE POLICY AND LEGISLATION**

### **Proposed EU Biowaste Directive**

A second draft of the working document on the Biological Treatment of Biodegradable Waste was published by the EU in February 2001. The main aim of this document was to promote the biological treatment of biodegradable municipal waste (BMW) and to help achieve the targets set out by the Landfill Directive. The proposed directive includes the need for Local Authorities to source separate BMW. It is anticipated that this Directive will be very influential in promoting composting of BMW and stipulating quality specifications and uses of compost within the EU. There is a possibility that this directive will be merged with a proposed EU Soil Strategy and revised Sludge Directive, to be finalised in 2005.

### **EU Soil Strategy**

The soil is an environmental compartment which has not being afforded much environmental protection in the past. In order to prevent soil pollution, erosion and lack of soil fertility the EU are taking steps in the development of comprehensive EU policy on soil protection. The first of these steps consisted of the publication of a Communication "Towards a Thematic Strategy for Soil Protection" in 2002. The published document is broad in its approach and paves the way forward on how best to protect soil. The strategy is one of seven 'thematic strategies' foreseen under the EU's 6th Environment Action Programme.

### **New Sludge Directive**

A third draft of a working document on sludge was published in April 2000, which proposed to reduce maximum levels of heavy metals in the soil and sludge in comparison with those limits previously stated in Directive 86/278/EEC. The new Directive will require that producers and handlers of sludge must be certified and ultimately be responsible for the quality of sludge produced. The overall objective of this directive will be to improve the rates of recycling of sludge and organic matter.

### **Solvent Emissions Directive**

The European Council Directive 1993/13/EC on solvent emissions has been issued to address the harmful effects on human health and the environment caused by organic solvents. Organic solvents are used in many industrial processes and, owing to their volatility, they are emitted either directly or indirectly to the air. Such solvents can also inadvertently be released to sewers/waters or onto the ground. The directive has been brought into effect in Ireland through the Emissions of Volatile Organic Compounds from Organic Solvents Regulations, 2002.

There are many different types of businesses at the commercial and industrial level that will be affected by the Directive, such as: dry cleaners, printers, vehicle refinishing, manufacturing of varnish/ink/adhesives and pharmaceutical manufacturers.

A new system known as the Accredited Inspection Contractor (AIC) system will be used to implement the Directive for smaller businesses (larger companies in the IPPC sector are already regulated by the EPA). Non IPPC businesses must register with their Local Authority and submit the AICs annual report in order to obtain a certificate of compliance. The AIC will be reporting on: Solvent raw material, waste solvents, reused solvents, production data etc. Consequently the Local Authorities, namely the Regulation and Enforcement Teams will be responsible for absorbing the regulation of this Directive into their existing workload and ensuring compliance and reporting.

The dates by which a facility must meet air emission requirements, and must register with and obtain a certificate of compliance from their Local Authority are:

If you are a new installation (put into operation on or before 1 July 2003): before you start to operate

If you are an existing installation using the reduction scheme: by 31 October 2005

If you are an existing installation meeting the Emission Limit Values: by 31 October 2007

## **14.7 OTHER RELEVANT EU LEGISLATION**

Additional European Legislation currently being considered includes a Directives on waste tyres. This Directive is expected to set out a 'producer responsibility' approach to management of this waste stream - the producer/ importer of the products will have to take back and pay for recycling of the products at the end of their life. This in turn will cause companies to rethink their product design in order to minimise recycling costs. The details of how this scheme will operate in Ireland are not yet clear, but it is possible that the role enforcing compliance with the WEEE directive will fall to the Local Authority, as is the case with the Packaging Regulations and the Farm Plastics Regulations.

## **14.8 OTHER ENVIRONMENTAL LEGISLATION**

In terms of environmental legislation, an amendment to the Environmental Protection Agency Act of 1992 is expected next year. This is to take account of a 1996 EU Directive relating to integrated pollution prevention control. Government policy is guided by the National Sustainability Document and

a National Environment Partnership Forum to develop the concept of sustainable development. The Forum will represent a cross section of interest groups and a Consultation paper has been produced.

There is also a proposed amendment to Directive 91/689/EC on hazardous waste. This deals with separate collection of certain wastes under separate collection schemes, and requires each Member State to set up public information campaigns to efficiently implement the Directive.

A list of relevant waste management legislation is contained in Appendix B. The introduction of new legislation, together with pending legislative enactments has had a significant impact on how Waste Management Practices have developed in the country.

## 15 RELEVANT DEVELOPMENTS

### 15.1 NATIONAL DEVELOPMENTS

The most pressing national issue with regards to waste management is the remaining capacity of landfills. Table 15.1 outlines the remaining disposal capacities in other Waste Management Plan Regions close to the Dublin Region:

**Table 15.1 Landfill Disposal Availability in Neighbouring Regions**

Region	Local Authorities	Approximate Remaining Capacity
Midlands	North Tipperary, Longford, Westmeath, Offaly and Laois Co. Co.	Four landfills in operation, c 1.2 million tonnes - latest projected closure date 2016, a further landfill is proposed by the private sector.
North East	Meath, Louth, Cavan, Monaghan	Four landfills in operation. 2.2 million tonnes - latest projected closure date 2022
Wicklow	Independent Waste Plan	One facility in operation (Rampere – expected closure 2009/2010), a second facility has planning and licence approval and can accept up to 80,000 tpa from Dublin for c. 15 years
South East	Wexford, Carlow, Kilkenny, South Tipperary, Waterford Corporation & Co. Co.	Limited remaining capacity in 6 existing landfills – two new facilities proposed
Kildare	Independent Waste Plan	KTK landfill included in Chapter 12. No landfill for household waste. Two proposed facilities at planning stage.

In addition a number of regions are proposing to develop capacity for thermal treatment of waste. The most advanced proposals are as follows:

- Ringaskiddy Hazardous Waste Incineration Facility – proposed by Indaver Ireland this has achieved planning permission and a decision on its Waste Licence Application is expected in 2005.
- Proposed Waste to Energy Plant in the North East – proposed by Indaver Ireland, this facility has planning approval and a decision on its Waste Licence Application is expected in 2005.

### 15.2 INTERNATIONAL DEVELOPMENTS

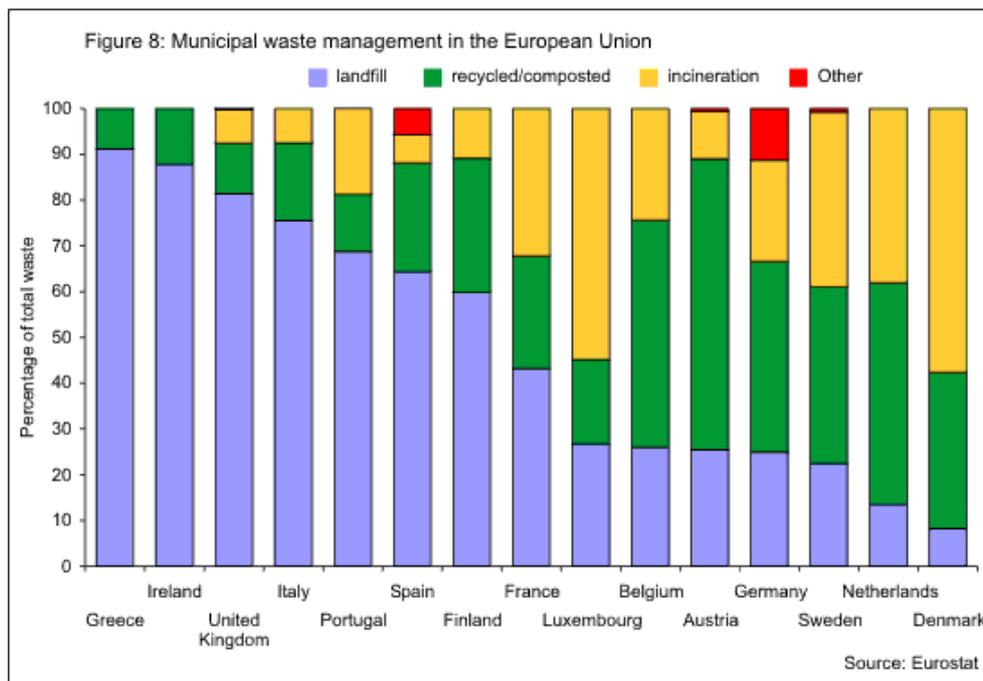
#### Zero Waste

Throughout the consultation process many submissions believed that the 'Zero Waste' model should be adopted throughout the country as has been done in New Zealand, South Australia United States and Canada. Zero Waste includes 'recycling' but goes beyond recycling by taking a 'whole system' approach to the flow of resources and waste through society. Zero Waste maximises recycling, minimises waste, reduces consumption and ensures that products are made to be reused, repaired or recycled back into nature or the marketplace. A zero waste philosophy accepts that there will be a steadily shrinking residue of waste requiring disposal for some time into the future and that landfills, as a means of waste disposal will gradually be phased out. The Waste Management Plan acknowledges that the Zero Waste model is a long term goal that the Dublin Region should work towards. Many of the practices and initiatives associated with zero-waste strategies have been included as policy objectives of this Plan.

## Waste Management in Other Countries

Most EU Member States are gradually reducing reliance on landfill disposal as the primary means of dealing with waste. This is being achieved primarily by switching to systems involving recycling (materials recovery), biological treatment (composting & anaerobic digestion) and energy recovery using thermal treatment. The level of dependence on any one system of waste management is a function of many factors, such as the availability of land, the requirement for energy, degree of urbanisation and the stage of development of the economy and society.

**Figure 15.1 Waste Management in the European Union 2001\***



\*Note – Ireland's current recovery rate (28% according to the EPA Interim National Waste Database Report for 2003) is higher than shown above: the graphic has not been altered for consistency with other states)

Developing a capacity to recover energy from the residual waste of the Region is a sensible way for the Dublin Region to meet the requirements of the EU Landfill Directive. Whilst waste to energy facilities are a new process for Ireland, countries in the European Union and other continents have been operating them for many years. Figure 15.1 illustrates that countries with incineration often have high recycling rates.

## Use of Economic Instruments

The European Commission has expressed its view that the use of economic and market-based instruments is considered to be the most promising way to promote recycling and has further indicated its intention to make full use of its right of initiative to propose legislative measures aimed at achieving more sustainable waste management. Examples of economic instruments currently employed by other Member States include:

- Surcharges on a landfill levy for the deposit of municipal waste in landfills that do not have state-of-the-art systems for the collection and treatment of landfill gas
- The application of a landfill levy to any party exporting waste from the State for the purpose of depositing that waste
- A surcharge on the rate of the landfill levy for waste from outside the area covered by the local waste management plan, and
- A reduced landfill levy in relation to all inert waste

## 15.3 NATIONAL DEVELOPMENTS - TRENDSETTERS

The following case studies highlight the positive and successful projects that have been achieved in all areas of waste management through the country.

### Waste Prevention & Minimisation for Business



In Dún Laoghaire-Rathdown County Council (DLRCC) a full time Green Business Officer has been appointed, whose sole function is to raise awareness and provide support to businesses in the area and who has been carrying out this function by usefully applying a variety of tools and instruments. A number of focused and worthwhile events have been facilitated from 2002 – 2004. An event specific to hospitals was held in November 2002 where information was presented and staff from hospitals could discuss common issues of concern and potential solutions. Such

events provide practical information from external experts as well as motivational good practice case studies for local businesses and SMEs. The Green Business Officer works in co-operation with businesses, business associations, chambers of commerce, elected representatives and recycling companies in the development of a Green Business Network. This group aims to bring businesses and other stakeholders together to share experiences and allow networking to find environmental solutions for the benefit of individual companies, sectors and the Region a whole. This is an excellent example of a worthwhile co-operative approach to stimulating beneficial environmental change and is based on best practice principles. The Green Business Officer also visits individual companies, outlining their requirements in legislation, giving advice, encouragement and support. Companies can be assisted, free of charge, with a waste review, setting up a management system, talking to staff, providing advice on recyclers, composting, waste handling equipment, etc. According to the *Green Business Programme Report 2003*, 28 companies received a full waste consultation in 2003 and 136 business were visited.

### Kerry County Council - EcoSense ANSWER Project

The ANSWER (A New Solid Waste Environmental Response) Project was a three year demonstration project funded under the 1999 EU Life Programme. The aim was to develop a new waste management programme for South Kerry. The project required Kerry County Council to work in cooperation with individuals, local communities, commercial sector and non-government organisations to achieve a number of aims.

- To reduce municipal solid waste arisings by 25% by waste avoidance and minimisation measures
- To identify sustainable outlets to divert 60% of the remaining municipal solid waste from landfill by waste recycling and recovery
- To identify appropriate supporting financial instruments
- To assess employment potential of local waste recovery/treatment facilities

The project programme involved formation of a working group to oversee the project, a public awareness campaign to run the duration of the project, information and advice centres, a central composting scheme to be established in Killarney, on board weighing and identification system on all collection vehicles and identification and development of suitable markets for the recovered/recycled waste. The project succeeded in raising the awareness of the waste issue among the general public and the commercial sector and increased the diversion rate of waste from landfill. Over the three year period the rate of waste disposal decreased by 12.5% in the project area and the tonnes of material recycled in the project area increased from 945 tonnes in 1999 to 5472 tonnes in 2002.



### Integrated Household Waste Recycling

Two Local Authorities have taken a lead in terms of household waste recycling, these are Galway City Council and Waterford County Council. Galway City Council has approximately 18,000 household customers, and since 2001 has implemented a 3-bin collection scheme helping the city reach just over 51% household waste recovery.

Waterford County Council is the first Local Authority to offer a 3-bin system to its entire catchment of household customers, including rural areas. The dry-recyclables collection has been underway since 2003, and the organic waste bin was introduced in 2004. Composting is carried out at a facility established by Waterford City Council (who also have a 3-bin household waste service) operated by a private company. Recycling Centres have also been set up at Tramore, Dungarvan and Lismore for drop off of recyclable bulky wastes.



These successful schemes have the following common characteristics:

- Schemes were rolled out with the support of a team of awareness offices – in Galway 10 staff called door to door to explain the new system before the phased roll-out of bins. Support is ongoing and information campaigns relate the performance back to the public.
- Collections are alternated (bin collections are fortnightly) to reduce overall collection costs
- The Local Authorities collect household waste themselves but benefit from partnership with private waste industry (sorting and baling dry recyclables for both, and composting in the case of Waterford)
- Customer satisfaction is high, but regulation and bin-inspections are still required to ensure the householder is using the right bin. Non-compliant bins are not collected by the Local Authority

### Use-Related Charging

The changeover to use-related charging in 2005 has created new challenges for the Local Authorities and waste management companies. A number of collectors – such as Cork County Council, Dun Laoghaire Rathdown County Council, Mulleady (Longford) and Mr. Bin Man (Limerick) have already proven the effectiveness of these systems.

Mc Elvaney Waste in County Monaghan equipped its vehicles and bins with new electronic systems and commenced a 'pay-by-weight' system for its 6,000 household customers from January 1<sup>st</sup> 2003. Two wheelie bins are employed – the residual bin is collected up to 40 times per annum (depending on how often it is filled by the householder). A flat rate of €79 is charged every six months, with an additional charge of €11.50 per 100Kg of waste presented. The dry-recyclables bin is collected monthly.

Since the introduction of the service, the weight of waste presented for disposal has dropped by 40% to 0.7 tonnes/ household. About half of the weight has transferred to the recycling bin, with use of bring banks (for glass, textiles, cans), home composting, and waste prevention assumed to be taking the balance. Furthermore the scheme has proven popular with householders after a few teething problems were addressed.

### Green Waste Composting



A number of Local Authorities have been successfully composting green waste for several years. The system offers a relatively low-cost option that diverts substantial amounts of waste away from landfill. With a growing urban population and increased attention to landscaping and gardening, the quantities of garden waste will continue to grow in all counties. Successful schemes are operated by Cork City Council, Kerry County Council, South Dublin County Council, Limerick County Council as well as a growing number of private facilities. The facilities typically comprise a concrete composting slab with leachate collection, and machinery such as windrow

turner, shredder and loading shovel. With Irish green waste enjoying low levels of contaminants, the market potential for the finished compost is healthy.

### C&D Waste Management Facility

A number of private C&D waste recycling facilities have been put in place that demonstrate the huge potential for recycling of this major waste stream. In the Greater Dublin Region, a range of facilities are in operation achieving high levels of materials recovery. Companies such as A1 Waste, Roadstone, and Marrakesh are all producing crushed concrete for use as engineering aggregate while recovering other materials such as metals and timber for recycling.



### WTE and District Heating (Dublin City Council Poolbeg Waste To Energy (WTE) project)



The Dublin Local Authorities are keen to tap into the potential environmental benefits offered by the energy created from waste to energy plants. The Poolbeg WTE plant will generate up to 35MW of electrical energy for export to the national grid, but further benefits may be possible.

In 2003 Dublin City Council sought expressions of interest from interested parties who could potentially become Service Providers to supply heat energy to customers in Dublin City and so supervise the propagation of District Heating in the City. Discussions have taken place with a number

of potential customers in new developments proposed in the city. These have focussed on concentrated, new-build development which is most suited to District Heating, particularly in the first few years of network development.

Utilisation of thermal treatment facilities as sources of heat for district heating energy supply is well established in certain European countries, most notably Denmark and the Scandinavian countries.

This is largely due to the historical support for the development of district heating networks locally and nationally. A large district heating network can ensure that there is a steady demand for heat. This can allow power stations to achieve a high level of overall energy efficiency through combined heat and power (CHP) operation. In addition, where district heating is practical to implement, there can be tangible benefits to local communities served by the plant. District heating can be applied in Ireland even though our climate is relatively mild compared to Denmark and Northern Europe where district heating is widespread.

### **Market Development Midlands Region – Sustainable Design of Recycling Centres**

Developing markets for materials recovered from waste is a key requirement for successful recycling. In a bid to demonstrate what can be achieved with 'waste' materials, the Midlands Local Authorities have decided to put some novel ideas into place in new recycling centres being developed under the Midlands Regional Waste Management Plan. With the help of grant aid from the EPA Cleaner Greener Production Programme, a number of innovative design initiatives are planned for the new Recycling Centres in Mullingar and Edenderry.

- Recycled glass for paving surfaces
- Asphalt plantings in the bituminous pavement
- Recycled crushed concrete in foundations
- Compost from household food and garden waste in landscaping

In addition, a range of other eco-friendly features including renewable energy, rainwater harvesting and sustainable building concepts are being used in the design. The project is led by Offaly and Westmeath County Councils.

### **Regulation and Enforcement – Dublin Region**

In 2004 a Regional Waste Enforcement Unit was established by the Dublin Local Authorities (Dublin City Council and Fingal County Council). The unit has 10 field staff under the direction of a manager, and some administrative back-up. Through training and experience, the staff have skills in auditing, health and safety, surveillance, developing evidence for legal prosecution etc. The unit is also set up with flexibility in mind, so that checkpoints and surveys can be carried out during weekends or at night. To date the unit has been active in regulating waste collection across the Region, and in dealing with specific cases where a Regional approach is required. The staff work in close co-operation with Gardaí, Customs Officers and Dublin Port officials. Other objectives include detailed auditing and monitoring of permitted waste facilities.

Each of the four Dublin authorities continues to carry out its own regulation and enforcement of waste management legislation, but the Regional Unit is an additional resource to be used where and when required. It has had a positive impact to date on restricting unauthorised waste movement.

### **Wicklow County Council – School Book Exchange**



The School Book Exchange first began in 2003 using one room of the Education Centre and was staffed part-time by two students. Approximately 8,000 books were received and of these 3000 were kept in circulation for reuse in schools and the remainder were sent for paper recycling in the UK. The programme was so successful it was run again in 2004 but with several improvements. A second hand portacabin was purchased and two students were employed full time for the summer. The local schools were notified at Easter that second hand books would be available for purchase. Consequently nearly 20,000 books were received at the centre of these 5,000 books were sold for reuse, 10,000 were sent for recycling and 5,000 sent to orphanages in Liberia run by the Irish Army .

## 16 WASTE PROJECTIONS

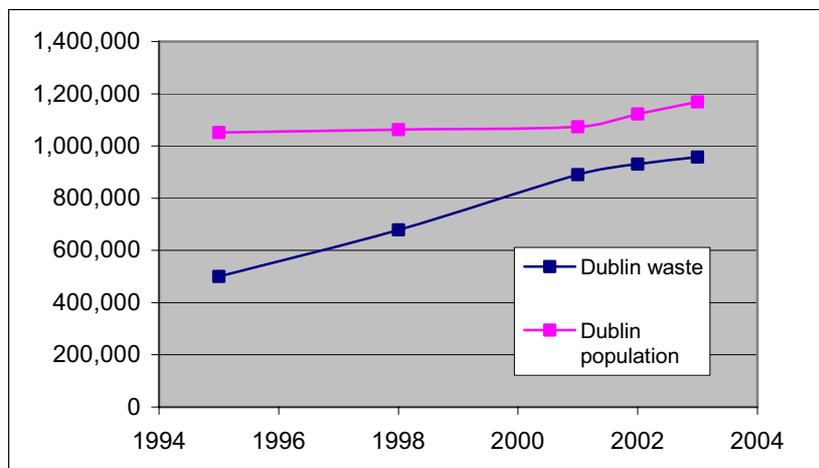
### 16.1 RECENT TRENDS IN WASTE GENERATION

In order to manage future waste arisings it is necessary to predict how much waste will be generated in the various sectors using information at hand today. Projections are included in this Plan for household waste and commercial/industrial waste streams, and consideration has also been given to construction/demolition waste.

With a rising population and a gradually falling average household size (just under 3 people per house in 2002), the number of households in the Dublin Region has been growing sharply in the last decade. Based on population increases forecast in the Regional Planning Guidelines for the Greater Dublin Area (RPGs), the number of households will already have exceeded 400,000 in 2004, and by 2014 will have exceeded 500,000. Economic growth is linked with increased waste generation, and the strong economic growth since the mid 1990's is another factor influencing waste generation upwards.

Figure 16.1 below summarises municipal waste growth in the Dublin Region over the past 9 years. The growth in waste from 1995 to 2001 is dramatic, although some of the increase is due to improved reporting and regulation of waste. In the last two years growth has moderated to approximately 3-4% per annum. This is not dissimilar to the national profile provided by the Environmental Protection Agency. As demonstrated in Section 4, most of the growth has been in commercial/industrial waste.

**Figure 16.1 Municipal Waste Growth in the Dublin Region.**



### 16.2 FACTORS INFLUENCING WASTE GROWTH

A variety of factors are at play in influencing future waste growth per capita or per household. Some of the main factors influencing the household sector are discussed below.

**Table 16.1 Factors Influencing Household Waste Generation**

Factors driving growth	Factors driving reduction
<p><b>Economic prosperity</b> – growth in economic output is commonly linked with growth in waste arisings. A key aspect is increased consumer spending power which influences household and commercial/ industrial waste.</p> <p><b>Health and Safety requirements</b> – increased packaging, food safety (encourage to throw away rather than save food)</p> <p><b>Lifestyle Factors</b> (Influenced by workforce productivity, technology advances, etc..) e.g. growth in convenience meals – more packaging.</p> <p><b>Internet Shopping</b> – if ‘distance buying’ increases substantially, this might increase packaging generated at household level.</p> <p><b>Falling prices</b> for goods such as clothing and household electronic goods means more frequent purchases and higher obsolescence (repair is more costly than replacement)</p> <p><b>Improved waste systems</b> – especially composting of green waste – material otherwise left in the garden may be presented for central composting.</p>	<p><b>Prevention and Minimisation Actions</b> - Increased awareness of waste management and motivation to change shopping and lifestyle habits – driven by national and local waste prevention and minimisation campaigns (Race Against Waste etc.)</p> <p><b>Economic instruments</b> – use related charging: this has been demonstrated to change the way people manage waste. As well as increasing recycling it can influence consumer behaviour and promote for example home composting and ‘sensible shopping’.</p> <p><b>Reduced household size</b> – the average occupancy in households is falling towards the European average.</p> <p><b>More compact housing</b> – apartments / duplex housing etc. – no garden waste. Apartments produce less waste.</p> <p><b>Producer Responsibility</b> – when enforced by government, this can influence manufacturers and suppliers to ‘design out’ waste</p>

It is difficult to predict how these forces will interact and what the net outcome will be. Only some of these factors can be influence by the Local Authorities, most of them depend on societal changes in Ireland and globally. For this Plan, we have assumed that the level of waste produced by each household will level off at 1.25 tonnes/household by the year 2006.

## 16.3 APPROACH TO PROJECTIONS

### 16.3.1 Household Waste

The general approach followed is summarised below.

Step 1 – the projected number of households is taken from published sources,

Step 2 – a prediction is made of the waste which will be generated per household

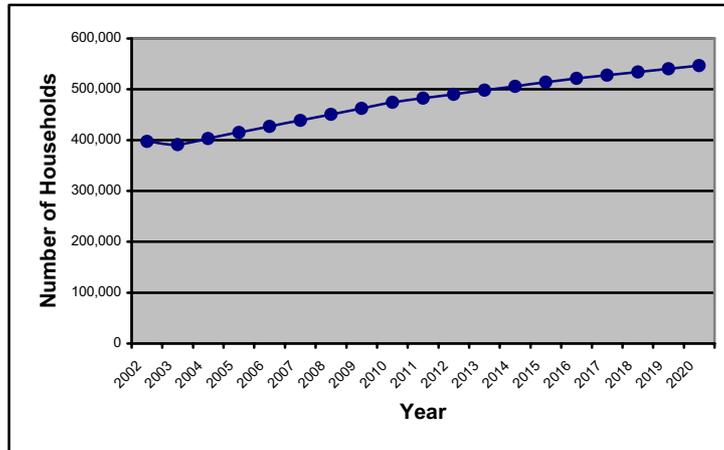
Step 3 – for each future year, household waste generation is the product of the numbers of households and the waste per household.

The household numbers from the RPGs are used for the final projections, however recent projections on national population growth (CSO Population and Labour Force Projections, December 2004) suggest that Ireland’s overall population is set to rise beyond the levels of the National Spatial Strategy, which may in turn require other Plans to be updated in due course. Once the results of the 2006 Census of Population are available, the actual growth in household and population numbers can be compared with current projections – this could be done in the Annual report on Plan implementation (See Section 22).

The final projections chosen for household waste are reasonably close to these other projections; for the year 2010 the plan projections fall between Bacon and the DoEHLG.

The target for household waste prevention is to arrest the growth in waste arisings per household and to achieve a levelling off at 1.25 tonnes per annum by 2010.

**Figure 16.2 Growth in Household Numbers Predicted from the RPGs**



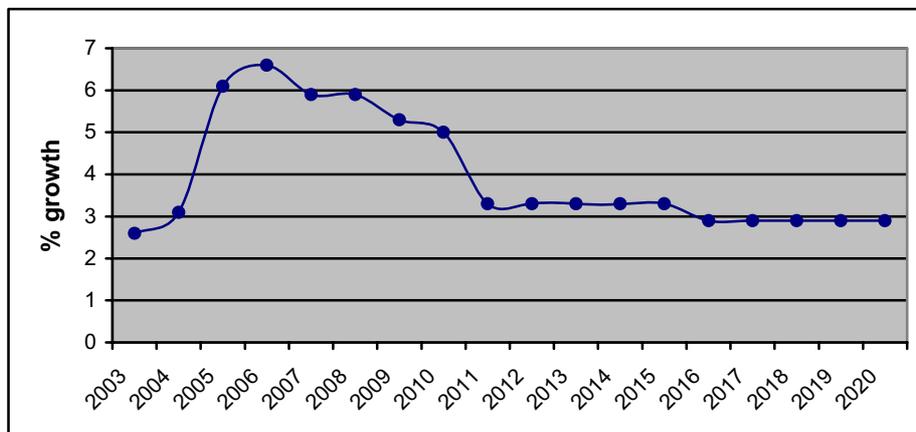
A number of scenarios were considered and the growth projections were compared with other recent projections, including those made by the DEHLG ('Overview of Waste Management Plans, 2004) and by economist firm Bacon Associates (prepared in 2002 for a private waste management company).

**16.3.2 Commercial/Industrial Waste**

For commercial/industrial (C/I) waste, the projection is based on likely future economic growth in the Region as summarised in GDP growth projections. A 'prevention factor' is also included since the rate of growth in waste is not expected to match GDP growth – i.e. decoupling of waste and economic growth will be achieved to a certain extent. Current C/I generation is taken as the baseline.

The target for commercial/industrial waste prevention is to achieve partial decoupling of economic growth (measured in national GDP) from waste growth over the period 2005-2010. The 'prevention factor' is intended to represent the degree of decoupling that can be achieved compared with forecast GDP increases (see Table 16.2 overleaf).

**Figure 16.3 National GDP Forecasts (ESRI)**



### 16.3.3 Summary of Projections

The following summarises the projections for waste arisings in Dublin for the period 2003 – 2020.

**Table 16.2 Commercial/Industrial Waste Projections**

Year	GDP growth (%)	Prevention Factor	Net Waste Growth
2003 (actual)	2.60	1.5	1.1
2004	3.10	2.0	1.1
2005	6.10	2.5	3.6
2006	6.60	3.0	3.6
2007	5.90	3.5	2.4
2008	5.90	4.0	1.9
2009	5.30	3.5	1.8
2010	5.00	3.0	2.0

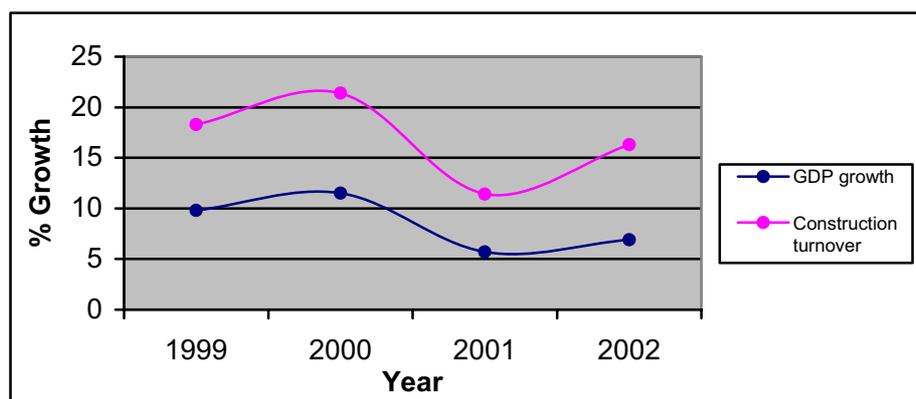
**Table 16.3 Summary of Projected Waste Arisings in Dublin for the Period 2003 – 2020**

Year	Household	Commercial/ Industrial	Total Municipal & Industrial
2003	459,282	659,755	1,119,037
2004	475,696	676,958	1,152,653
2005	492,187	701,328	1,193,515
2006	508,832	726,576	1,235,408
2007	523,016	744,014	1,267,029
2008	537,199	758,150	1,295,349
2009	551,383	771,797	1,323,180
2010	565,567	787,232	1,352,799
2011	574,932	797,467	1,372,399
2012	584,298	807,834	1,392,131
2013	593,663	818,335	1,411,998
2014	603,028	828,974	1,432,002
2015	612,394	839,750	1,452,144
2016	621,723	855,706	1,477,429
2017	629,171	871,964	1,501,135
2018	636,618	888,531	1,525,150
2019	644,066	905,414	1,549,479
2020	651,513	922,616	1,574,130

## 16.4 GROWTH IN CONSTRUCTION/DEMOLITION WASTE

The turnover in the construction sector has continued to grow in excess of the rate of GDP growth, and currently a very high level of development is underway right across the four Local Authorities. Nevertheless there are some indications for an evening off or contraction in construction activity in the years ahead.

The availability of statistics on C&D waste is poor but gradually improving as regulation of the waste stream improves. C&D waste arisings in 2003 seem to be about 300% higher than the estimates carried out in 1997, but some of this growth may be due to better reporting rather than actual growth.

**Figure 16.4 GDP Growth Compared with Construction Industry Turnover Growth**

A large proportion of the 4 million tonnes currently managed is soil, excavated for major projects such as housing, offices or infrastructure such as road, rail or water/ wastewater treatment. There are a number of factors that will influence the quantity and type of C&D waste to be generated in the coming years.

**Table 16.4 Factors Influencing C&D Waste Generation**

Factor	Influence	Likely Result
National Spatial Strategy	Calls for more compact urban forms and brownfield redevelopment: Hence urban renewal and demolition likely to take a bigger share of development. Balanced Regional Development.	Increase in demolition waste (concrete, brick, timber, metal) and possibly contaminated soil. Possibly more growth in Regions outside the GDA.
Underground Parking	Current approach is for one or two-storey basement for parking and services in urban developments. Significant excavations required. Limited chance to minimise waste.	Continued generation of soil requiring off-site disposal.
Prefabricated construction	Tendency to assemble pre-cast and pre-manufactured building components may reduce the generation of traditional waste (e.g. concrete) but also increase for example packaging waste.	Changing waste composition towards packaging and less traditional materials.
Higher waste management costs (gate fees, transport) Greater awareness and know how among building professionals	Developers are more acutely aware of waste costs and will favour schemes that reduce wastage. Designers – Engineers and Architects – becoming more adept at reducing waste at source and retaining materials on site for landscaping etc. in order to reduce traffic and waste costs.	Will serve to counteract C&D waste growth.

## 16.5 FUTURE WASTE MOVEMENTS

Chapter 4, Section 4.4 summarises the current major movements to and from the Dublin Region for both Hazardous and Non Hazardous waste. The future plan of waste movements is likely to be similar and cannot be predicted to any greater degree of accuracy. Refer to Section 18.11 of the Plan for future Policy on Inter-Regional Waste Movement.