Forfás

Key Waste Management Issues in Ireland

THE NATIONAL POLICY AND ADVISORY BOARD FOR ENTERPRISE, TRADE, SCIENCE, TECHNOLOGY AND INNOVATION

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December 2001

Foreword by An Tánaiste and Minister for Enterprise, Trade and Employment,

Ms. Mary Harney, T.D.

The publication of this Forfás report is timely and welcome as a reasoned contribution to the current debate on waste management issues. Current industrial policy is driven by the overriding requirement to maintain our competitiveness and the provision of adequate infrastructure, including waste facilities, is a significant factor towards this end.

The problem and challenge of waste management has become a significant cause of concern, particularly for enterprise. Previously taken for granted, because of the availability of low cost landfill options, the absence of an integrated waste management infrastructure has, in recent times, moved rapidly to the top of the agenda for many of the industrial sectors.

While all industrial sectors produce significant quantities of waste, recent progress has shown that, through the adoption of more sustainable activities such as waste minimisation, prevention and recycling, an ever increasing proportion of these wastes are being slowly diverted away from landfill.

It is imperative that the principles of sustainability, encompassing economic, social and environmental aspects, will, in the future, form an integral part of developmental policies in Ireland. The approach should continue to maintain high environmental standards including waste management, while also promoting a competitive enterprise sector.

Although the adoption of an integrated approach to waste management is the goal, it will, however, represent a significant challenge to the industrial sector. There are no easy answers or quick fixes to the waste problems. We must work towards a more sustainable and integrated strategy for the management of wastes. Solutions will require a major change in attitudes in facing up to the waste problem. This is the key task to achieve progress. An overriding requirement is an acceptance that waste management is a significant and growing problem, caused by and affecting us all. We must foster a culture which puts minimisation, reuse and recycling to the forefront.

Mary Harney, T.D.
Tánaiste and Minister for Enterprise, Trade and Employment

Foreword by Minister for the Environment and Local Government,

Mr. Noel Dempsey, T.D.

After many decades of neglect, we have worked hard over the last 4½ years to put in place a sound basis for addressing this country's major waste management challenge. Building on the foundations laid in the 1996 Waste Management Act, we have –

- published the major "Changing Our Ways" policy document which for the first time provided this country with a coherent and comprehensive approach to waste management;
- overseen the putting in place of waste management plans in every local authority area in the country – introducing, along the way, strong new legislation in the form of the Waste Management (Amendment) Act 2001 to ensure that this process was brought to a conclusion without further delay;
- introduced a comprehensive modern regulatory regime including, most recently, a new system of permitting for waste collectors which will ensure the highest standards in our waste collection system, facilitating better controls on the movements of waste and providing valuable assistance in combating illegal dumping.

Our approach over the last 4½ years has been firmly rooted in respect for the internationally recognised waste management hierarchy. While we have now completed the planning phase and moved on into implementation, the order of our waste management priorities remains the same – prevention, minimisation, re-use/recycling, energy recovery and, finally, safe disposal.

Nobody should be fooled into thinking that turning our waste management plans into reality will be easy or painless. But equally we cannot fool ourselves into thinking that we can continue to achieve strong economic growth without an adequate and integrated waste infrastructure. Modernising waste management is therefore an urgent priority, in support of social and economic growth, and improved environmental protection.

I welcome the publication of this Forfas report, which provides a constructive input from key stakeholders at this time. It offers a particular perspective on some of the complex issues involved. Some of the recommendations contained in the report are already being pursued - others will require careful consideration and evaluation, as we go forward.

We are on the way to matching best international practice in relation to waste management. It is a long road ahead but it is a road that we can – and must -travel.

Noel Dempsey, T.D.
Minister for the Environment and Local Government

FUNCTIONS OF FORFÁS

Is é Forfás an bord náisiúnta um polasaí agus comhairle le haghaidh fiontraíochta, trádála, eolaíochta, teicneolaíochta agus nuála. Is é an comhlacht é a bhfuil comhactaí dlíthiúla an stáit maidir le cur-chun-cinn tionscail agus forbairt teicneolaíochta dílsithe ann. Is é an comhlacht é freisin trína dciomnaítear cumhachtaí ar Fhiontraíocht Éireann le tionscail dúchais a chur chus cinn agus ar ghníomhaireacht Forbartha Tionscail na hÉireann (GFT Éireann) le hinfheistíocht isteach sa tir a chur chun tosaight. Is iad feighmeanna Fhorfáis:

- *comhairle a chur ar an Aire ó thaobh cúrsaí a bhaineann le forbairt tionscail sa Stát*
- *comhairle maidir le forbairt agus comhordú polasaithe a chur ar fáil d'Fhiontraíocht Éireann, d'GFT Éireann agus d'aon fhoras eile dá leithéid (a bunaíodh go reachtúil) a d'fhéadfadh an tAire a ainmniú trí ordú*
- *forbairt na tionsclaíochta, na teicneolaíochta, na margaíochta agus acmhainní daonna a spreagadh sa Stát*
- *bunú agus forbairt gnóthas tionsclaíoch ón iasacht a spreagadh sa Stát, agus*
- *Fiontraíocht Éireann agus GFT Éireann a chomhairliú agus a chomhordú ó thaobh a gcuid feidhmeanna.*

Forfás is the national policy and advisory board for enterprise, trade, science, technology and innovation. It is the body in which the State's legal powers for industrial promotion and technology development have been vested. It is also the body through which powers are delegated to Enterprise Ireland for the promotion of indigenous industry and to IDA Ireland for the promotion of inward investment. The broad functions of Forfás are to:

- *advise the Minister on matters relating to the development of industry in the State*
- *to advise on the development and co-ordination of policy for Enterprise Ireland, IDA Ireland and such other bodies (established by or under statute) as the Minister may by order designate*
- *encourage the development of industry, technology, marketing and human resources in the State*
- *encourage the establishment and development in the State of industrial undertakings from outside the State, and*
- *advise and co-ordinate Enterprise Ireland and IDA Ireland in relation to their functions.*

Contents

List of Acronyms

PPP	Public Private Partnership
IBEC	Irish Business Employers Confederation
DoELG	Department of Environment and Local Government
EPA	Environmental Protection Agency
ENFO	Environmental Information Service
DH&C	Dept of Health and Children
NSS	National Spatial Strategy
LA's	Local Authorities
SEA	Strategic Environmental Assessment
NDP	National Development Plan
RWMB	Regional Waste Management Boards
IPC	Integrated Pollution Control
EU	European Union
EC	European Community
EI	Enterprise Ireland
DETE	Dept of Enterprise, Trade & Employment
IPC	Integrated Pollution Control
NRA	National Roads Authority
CC	Cork Corporation
CIE	Coras Iompar Eireann
IDA	Industrial Development Agency
NIMBY	Not-in-my-backyard
DDDA	Dublin Docklands Development Authority
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
GDP	Gross Domestic Product
IPP	Integrated Product Policy
EMS	Environmental Management System
SME	Small and Medium Enterprise
ISO	International Standards Organisation
EMAS	Eco Management and Audit Scheme
C&D	Construction and Demolition
WHO	World Health Organisation
IPPC	Integrated Pollution Prevention Control
WMC	Waste Management Centre
SDZ	Strategic Development Zone

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Executive Summary

1.1 Background

By mid September 2001, every local authority in the country had adopted a plan for managing nonhazardous waste either within its own county or as part of a regional strategy. Furthermore, in July this year the Environmental Protection Agency (EPA) published a national plan for the management of hazardous waste.

These plans reflect national and European policy, marrying environmental philosophies - including 'the polluter pays' principle and the waste management hierarchy of prevention, reuse and recycling, and energy recovery - with value for money considerations for the State and the engagement of the private sector through public private partnerships (PPP).

Together, they provide the plans, for the first time ever, for a modern, environmentally responsible and cost-effective waste management system to take this country into the future. **The critical task now is to implement these plans.**

With the rate of waste generation continuing to increase and existing waste disposal sites reaching the end of their useful lifetime, coupled with the possibility of overseas facilities for the treatment of hazardous waste being closed off to Irish industry, this is now a matter of urgency. If this situation is not addressed, industry will be either forced to scale-down its operations or be deterred from establishing in Ireland.

To progress from the planning stage to the delivery of programmes for waste prevention and minimisation and the development of infrastructure for recycling and energy recovery, a Forfás Waste Management Task Force was established, bringing on board representatives of the Environmental Protection Agency (EPA), the Department of the Environment and Local Government (DoELG), IDA Ireland, Enterprise Ireland (EI), The Department of Enterprise, Trade and Employment (DETE), the Irish Business Employers Confederation (IBEC), and business interests.

In its deliberations, the waste management task force focussed on three areas critical to the implementation of an integrated waste management system. Within each of these three areas, the task force has identified three separate actions that need to be taken:

Building Consensus and Improving Co-ordination

- *A two-way communication programme should be implemented to help in arriving at a shared national vision for waste management within the framework of the integrated strategy that now exists. In order to meet the public desire for more information on waste issues, this programme should be supported by an expert information group, capable of answering specific technical questions.*
- *A National Waste Management Agency should be established to provide the co-ordination and focus required to fulfil the wide range of functions needed to implement national, regional and county waste management plans.*
- *Regional Waste Management Boards to include the same local authorities that came together in the formulation of the regional waste management plans, should be put in place to work with the National Waste Management Agency, while maintaining local ownership of plans.*

Accelerating the Planning Process

- *The Strategic Environmental Assessment (SEA) approach should be used to identify how best to minimise any potential negative impacts in developing the new infrastructure specified in the national, regional and county plans, and these plans should be incorporated into the overall framework of the National Spatial Strategy (NSS), so that supporting infrastructure can be planned.*
- *Considerable delays and uncertainties are involved in the current planning process and this is likely to deter private investment in waste management facilities. A series of stages in the planning process mean that a single project involves three or more layers of public consultation and ultimately many routes of potential legal challenges.*

  An alternative planning process is proposed based on the pre-designation of "Waste Management Centres", a concept contained in the Planning and Development Act, 2000. Potential sites for specific types of waste management projects would be identified and a planning scheme and baseline Environmental Impact Statement (EIS) developed. The planning process would then be completed in the normal way with a full third party objection and appeal process.

  If the scheme is adopted, private or public developers could apply to establish eligible waste management projects and would be approved provided they complied with the detailed requirements of the scheme. Waste or integrated pollution control (IPC) licence applications would still be pursued in the normal way.
- *Incentives should be provided to compensate for perceived and real dis-amenities experienced by a community as a result of hosting a waste management facility on behalf of the wider population. Where such incentives or 'community gains' are relevant, research should be carried out to identify the benefits that would be most useful from the community's point of view.*

Delivering Programmes and Infrastructure

- *Demonstration programmes and best practice guidelines should be put in place to promote waste prevention and minimisation. Public bodies should play a lead role by implementing waste prevention programmes within their organisations. In addition, increased landfill costs should be coupled with better enforcement of existing waste legislation to prevent illegal disposal of waste.*
- *EI and the DoELG should pool their expertise and work to promote the establishment of recycling projects by the private sector. Measures should be put in place to ensure effective segregation of waste streams at source, and public bodies should help to stimulate markets for recycled materials by removing barriers to the use of such materials in public construction projects, adopting green purchasing procedures within their own organisations and attaching relevant conditions to the award of contracts and tenders to external groups.*
- *A central facility for the thermal treatment of nonhazardous and hazardous waste should be developed in a location such as County Cork, which produces over 60% of Ireland's industrial hazardous wastes. Potential impacts from increased traffic should be addressed by traffic management programmes.*

These nine action areas are outlined in brief below, and are discussed in greater depth in Chapters Two, Three, and Four of this document.

1.2 Building Consensus and Improving Co-ordination

Progress in the development of critical new waste management infrastructure is being impeded both by the lack of public consensus on the way forward within the framework of an integrated waste management strategy and by the absence of national and regional focus in the co-ordinated and consistent implementation of this strategy.

1.2.1 A Two-way Communication Programme

A two-way communication programme, providing information and seeking feedback, would help in arriving at a shared view of the best way to move forward with integrated waste management. It would be supported by an expert information group, to answer specific technical questions, and it would be delivered nationally, with a local focus on the areas where progress on waste management is now becoming most critical. In addition, as a secondary goal, it would promote the need for greater emphasis on prevention and minimisation and the correct segregation of waste on the doorstep, and this element of the campaign would be targeted at those in the best position to effect behavioural change.

Specifically, it is recommended that:

i *An ongoing programme of two-way communication should be implemented over a five-year period, with an initial two-year budget of €2.0 and €2.5 million. (DoELG)*

ii *The process used should be one of consensus building with local communities.*

iii *The programme should have a national framework, but it should also have a strong local focus, with a priority on Dublin and Cork and on areas with particular problems such as Galway, Roscommon, Mayo and Limerick.*

iv *The Environmental Protection Agency (EPA) should be responsible for delivering the programme pending the establishment of a National Waste Management Agency.*

v *The Environmental Information Service (ENFO) should co-ordinate activities of Local Authority Environmental Awareness/Education Officers to ensure consistency in the delivery of services. (ENFO/LAs)*

vi *Regular monitoring of programme effectiveness should be carried out through the administration of surveys. (EPA pending the establishment of a National Waste Management Agency.)*

vii *The programme should study the extent to which modern waste facilities have affected property values.*

viii *An independent expert information group should be established by the Health Research Board. (DoELG, Department of Health and Children)*

ix *Consideration should be given by the Health Research Board to the appointment of members to the expert information group with expertise in, inter alia, waste chemistry, chemical engineering, waste processing, epidemiology, toxicology, and communications.*

x *The expert information group should, where appropriate, nominate a mediator for technical issues. The mediator should report to the expert group, which should be responsible for final advice.*

Rationale: A public communication programme would meet the public desire, identified in research commissioned by Forfás, for more information on waste issues.

Other countries, generally considered to be progressive in their social and environmental policy, have found two-way communication programmes helpful in arriving at common perspectives on waste management issues.

The technical information group could carry out a number of functions, including promoting, assisting or conducting research into technical issues arising from waste management and waste treatment options; liasing and co-operating with other research bodies, in Ireland or elsewhere, in the promotion, commissioning or performance of relevant research; receiving submissions on issues of concern and reviewing, assessing, and offering guidance or opinion, or making determinations on these issues.

1.2.2 National Waste Management Agency

While county and regional waste management plans have now been adopted, there is still a huge volume of work remaining in implementing these plans and co-ordinating strategies for raising the required funding. The success experienced by the National Roads Authority (NRA) model demonstrates the benefit of making a single central agency responsible for what is a national problem requiring co-ordinated action and co-operation between a wide range of public and private bodies.

Specifically, it is recommended that:

i *A National Waste Management Agency be established to assist the DoELG in the planning, co-ordinating, monitoring and implementation of national, regional and county waste management plans.*

Rationale: The National Waste Management Agency could independently carry out a number of functions essential in the successful implementation of Ireland's waste management strategy, including:

- *integrating regional and county waste management plans into an overall **national plan***
- *providing **policy advice** to the Department of the Environment and Local Government*
- *assisting in **infrastructural investment** by providing technical advice to local authorities and stepping-in to assist local authorities in implementing their plans*
- *initiating **Planning Schemes** for Waste Management Centres similar to the provisions in the Planning and Development Act, 2000*
- *assisting on **funding** issues by advising on priorities and charges, by identifying alternative funding sources, by promoting PPP and by administering research and development, waste prevention, recycling and other grant schemes*
- *implementing the National **Communications Programme**.*

1.2.3 Regional Waste Management Boards

Local authorities have been encouraged to adopt a regional approach in the development of their waste management plans, with a view to more efficient provision of services and infrastructure, and most have responded positively.

With the exception of Wicklow, Kildare and Donegal County Councils, who have decided to proceed with county plans, all local authorities in the country are now involved in regional waste management plans. In total, six regional plans, involving 25 local authorities, have been adopted. These cover Dublin, the midlands, the northeast, the midwest, Connacht, and Cork city and county. In addition, six counties in the southeast have adopted plans, and these are now due to be consolidated in a regional plan.

The Regional Waste Management Boards (RWMB), structured so as to include representatives from the same counties that are represented in the development regions, could bring clear benefits in co-ordinating the implementation of the Regional Plans.

Specifically, it is recommended that:

i Regional Waste Management Boards should be established to implement regional waste management plans with powers devolved from the county managers.

Rationale: The boards could be established quickly without the need for any new legislation, in advance of the establishment of the National Waste Management Agency. The regional boards would work with the National Waste Management Agency, once established, to expedite implementation of waste management plans, while ensuring local ownership and accountability.

1.3 Accelerating the Planning Process

While all regional and county waste management plans have now been formally adopted, the implementation of these plans through the existing planning process, is likely to present huge challenges.

1.3.1 The National Spatial Strategy and Strategic Environmental Assessments

The recycling, landfill and thermal treatment waste facilities specified in county and regional waste management plans will require road, electricity grid and other infrastructure, yet no overall plans currently exist for the development of such supporting infrastructure.

There is also lack of clarity on where individual facilities could best be located, with site selection being driven by private developers rather than an overall national vision. Connected with this problem, while environmental impacts assessments will be required for individual projects, there is currently no effort being made to strategically identify how the collective, potential environmental impact of the plans could best be managed.

Specifically, it is recommended that:

i Regional Waste Management Plans should be recognised in the National Spatial Strategy (NSS) at a level of detail consistent with the final format of the NSS. The NSS should establish an overall spatial planning framework nationally and at regional level to make provision for integration of these plans and other policy areas such as transport, with one another. (DoELG)

ii Local Authority development plans should include objectives for express provision, or facilitation for the provision, of infrastructure associated with waste recovery and disposal facilities as specified in the Planning and Development Act. (Local Authorities)

iii Regional waste plans should be subject to Strategic Environmental Assessments, prior to the deadline for the implementation of the EU Directive on SEA if necessary. (DoELG)

Rationale: The incorporation of relevant objectives and provisions of regional waste management plans in the NSS and in local development plans supports the requirement in the Planning and Development Act, 2000 to consider the infrastructural requirements and allied impacts at all levels in the hierarchy of plans from the National Development Plan (NDP) downwards.

This will lead to greater understanding by the general public and developers as to the facilities required in each county or region, and, in turn, adequate planning and provision for the implementation of waste management facilities will boost the potential of regions to promote economic activity into the future.

The Strategic Environmental Assessment approach will provide the opportunity for all of the relevant facts, options and challenges consequential on the development strategy to be placed in the public arena at an early stage, and to contribute to effective land-use capability planning, compliant with all environmental and planning legislation and guidelines.

1.3.2 Waste Management Centres

There is a need for investment totalling an estimated €1 billion over the next 3 to 5 years to develop the recycling, landfill and thermal treatment facilities specified in the waste management plan. The NDP envisages most of this investment coming from the private sector. However, the high levels of uncertainties inherent in the Irish planning process are likely to deter private investors.

These uncertainties could be addressed by using a number of provisions in the Planning and Development Act, 2000.

Specifically, it is recommended that:

i *The proposed National Waste Management Agency should be established quickly and given legislative powers to develop planning schemes for Waste Development Centres, similar to the provisions in Part IX of the Planning and Development Act, 2000. (DoELG)*

ii *Potential waste treatment sites, which comply with international criteria and best practice on siting waste management infrastructure, should be identified. (DoELG, RWMB)*

iii *Guidelines on response time in the Planning and Development Act should be adhered to strictly and resources should be provided to ensure that the required planning and other expertise is made available. (DoELG)*

iv *Legislative provisions concerning applications for judicial review in respect of waste and IPC licences should be amended in the light of restrictions on the scope for judicial review introduced by the Planning and Development Act, 2000.*

Rationale: The development of waste management centres would enable the most suitable sites to be identified and 'front load' the risk associated with project development. By eliminating that element of risk, considerable added value to the designated sites would be developed, which could be offset against operational costs or may become capitalised as an asset in the subsequent successful project. This would enhance the value for money aspect to the State and the Public.

This process would maintain democratically accountable bodies as initiators of the schemes required in exceptional cases and selectors of the providers if proposed by either local government or the National Waste Management Agency. Moreover, it would remove the final technical assessment from a political forum to a competent agency, and allow waste management specialist companies to focus on what they are best at, the development and management of the business without the unknown and expensive uncertainty of the zoning and planning phase.

At the same time, there would be no loss of rights of appeal - what would be eliminated is the repetition of this process - and all relevant EU and International Treaty requirements would be satisfied.

1.3.3 The Use of 'Community Gain'

A frequent concern raised by receiving communities of waste management facilities is that, by hosting such essential facilities, they experience a degree of dis-amenity on behalf of the wider population, yet they are not offered anything in return for this perceived dis-amenity.

In interviews commissioned by Forfás, community groups have proposed that some form of incentive should be offered to alleviate the inequity and perceived losses incurred by a community when a proposed waste facility is planned for its locality.

Specifically, it is recommended that:

i *Community incentives, in the form of infrastructure or other facilities benefiting the affected local community should be provided, where appropriate, for waste projects and criteria for the provision of such incentives should be developed. (DoELG)*

ii *Research should be carried out, in the case of projects where community incentives are relevant, to identify the benefits that will be most effective from the community point of view. (LAs, DoELG)*

Rationale: Community gain has been used successfully in other countries to create and increase community support for the development of new waste management facilities and to increase community involvement in the decision-making process surrounding the development of such facilities.

National planning legislation is supportive of the concepts embodied in community gain, and such approaches could be accommodated within Ireland's existing legislative and policy framework. Moreover, approaches similar to community gain have already been successfully employed in Ireland.

A portion of the funding for community gain initiatives could come from the private companies promoting the projects, so offering value for money to tax payers and the State.

1.4 Delivering the Programmes and Infrastructure

The guiding philosophy of this document is the internationally accepted waste management hierarchy, in which prevention and minimisation are ranked as the most desirable strategies, followed by reuse and recycling, and then energy recovery, with disposal to landfill viewed as the least desirable option.

1.4.1 Waste Prevention and Minimisation

Waste prevention has a key role to play in the preservation of finite, non-renewable materials and natural resources, and unlike other elements of the waste management mix such as recycling, recovery and treatment, it places no burden on the environment.

It would be unrealistic to believe that waste minimisation alone could solve our waste management problems. It is, however, an extremely important component of the overall solution, and many members of the public and environmental community make their support for implementing subsequent strands in the hierarchy contingent on the prevention of waste being pursued to its maximum practical limits.

Specifically, it is recommended that:

i Pending the establishment of a National Waste Management Agency, as described in Chapter Two, the EPA should put in place a national initiative, including a demonstration programme that would support waste prevention projects within companies. Enterprise Ireland should put in place a similar initiative for its client companies. (EPA, EI)

ii The DoELG should negotiate sectoral agreements with generators of wastes in priority areas, with a view to stimulating improved waste prevention practices.

iii Best practice programmes should be considered which would provide guidance and benchmarking data direct to companies, and waste management 'clubs' should be established to help companies in particular sectors to learn from each other. (EPA, DETE and their Agencies, IBEC)

iv State bodies should lead by example through implementing waste prevention programmes within their organisations.

v Increased resources should be provided for policing to ensure that penalties for illegal waste disposal activities are applied. (DoELG)

Rationale: The public strongly supports the concept of waste minimisation and seeks an increase in activity in this area.

Although there may be initial start-up costs associated with developing waste prevention programmes in industry, in the longer term there is potential for savings for individual companies, from reduced materials consumption, and from a national perspective, from reduced raw material imports.

Waste minimisation has a key role to play in reducing the need for recycling, landfill and thermal treatment infrastructure. In addition, it assists in the preservation of finite materials and non-renewable natural resources and supports sustainable development by weakening the link between economic growth and waste production

Moreover, waste minimisation is in line with national and EU environmental legislation, and prevention strategies are used successfully by the most environmentally progressive countries.

1.4.2 Waste Recycling

Recycling and recovery are the second most desirable options in an environmentally sustainable waste management strategy. These practices are aggressively pursued in countries that are considered to be leaders in environmental protection, and opinion polls have indicated that the Irish public is strongly supportive of the concept of recycling.

Like prevention, recycling alone cannot solve waste management problems, but it has an important role as part of an integrated solution. The absence of a significant recycling infrastructure is resulting in an increased environmental burden at national and local level through wastage of raw materials and poor disposal practices. It also contributes to operational problems in industry, because of the limited range of disposal options available at factory level. In contrast, a thriving recycling industry could bring considerable economic benefits through increased employment and a reduction in raw material consumption.

Specifically, it is recommended that:

i DoELG and EI should commission feasibility studies on a range of recycling projects to determine the potential market and the need, if any, for financial contributions, changes in standards or regulations or other state commitments required to help the viability of such projects.

ii EI and the DoELG should pool their expertise and work together to promote the establishment of recycling projects by the private sector.

iii National standards should be modified to allow certified recycled crushed materials to be used in housing construction and for infrastructural developments such as road infill. (DoELG)

iv The DoELG should put a framework in place to expedite specifications in EC landfill and packaging waste Directives.

v Local Authorities should implement waste segregation as soon as practicable. (DoELG)

vi Public construction and other relevant public contracts should incorporate conditions for the segregation of waste. (DoELG, State bodies)

vii Suppliers of recycled materials should be invited to tender for State purchasing contracts, and the national environmental benefits of using recycled materials should be assessed in order to evaluate how consideration of these benefits might be incorporated into State purchasing decisions. (DoELG)

viii Purchasing contracts of government departments and agencies should, where feasible, require the use of recycled materials. (DoELG)

Rationale: Recycling is important in reducing the volume of waste requiring treatment or disposal, thereby maintaining limited landfill and thermal treatment capacity for waste streams that cannot be handled in any other manner. Recycling has a vital role to play in preserving non-renewable resources.

Recycling forms an important element of the waste management strategies adopted by countries seen as leaders in the environmental arena.

An increased focus on recycling would also deliver economic benefits. It has been estimated that recycling a certain quantity of waste will create around ten times more jobs than landfilling the same volume, and recycling has longterm national economic benefits in terms of reduced raw material imports. Moreover, the early introduction of green purchasing criteria by Irish public bodies would help to give companies in this country experience and assistance in meeting the green criteria of overseas purchasers.

1.4.3 Thermal Treatment

Despite current efforts in Ireland to minimise, prevent, re-use, recycle and treat some wastes streams, the volumes requiring disposal are increasing, and additional infrastructure is urgently required to alleviate any further deterioration in the current waste management crisis.

European experience has shown that even with efficient waste prevention, minimisation and recycling programmes, it is inevitable that wastes of a recalcitrant nature will be produced. In terms of addressing these waste streams, internationally accepted waste management hierarchies rank thermal treatment, carried out in accordance with high environmental standards, as being environmentally preferable to the disposal by landfill.

The DoELG, the DETE and the Development Agencies should facilitate the establishment of a contract thermal treatment project for hazardous waste. County Cork would seem a particularly appropriate location for a mixed nonhazardous and hazardous thermal treatment project, since this area has the highest density of pharmaceutical and chemical companies in the country and it produces over 60% of Ireland's industrial hazardous waste.

Specific health concerns among the public appear to centre on the possibility of dangerous levels of dioxins, polycyclic aromatic hydrocarbons, and heavy metals such as lead and arsenic being emitted in incinerator flue gas. It is believed that some of these fears may originate from negative perceptions about older incinerators operating elsewhere in Europe. In this context, it is worthwhile noting that significant improvements in thermal treatment technology have been made in recent years, and there has also been a significant tightening in operating standards. Today, facilities within the European Union operate within a tightly controlled regime that specifies combustion temperatures, residence time, turbulence and feed rates. These requirements, coupled with advances in plant technology, mean that the latest generation of incinerators produce significantly lower concentrations of all pollutants than their predecessors.

Furthermore, recent studies show that levels of dioxins in the immediate vicinity of incinerators are no higher than background levels. For instance, in Ireland thermal treatment of hazardous waste is currently carried out at eight IPC industrial sites. Yet, despite the existence of these facilities, a recent EPA study on dioxins in cows' milk* has shown no increase in concentrations over 1995 values.

There is a clear need to establish a centralised thermal treatment facility in Ireland, take for example, if the proposed facility was to proceed in Ringaskiddy then traffic management issues would have to be addressed in the area.

Specifically, it is recommended[1] that:

i *Construction of the Ringaskiddy bypass should be accelerated. (DoELG, NRA)*

ii *Consideration should be given to the provision of suitable traffic management in the Ringaskiddy area. Cork Corporation (CC) Coras Iompar Éireann (CIE) Industrial Development Agency (IDA)*

Rationale: Thermal treatment is regarded as being more environmentally desirable from the perspective of human health, and a more environmentally sustainable waste management option than landfill. The energy by-product of incineration can be recovered, displacing the need to burn fossil fuels, and consequently reducing greenhouse gas emissions. Currently, about 60% of Danish households get their heating and hot water from district heating plants, many of which are fuelled by waste.

Ireland currently depends on countries overseas to threat its hazardous waste. However, the co-operation of these countries in this respect cannot be guaranteed into the future. European and Irish policy calls for national self-sufficiency in hazardous waste management, and this can be best achieved through the development of thermal treatment facilities. The current absence of thermal treatment facilities may prove to be a deterrent for further industrial investment in this country.

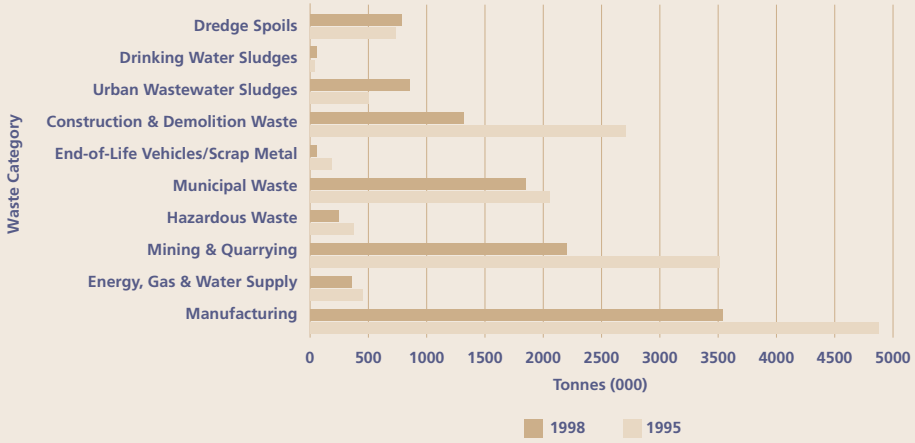
1 The EPA representative was not involved in the thermal treatment discussion, because of its regulatory responsibilities, and could not endorse recommendations relating to any particular project or site.

** Dioxin levels in the Irish Environment - Second Assessment (Summer 2000) Based on levels in cows' milk (Environmental Protection Agency, Wexford)*

1 Introduction

At present, waste management in Ireland is at crisis point and it is set to deteriorate further unless proposed measures to improve the situation are expeditiously implemented. Ireland is similar to other European countries in that the quantity of waste being generated is increasing; however, one factor that sets Ireland apart from the majority of its European counterparts is its above average growth rate in waste production which is directly attributed to its increased economic prosperity. Recent reports show that between 1995 and 1998, waste generation in Ireland increased by 89% (Figure 1.1). Such growth is clearly unsustainable and highlights the urgent need to decouple waste generation from economic growth. Additional data indicates that Irish citizens appear to produce far more waste than the European average; producing 576 kg of municipal[2] waste, compared to a European average of 450 kg per person (Figure 1.2).

Figure 1.1 *Comparison of Non-Agricultural Waste Arising in 1995 and 1998*



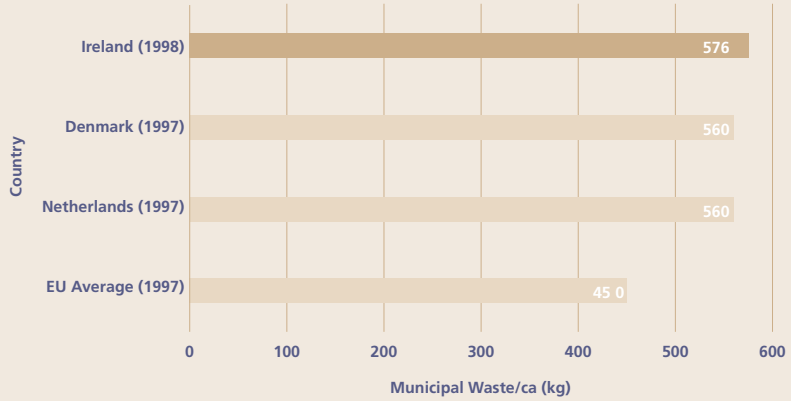
*Source: EPA (2000)**

The current waste management infrastructure in Ireland is proving inadequate in disposing of the additional wastes produced over the last five years. Increasingly, there are reports of commercial waste being turned away from landfill sites around the country. There are also concerns about whether Ireland will be able to continue exporting its hazardous waste to other European countries, a situation that is highly susceptible to change in the receiving countries' waste management strategies. While acknowledging that efforts are currently underway to address the lack of waste management infrastructure in Ireland, it is clear that the present rate of development of infrastructure will be insufficient to circumvent further deterioration of Ireland's waste management crisis. Therefore, comprehensive action is required without delay.

2 Municipal waste consists of household waste and waste of a similar nature arising from commercial premises together with other waste, principally street cleaning waste.

** National Waste Database Report 1998 (Environmental Protection Agency, Wexford, 2000)*

Figure 1.2 *Municipal Waste Generation in some EU Countries*[3]



*Source: Derived from OECD (1999), EPA (2000)**

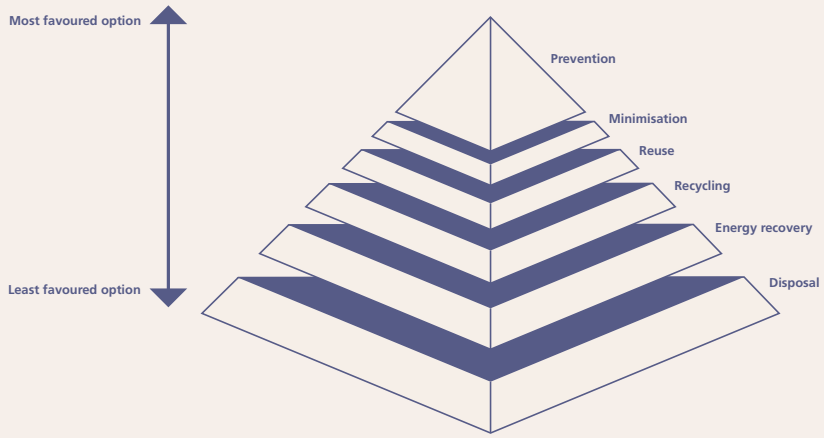
The EC Waste Management Hierarchy has been adopted by Irish waste management policy via the Waste Management Acts, 1996-2001 and the Government Policy Statement ***Changing our Ways*** (1998).** This hierarchy, generally embraced by Europe since 1989 as its cornerstone waste management policy, states that the most preferred option concerning waste management is prevention and minimisation, followed by re-use and recycling, energy recovery and, least favoured of all, disposal (Figure 1.3). A key point concerning this strategy is that irrespective of the amount of source reduction within an economy, there can never be a 'zero' waste situation. As a result, there will always be a need for a system to manage generated wastes. While acknowledging that there is no single method of dealing with waste, an effective waste management system must provide an integrated approach that combines a range of the options presented in the EC Waste Hierarchy (Figure 1.3). Such an integrated approach is urgently required in Ireland.

Currently, Ireland is mainly dependent on landfilling for dealing with its wastes with approximately 91% of municipal wastes and 85% of industrial wastes being disposed of in landfills. Compared with six other European countries, Ireland has the highest dependency on landfill and is the only country devoid of municipal waste thermal treatment facilities (Figure 1.4). This dependency on landfill will have to change, since not only is landfilling at the bottom of the Waste Hierarchy; it is also rapidly becoming a limited option due to increasing costs and lack of desirable sites. Due to NIMBY (not-in-my-backyard) syndrome and the introduction of a rigorous waste licensing system operated by the EPA, there has been a dramatic decrease in the number of municipal landfill sites from 87 active sites in 1995 to approximately 50 in 2000. Consequently, Ireland is faced with no choice but to use other methods in dealing with waste.

3 When analysing waste data, it is important to exercise a degree of caution since it is not uncommon for definitions and collection methodologies to vary between and within countries and sometimes between years.

** OECD. Environmental Data Compendium, (organisation for Economic co-operation & Development, Paris, Warmer Bulletin, 2000)*
*** A Policy Statement Waste Management: Changing Our Ways (DoELG, 1998)*

Figure 1.3 *Waste Management Hierarchy*

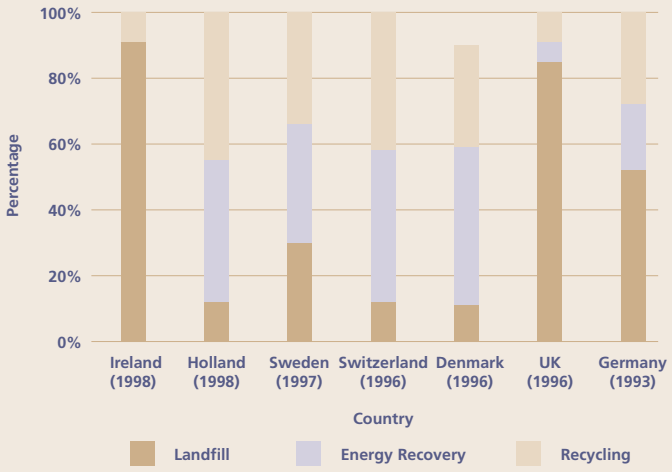


Source: Irish Environmental Protection Agency.

In 1996, Ireland saw the introduction of a much-needed piece of legislation, the Waste Management Act, 1996. This Act not only charged the Minister for the Environment and Local Government with responsibility for waste management; it also required local authorities to prepare waste management plans for nonhazardous wastes. These plans were to address all aspects of the prevention, minimisation, collection, recovery and disposal of nonhazardous waste within the local authority area and were to be reviewed on a five-year basis. Of the eight regional plans that were prepared, three were not adopted because of proposals relating to thermal treatment and/or landfill facilities. As a result of the difficulties experienced in adopting these plans, the Waste Management (Amendment) Act, 2001 was enacted, this provided, inter alia, that in certain circumstances powers to adopt waste management plans could be transferred from the members of local authorities to County Managers. Since being formally adopted on September 14th, 2001, this Act has resulted in all local authorities adopting waste management plans.

Although this development shows that some progress is being made toward the introduction of integrated waste management plans at a regional level, Ireland as a whole lacks such an approach. Therefore, it is becoming increasingly apparent that the implementation of an integrated national waste management system is paramount to solving the present waste crisis. However, faced with infrastructural deficits and public opposition, the successful implementation of such an approach is open to question.

Figure 1.4 *Municipal Waste Management in EU Countries*



Source: Warmer Bulletin (May 2000)

Therefore, in February 2001, following discussions with the DETE and IBEC, Forfás established a Waste Management Task Force.

The objective adopted by the task force was to focus on identifying a limited number of actions designed to expedite improvements in the waste management infrastructure and to facilitate support from the enterprise sector. It was not the intention of the Task Force to provide a comprehensive review of waste management.

Three key areas were highlighted by the task force as imperative to addressing the present waste management crisis effectively. These actions are discussed in detail throughout the following chapters. They are as follows:

- *Build consensus and co-ordination*
- *Accelerate the planning process*
- *Deliver waste management programmes and infrastructure*

Through such actions, it is intended to tackle many of the key issues surrounding waste management at present. These include the following:

- *Lack of a comprehensive awareness and communications initiative with respect to waste management;*
- *Delays and uncertainties involved in the current planning process; together with*
- *Inadequate recycling infrastructure and schemes, and the absence of municipal and hazardous waste incinerator(s).*

This document reviews some of the main issues surrounding current waste management practices with particular emphasis on industrial waste and incorporates some of the key actions and recommendations identified by the Forfás Task Force to expedite improvements in Ireland's waste infrastructure.[4]

4 It should be noted that the recommendations presented throughout this document were based on the majority consensus of the members and they do not necessarily reflect the views of individual organisations represented on the Task Force.

2 Building Consensus and Improving Co-Ordination

Progress in the development of critical waste management infrastructure is essential in protecting Ireland's environment and economic competitiveness but it is being impeded both by the lack of a shared national vision on the way to move forward within the framework of a waste management strategy and by the absence of a central focus for the co-ordinated and consistent implementation of essential infrastructure on a national basis.

This chapter proposes that the establishment of a national communication programme would help in arriving at a shared view of how best Ireland can proceed within the framework of an integrated waste management strategy, and that a National Waste Management Authority would provide the co-ordination necessary in implementing such a strategy.

2.1 Communication and Technical Information

Underlying current controversy about plans to develop new waste management infrastructure around the country is the diverging views within communities on the best and safest way for integrated waste management to be handled in Ireland. To move forward, it is essential to arrive at a shared vision through a two-way communication programme, presenting information and inviting feedback.

After explaining what is meant by an integrated waste management strategy and discussing communication initiatives already in place, the remainder of this section discusses the essential features of such a communication programme, as identified by a study commissioned by Forfás and carried out by environmental consultants Environmental Resources Management (ERM).

As well as supporting the development of a shared vision, it is proposed that the communications programme should be used to promote the need for waste prevention. Such a programme would also aim to provide an understanding of the importance of correct segregation at source. These issues are discussed in further detail in Chapter Four.

2.1.1 Introduction

An Integrated Strategy: European and Irish waste management policy is based on a hierarchy of options in which prevention and minimisation are ranked as the most desirable strategies, followed by re-use and recycling. Energy recovery is regarded as preferable to disposal, which is viewed as the least desirable option.

The stark fact, however, is that over 90% of municipal waste in Ireland ***is*** disposed of to landfill. If we are to move away from this position, there is a need for greater uptake of the other more desirable strategies within the hierarchy. There would certainly seem to be room for greater waste prevention since Ireland's annual capita rates of municipal waste generation are among the highest in Europe, as previously discussed.

Ireland also appears to be out of line with the rest of Europe in terms of recycling. Our rate of recycling at just 3.2% of household waste in 1998, for instance, compared with a rate of 28% for Denmark and of 33% for Sweden in the same year.

European experience has shown that regardless of how efficient waste prevention, minimisation and recycling programmes are, it is inevitable that wastes of a recalcitrant nature will be generated. In terms of addressing these waste streams, the hierarchy ranks energy recovery as being preferable to disposal.

Incineration is a form of waste treatment that allows for energy recovery. Currently, there are no thermal treatment facilities in Ireland for municipal waste and only limited private facilities for hazardous waste treatment. In this regard, Ireland is again out of step with those countries in Europe that are regarded as being progressive and proactive in the area of environmental protection. Denmark, Sweden and the Netherlands, for instance, each incinerate between 35% and 50% of waste generated.

In order for Ireland to bring current waste management practices closer to the hierarchy enshrined in national and EU environmental policy, there is a clear need to adopt a strategy that entails the following:

- *encourages greater prevention, minimisation, re-use and recycling of waste;*
- *supports the development of infrastructure for thermal treatment with energy recovery; and*
- *ensures that landfill sites required for the disposal of waste streams that cannot be treated in any other way are operated to best practice environmental and health and safety standards.*

This is what is meant by an integrated waste management strategy.

Existing Programmes: A number of environmental communication programmes are currently in operation in Ireland. The Department of the Environment and Local Government (DoELG) is committing approximately €1.27 million per annum to a general Environmental Education and Awareness Campaign, delivered at national level. This campaign is addressing a wide range of environmental, behavioural and resource-use issues. It is co-ordinated with Local Authority initiatives at local level.

In addition to this initiative, each local authority also employs one or more environmental awareness or education officer to promote an understanding of environmental issues at a local level. Furthermore, the DoELG operates the Environmental Information Office, ENFO, in St Andrews Street, Dublin. The office combines drop-in facilities with a public library. Information officers provide an over-the-phone query answering service, and posters and information leaflets disseminate environmental information at a national level, largely through primary schools.

These communication initiatives touch on waste management as part of a wider environmental focus, but are not specifically dedicated to waste issues. However, there is one further initiative which is directed solely at the waste issue, namely the ***It's Easy to Make a Difference**** national environmental awareness campaign. This is targeted solely at householders and aims to encourage more environmentally responsible behaviour.

Public Review Study: In order to establish how best to formulate a communications programme dedicated specifically to the subject of integrated waste management, Forfás commissioned the environmental consultants ERM to carry out a study, exploring public attitudes on thermal treatment, the segregation of waste by households and companies, and other waste issues.

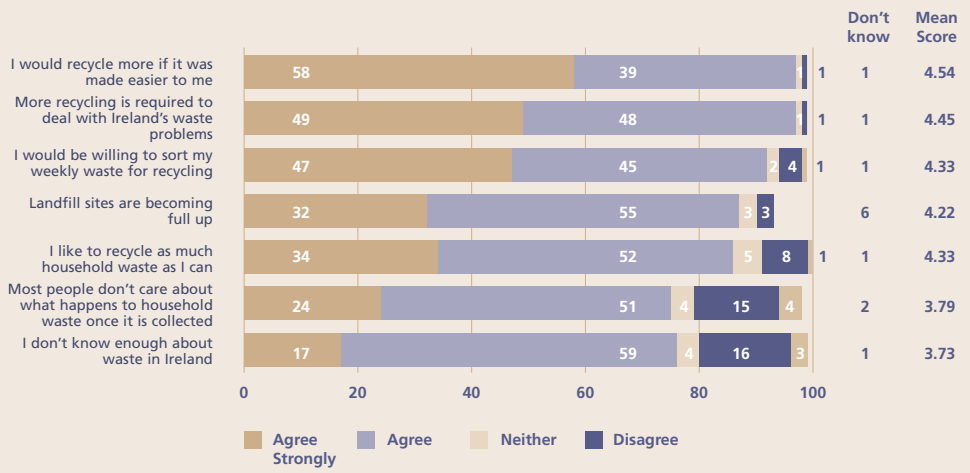
** The Environment: It's Easy to Make a Difference (DoELG, 1999)*

The study was structured around interviews with key stakeholders within the waste management sector, including waste regulators, waste operators, industrial waste producers and communities. Its findings were reinforced by a more standard market-research survey of the general public, based on a statistical random sample, which sought to extend the work already undertaken by the Department of the Environment and Local Government (***Attitudes and Actions, DOELG 2000***)*. In addition, a literature review of national and international survey studies was carried out.

The main findings of the study are summarised in Table 2.1.

The survey revealed strong public support for recycling, as illustrated in Figure 2.1. Some 71% of those surveyed agreed that they were willing to pay more to see more waste being recycled. In addition, respondents indicated a willingness to participate more in recycling activities. However, in return for increased effort, they sought a greater commitment from local authorities in terms of providing improved recycling infrastructure and believed that public bodies should lead by example.

Figure 2.1 *Findings from the ERM/Forfás Survey on Public Attitudes to Waste Issues*



Source: ERM

Interestingly, 57% of respondents said they would be opposed to the idea of having an incinerator located close to them. Yet when asked in general terms whether they would prefer their weekly household waste to be incinerated or landfilled, a small majority of respondents opted for incineration, as illustrated in Figure 2.2.

** Attitudes and Actions. A National Survey in the Environment (DoELG, 2000)*

Figure 2.2 *Responses to the question: 'Would you prefer your household waste to be incinerated or landfilled?'*

	Total	Sex		Age			
		Male	Female	15-24	25-34	35-64	64+
	%	%	%	%	%	%	%
Incinerator	46	52	41	45	42	46	52
Landfill	44	41	47	49	48	44	33

Source: ERM

In the interviews with community groups, one view frequently put forward was that an incinerator may be more acceptable if some sort of incentive were offered to the receiving community. This, it was proposed, could be in the form of financial recompense for the local community; the provision of needed community infrastructure for the area by the plant operators, or even free electricity for the locality. In effect what they sought was a form of community gain. This possibility is explored in greater detail in Chapter Three.

In relation specifically to the proposed communication programme, the interviews and survey highlighted a number of important points, including the requirement for two-way communications, the need for information to come from a trustworthy source, the requirement for a national programme with a local focus, and the need for technical data, as discussed below.

- **A need for two-way communication:** *The study has revealed a level of scepticism towards technical information and assessments provided through public authorities, particularly at a local level. Communities highlighted their sense that decisions with regard to waste management infrastructure were presented to them, having been driven primarily by issues of technology and economy. They expressed a sense that their capacity to influence these decisions was limited and voiced concerns at what they perceived to be 'public relations' initiatives designed to deliver a decision, without addressing or resolving their concerns or viewpoints.*

  It appears that there is some distrust of traditional public consultation processes that merely present information, without the opportunity for effective feedback. Some members of the public felt that this negates the purpose of such initiatives as mechanisms for delivering information that is credible and acceptable and will effectively generate a shared understanding of the problems society faces.

- **A trustworthy source of information:** *The study indicated that the EPA was viewed as the trustworthiest source of public information. Local Authorities had somewhat less credibility with community groups, and some doubts were expressed about the objectivity of the Department of the Environment and Local Government. Against that, however, the community groups said they believed that it was essential for the DoELG to have fixed views on waste management infrastructure and technology choices.*

In this context, there would seem to be merit in retaining primary responsibility for the funding and co-ordination of the communication programme with the DoELG. In addition, the ERM/Forfás study highlighted the need to establish and develop a co-ordinating mechanism for Environmental Awareness/Education Officers in Local Authorities throughout the country.

- **A need for an expert body:** *A massive 76% of those surveyed either agreed or agreed strongly with the statement,* ***'I don't know enough about waste in Ireland'****, as illustrated in Figure 2.1. Public debate on waste management was seen to be hampered by the lack of a common understanding of the issues, the technologies and their implications. The provision of independent, accurate and up-to-date data, information and research findings could facilitate the establishment of such a common base from which public debate could progress. The ERM study proposes that an independent body that could provide objective and expert advice, a broad spectrum of expertise and experience, and mediation services could form a useful component in the provision of technical and information data that would be acceptable to the general public and to industry.*

  In August 2001, the Minister for the Environment requested the Health Research Board to seek tenders for an appropriately qualified group to undertake a desk study on the health and environmental impacts of thermal treatment and landfill. This study will be largely drawn from the recent United States Environmental Protection Agency (USEPA) Dioxin Report and the World Health Organisation (WHO) Air Quality Guidelines. The results of this study are expected in early 2002, and could feed into the database of information held by such a group.

  The ERM study also highlighted concerns about the potential impact waste management strategies, especially thermal treatment facilities, might have on property values. Therefore, the communications programme should take account of any potential impact on property values, and the effect that this may have on peoples' attitudes to waste, thermal treatment and future waste strategies in the areas concerned.

- **A national programme with a local focus:** *Based on the results of its study, ERM argues that international experience indicates the most effective communications strategies are those that commence under a national umbrella campaign and subsequently reinforce local initiatives or address local problems. This would provide the opportunity to concentrate resources and effort in those localities, and on those issues that are identified as key to the delivery of waste management infrastructure. In this context, areas that may merit special attention include Dublin and Cork, where the volumes of waste generation are greatest, as well as areas such as Galway, Mayo, Limerick and Roscommon where existing infrastructure is coming under increasing pressure or where there is disagreement over the way to move forward.*

Table 2.1 *Summary of the Main Results of the ERM/Forfás Study of Public Attitudes on Waste Management Issues.*

Issue	General Public	Producers (Industry)	Community Groups
Urgency	► industrial waste primary concern ► high level of concern over domestic waste disposal	► need for hazardous waste incinerator ► certainty is crucial, followed by competitiveness ► blockages seen at local political level	► waste mgt. is a serious problem ► immediate response needed ► need to curtail pollution & preserve visual amenity ► employment not an issue
Responsibility	► majority believe waste disposal is solely the responsibility of the local authorities	► local authorities	► everybody's responsibility ► industry highly responsible ► local authorities responsible
Concerns	► emissions ► smell ► overall impact on the environment ► impact on family's health ► traffic ► impact on property prices	► odour ► emissions ► public health ► employment creation ► industry growth with lack of infrastructure	► incineration detracting from better waste mgt. techniques ► how our image as high quality food producer sits with pollution from incineration ► incineration: West & Midlands - dioxin emission ► South & East - traffic
Recycling	► large majority very willing to recycle more ► large majority believe more recycling is badly needed ► large majority would be willing to pre-sort weekly waste ► large majority like to recycle as much as they can ► large majority would be willing to pay to have more waste recycled	► primarily an economic issue ► need to develop incentives and markets ► industry needs to engage with 'whole life cycle' issues ► critical of local authority's ability to engage with communities ► secrecy & lack of trust are problems for local authority	► generally very supportive ► commercial imperative undermining better waste mgt. techniques ► lack of infrastructure ► lack of publicity on recycled products ► multiple bins to be welcomed ► ban plastic shopping bags ► led by example from local authorities
Sources of Information	► not the local authority ► EPA has highest level of acceptance	► need objective source of information ► need proactive delivery of information	► not local authorities: poor leadership and management; poor follow-up on complaints; poor attention to littering; information provided unwillingly; when it suits the local authority; information is not complete & not understood by officials; local authorities too closely associated with commercial interests ► EPA first source of information ► Distrust of consultants

Source: ERM

2.1.2 Recommendations

i *An ongoing programme of two-way communication should be implemented over a five-year period, with an initial two-year budget of €2.0 and €2.5 million. (DOELG)*

ii *The process used should be one of consensus building with local communities.*

iii *The programme should have a national framework, but it should also have a strong local focus, with a priority on Dublin and Cork and on areas with particular problems such as Galway, Roscommon, Mayo and Limerick.*

iv *The Environmental Protection Agency (EPA) should be responsible for delivering the programme, pending the establishment of a National Waste Management Agency.*

v *The Environmental Information Service (ENFO) should co-ordinate activities of Local Authority Environmental Awareness/Education Officers to ensure consistency in the delivery of services (ENFO/LAs).*

vi *Regular monitoring of the programme's effectiveness should be carried out through the administration of surveys (EPA).*

vii *The programme should study the extent to which modern waste facilities have affected property values.*

viii *An independent expert information group should be established by the Health Research Board (DOELG, Department of Health and Children).*

ix *Consideration should be given by the Health Research Board to the appointment of members to an expert information group with expertise in, **inter alia**, waste chemistry, chemical engineering, waste processing, epidemiology, toxicology, and communications.*

x *The expert information group should, where appropriate, nominate a mediator for technical issues. The mediator should report to the expert group, which should be responsible for final advice.*

2.1.3 Rationale

i *A shared view on moving forward with an integrated waste management plan is urgently required, if threats to our environment and economic competitiveness are to be averted.*

ii *This research commissioned by Forfás and conducted by ERM highlights that the public seek a two-way communication programme with information provided by what they see as a trustworthy source, such as the EPA (pending the establishment of a National Waste Management Agency), and for better co-ordination of local information officers within and between local authorities.*

iii *Other countries, generally considered to be progressive in their social and environmental policy, operate waste management communication programmes, which are successful in promoting common perspectives on the way forward.*

iv *The information group could carry out a number of important functions that would support the waste management communication programme and provide the type of information essential to empower the public to engage in a process of informed decision-making. These functions could include:*

- *a promoting, assisting or conducting research into technical issues arising from waste management and waste treatment options;*
- *b liasing and co-operating with other research bodies, in Ireland or elsewhere, in the promotion, commissioning or performance of relevant research;*
- *c receiving submissions on issues of concern and reviewing, assessing, and offering guidance or opinion, or making determinations on these issues.*

2.1.4 Implementation

The communication programme would have two strands. Its main strand would highlight the need for an integrated system of waste management and would be aimed at arriving at shared perspectives on meeting this need. The programme would be delivered nationally, but would have a local focus, particularly in those areas of the country with the most pressing constraints on existing waste management infrastructure such as Cork and Galway.

The second strand of the programme would be aimed at bringing about a greater commitment to the segregation of waste. This would be targeted in particular at those best positioned to effect behavioural change: adults in the home, children, and the small business sector.

The expert information group should be compact and may be comprised of national and international experts. It should have access to expertise in a range of other areas, including technological and public health matters, as well as in areas that may include waste chemistry, waste processing, toxicology, epidemiology, public health, communications, transportation and social impact.

It should have the ability to seek external advice, and, where necessary, to hold hearings and publish its findings and deliberations. In its deliberations, the group may be assisted by a nominated 'mediator' or rapporteur, whose function would be to compile and submit recommendations to the group. However, the group would be responsible for decisions in respect of final advice to be issued to the public, or to public authorities.

Alternatively the 'mediator' may be empowered to hold public hearings and seek submissions from groups or individuals. Direct interaction with the public should be carried out only in circumstances in which it is requested to do so by government departments, and the deliberations of the group should be recorded in a manner which would be consistent with the Freedom of Information Act and the provisions of the Directive on Freedom of Access to Information on the Environment (90/313/EEC).*

The current study on the health and environmental impacts of landfill and thermal treatment being co-ordinated by the Health Research Board will complement, and could feed into, the work of the group.

2.2 National Waste Management Agency

While county and regional waste management plans have now been adopted, a huge volume of work remains in implementing these plans and co-ordinating strategies for raising the required funding.

In this section, it is proposed that a National Waste Management Agency based, in part, on the National Roads Authority (NRA) model could provide the co-ordination and central focus required for this process. Among others, its functions would be to develop an integrated national waste management plan and co-ordinate the implementation of infrastructure together with communication, prevention and minimisation programmes. The Agency would also be responsible for providing policy advice to the Minister and Department of Environment and Local Government.

** Council Directive 90/313/EEC of 7 June 1990 in the freedom of access to Information on the Environment (Official Journal L 158 23/06/1990 p.0056-0058)*

2.2.1 Introduction

Waste Management Planning: The 1996 Waste Management Act charged the Minister for the Environment with responsibility for waste management, and required local authorities to prepare waste management plans for nonhazardous waste. These plans were to address all aspects of the prevention, minimisation, collection, recovery and disposal of non-hazardous waste within the local authority area and were to be reviewed on a five-year basis.

Detailed requirements in relation to the preparation and content of local authority waste management plans were set out in the Waste Management (Planning) Regulations, 1997. From the outset, local authorities were encouraged to adopt a regional approach to the planning process, with a view to more efficient provision of services and infrastructure and to carry out preliminary waste management strategy studies, to provide a context for evaluating available options and for identifying the measures, or combination of measures, most likely to optimise waste management.

Further guidance for local authorities came in October 1998, with the policy document ***Changing our Ways***. This document reinforced the waste management hierarchy, and set a number of targets to bring about a dramatic reduction in reliance on landfill. It also encouraged participation by the private sector in the provision of waste management services, and sought greater use of 'the polluter pays' principle and of legislative instruments extending the scope of producer responsibility initiatives.

By the end of the year 2000, eight regional waste management strategy studies were completed and most local authorities had either published, adopted or were in the process of adopting waste management plans. However, in a small number of areas, difficulties for elected members of local authorities in supporting strategies perceived as being unpopular within their localities led to delays in these plans being adopted. Three out of 15 local authorities in three regional groups had refused to adopt the relevant proposed regional plan because of opposition to proposals relating to thermal treatment and/or landfill facilities. One further authority had yet to make a plan for its own functional area. Other local authorities supported the adoption of a regional plan, but did so subject to conditions or qualifications. This opting out of the regional planning approach by a small number of authorities effectively meant that the other authorities involved were obstructed from making any progress.

Recent Progress: Significant progress has come with the Waste Management (Amendment) Act, 2001, which was aimed at providing a legal mechanism through which the waste management planning process could be brought to an early conclusion. This provided for the transfer of responsibility for adopting plans from the elected members of a local authority to its County Manager and that required waste management infrastructure in waste management plans be deemed to be part of the County Development Plans in the areas for which they were formulated. The 2001 Act provided the impetus for all local authorities to adopt their plans.

There has also been progress in a number of other areas:

- *Provisions were made in the Waste Management (Amendment) Act, 2001 for a new environmental levy of up to €0.19 on the supply by retailers of plastic shopping bags and, potentially, the extension of the levy to other products which are problematic in waste management terms. The DoELG will shortly publish a consultative document on regulations governing the plastic bag levy, which is due to be introduced in February 2002.*
- *The Act also made provisions for a levy on the landfill of waste, at an initial rate of not more than €19 per tonne. The DoELG has recently published a consultative paper on this levy, and it plans to introduce the levy in early 2002.*
- *At the request of the DoELG, the Health Research Board recently commissioned a study on the health and environmental impacts of thermal treatment and landfill as already discussed.*
- *The DoELG is currently preparing a policy statement on prevention and recycling, including proposals for a grant scheme geared towards private companies and local authorities.*

- *In July 2001, the EPA published a **National Hazardous Waste Management Plan***. The plan, which is a statutory document, contains proposals for new infrastructure to move towards national self-sufficiency in recovery and disposal. It also proposed the establishment of a prevention programme with targets which aim at bringing the volumes of hazardous waste generated back to 1996 levels.*
- *A segregation strategy developed in Galway is delivering good results, and similar plans are being advanced by Cork and Limerick authorities.*
- *Progress is being made on a number of specific projects around the country:*
  - *Plans for a €160 million thermal treatment project in Poolbeg near Ringsend, in Dublin are underway;*
  - *Indaver Limited, a Belgian company, has been granted planning permission to build a thermal treatment plant in County Meath - an appeal is currently with An Bord Pleanála;*
  - *Indaver is also progressing proposals for a combined nonhazardous/hazardous waste treatment facility in Ringaskiddy, County Cork;*
  - *Celtic Waste Limited, an Irish-owned private company, has been granted planning permission for a landfill site in County Wicklow, and it has also secured options on other potential landfill sites around the county;*
  - *Plans are advanced for new recycling facilities in the Dun Laoghaire-Rathdown area, and for two biological treatment facilities in Dublin.*

Need for a National Co-ordinating Waste Management Agency: Despite these developments a huge volume of work remains in consolidating regional plans into a national policy and more particularly in co-ordinating the implementation of these plans.

This process is complicated by the fact that currently waste management is the responsibility of at least three separate groups: the DoELG, which develops overall policy; the local authorities who are responsible for regional waste management planning and for providing domestic disposal facilities; and the EPA, which is responsible for licensing the facilities.

The success of the NRA model in co-ordinating and progressing the approach nationally to roads development demonstrates the benefit of making a single central authority responsible for what is a national problem requiring co-ordinated action and co-operation between a wide range of public and private bodies.

There is also need for central co-ordination in the development of funding strategies. The National Development Plan (NDP) for 2000 to 2006 proposes that €570m towards the provision of waste management infrastructure will come from PPP's. A further €127m is to be met through local authorities own resources. In addition, €127m will come from an Exchequer and EU co-funded grant scheme, intended to provide support toward planning/procurement costs associated with major regional infrastructure procured through the PPP method, and towards capital costs of recycling and recovery infrastructure as provided for in the regional and local waste management plans.

However, the total capital investment of about €825m over the period up until 2006 in the NDP compares with MC O'Sullivans current estimates that investments of over €1bn will be required over the next three to four years to implement the regional and county plans.

** National Hazardous Waste Management Plan (Environmental Protection Agency, Wexford, 2001)*

2.2.2 Recommendations

i *A National Waste Management Agency should be established to assist the DoELG in the planning, co-ordinating, monitoring and implementation of national, regional and county waste management plans.*

2.2.3 Rationale

There is a need to implement the wide range of proposals in this report as a matter of urgency and establishing a National Waste Management Agency is the most appropriate way of ensuring that all the following institutional, regulatory and financial issues are progressed in a co-ordinated and consistent way:

i **Developing and updating an integrated national plan:** *While all regional and county waste management plans have been formally adopted, there is now a need to integrate these plans into an overall national waste management plan.*

The proposed National Waste Management Agency could review local authority and regional waste management strategies and plans from a national perspective and co-ordinate their appropriate implementation. This should be the first task undertaken by the National Waste Management Agency, so as to ensure that there is consistency and co-ordination of investment and initiatives in relation to waste management across the country and to confirm that overall national targets can be achieved. This national plan would be prepared and submitted to the DoELG for approval.

The National Waste Management Agency could also have a role in assisting the DoELG in future updates of both the national and regional plans, monitoring progress on achievement of targets nationally and in the regions and in recommending corrective action where required.

By adopting this approach, the National Waste Management Agency could also develop, as appropriate, cross regional proposals for waste supply and treatment.

In addition, it could set performance indicators and output measures for the independent monitoring and reviewing of the implementation of plans and achievement of objectives and targets.

ii **Providing policy advice:** *The National Waste Management Agency could provide on-going policy analysis and advice on national and international developments to the Minister and the Department of the Environment and Local Government. It could also be required to take a strategic and long-term perspective in its policy analysis work for the DoELG and to provide input to the national waste management plan and regional plans as appropriate.*

In formulating its advice for the DoELG, the National Waste Management Agency should work closely with local authorities, other Government bodies, industry, businesses and environmental groups in reviewing best practice internationally, monitoring progress nationally in meeting the waste management challenge and in identifying refinements to current policies and strategies.

The National Waste Management Agency should also co-ordinate the approach nationally in relation to the production of reliable waste statistics.

In addition, it should promote best practice among industry, the business community and the general public.

iii **Co-ordinating the implementation of infrastructure:** *This would be one of the most important functions of the National Waste Management Agency. It is envisaged that the National Waste Management Agency would play a significant role in the following:*

- *providing technical advice to the DoELG and local authorities and the required skills for project planning, management and financing of facilities, where these are not available to local authorities;*
- *where necessary, having step-in powers to assist local authorities in implementing their plans; and*
- *implementing national waste management projects which transcend individual regions, where necessary some sensitive projects could be referred to the Government and the Oireachtas for debate and decision.*

iv **Waste Management Centres:** *The Planning and Development Act, 2000 provides for the pre-planning of large sites for specific purposes. This should be applied to the planning of waste management centres. The National Waste Management Agency should be responsible for the selection and prioritisation of these waste management centres and should be given legislative powers for the approval of such schemes.*

v **Funding plans:** *As already noted, significant investment is required over the next three to four years to implement national, regional and county waste management plans. In this regard, the National Waste Management Agency should:*

- *advise the DoELG in relation to prioritising spending on waste infrastructure. Funding plans should be the subject of periodic review by the National Waste Management Agency;*
- *identify alternative funding sources;*
- *promote and develop public-private partnerships (PPPs) for waste facilities; and*
- *advise the DoELG on national regulations in relation to charges for landfill and on other levies.*

vi **Grant funds:** *The National Waste Management Agency would be responsible for administering grant funds from allocations in the National Development Plan; the Environmental Fund, derived from the landfill and plastic bag levies, the recycling support programme, and the Environmental research and development fund.*

vii **Prevention and minimisation:** *The National Waste Management Agency should be responsible for implementing programmes in relation to waste prevention and minimisation, and providing advice to the DoELG in this regard.*

viii **Public communications:** *The National Waste Management Agency would be responsible for the development and implementation of the national communications programme as previously recommended.*

2.2.4 Implementation

The National Waste Management Authority should be democratically accountable. This could be achieved through appointments by the Minister for the Environment and local Government to its board and to wider Council. Such a body could, of course, be called before appropriate Dáil Committees to outline its work and respond to the views and queries of the committee in full public sessions. The governance structure for the Waste Management Agency could be similar to that established for the Dublin Docklands Development Authority (DDDA), comprising an Executive Board to perform the functions of the agency and representative Council with overall governance and advisory functions. Both would be appointed by the Minister for the Environment and Local Government. Membership of the Council, which in the case of the DDDA numbers 25, could comprise representatives of social, economic or other community development organisations, representatives from professions or occupations relating to waste management, planning, civil engineering, public health or environmental science areas and representatives from regional or local authorities.

The Authority should have its headquarters in a major regional centre.

2.3 Regional Waste Management Boards

2.3.1 Introduction

The 1996 Waste Management Act required local authorities to prepare waste management plans to address all aspects of the prevention, minimisation, collection, recovery and disposal of non-hazardous waste, within the local authority area, and, from the outset, the authorities were encouraged to adopt a regional approach to this planning process, with a view to more efficient provision of services and infrastructure.

Most responded to this encouragement. Apart from Wicklow, Kildare and Donegal County Councils, which have decided to proceed with county plans, all local authorities in the country are now involved in regional waste management plans, as described in Table 2.2. In total, six regional waste management plans, involving 25 local authorities, have been adopted. These cover Dublin, the midlands, the northeast, the midwest, Connacht, and Cork City and County. In addition, six counties in the southeast have adopted plans, and these are now due to be consolidated in a regional plan.

Table 2.2: *Regional Waste Management Areas.*

Dublin: Four local authorities - Dublin Corporation, Fingal, South Dublin and Dún Laoghaire. Produces 2.3 million tonnes of waste annually.

Cork: Two local authorities - Cork County Council and Cork Corporation. Produces 332,000 tonnes of waste annually.

Connacht: Six local authorities - Galway Corporation, Galway County Council, Sligo, Mayo, Leitrim and Roscommon. The region produces 596,000 tonnes of waste annually.

Northeast: Four local authorities - Louth, Meath, Cavan and Monaghan. The region produces 520,000 tonnes of waste annually.

Southeast: Six local authorities - Waterford Corporation, Waterford County Council, Kilkenny, Carlow, Tipperary SR and Wexford. The region produces 350,000 tonnes of waste annually.

Midlands: Five local authorities - Westmeath, Offaly, Laois, Tipperary NR, and Longford. Produces 152,000 tonnes of waste annually.

Midwest: Four local authorities - Limerick Corporation, Limerick, Clare and Kerry County Councils. Produces 225,000 tonnes annually.

Source: The Irish Times Archive, January to October 2001.

There would seem to be clear benefits in establishing Regional Waste Management Boards, structured so as to include the same counties that came together in the formulation of the seven regional waste management plans (Table 2.2). These Regional Waste Management Boards would bring co-ordination to the implementation of these plans.

2.3.2 Recommendations

i Regional Waste Management Boards should be established to implement regional waste management plans with powers devolved from the county managers.

2.3.3 Rationale

The boards could be established quickly without the need for any new legislation concerning the relevant powers and without the need to wait for the establishment of the National Waste Management Agency, proposed in Section 2.2.

The establishment of Regional Boards would ensure local ownership of plans and accountability, and they could expedite the implementation of waste management plans by:

i co-ordinating the planning and development of waste management facilities for particular regions;

ii establishing small teams of planning officials to specialise in and fast track the planning process for waste facilities in each region;

iii agreeing the financing arrangements for regional facilities, including PPP arrangements where appropriate;

iv agreeing charging mechanisms as between waste streams where cross-subsidies may be decided;

v setting standards and prices for waste services in regions;

vi co-ordinating the commissioning of collection, separation, recycling and other services where required to achieve economies of scale and ensure value for money;

vii monitoring the achievement of regional waste management plan targets and initiating corrective action where required; and

viii agreeing regional responses to national policy and strategies including the National Hazardous Waste Management Plan.

2.3.4 Implementation

Once established, the National Waste Management Agency could delegate functions to the Regional Waste Management Boards and co-ordinate the implementation of the regional and county plans through this board structure.

The directors of services of each of the local authorities covered in the regional waste management plans should be included in the membership of the Regional Boards.

3 Accelerating the Planning Process

The recently adopted regional and county waste management plans must now be implemented through the existing Irish planning process. This is likely to present local authorities with a significant challenge.

Firstly, an immediate problem facing the implementation of these waste management plans is that the necessary waste facilities identified therein may require road, electricity grid and other infrastructure. However, no overall plans currently exist for the development of such secondary infrastructure.

Secondly, there is lack of clarity regarding where individual facilities could be suitably located. At present, site selection is being driven by private developers without national co-ordination.

Thirdly, while environmental impact assessments will be required for most individual projects, there is currently no effort being made to strategically identify how the collective potential environmental impact of the plans could best be managed. However, this problem will be overcome in the near future with the introduction of Strategic Environmental Assessment.

Fourthly, there are questions as to whether adequate funding for implementation of the plans will be forthcoming. As previously highlighted, MC O'Sulllivan have estimated that the recycling, landfill and thermal treatment infrastructure specified in the plans will require investments of over €1 billion over the next three to five years. The NDP for 2000 to 2006 provided an investment requirement of €825 million, and provisions made in the plan allow for just over €254 million from local authority, Exchequer and EU sources. It therefore appears that the bulk of funds for achieving waste management objectives will have to come from the private sector. The concern, however, is that uncertainties inherent in the current Irish planning system may deter private investors.

Finally, there is the issue of public opposition to specific projects. A survey of public attitudes on waste management, commissioned by Forfás, has indicated that while the public is aware of the need for new waste management facilities, a significant proportion would be likely to oppose such developments in their own locality. Among the reasons cited for objections was the view that, by hosting such a facility on behalf of the wider community, the receiving community would experience a certain degree of dis-amenity, without being compensated in any way.

With these problems in mind, this chapter considers how planning for new waste management infrastructure could be optimised by linking regional and county waste management plans in the forthcoming NSS, so that supporting infrastructure could also be provided for, and how strategic environmental assessments could be used to identify how to minimise the potential impacts of these plans.

It highlights the potential of adopting a process similar to that used to establish strategic development zones, for example for housing, to pre-plan for waste management centres so as to front-load risk and minimise uncertainties for developers. It also considers how 'community gain' could be used to create support for and, to increase community participation in, the development of new waste management facilities.

First, however, the current Irish planning framework is reviewed.

The Current Planning Framework: Ireland's current planning system came into force on 1st October 1964, the date of commencement of the Local Government (Planning and Development) Act, 1963.

A number of other planning laws were subsequently enacted and these, together with the original 1963 Act have been consolidated in the Planning and Development Act, 2000, which has also introduced a number of new provisions.

The Planning Approval Process: Decisions on whether to grant or to refuse planning permission are, in the first instance, a matter for the relevant planning authority. In general, authorities will have to decide planning applications within eight weeks. However, an authority can ask for more information on an application, and this will extend the time for making a decision for further periods. After the decision has been taken on a Planning application, there is a further four weeks during which any person or association can appeal against the decision to An Bord Pleanála. This is subject to a requirement that they have already participated in the planning process although there are exceptions to this requirement.

Ireland is unique among European countries in operating a system of appeals against decisions open to all members of the public.

In the case of an appeal, the planning application is considered anew by the Board, which examines the relevant issues independently. Like the Planning Authority the Board is required to consider, among other things, consider the proper planning and development of the planning authority's area and any submissions or observations received. Decisions made by An Bord Pleanála may normally only be challenged within eight weeks by way of application for judicial review in the High Court. The Court will not as a general rule reopen the planning merits of the case. It may only give leave to apply for judicial review where it is satisfied that there are substantial grounds for claiming that the Board's decision is invalid or should be quashed and that the applicant has a substantial interest in the matter which is the subject of the application.

Additional Requirements for Waste Management Infrastructure: In addition to normal criteria, planning for waste management infrastructure is to be guided by the relevant regional and county waste management plan, which became part of the development plan for that area in September 2001 and by the National Hazardous Waste Management Plan published by the Environmental Protection Agency in July 2001.

Planning applications for many waste management facilities must also include an EIS under the European Communities (Environmental Impact Assessment) Regulations, 1989-2000.

Furthermore, separate from the Irish planning process, waste management activities may also require an integrated pollution control (IPC) licence from the EPA or a waste licence from the EPA, under the Waste Management Act, 1996 and under the Environmental Protection Agency Act, 1996.

New provisions in the Planning and Development Act, 2000: As well as consolidating all previous Planning Acts, and much of the Environmental Impact Assessment Regulations, the Planning and Development Act, 2000 contains provisions for many significant changes and new initiatives.

Of significance to the proposals in this chapter are Part II of the Act, which outlines requirements for local authorities in establishing development plans; and Part IX, which provides for the establishment of 'strategic development zones'. These measures are described in further detail in the sections that follow.

3.1 The National Spatial Strategy and Strategic Environmental Assessments

This section proposes that county and regional waste management plans should be incorporated within the forthcoming NSS so that it can cater for their secondary infrastructure requirements and that strategic environmental assessments should be carried out to identify how to minimise the potential environmental impacts of the plans.

3.1.1 Introduction

The Planning and Development Act, 2000: One of the objectives of the Planning and Development Act, 2000 is to provide a greater linkage between government policy in areas such as socio-economic development and the statutory development plans that are intended to facilitate the implementation of such policy.

The Act has established a hierarchy of plans as follows:

- *National Development Plan*
- *National Spatial Strategy*
- *Regional Planning Guidelines*
- *County, Borough and Urban District Development Plans*
- *Local Area Plans, Integrated Area Plans, Action Area Plans*

This hierarchy dictates the consideration of infrastructure requirements and allied impacts from the National Development Plan downwards so as to ensure that a set of founding assumptions based on sustainable principles is adhered to.

By extension, therefore, the NSS should specify the support infrastructure, for example road or electricity grid infrastructure, required for the implementation of the regional and county waste management plans that became part of the county development plans as a result of the Waste Management (Amendment) Act, 2001.

The National Spatial Strategy: The NDP involves an investment of over €52 billion of public, private and EU funds (1999 prices) over the period 2000-2006, making it the largest and most ambitious investment plan ever drawn up for Ireland. It covers the areas of health services, social housing, education, roads, public transport, rural development, industry, water and waste services, childcare and local development.

As part of the NDP process, the DoELG is preparing a NSS to provide a framework for future balanced regional development in Ireland over the next two decades. It is envisaged that the strategy will guide future infrastructure, industrial, residential and rural development while providing protection for Ireland's cultural, natural and environmental heritage, promoting social inclusion and enhancing quality of life.

Applying the same logic to subsequent levels in the planning hierarchy, there is a strong argument for making provisions for this secondary infrastructural requirement in regional planning guidelines and local authority development plans.

Strategic Environmental Assessment: Among frequently cited objections to proposed waste management facilities is the view that there has been an inadequate overall environmental assessment of the merit of locating the facilities in that particular location.

In contrast to Environmental Impact Assessments, which focus only on the environmental impact of specific projects, Strategic Environmental Assessments (SEA) are designed to evaluate the environmental impact of a plan, policy or programme, at an earlier and more strategic stage in the planning process. One of the advantages of this approach is that it provides an early warning of key environmental constraints and opportunities that feed through into later stages of planning, and it allows local authorities to introduce guidelines into the environmental design parameters for project specific EIS.

The EU Directive 2001/42/EC* – Assessment of Certain Plans and Programmes on the Environment (the Strategic Environmental Assessment (SEA) Directive) was adopted by the European Parliament in June 2001. Whilst this Directive has yet to be formally transposed into Irish legislation, there would appear to be merit in using the SEA process immediately as part of the planning process for waste management infrastructures so as to provide greater certainty for developers and provide greater confidence in the environmental sustainability of projects for the general public.

3.1.2 Recommendations

i Regional Waste Management Plans should be recognised in the NSS at a level of detail consistent with the final format of the NSS. The NSS should establish an overall spatial planning framework nationally and at regional level to make provision for integration of these plans and other policy areas such as transport, with one another. (DoELG)

ii Local Authority development plans should include objectives for express provision, or facilitation for the provision, of infrastructure associated with waste recovery and disposal facilities as specified in the Planning and Development Act. (LAs)

iii Regional waste management plans should be subject to SEA, prior to the deadline for the implementation of the EU Directive on SEA if necessary. (DoELG)

3.1.3 Rationale

i The incorporation of relevant objectives and provisions of regional waste management plans in the NSS and in local development plans supports the requirement in the Planning and Development Act, 2000 to consider, and plan for, the infrastructural requirements and allied impacts at all levels in the hierarchy of plans from the NDP downwards.

*ii The use of legislative provisions as in sections 21-27 of the Planning and Development Act, 2000 in relation to making Regional Planning Guidelines they need to provide greater **certainty** for the general public and developers as to potentially acceptable locations for facilities required in each county or region.*

iii The provision for the implementation of adequate waste management facilities will boost the potential of regions to promote and attract economic activity into the future.

iv The SEA approach provides the opportunity for all of the relevant facts, options and challenges consequential on the development strategy to be placed in the public arena at an early stage, and to contribute to effective land-use capability planning, compliant with all environmental and planning legislation and guidelines.

v The use of the SEA approach supports the requirement in the Planning and Development Act, 2000 for local authorities to implement the principles of sustainable development at all planning levels.

vi Coupled with information provision and community based education initiatives, the advanced completion of SEAs can be used to stimulate an informed debate, address community concerns and build community consensus.

vii SEAs will help to define the framework for the project-specific EIA processes that will follow.

** Directive 2001/42/EC of the European Parliament of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (Official Journal L 197, 21/07/2001 p. 0030-0037)*

3.1.4 Implementation

It is important that comprehensive planning guidelines covering all economic and social infrastructure for a region be developed quickly following the completion of the NSS. These should provide for detailed plans in relation to the provision of facilities required and should provide the implementation timescales against which progress can be monitored. Unless such guidelines are developed, there will be no link between the NDP, the NSS and the statutory County Development Plans unless such guidelines are developed.

3.2 Waste Management Centres

There is a need for considerable investment in a range of waste management facilities including recycling, landfill and thermal treatment to achieve objectives set out in the regional waste management plans. Most will have to be provided from private sources. However, the considerable uncertainties inherent in the Irish planning process are likely to have the effect of deterring the high levels of private sector investment required.

To address this uncertainty, this section proposes an approach to deal with third-party issues up front during the planning scheme phase, and minimise these during the planning application phase when a 'live' project is on hand.

3.2.1 Introduction

Uncertainties in the Planning Process: The Planning and Development Act, 2000 has clarified and if implemented properly will address a number of waste-related issues concerning the planning process.

The 2000 Act restricts who can object in some circumstances. Objectors who appeal to An Bord Pleanála must generally have participated in the planning process at local authority level and objectors who apply for judicial review must have a substantial interest in the project. This is not yet defined but it is expressly not limited to financial or property Interests.

There have also been uncertainties with regard to adherence to timescales. Due to constraints in staff resources, it has sometimes been difficult for planning authorities to meet deadlines for responding to applications.

Due to failures of local authority development plans to address waste management issues there was and still is a high degree of uncertainty associated with the planning process in terms of outcome and timescales, and this will continue to present difficulties in the timely delivery of projects of regional and national importance.

For an individual project, the procedures involving public participation in the planning process outlined in the introduction of this chapter, can be summarised as follows:

Table 3.1 *Regulatory Authorisation Process in Developing a Waste Management Facility*

Step one: Identification of suitable site(s);

Step two: Acquisition of such sites (perhaps subject to successful planning);

Step three: Planning Permission from the Planning Authority, subject to an Environmental Impact Statement and a possible for appeal to An Bord Pleanála; an application for judicial review to the High Court, an appeal therefrom to the Supreme Court, a complaint to the European Commission and a reference of questions to the European Court of Justice for a preliminary ruling thereon;

Step four: Granting of a licence from the EPA, again subject to an application for judicial review to the High Court, an appeal therefrom to the Supreme Court, a complaint to the European Commission or a reference of questions to the European Court of Justice for a preliminary ruling thereon.

At all stages, in the procedures for acquiring planning permission and waste licences there is provision for third party involvement and consultation, with the result that the execution of a single project involves three or more layers of public consultation and ultimately many routes for potential legal challenges.

There are particular difficulties associated with step three above where a successful outcome for the project is subject to Environmental Impact Assessment. A privately promoted project or a local authority project located outside the jurisdiction of the local authority will almost invariably be appealed to An Bord Pleanála. Ministerial Approval and 'Part XI' planning (under the terms of the Planning and Development Act, 2000) with an Environmental Impact Statement will be required for a project proposed by a local authority. Further complications and delays may be occasioned when Environmental Impact Assessment procedures are required for waste management facilities. Projects promoted by private developers and local authorities are subject to appeal and ultimately to judicial review. There is also a possibility that a complaint may be made to the European Commission and that questions concerning issues of European Law may be referred to the European Court of Justice for a preliminary ruling thereon.

For developers of waste management projects, this gives rise to a number of core difficulties:

- *No guarantee of the availability for purchase of the most appropriate land for such projects;*
- *Considerable uncertainty about whether a site eventually required for the facility will comply with objectives in development plans;*
- *Uncertainties on timeline of completion of regulatory authorisation processes;*
- *likelihood of sustained public opposition; and*
- *Uncertainty of a particular project being brought to a successful conclusion.*

These make the development of such projects speculative and lessen their attractiveness to the private sector. To address the difficulties, there is an immediate need to increase the levels of pre-planning for waste facilities or sites by local and regional authorities, to ensure compatibility with development plan objectives and that the necessary infrastructures can be put in place quickly at appropriate locations, whether by private sector developers or on a public-private partnership basis.

Strategic Development Zones: Provisions in the Planning and Development Act, 2000 enable local authorities to identify suitable sites for purposes deemed to be of national strategic importance and develop planning schemes for those sites. These provisions are contained in Part IX of the Act.

In May 2001, the government used this process to designate three sites in the Dublin area as residential development zones, allowing the development of a planning scheme for these sites to progress through the normal planning process, prior to a specific developer being identified.

The process using these provisions is as follows: Before progressing to develop a planning scheme, the local authority requests the government to designate the site to be of economic or social importance to the State. The types of development for which the provision may be used include industrial, residential or commercial development, which are of importance in a national context. Developments specified under this provision would be deemed to include ancillary works, services and facilities arising. Applications for developments on a designated site can then be made to the relevant planning authority and permission will be granted, possibly subject to conditions, where the planning authority is satisfied that the proposed development is consistent with the planning scheme in force for the land in question.

A Similar Approach for Waste Management Facilities: These provisions of the Act could be used for waste management facilities through a small upgrade of the existing required level of detail in local or regional waste management plans, so as to convert them to the equivalent of a planning scheme or waste management scheme as defined in the Act (see Figure 3.1).

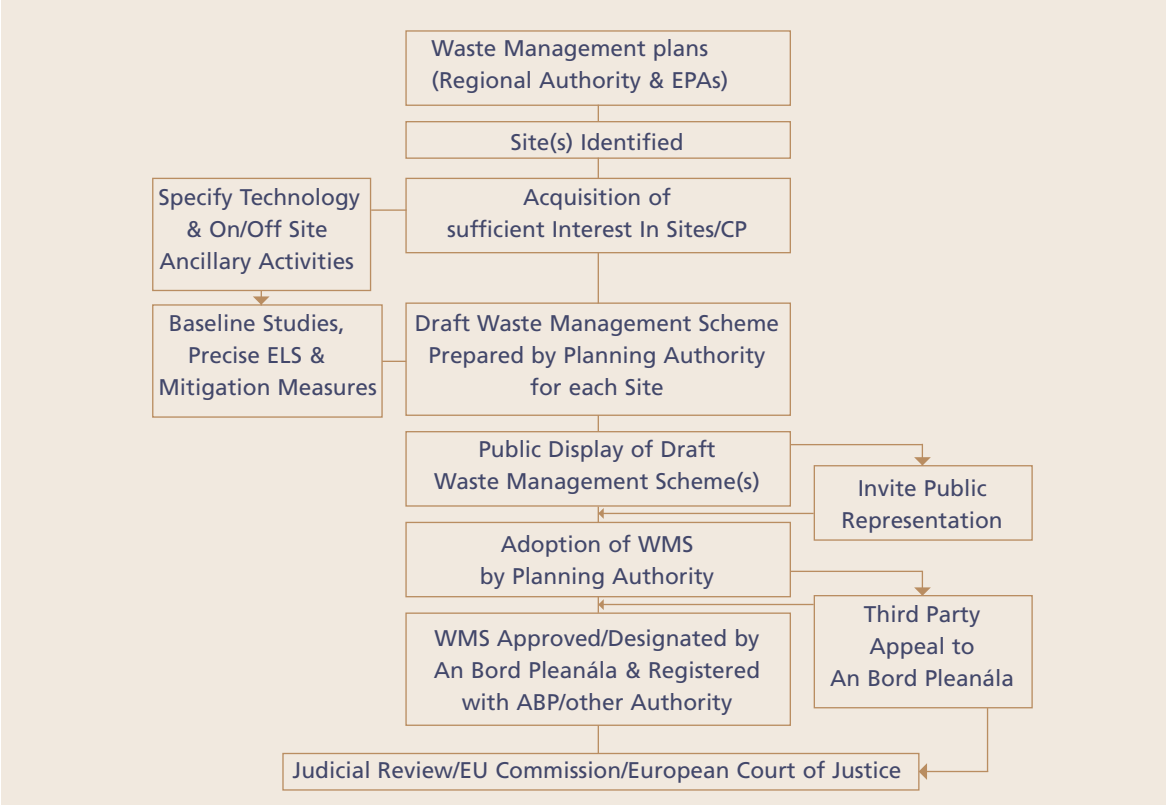
The Process from a Public Authority Perspective: The National Waste Management Agency in conjunction with the Regional Waste Management Boards, proposed in Chapter Two, could take direct responsibility for the identification of potential sites through a 'sieve' analysis of a range of internationally accepted social, environmental, technical and economic criteria. A planning scheme and EIS would be developed for the site, and the planning process would be completed as set out in Part IX of the Planning and Development Act, 2000 with the possibility of a third party appeal to An Bord Pleanála. If a National Waste Management Agency is established as proposed, it should have the power to develop planning schemes for appropriate sites for submission to An Bord Pleanála for approval.

When the scheme is approved, developers of waste management facilities could apply to establish on the site and would be approved provided they complied with the scheme. Alternatively, local or regional authorities or the National Waste Management Agency could, by competitive tender or by the public-private partnership approach, select a developer to locate on the site.

As can be seen from Figure 3.1, many elements of the existing process would be retained in order to ensure conformity with EU and national legislative requirements:

- *The national hazardous waste and county or regional management plans would remain as guiding policy frameworks;*
- *Mandatory Environmental Impact Statements would be included in the scheme in accordance with the Planning Development Act, 2000 (Part X) and the Environmental Impact Assessment Regulations, 1989-2000 (Art. 25 of SI No. 93 of 1999);*
- *An operational licence from the EPA would still be required; and*
- *A mechanism for compulsory purchase of land are still available if required.*

Figure 3.1 *Proposed Waste Management Scheme Development Process*



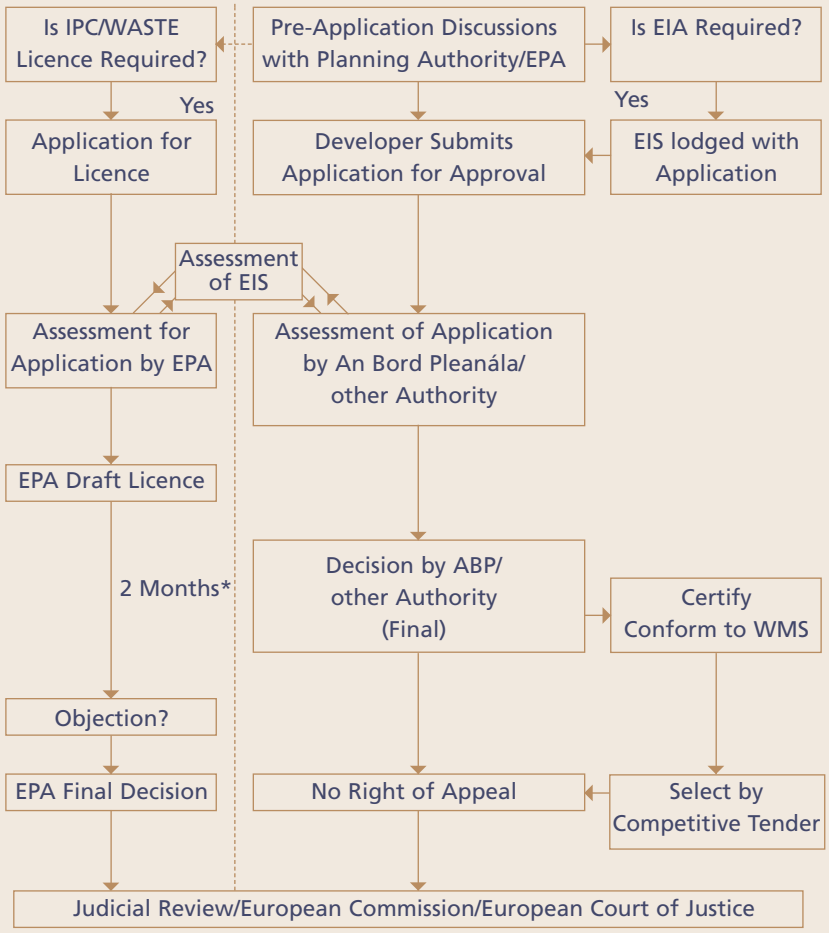
The Process for Developers: With this system in place, the process for developers of individual projects would be somewhat simplified (Figure 3.2).

As the flowchart shows, objectors at the project stage could apply for judicial review in respect of the planning approval or the EPA licence that on the grounds that are defined in the regulations, was not followed.

Environmental Impact Assessments and operational issues would be dealt with by the EPA. The EPA part of the process still requires sufficient experienced resources to shorten the processing period for waste licences. Ideally, the EPA should be required and suitably resourced to deliver its decisions on waste licence applications or revisions within time limits as defined for An Bord Pleanála with a similar set of targets.

Figure 3.2 *Proposed Waste Management Scheme Application Process for Developers*

** Construction can commence*



3.2.2 Recommendations

i The proposed National Waste Management Agency should be established quickly and given legislative powers to develop planning schemes for Waste Development Centres, similar to the provisions in Part IX of the Planning and Development Act, 2000. (DoELG)

ii Potential waste treatment sites, which comply with international criteria and best practice on siting waste management infrastructure, should be identified. (DoELG, RWMB)

iii Guidelines on response time in the Planning and Development Act, 2000 should be strictly adhered to and resources should be provided to ensure that the required planning and other expertise are made available. (DoELG)

iv Legislative provisions concerning applications for judicial review in respect of waste and IPC licences should be amended in the light of restrictions on the scope for judicial review introduced by the Planning and Development Act, 2000.

3.2.3 Rationale

i The development of waste management centres would front load the risk associated with the development of waste management facilities to enable the most suitable proposals to be expedited.

ii By eliminating that element of risk, considerable added value to the designated sites would be developed, which could be offset against operational costs or may become capitalised as an asset in the subsequent successful project. This would enhance the value for money aspect to the State and the Public.

iii The process would maintain democratically accountable bodies as initiators of the schemes required in exceptional cases and selectors of the providers if proposed by either local government or the National Waste Management Agency. It would also allow waste management specialist companies to focus on what they are best at, the development and management of the business without the unknown and expensive uncertainty of the zoning and planning phase.

iv It would remove the final technical assessment from a political forum to a competent authority.

v There would be no loss of rights of appeal - what would be eliminated is the repetition of this process.

vi All relevant EU and International Treaty requirements would be satisfied.

vii The DDDA and the preceding schemes under the Custom House Docks Scheme have shown the clear advantages of having predefined planning schemes.

viii The pre-designation of sites would bring about a streamlining in planning waste management infrastructure, which is currently complicated by the intersection of responsibilities of different government agencies and legalistive provisions.

3.2.4 Implementation

The National Waste Management Agency/Regional Waste Management Boards, proposed in Chapter Two, should identify suitable waste treatment sites that conform to international criteria. This should be done well in advance of the emergence of potential projects through a 'sieve' analysis of a range of internationally accepted social, environmental, technical and economic criteria.

The National Waste Management Agency could prepare planning schemes for sites for waste management centres as outlined previously either with the Regional Waste Management Boards or local authorities or could itself propose the schemes to An Bord Pleanála. The provisions in Part IX of the Planning and Development Act, 2000 should be mirrored in any legislation enacted to establish the National Waste Management Agency.

3.3 The Use of 'Community Gain'

Contention surrounding the siting and management of waste infrastructure, particularly in relation to thermal treatment, is not unusual. A frequent concern raised by receiving communities is that, by hosting such essential facilities, they experience a degree of dis-amenity on behalf of the wider population, yet they are not offered anything in return for this perceived dis-amenity.

The provision of some form of compensation has been suggested as a strategy for alleviating the inequity and perceived losses incurred by a community when a proposed waste facility is planned for its locality. Other countries such as the US, UK and Australia have devised systems of 'community gain', 'planning gain' or 'community host benefits' to create or enhance community support for such a facility, and it is proposed that similar initiatives could be expanded in Ireland.

The sections that follow explain the concepts of community and planning gain in greater detail, review international experience in this area, consider how such an approach could be accommodated within existing national policy and legal frameworks and make proposals on how community gain could best be used as a means to increase community involvement in, and facilitate and accelerate the development of, waste infrastructure in Ireland.

3.3.1 Introduction

The Concept of Community Gain: In surveys and interviews conducted by environmental consultants ERM as part of a study commissioned by Forfás on public attitudes to waste management issues, Irish community groups and members of the public frequently expressed the view that waste management facilities would be more acceptable if some sort of incentive was provided to the receiving community. Such an incentive, they suggested, could be in the form of financial recompense for the local community, the provision by plant operators of needed community infrastructure for the area, or even free electricity for the locality. Further details of the study are outlined in Chapter Two of this report.

In effect, what the respondents sought was some form of 'community gain' to compensate for the perceived and real negative impacts associated with the development of municipal/industrial waste disposal and thermal treatment infrastructure in their area.

Internationally, 'community gain' has been implemented in the form of negotiated agreements between local communities affected and developers offering a benefit confined to that local community.

Experience in Other Countries: In a number of other countries the concepts and practice of 'community gain', 'planning gain' or 'host community benefits' have been used by both the public and private sectors.

Incentives offered in Columbus, Ohio and Boston in the US; Toronto, Alberta, and Halifax in Canada, and Melbourne in Australia have varied depending on the needs of the local community, but all of which included new or improved facilities in the areas of roads, schools, sporting facilities, concert halls and airports,

The approaches adopted in these locations have shared two common features. Firstly, the municipal authority or private-sector plant operator has acted in a commercial way, in that the project has been run as a business rather than a social service. In the case of municipal offers, this has often involved accepting waste from another authority on a commercial basis. Secondly, an intense public consultation process has been initiated to take account of community concerns, and the operator has often entered into dialogue with the community to broker a deal.

Planning Gain: Very closely related to the concept of community gain, is the idea of 'planning gain.' Planning gain refers to planning conditions that the authority requests in response to granting permission for a development. Such practices are common in Australia and the UK. Compensation for the development is provided to the affected community in the form of amenity or recreational facilities.

In Australia, the developer usually pays the local authority or relevant federal body money which is then used to purchase land in a region of high conservation value and thereby increase the size of the region's conservation land-bank. The UK experience has shown again that meaningful consultation has been essential in the successful siting of waste management facilities.

Internationally, planning gain appears to be more common than community gain. An overview of the different types of planning gain practices is presented in Table 3.2.

Table 3.2 *Different Forms of Planning Gain Employed Internationally*

Regulation: Planning agreements may enhance the traditional regulatory role of development control in areas such as the restoration of land after mineral extraction, the phasing of development, and detailed control of future uses or environmental protection. Within this category however, the use of agreements may have broader social and economic objectives.

Physical Infrastructure: Agreements may ensure that roads, drainage, sewerage and land for improvements are provided by the applicant directly or by payment to the local authority, not only where these are necessary for the development to go ahead but also where it has an impact more generally on roads and sewerage systems or car parking.

Social Infrastructure: In Ireland and internationally, a wide range of social facilities, such as schools, crèches, community centres, public open space or rights of way may be provided by the applicant and, as with physical infrastructure, this may be either provided directly or by payment to the local authority. This again raises the problem of distinguishing those facilities that directly serve the proposed development and those facilities that relate to the wider needs of the community.

Broader Planning and Local Authority Objectives: In Ireland and internationally, agreements may seek more generally to implement the policies of the local authorities, especially those in development plans. Two key areas that have become increasingly important in recent years are the achievement of affordable housing and employment objectives such as training or jobs for local residents.

The results of a 1999 study by Ibitay and Pijawka* which, compares successful and unsuccessful outcomes for the siting of hazardous waste facilities in the US, indicates that those states who reported successful siting attempts were slightly more inclined to grant benefits to the receiving communities. Moreover, in two of the successful states, the host communities negotiated directly with the facility developers regarding the types and amount of benefit.

Interestingly, international experience has shown that the use of financial compensation as a form of planning or community gain can be problematic. A 1996 study, for instance, showed that 50.8% of the population of Wolfenshiessen, a small town in Switzerland, were willing to host a waste repository when no compensation was at stake, but when financial compensation was introduced this fraction fell to 24.5%.

In relation to waste management facilities, the types of measures the community might seek could relate to environmental protection of their area, initiatives to monitor the air and water quality on an ongoing basis, or funding to remediate the site after its closure. Specific examples of the types of negotiated community benefits provided in the US, include a fund of $100,000 per annum for monitoring the quality of surface and groundwater; an unspecified contribution to a contingency fund to close, monitor, and maintain a landfill in the event of operator default; and an environmental damage contingency fund of up to $2 million to be held for 10 years after final landfill closure. ***Table 3.3*** shows the results from a US survey on community preferences for different types of benefits.

Table 3.3 *The Desirability of Various Types of Community Benefits as Indicated by a 1993 Survey Carried Out in the US.*

Desirability of host community benefits	
Type of benefit	% in favour
Free water tests	90
Water quality guarantee	90
More public reports of test results	84
Allow owners to hire their own appraisers	83
Speed limit enforcement	83
Pay present owners property value loss on sale	79
Landscape to hide landfill	76
Restrict landfill hours	74
Control illegal dumping	70
More monitoring wells	63
Establish special fund for problems	62
Support roads	58
Extension of public water if problem develops	57
Restrict number of trucks	52
Pay future owners property loss value on sale	48

Source: R.Fort & L.Scarlett: Too little too late? Reason Public Policy Institute. Policy Study No: 157. April 1993

** Perversing NIMBY: An Assessment of State Strategies for Siting Hazardous Waste Facilities (ibitay, 0.0 and Pijawka K.D. Environmental and Planning C: Government and Policy: vol. 17(4) 1999)*

Irish Legislation seems to be Supportive of Community Incentives: Several provisions within existing national planning legislation appear to be supportive of the concepts embodied in community and planning gain. Section 34 of Planning & Development Act, 2000 specifically makes allowances for the granting of permission for developments with specific conditions attached. Statutory conditions may include measures to reduce/prevent noise and to provide open spaces. In addition, conditions requiring the performance of works, including the provision of facilities; and conditions requiring the payment of development contributions or supplementary contributions to defray the cost of providing infrastructural services and management may be attached.

Furthermore, in the Local Government Act, 2001, there is a strong emphasis on consultation with communities, and by addressing issues of 'community gain' in addition to statutory contributions, there is specific provision for local authorities to establish a 'Community Fund' to provide additional benefits to communities.

A local authority is empowered to finance this fund from appropriate sources, including developers. The emphasis of expenditure from this fund is not on public services such as the resurfacing of roads but rather on amenity, recreational and environmental services and projects with potential to contribute to improved quality of life.

Approaches Similar to Community Gain have already been Employed in Ireland: There is legal provision for local authorities in Ireland, to seek contributions from developers for engineering and infrastructure provision, such as the development of open space, tourist facilities, and education facilities or the support of nature conservation and environmental improvements.

Indeed, the concept of 'planning gain' has been established in Ireland by developers who have agreed to offset part of the benefit they stand to make from the establishment of land-use policies or the permitting of particular forms of development. In such cases, the 'gain' has normally been negotiated between the planning authority and the developer, to the benefit of the community as a whole. This has already occurred in the case of business park development.

Similarly, waste management initiatives in Ireland have established the practice of a proportion of the 'gate fee' being set aside to provide finance for local development projects. The accumulated funds are administered by the local authority in conjunction with the local community. These 'developer initiatives' are complementary and additional to Development Contributions/ Supplementary Development Contributions provisions under current planning and development legislation, which are used to defray the cost of providing infrastructure that a development will use. Their continued use in the future need to be in compliance with a consistent set of guidelines for such practices.

There are also some examples of community gain. For example, a recent wind energy development was given planning permission in County Wexford with no objections from the local community. The local population will benefit from cheaper electricity as a condition to permitting this development to go ahead. Needless to say, the role of meaningful consultation with the community played a key part in this successful application. Indeed, the Best Practice Guidance from the Irish Wind Energy Association regards a consultation programme as a core feature in their planning programmes.

3.3.2 Recommendations

i Community incentives, in the form of infrastructure or other facilities benefiting the affected local community should be provided, where appropriate, for waste projects and criteria for the provision of such incentives should be developed. (DoELG)

ii Research should be carried out, in the case of projects where community incentives are relevant, to identify the benefits that will be most effective from the community point of view. (LAs, DoELG)

3.3.3 Rationale

i Community gain can facilitate and accelerate the development of waste management infrastructure required by all of society, while providing some form of equitable compensation for real or perceived negative impacts experienced by the hosting community.

ii Community gain has been used successfully in other countries to create and increase community support for the development of new waste management facilities and to increase community involvement in the decision-making process surrounding the development of such facilities

iii National planning legislation is supportive of the concepts embodied in community gain, and such approaches could be accommodated within Ireland's existing legislative and policy framework, with minor amendments to existing legislation.

iv Approaches similar to community gain have already been successfully employed in Ireland.

v A portion of the funding for community gain initiatives could come from waste producers and the private companies promoting the projects, so offering value for money to tax payers and the State.

3.3.4 Implementation

Lessons learned from community and planning gain initiatives in other countries suggest that a number of factors are essential for the successful implementation of such initiatives:

- *A good relationship between the community, local authority and developer must be established from the outset. This will not be achieved quickly, and consideration must be given to a long-term approach.*
- *Early public involvement with the waste facility developers and operators helps to engender a sense of trust between the two, which is a key element in creating a balanced arena of discussion.*
- *Clear and independent information on the perceived impacts of waste facilities must be given to the community.*
- *Negotiations with the community, local authority and developer can be assisted through the use of an independent facilitator. This will allow for the easier flow of information and also contribute towards greater trust in the negotiating process.*

Specifically in the Irish context, current policy and legislation has established a basis for improved public consultation, which would be key to the community gain negotiation process. However, structures in local government would need to be developed for facilitating communities engaging in effective negotiation with developers.

Guidelines for the operation of 'Community Fund' provided for in the Local Government Act, 2001, to support community initiatives by local authorities should be developed to give clarity and assurance to communities that their interests will be respected. The potential for communities to participate, and be involved in the process of managing the resources and outcomes from the Fund should also be recognised.

The negotiation of community incentives for the delivery of waste management infrastructure appears most easily achievable in the context of a commercial development. This context allows the developer the greatest level of flexibility in responding to community concerns and negotiations, and it also supports criteria for public-private partnership initiatives, and their ability to demonstrate a capacity for innovation and value for money.

For a developer, there will be the necessity to establish certainty and that agreements made with a community have legitimacy and standing and are not liable to be undone by third parties. This reinforces the role of the local political structures in endorsing locally made agreements.

4 Waste Management Infrastructure

This chapter reiterates the urgent need to develop new waste management infrastructure, highlighting the serious deficiencies in existing facilities and the need for all sectors of society to play a role in tackling our current waste management problems. It emphasises that the answer lies not in adopting any one single strategy but rather in the integration of prevention, recycling and recovery and treatment solutions in the context outlined in chapters two and three.

New Infrastructure is Urgently Required: The existing landfill network, which receives over 90% of our waste, is coming under increasing pressure. In order to maintain capacity for municipal waste, major landfill sites in Dublin, Cork and other areas have been forced to limit the intake of commercial and industrial waste by means of a quota system, which limits waste disposal contractors to an annual intake of less than the previous year. For example, from October 2001, contractors using the Kinsale Road tiphead in Cork will only be permitted to landfill a quarter of the waste they had previously been bringing to the site. Such limitations are expected to cause severe operational problems for companies in the industrial and commercial sectors, with knock-on effects for economic competitiveness.

Coupled with strained landfill capacity, the number of recycling facilities in this country, while growing, remains low. There are approximately 150 companies, offering recycling services for an estimated range of 14 waste types. The majority of these facilities, however, are small and are engaged solely in the collection and segregation of waste. Compared with that of our counterparts in the European Union and North America, our recycling infrastructure requires considerable development.

As previously highlighted, we are also out of step with our European neighbours in respect to thermal treatment capacity. There are no thermal treatment facilities in Ireland for the treatment of municipal waste. This is in sharp contrast with the situation in countries generally seen as being environmentally progressive such as Denmark, Sweden and the Netherlands, who incinerate between 35% and 50% of waste generated.

The situation is equally critical for hazardous waste. An estimated 20% of hazardous waste arising from farms, households and small businesses is unreported. Moreover, nationally, we lack centralised thermal treatment and landfill infrastructure, and depend largely on facilities in other European countries. These facilities could be closed off to Irish industry at any point, and industrial activity could be severely curtailed as a result.

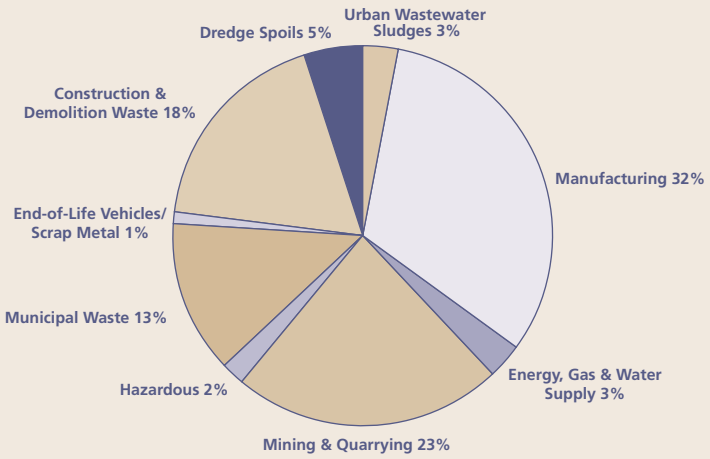
The Participation of both Industry and Householders is Essential: All sectors of society generate waste, and, as such, all have a role to play in arriving at an integrated waste management solution.

Industry's role is particularly important, because manufacturing facilities generate significant quantities of waste, and a very high proportion of wastes going to landfill - for example, white goods, furniture, and clothes – are the end-of-life products of industry. On the other hand, manufacturing companies have the potential to recycle waste materials, and through the application of eco-design principles, they can minimise the amount of waste generated in the first place.

Likewise, action at individual household level can play a part both in waste prevention and in recovery and recycling. Householders can reduce the amount of waste generated and requiring treatment by choosing such actions as products with a low packaging content, composting organic waste at home, and taking recyclables to local bring centres. Moreover, for effective recovery and recycling, the correct segregation of waste at household level is essential.

Figure 4.1 highlights the proportion of non-agricultural waste produced by the various sources in Ireland. Of the total quantity of waste generated, non-agricultural waste accounts for only 20%, with the remaining 80% arising from agriculture.

Figure 4.1 *Total Non-Agricultural Waste Generation in Ireland (1998), by Source*



Source: Derived from EPA (2000)

An Integrated Strategy is the Key to Sustainability: It is neither sensible nor practical to attempt to expand traditional disposal mechanisms such as landfills to cater for the rising quantities of waste in Ireland, even if European Union legislation and local community opposition did not constrain such a strategy. No single waste management technique can cater for the wide variety of wastes that arise in a modern society. International experience has shown that an integrated approach based on a range of preventative and re-use, recycling and recovery, and treatment and disposal measures is necessary.

The sections that follow discuss the optimum implementation route for each of these elements of an integrated national waste management solution.

4.1 Waste Prevention and Minimisation

Within internationally accepted waste management hierarchies, prevention is regarded as the first line of attack. It has a key role to play in the conservation of finite, non-renewable materials and natural resources, and unlike other elements of the waste management mix such as recycling, recovery and treatment, it places no burden on the environment.

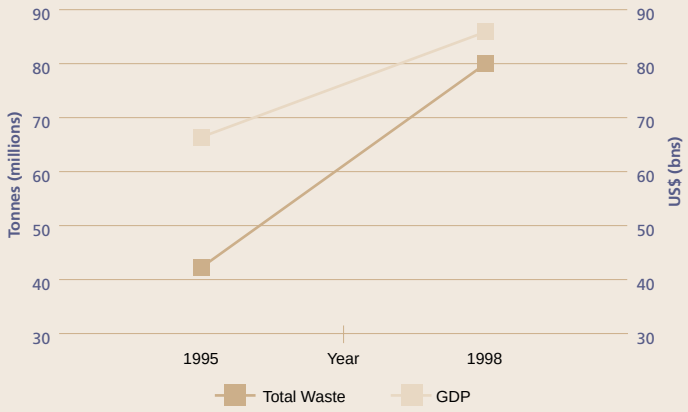
It would be unrealistic to believe that waste minimisation alone could solve our waste management problems. It is, however, an extremely important component of the overall solution, and many members of the public and environmental community make their support for implementing subsequent strands in the hierarchy contingent on the prevention of waste being pursued to its maximum practical limits.

This section highlights the key role of waste prevention in national and EU environmental policy and in decoupling waste generation from economy growth. It also explores the benefits of a dedicated support programme to encourage waste prevention, highlighting how many companies fall outside existing programmes, and it argues that increased landfill costs need to be coupled with increased policing, if they are not to encourage illegal disposal practices.

4.1.1 Introduction

There is a Need to Decouple Waste Generation from Economic Growth: Statistics from the EPA's National Waste Database highlight the strong link between economic growth and increasing levels of waste generation. During the period of 1995 to 1998, when GDP growth was close to 9.2% per annum, the quantity of reported manufacturing waste in Ireland grew by 38%. Over the same period, the quantity of municipal waste grew by 11%, the level of construction waste generated increased by almost 100%, and the level of hazardous waste also grew strongly. This relationship between GDP and waste generation is illustrated in Figure 4.2.

Figure 4.2 *Change in GDP and Waste Generation between 1995 and 1998*



*Source: EPA (2000), OECD (2000)**

A scenario in which continued wealth creation resulted in ever increasing volumes of waste being generated would clearly be unsustainable. While we may currently be entering a phase when economic growth is dampened, this will not always be the case and therefore a forward looking approach is needed. Ireland, if it is to grow sustainably, must make progress now on breaking the link between economic growth and waste production. This can best be achieved through an increased emphasis on reducing waste generation at source and employing re-use and recovery strategies to limit the net wastage of non-renewable materials.

Waste Prevention is a Key Element of National and EU Environmental Policy: Waste prevention is a key component of Ireland's National Hazardous Waste Management Plan published by the EPA in July 2001. The plan recommends the establishment of a prevention programme geared towards returning the quantities of hazardous waste generated to 1996 levels. Given that the volume of reported hazardous waste generated increased by 13% between 1996 and 1998, this is a very ambitious target. It is envisaged that the programme would be supported by a staff of 16 and incorporate a number of strands, including awareness and education, technical assistance and financial incentives. Its implementation is expected to cost in the region of €7.5M per annum, with funding coming from a number of sources including taxes, levies and use of the Environmental Fund, to be established on foot of the Waste Management (Amendment) Act, 2001.

** OECD Economic Outlook 68 (Organisation for Economic Co-operation and Development, Paris, 2000)*

Within EU policy, there is an emerging recognition of the need to move beyond policy and legislative control measures aimed at addressing the management of waste streams generated inside the factory gate, in order to focus more holistically on waste issues at all stages of the product life-cycle. The European Commission is currently developing a policy that would facilitate the evaluation of a range of environmental impacts during a product's lifetime. Known as the Integrated Product Policy (or IPP), this policy recognises the importance of integrating environmental issues at the product design stage (eco-design) and the role and responsibility of manufacturers in ultimate disposal of the product.

Producer responsibility is already integral to the EU Directive on Waste Packaging*, and regulations emerging from this directive have had a very significant impact in Ireland. It has seen the volume of packaging waste diverted from landfill to recycling increase from 14% in 1998 to close to 25% in 2001. This experience indicates that the wider integration of environmental issues at the product design stage and the expansion of product take-back schemes could have a considerable impact on the nature and quantity of materials requiring disposal in the longer term. However, as product re-design can be a relatively slow process and products have a useful life of many years, a significant impact may not be seen for at least six years.

Many Companies Fall Outside the Scope of Existing Prevention Programmes: For a company or operating facility to gain an IPC licence from the EPA, it must establish an environmental management system (EMS) to review all practicable options for the use of cleaner technology and the reduction of waste. The licensee must make regular reports to the EPA on progress in this area, and its performance is actively monitored by the EPA. As such, the IPC licensing regime is extremely effective in forcing the examination and adoption, where practical, of waste minimisation. However, of the 5,000 commercially significant producers of industrial and commercial waste in Ireland, only 500 of these firms are subject to an IPC licence.

The EC Solvents Directive (1999/13/EC)** to limit volatile organic compound emissions, which is due to be transposed into Irish law, will provide a strong incentive for manufacturers to recover and reduce their consumption of organic solvents.

However, aside from this, there is little or no regulatory pressure to adopt waste minimisation techniques for those companies that fall outside the EPA/IPC net.

Similarly, while Enterprise Ireland provides support for installation of EMS's and development of environmentally superior products (ESP's), its support programmes are focussed on broad environmental goals rather than specifically on waste minimisation, and they are available only to SME clients of the organisation.

There is a Role for Dedicated Support Schemes and Voluntary Programmes: Over the period from 1997 to 1998, the EPA ran a Cleaner Production Pilot Demonstration Programme funded with resources of €2.1 million, which stimulated some excellent waste minimisation projects in industry. The EPA has now initiated a broadly similar programme starting in 2002. However, intermittent pilot initiatives tend not to be as effective as an on-going scheme.

Many members of the European Union regard waste minimisation as a priority area and operate dedicated support programmes. For instance, between 1986 and 1997 the Danish government invested some €87 million in a waste preventative programme. Meanwhile, the UK government operates the Envirowise Programme, which helps companies to prevent waste and save money by providing them with free technical assistance. Elements of the scheme, which is reported to have saved UK businesses in excess of €150M, include a phone helpline, on-site waste reviews, best practice guides, waste minimisation clubs and training.

** Council Directive 94/62/ECon Packaging and Packaging Waste implemented in Ireland as Waste Management (Packaging) Regs, 1997 (S.I. No. 242 of 1997) as amended by (S.I. No. 382 of 1998) Official Journal L 365, 31/12(1994) p. 0010-0023*

*** Council Directive 1999/13/EC of 11 March 1999 on the limitation of emission of volatile organic compounds due to the use of organic solvents in certain activities and installations Official Journal L 085, 19/03/1999 p. 0001-0022*

Environmental management systems can also provide a stimulus for waste prevention, as traditionally many companies have made a commitment to waste reduction within the framework of their EMS.

In 1997, the EPA and the National Accreditation Board, a division of Forfás, produced a guidance document on harmonising the requirements of integrated licensing and accredited environmental management systems, and the EPA has become the first regulatory body in Europe to insist on an EMS as a mandatory IPC licence condition. Two popular programmes for the accreditation of EMS, used both voluntarily and by IPC licensed companies, are ISO 14001, the EMS standard validated in Ireland by the National Standards Authority; and, the European Commission's Eco-management and Audit Scheme (EMAS).

Enterprise Ireland currently operates a grant scheme offering Irish SMEs support towards the costs of engaging independent consultants to install in full or part a certified EMS to ISO 14001 or the European EMAS standard.

It is hoped that the introduction of the revised EMAS regulation and the on-going EMS support scheme operated by Enterprise Ireland will encourage an increasing number of companies to follow this route.

Increasing Landfill Costs must be Coupled with Effective Policing of Illegal Disposal: The cost of landfill disposal (now at around €70–€100 per tonne) has increased very substantially in recent years and by over a factor of three in some areas. This, coupled with the fact that there are now significant limitations at some local authority landfills on the nature and volume of waste accepted, has given industry an immediate incentive to minimise waste production. This incentive will be amplified further by the Waste Management (Amendment) Act of 2001, which makes provisions for a landfill levy of up to €19 per tonne to be imposed in 2002 and allows for subsequent increases of up to €5 per tonne annually to be ordered by the Minister.

Care must be taken, however, to ensure that increasing landfill costs do not promote illegal disposal. With the introduction of waste disposal charges for householders, there is now a financial incentive for individuals to dispose of waste illegally. For commercial operators, the financial incentive for illegal practices such as fly-tipping or the use of unlicensed tipheads is even greater. For example, in August 2001, if an unscrupulous waste disposer in the Dublin area were to dispose of a single five-tonne load illegally rather than using an authorised tiphead, s/he could save €500. Likewise, a small contractor moving just 10 loads a week to an unauthorised landfill could make a monthly saving of up to €22,000. By comparison, the penalties may be seen by some as modest. The Waste Management Act allows for a maximum fine of just €1,905 or 12 months imprisonment or both on summary conviction. The Act also allows for maximum penalties of up to €12.7 million in fines and/or 10 years in prison for serious breaches prosecuted by the Director of Public Prosecutions.

In order to promote waste minimisation rather than illegal dumping, there is a clear need for more vigorous policing of unauthorised waste disposal activities and for the prosecution of both those found disposing of waste illegally, and those who have made use of their services.

4.1.2 Recommendations

i *Pending the establishment of a National Waste Management Agency, the EPA should put in place a national initiative, including a demonstration programme that would support waste prevention projects within companies. Enterprise Ireland should put in place a similar initiative for its client companies. (EPA, EI)*

ii *The Department of the Environment and Local Government should negotiate sectoral agreements with generators of wastes in priority areas, with a view to stimulating improved waste prevention practices.*

iii *Best practice programmes should be considered to provide guidance and benchmarking data direct to companies and waste management 'clubs' should be established to help companies in particular sectors to learn from each other. (EPA, DETE and their Agencies, IBEC)*

iv *State bodies should lead by example by implementing waste prevention programmes within their organisations.*

v *Increased resources should be provided for policing to ensure that penalties for illegal waste disposal activities are applied. (DoELG)*

4.1.3 Rationale

i *Waste prevention is the first priority in the internationally accepted hierarchy of waste management strategies.*

ii *The public strongly supports the concept of waste minimisation and seeks an increase in activity in this area.*

iii *Although there may be initial start-up costs associated with developing waste prevention programmes in industry, in the longer term there is potential for savings, for individual companies, from reduced materials consumption, and from a national perspective, from reduced raw material imports.*

iv *Waste minimisation has a key role to play in reducing the need for recycling, landfill and thermal treatment infrastructure.*

v *Waste prevention assists in the conservation of finite materials and non-renewable natural resources.*

vi *Prevention supports sustainable development by weakening the link between economic growth and waste production*

vii *Waste minimisation is in line with national and EU environmental legislation.*

viii *The most environmentally progressive countries successfully pursue prevention strategies.*

4.1.4 Implementation

The waste prevention programme should operate for a number of years and be adequately resourced. Funding could come from a combination of industry and government sources. The use of monies from the new Environmental Fund (established by the Waste Management Amendment Act, 2001) would seem particularly appropriate for this purpose.

4.2 Waste Recycling

Recycling and recovery are the second lines of attack in an environmentally sustainable waste management strategy. These practices are aggressively pursued in countries that are considered to be leaders in environmental protection, and opinion polls have indicated that the Irish public is strongly supportive of the concept of recycling.

Like prevention, recycling alone cannot solve waste management problems, but it has an important role to play as part of an integrated solution. The absence of significant recycling infrastructure is resulting in an increased environmental burden at national and local level through wastage of raw materials and poor disposal practices. It also contributes to operational problems in industry, because of the limited range of disposal options available at factory level. In contrast, a thriving recycling industry could bring considerable economic benefits through increased employment and a reduction in raw material consumption.

This section highlights the important role of recycling in EU environmental policy and discusses how, although Ireland has traditionally had a poor track record in recycling, national policy has now established ambitious targets for the future. It looks at how progress has been made in some areas, but not in others, and how further development will be contingent on developing new markets and increasing the practice of segregation, and the lead role public bodies can play in this process.

4.2.1 Introduction

New and Emerging EU Policy has a Strong Focus on Recycling: The European Commission's emerging policy on integrated product policy (IPP), which focuses on the range of environmental impacts during a product's complete lifetime, will provide a framework to encourage the recycling of a wide range of products currently disposed of by landfilling or thermal treatment, and legislation is already being developed in this regard.

The Commission has also proposed a new directive on electrical and electronic waste (known as WEEE)* to deal with end-of-life TVs, computers, freezers, and other such goods, which constitute a very high and increasing proportion of waste in all Member States. The objectives of the WEEE Directive, which is now at a very advanced stage, is to require the collection, treatment and recovery of electronic waste and to stimulate manufacturers to re-design products so that they can be more easily recycled at end-of-life.

Another relevant directive is the End-of-Life Vehicles (ELVs) Directive**, adopted by the Commission in 2000. This requires car manufacturers to modify cars so that by 2005 the vehicles must be at least 95% reusable and/or recoverable.

These new and emerging policies will further increase the need for recycling and create new commercial opportunities in this area.

Ireland has a Poor Track Record in Recycling: The recycling of waste currently plays only a minor role in waste management in this country. National statistics for 1998 show that only 9% of household and commercial waste was recovered, with the remaining 91% going to landfill. Only glass, metals and paper had a recovery rate in excess of 10%.

This compares poorly with the performance of many other countries. For example, while the recycling rate for aluminium cans in the US was 67% in 1994, the rate for Ireland by the year 2000 was just 6%. Our overall performance for household waste is even worse, and compares starkly with many of our neighbours in Europe and North America, as illustrated in Table 4.1.

Table 4.1 *Comparison of Recycling Rates for Household Waste (1998)*

Ireland	3.2%
Switzerland	52%
Netherlands	45%
Norway	34%
USA	32%
England	9% (2000)
N. Ireland	5% (2000)

*Source: EPA, Kirk McClure Morton****

** Proposal for a Directive on waste from Electrical and Electronic Equipment and Proposal for a Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, Brussels, 13/06/2000, COM(2000) 347 provisional, 2000/09158 (COD), 2000/0159 (COD), European Commission*

*** Council Directive 2000/53/EC on End-of Life Vehicles (ELV) Official Journal L 269 21/10/2000 p. 0034-0043*

**** Recycling - Developing the Market, Kirk McClure Martan, (AREN Network, 2000)*

Some Initiatives are in Progress, but Action is Needed in Other Areas: In recent years, the Irish government has begun to recognise the environmental, financial and infrastructural benefits of recycling, and in turn the private sector has responded to the stimuli of rising landfill costs and the controls on disposal by landfill of certain categories of waste. A recently published ***Directory of Recycling Companies in Ireland*** (**www.Irelandrecycling.ie**) shows that private recyclers are now active in 14 areas:

Paper and Card	Plastics
Glass	Ferrous Metals
Non-Ferrous Metal	Oil
Putrescibles	Chemicals
Computer/ Electrical goods	Batteries
Timber	Construction/ Demolition materials
Textiles	Miscellaneous

Enterprise Ireland estimates that over 150 companies have emerged in the recycling industry and that the majority of these facilities are very small and employ less than 10 people.

The Department of the Environment and Local Government has assisted this development by providing capital grants to a number of groups, and many local authorities also have actively facilitated the private sector in the siting of ***bring banks*** and material recovery facilities. In addition, a recently launched commercial internet-based waste exchange service (www.wastechange.com) is proving effective in putting waste generators in touch with recyclers.

The government's 1998 policy document ***Changing our Ways***, sets out a number of targets for improving the current position by the year 2013, including:

- *the recycling of 35% of municipal waste;*
- *the recycling of 85% of construction and demolition waste;*
- *a 65% reduction in the quantity of biodegradable waste going to landfill; and*
- *the construction of new composting plants or similar facilities with a capacity of up to 300,000 tonnes per annum.*

Although aimed principally at local authorities, the strategy seeks private sector involvement in the provision, management and operation of facilities.

Already, initiatives to encourage recycling of packaging and construction and demolition material are in progress. In response to the EU Waste Packaging Directive, which established packaging recycling targets for every Member State and required Ireland to recover 25% of packaging waste by 2001, Repak has been established as a voluntary industry representative body with responsibility for meeting national targets. The organisation is funded through fees from companies engaged in the manufacturing and use of packaging as well as retailers and other companies that place significant quantities of packaging on the Irish marketplace. A recent review by consultants has confirmed that Repak has achieved its key objectives and annual recovery targets. However, much additional work is necessary to reach the year 2005 recovery target of 50%.

In a separate initiative, the DoELG is seeking to establish an industry-led approach to construction and demolition (C&D) waste. C&D waste constitutes a very high proportion of the overall waste going to landfill in Ireland, reaching over 40% at some sites. The Forum for the Construction Industry has recognised its responsibility in this regard and has established a task force aimed at establishing a programme to meet the government's targets for the recovery of 50% C&D waste by 2003 and 85% by 2013. A detailed action programme has been drawn up and is currently awaiting review by the Minister. The report envisages a voluntary approach funded principally by the industry, but with some government support.

While steps have been taken to stimulate the recycling of packaging and construction and demolition waste, no significant initiatives have as yet been taken to address other important waste materials, such as paper/cardboard, tyres, plastic and beverage containers. There is a need to identify how the barriers to increased recycling of these waste streams can best be overcome.

Stable, Long-term Markets are Essential: The drive to increase recycling has traditionally focussed on the supply-side, by encouraging more segregation and collection activities. However, international experience shows that the demand side is equally important and that actions to develop stable markets for materials and products from the recycling process must be taken parallel with actions to support the collection and processing of wastes.

The outlets for collected materials often depend on overseas markets and prices can fluctuate widely outside the control of Irish recyclers. There is a need to identify new markets for reclaimed materials and products outside those traditionally pursued. These should preferentially be found in Ireland, so as to minimise the cost and environmental burdens associated with transport of materials to overseas markets and to improve self-sufficiency in waste management.

An increased emphasis is also required to develop a broad range of more diverse and higher value uses for recycled material. In this respect, there would seem to be merit in broadening and expanding the approaches currently adopted in Enterprise Ireland's ESP Programme. The programme, launched in March 1999, provides funds for Irish SMEs to investigate the potential for making products with lower environmental impact over their lifecycle at the same cost as traditional products. One success from the scheme is a range of plastic products produced by Sterile Technologies using granulated plastic generated as a by-product from the processing of medical waste.

A Role for Government and Public Bodies: A more proactive involvement by government bodies could fast track the development of a thriving recycling industry.

In Europe, public bodies account for 14% of all purchasing and a move to green purchasing by this sector, as recommended by the Commission, could influence a large body of private companies. There has as yet been no significant attempt by public bodies in the Republic of Ireland to develop and implement green purchasing guidelines. However, in Northern Ireland, Belfast City Council introduced a green procurement programme in 1996, and this has resulted in improved environmental performance as well as increased commercial success for local companies.

The purchasing power of government bodies in this country could provide a major stimulus to market development, and, as such, all public bodies should be increasingly encouraged to operate a green procurement programme, giving preference to recycled materials and products incorporating recycled materials. This approach would be particularly important in the area of construction and demolition waste, as public construction projects could provide a very significant market for such materials.

The Need for Waste Segregation: Considerable international research has been focussed on the segregation of mixed waste streams and on the development of technologies capable of processing mixed waste streams. However, such development work has met with limited success, and the viability of most recycling operations depends on the consistent availability of a single waste type. Likewise, goods and products cannot be commercially marketed on the sole basis that they incorporate recycled materials - they must meet the same quality criteria as those from virgin materials. Therefore, wastes destined for recycling operations must be handled with broadly the same level of care as virgin raw materials. Moreover, the introduction of composting plants for biodegradable waste, as proposed in many regional waste management plans, will require the segregation of such wastes by householders, restaurants and canteens.

In this respect, it is clear that a culture of waste segregation must be established in Ireland and that the current practice where all sectors of society dispose of all nonhazardous waste in one container must be ended.

Already, there has been some progress in this area. Members of Repak are obliged to segregate packaging waste from all other wastes and to make them available for recycling. Similarly, the proposed implementation plan for C&D waste envisages the development of codes of practice for waste segregation. Building sites would have a number of skips or areas dedicated to particular waste streams such as concrete, timber, and metals. Individual waste streams may then be reutilised on site or transferred to off-site recycling facilities.

At household level, meanwhile, the specific mechanisms for segregation currently vary from one local authority to another, in response to local circumstances. A number of local authorities have recently embarked on ambitious segregation and collection programmes mainly as a consequence of limited landfill space. In Dublin, householders are to be provided with three bins for separate collection of paper/cardboard and cans, compostable waste and general mixed waste. In Waterford, households throughout the county are to be provided with bags for the separate collection of dry recyclables such as paper/cardboard, beverage containers and plastic. In Donegal, the County Council is encouraging home composting and wormeries by subsidising the purchase cost of units.

In addition to the collection of segregated waste at households, there is an increasing number of ***bring banks*** where the public can bring segregated waste such as bottles, clothes and cans, and emerging legislation will require the segregation of such materials as electrical waste, end-of-life vehicles and tyres and the development of new recycling facilities for these wastes. The DoELG is considering a major expansion of ***bring banks*** throughout the country and it seems likely that kerbside collection of recyclables will be introduced in 2002 in every town with a population of over 5,000. Such new initiatives will further increase the amount of segregated waste available as a raw material source for recycling.

The communication programme discussed in Chapter Two should, when implemented, highlight the importance of correct segregation at household level in maximising the level of waste prevention and recycling and ensuring the safe and environmentally benign treatment of remaining material. In addition, local authorities could further encourage segregation by making the options for disposal of mixed waste less attractive. This could be achieved by setting higher landfill charges for mixed wastes. (To reflect the availability of recycling options for the segregated waste, however, it may be necessary to establish such variable charges at local level.)

There is also a role for public bodies to show leadership by segregating their own wastes and actively seeking recycling facilities. Moreover, as public bodies fund the majority of construction projects in Ireland, the state could provide an important stimulus by requiring that all tenders for publicly funded projects incorporate conditions relating to segregation and re-use of wastes.

4.2.2 Recommendations

i Department of the Environment and Local Government and Enterprise Ireland should commission feasibility studies on a range of recycling projects to determine the potential market and the need, if any, for financial contributions, changes in standards or regulations or other state commitments required to help the viability of such projects.

ii Department of the Environment and Local Government and Enterprise Ireland should pool their expertise and work together to promote the establishment of recycling projects by the private sector.

iii National standards should be modified to allow certified recycled crushed materials to be used in housing construction and for infrastructural developments such as road infill. (DoELG)

iv The Department of the Environment and Local Government should put a framework in place to expedite specifications in EU landfill and packaging waste Directives.*

v Local Authorities should implement waste segregation as soon as practicable. (DoELG)

vi Public construction and other relevant contracts should incorporate conditions for the segregation of waste. (DoELG, State bodies)

vii Suppliers of recycled materials should be invited to tender for State purchasing contracts, and the national environmental benefits of using recycled materials should be assessed in order to evaluate how consideration of these benefits might be incorporated into State purchasing decisions. (DoELG)

viii Purchasing contracts of government departments and agencies should, where feasible, require the use of recycled materials. (DoELG)

4.2.3 Rationale

i Recycling helps to reduce the volume of waste requiring treatment or disposal, thereby maintaining limited landfill and thermal treatment capacity for waste steams that cannot be handled in any other manner.

ii The vast majority of the Irish public have indicated recycling to be their most preferred waste management strategy and they appear to be highly supportive of the concept of increased recycling.

*iii Recycling creates employment. It has been estimated that recycling a certain quantity of waste will create around ten times more jobs than landfilling the same volume. In Washington State (population 5 million), it has been reported that a proactive recycling programme saw the numbers employed in recycling increase from 2,500 in 1989 to over 18,000 in 1995. Furthermore, when the Canadian province of Nova Scotia succeeded in diverting over 50% of its waste away from disposal, an additional 3,000 jobs were created (**Sustainable Waste Resource Management Report, Jan. 2001**)**. The development of a waste recycling infrastructure in Ireland will ensure that as many as possible of these jobs are created in Ireland rather than at waste processing facilities overseas.*

iv Recycling has long-term national economic benefits in terms of reduced raw material imports.

v Recycling has a vital role to play in conserving non-renewable resources.

vi Recycling forms an important element of the waste management strategies adopted by countries seen as leaders in the environmental arena.

** Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste official Journal L 182, 16/07/1999 p. 0001-0019*
*** Sustainable Waste Resource Management Report (Waste Working Group Ireland, Earthwatch, Voice and Friends of the Earth, 2001)*

vii *The early introduction of green purchasing criteria by public bodies, specifying the use of recycled materials, would help to give Irish companies experience and competitive advantage in meeting the green criteria of overseas purchasers.*

viii *The waste management infrastructure in Northern Ireland is at a similar stage of development as that in the Republic, and there could be commercial and political benefits in stimulating recycling activities for certain wastes on an all-island basis so as to achieve the necessary economies of scale in areas such as paper recycling.*

4.2.4 Implementation

It has already been noted that the support of recycling initiatives for certain wastes on an all-Ireland basis could offer commercial and political benefits. In this respect, the Arena Network in Northern Ireland recently commissioned a report from Kirk McClure Morton with a view to identifying actions needed for recycling to become a viable business proposition. The report recommended that the Assembly should explore opportunities for the administrations in Northern Ireland and the Republic to work in tandem in the implementation of their respective waste strategies to obtain best value from investment in research, infrastructure development and markets development, and there would seem to be merit in accepting this recommendation.

Plans for an All-Ireland recycling market have been discussed by the North South Ministerial Council and are due to be further developed over the next few months.

4.3 Thermal Treatment[5]

Despite current efforts in Ireland to minimise, prevent, re-use, recycle and treat some wastes streams, the volumes requiring disposal are increasing, and additional infrastructure is urgently required to alleviate any further deterioration in the current waste management crisis.

European experience has shown that even with efficient waste prevention, minimisation and recycling programmes, it is inevitable that wastes of a recalcitrant nature will be generated. Furthermore, in terms of addressing these waste streams, internationally accepted waste management hierarchies rank thermal treatment, carried out in accordance with high environmental standards, as being environmentally preferable to disposal by landfill.

This position is reflected in national environmental policy. The 1998 government document ***Changing our Ways*** proposes that, where technically and economically feasible and subject to appropriate attention to material recycling, thermal treatment with energy recovery or other advanced thermal processes are among the strategies that should be considered as part of an integrated waste management strategy.

Incineration is a form of thermal treatment, capable of treating a range of hazardous wastes, and greatly reducing the waste volume of all waste streams. The energy by-product of incineration can be recovered, displacing the need to burn fossil fuels, and consequently reducing greenhouse gas emissions.

5 The EPA representative was not involved in the thermal treatment discussion, because of the regulatory responsibilities of that agency, and could not endorse recommendations relating to any particular project or site.

This section highlights how Ireland is critically lacking in thermal treatment facilities, and it discusses how, if this situation is to be tackled, public fears on thermal treatment need to be addressed, and the concept of risk understood. It also reinforces the point that facilities in Ireland would be developed and operated to the highest international standards and that established models would guide site selection.

4.3.1 Introduction

Ireland is Critically Lacking in Thermal Treatment Facilities: Ireland is currently devoid of any central facilities for the thermal treatment of nonhazardous waste. This contrasts sharply with the situation in most European countries, where thermal treatment is the leading technology in the transition away from landfill towards the protection of human health and the environment. In fact, its role in the safe treatment of waste is particularly significant in countries such as Denmark, Germany and the Netherlands who are seen as having enlightened and progressive environmental policies.

The situation for hazardous waste is equally critical. There is currently no national infrastructure for the treatment of hazardous waste, and, aside from private thermal treatment facilities at a small number of IPC licensed sites, Ireland depends on the UK and more recently Holland, Germany and Belgium to treat its hazardous wastes. This co-operation from our European neighbours cannot be guaranteed into the future, particularly, as a number of countries are considering ceasing the import of hazardous waste. Unless Ireland develops the essential infrastructure, its lack of thermal treatment facilities may prove to be a deterrent for future investment in this country, and expansion capital may be diverted to countries with a fully integrated approach to waste management.

In addition to economic and environmental drivers, political pressure for national thermal treatment facilities is coming from European Union policy. Directive 75/442/EEC* on waste requires that member states should strive for self-sufficiency in hazardous waste management, and this view is echoed in Ireland's statutory National Hazardous Waste Management Plan, recently published by the EPA.

Public Fears Need to be Addressed: Although existing hazardous waste facilities at IPC licensed sites in Ireland are very well managed, the general public appears to remain strongly opposed to the concept of thermal treatment. For instance, proposals to construct a combined hazardous and non-hazardous waste-to-energy facility at Ringaskiddy in County Cork, a county where over 60% of this country's hazardous waste is generated, have been met with strong community opposition, as have proposals for a municipal waste incinerator at Carranstown in County Meath, with fears in both cases being voiced over transportation issues, poor road infrastructure, and the perceived health implications of thermal treatment of waste.

Specific health concerns among the public appear to centre on the possibility of dangerous levels of dioxins, polycyclic aromatic hydrocarbons (PAH), and heavy metals such as lead and arsenic being emitted in incinerator flue gas. It is believed that some of these fears may originate from negative perceptions about older incinerators operating elsewhere in Europe. In this context, it is worthwhile noting that significant improvements in thermal treatment technology have been made in recent years, and there has also been a significant tightening in operating standards. Today, facilities within the European Union operate within a tightly controlled regime that specifies combustion temperatures, residence time, turbulence and feed rates. These requirements, coupled with advances in plant technology, mean that the latest generation of incinerators produce significantly lower concentrations of all pollutants than their predecessors.

** Council Directive 75/442/EEC of 15 July 1975 on waste Official journal L 194, 25/07/1975 p. 0039-0041*

Studies carried out by the Agency for Toxic Substances and Disease Registry in the US* conclude that a well-designed and properly operated thermal treatment facility can effectively treat organic hazardous wastes in a manner that is protective of public health.

In terms of dioxins, this view is supported by the findings of recent studies, showing that levels in the immediate vicinity of incinerators are no higher than background levels. For instance, in Ireland thermal treatment of hazardous waste is currently carried out at eight IPC industrial sites. Yet, despite the existence of these facilities, a recent EPA study on dioxins in cows' milk has shown no increase in concentrations over 1995 values.

For other airborne pollutants, such as nitrogen oxides, lead, and total suspended particulates, the use of efficient end-of-pipe air quality control technology ensures that levels are well below national and EU air quality standards.

There is no Such Thing as Zero-risk: Risk is part of life, and every day, individuals make judgements, often unconsciously, by weighing risks against benefits.

The siting of incinerators, particularly those that burn hazardous waste, often generates unbalanced fears. Individuals may worry about incinerator residues in their food, but continue to smoke or eat an unhealthy diet. Others may worry about the siting of an incinerator in their community, while neglecting to test their homes for radon.

Table 4.2 shows that everyday activities such as smoking and driving have high risks of adverse effects, while ambient exposures to the usual levels of toxic chemicals such as dioxins is accompanied by very low risks.

Table 4.2 *Comparison of Risks Associated with Various Activities*

Smoking Cigarettes: For an individual smoking an average of ten cigarettes per day, the lifetime risk of dying from lung cancer is 1:3, and there are additional risks of emphysema and of coronary heart disease.

Driving Motor Vehicles: The normal lifetime risk of dying as a result of driving a motor vehicle is 1:120, based on 450 deaths per annum on Irish roads and 20% of the population not involved in driving on the roads at any one time.

Exposure to Dioxins: The increased risk of contracting cancer from dioxins emitted by a typical 100,000 tonne incinerator would be 1:100,000 over a lifetime based on worst-case toxicity data from the United States Environmental Protection Agency. If average toxicity data are used the risk would be as low as 1:1,000,000. Correspondingly, the risk of death would be less than 1:200,000 and 1:2,000,000 respectively. These levels of risk are extremely low and well within the range suggested by the World Health Organisation, which national authorities could consider adopting as ***acceptable risk levels***.

Source: Prof. Jim Heffron, UCC, Co. Cork.

Risk communication based on quantitative risk assessment data, like in Table 4.2, can help to put these risks into perspective. This is particularly important, as the perception of risk adds to the stress, fear and uncertainty, and literature on the human health effects of waste thermal treatment indicates that individuals living in the vicinity of an incinerator often experience significant anxiety concerns.

To address such anxiety and allow individuals to come to an informed decision, there is a need for accurate and relevant information about potential risks and benefits to be provided through a communication programme, as described in Chapter Two.

** Public Health Reviews of Hazardous Waste Thermal Treatment Technologies - A Guidance Manual for Public Health Assessors (Willis et al, Agency for Toxic Substances and Disease Registry Division of Health Assessment and Consultation, Atlanta, Georgia, 2001).*

Community Involvement is Essential: There is a real need to engage the community in the process of weighing up the risks and benefits associated with hazardous waste thermal treatment and actively involving it in overseeing the development of a site from the beginning. In this context, 'the community' is defined as comprising, amongst others, immediate neighbours of the facility site, community groups (i.e. religious leaders, civic leaders, educators, social organisations, cultural groups, recreational organisations, and political party representatives), local activist groups, local and state government representatives, the medical community, and the media.

The Ross Environmental Services Hazardous Waste Incinerator in the US*, which has been in operation for over 40 years, has consistently reported a high degree of community involvement and acceptance. The facility attributes this success to its comprehensive community involvement programme, which features an open-door policy 24 hours per day, scheduled open houses, public meetings, newsletters, and the use of telephone surveys every two years to gauge public sentiment to guide future actions appropriately.

In Europe, meanwhile, community participation is seen as being so vital that Article 12 of the European Commission's new Waste Directive** makes specific provisions for public consultation, access to information and participation in the permitting procedure.

As proposed in Chapter Two, an effective communication programme should provide relevant and timely information using responsible techniques and good intentions, and it should facilitate mutually satisfactory two-way communication. This demands that information provided is highly accessible, accurate and understandable, the community is allowed to express its concerns, and an appropriate response is made. It also means that messages about potential risks to a community must be honest and straightforward, avoiding absolute statements that exposure to hazardous waste incinerator emissions will or will not result in adverse health effects.

Lessons Can be Drawn from Existing Models for Site Selection: The selection of suitable sites for waste treatment facilities is a complex process, which requires the weighing up and balancing of a range of physical, environmental, social and economic issues.

The World Health Organisation produced guidelines on site selection criteria for new hazardous waste management facilities in 1993***. Within these models, the WHO recommends that prior to the identification of a specific site, the general public must clearly recognise that there is a need for such a facility and that the other prevention, minimisation, re-use and recycling elements of an integrated waste management plans are in place. It also notes the importance of dialogue and negotiation, the concepts of fairness and compensation for losses incurred in the public interest, and a high sensitivity to social and economic conditions in the host community. This is in line with the concept of community gain outlined in Chapter Three.

The US EPA has also identified scientific, technical, environmental, regulatory, social and economic criteria that require evaluation in the siting of an incinerator, and in the US, siting boards comprising citizens, government officials, site developers, and facility operators are frequently established to discuss and weigh up key factors associated with site selection.

As well as learning from the WHO and the US EPA models, in Ireland, environmental impact statements (EISs) would be undertaken to determine existing baselines and potential impacts of proposed facilities, as outlined in Chapter Three. Adequate air, water and groundwater monitoring must be undertaken at the site to ensure the long-term protection of the surrounding area, and, once the facility is in operation, continuous monitoring as stipulated in the European Commission's new Waste Directive should be undertaken for all potential emissions.

** Hazardous Waste Incineration: Evaluating the Human Health and Environmental Risks (Roberts et al, Lewis publishers, 1999).*
*** Directive 2000/79/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste Official Journal L 332, 28/12/2000 p. 0091*
**** Site Selection for New Hazardous Waste Management Facilitators (W.M. Sloan, Who Regional Publications European Senes No. 46, 1993)*

Facilities to be Operated, Controlled and Regulated to the Highest Standards: Hazardous waste incinerators in Europe are currently regulated through an appropriate permit: either an IPC, integrated pollution prevention control (IPPC), or a waste management licence issued by a competent authority and incorporating the requirements of the latest EU Waste Directive.

Proposed new thermal treatment facilities for Ireland will initially have to obtain both planning permission from the relevant local authority and a waste management licence, as clarified by the Waste Management (Amendment) Act, 2001, from the EPA. In this respect, it is important to note that the EPA is legally precluded from licensing a waste facility unless, among other considerations, it is satisfied that the activity concerned will not cause environmental pollution. In other words, it can only licence a facility that will not, to any significant extent, endanger public health or harm the environment.

Furthermore, the strict control regime that is outlined in the new European Commission Waste Directive will be immediately incorporated into the EPA's licensing system.

Article 11 of the Directive requires thermal treatment facilities to carry out the following measurements:

- *continuous measurements of Nitrogen Oxides (NO_x), Carbon Monoxide (CO), total dust, Total Organic Carbon (TOC), Hydrogen Chloride (HCl), Hydrogen Flouride (HF), Sulphur Dioxide (SO_2)*
- *continuous measurements of the temperature near the inner wall or at another representative point of the combustion chamber, as authorised by the competent authority, and continuous measurements of the oxygen concentration, pressure, temperature and water-vapour content of the exhaust gas*
- *at least one measurement of heavy metals, dioxins and furans every three months during the first 12 months of operation, followed by at least two measurements of these compounds in each subsequent year.*

These monitoring requirements are the minimum that each member state is required to implement, and there is flexibility for the competent authority in any member state to specify more stringent monitoring requirements. In addition to these measurements, and to ensure confidence in the operation of the plant, compliance testing can be undertaken annually by an accredited independent third party.

The implementation of this new directive is expected to result in a 99% reduction, relative to the 1993-1995 period, in emissions of dioxins from waste thermal treatment across the EU. As a consequence, the contribution of municipal and clinical waste thermal treatment to overall emissions of dioxins in Europe is expected to drop to just 0.3%, assuming the output of other sources remains unchanged. In any case, from an Irish perspective, it is worthwhile noting that this country has no thermal treatment facilities based on older technology, and any new facilities constructed would operate at a fraction of emission levels specified in the directive.

4.3.2 Recommendations

Government departments and agencies should urgently facilitate the establishment of centralised thermal treatment facilities. Take for example, if the proposed facility was to proceed in Ringaskiddy, then trafficmanagement issues would have to be addressed in the area.

i Construction of the Ringaskiddy bypass should be accelerated. (DoELG, NRA)

ii Consideration should be given to the provision of suitable traffic management in the Ringaskiddy area. (CC, CIE, IDA)

4.3.3 Rationale

i *European experience has shown that even with efficient waste prevention, minimisation and recycling programmes, it is inevitable that wastes of a recalcitrant nature will be generated.*

ii *Thermal treatment is regarded as being more environmentally desirable from the perspective of human health, and a more environmentally sustainable waste management option than landfill.*

iii *Ireland currently depends on countries overseas to treat its hazardous waste. However, the co-operation of these countries in this respect cannot be guaranteed into the future.*

iv *European and Irish policy calls for national self-sufficiency in hazardous waste management, and this can best be achieved through the development of thermal treatment facilities.*

v *The current absence of thermal treatment facilities may prove to be a deterrent for further industrial investment in this country.*

vi *The energy by-product of incineration can be recovered, displacing the need to burn fossil fuels, and consequently reducing greenhouse gas emissions. Currently, about 60% of Danish households get their heating and hot water from district heating plants, many of which are fuelled by waste.*

vii *County Cork would seem a particularly appropriate location for a mixed nonhazardous and hazardous waste incinerator, since this area has the highest density of pharmaceutical and chemical companies in the country producing over 60% of Ireland's Industrial hazardous waste.*

4.3.4 Implementation

The development of thermal treatment facilities will be progressed as part of an integrated waste management strategy that also seeks to increase waste recycling and prevention levels, as described in the first and second sections of this chapter. As this strategy is primarily aimed at achieving national self-sufficiency in waste management, a cap could be set for the volume of waste that individual facilities would be allowed accept, so as to assure the public that incinerator operators could not seek to import waste in order to increase plant throughput.

The integrated waste management strategy, combining prevention, re-use, recycling and thermal treatment, will be supported by the communication programme and the establishment of a National Waste Management Agency and Regional Waste Management Boards as outlined in Chapter Two and the acceleration of the planning process as described in Chapter Three.

In summary, further initiatives should be undertaken to:

- *Stimulate widespread prevention, minimisation and recycling programmes that will reduce the volume of waste requiring disposal.*
- *Address public health concerns and risks associated with thermal treatment by having an independent review of the health issues. Currently an initiative is underway in an attempt to address public health concerns over the perceived health implications of thermal treatment. At the request of the Minister for the Environment and Local Government, the Health Research Board recently undertook an independent study of any potential health impacts associated with thermal treatment.*

- *Implement the proposed public communication programme so that a consensus can be built on how waste management issues should be addressed. It is anticipated that this programme will present both sides of the thermal treatment argument in an unbiased way at local level and it will also build a consensus on the way to address waste issues at a national and regional level.*
- *Involve communities in initial site selection incorporating best international practice as outlined by the WHO and the US EPA. These sites are to be identified using the national spatial strategy (NSS), waste management centres (WMC) and strategic environmental assessment (SEA).*
- *Implement where possible community incentive schemes to expedite the consultation and planning processes.*
- *Have public participation in the licensing procedure and transparency in the operation and monitoring of the facility. This will be facilitated under the new EU Waste Directive where provisions are made under Article 12 for public consultation, access to information and participation in the permitting procedure.*

The recommendations associated with the communications programme, NSS/SDC/SEA, community incentives, prevention, minimisation and recycling have been comprehensively addressed in previous chapters.

With respect to community gain, if an incinerator were to be established in Ringaskiddy, County Cork, residents concerns about the increased volume of traffic passing through the village could be addressed by expediting plans by the NRA to bypass the village. In addition, the number of vehicles generated by Ringaskiddy Industrial Estate could be significantly reduced by the provision of adequate traffic management in and around the village.

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