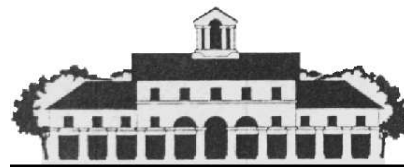




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International Review of Waste Management Policy: Summary Report

Department of Environment Heritage and Local
Government

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29th September 2009

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Glossary of Acronyms

ABP	Belgian Pharmaceutical Association
ADF	Advanced disposal fee
A00	Netherlands Waste Management Council
ARF	Advance recycling fees
AVGI	Belgian Pharmaceutical Industry Association
B2C	Business to consumer
B2B	Business to business
BAT	Best available techniques
BDMV	Belgian Direct Marketing Association
BEBAT	Belgian producer responsibility organisation for batteries
BMW	Biodegradable municipal waste
BPF	Belgian Petrol Federation
BVDU	Belgian Association of Publishers
C&D	Construction and demolition (wastes)
C&I	Commercial and industrial (wastes)
CA sites/CAS	Civic Amenity Sites
CARE	Carpet America Recovery Effort
CCMA	City and County Managers Association
CEN	European Committee for Standardisation
CIF	Construction Industry Federation
CLRTAP	Convention on Long-range Transboundary Air Pollution
COP4	Fourth Conference of the Parties
CPI	Consumer Price Index
CPT	Core Prevention Team
Cré	Composting Association Ireland
CRT	Cathode ray tube
DAFF	Department for Agriculture, Fisheries and Forestry
DIFTAR	Differentiated tariffs (pay-by-use)
DfE	Design for the Environment
DGRNE-OWD	Wallonian Directorate General for Natural Resources and Environment - Wallonian Office for Waste
DoEHLG	Department of Environment, Heritage and Local Government
DPG	Deutsche Pfandsystem GmbH

DSD	Duales System Deutschland
DVC	Differential and variable charging (pay-by-use)
DVR	Differential and variable rate charging (pay-by-use)
EEA	European Environment Agency
EfW	Energy from waste
ELVs	End of life vehicles
EMAS	Eco-management and Audit Scheme
EPA	Environmental Protection Agency
EPR	Extended producer responsibility
ESRI	Economic and Social Research Institute
EWG	European Waste Catalogue
FEBELAUTO	Belgian confederation gathering the different groupings of the Belgian automotive sector
FEBELGEN	Generic pharmaceutical organisation
FEBELGRA	Federation of the Belgian printing and communication industry
FEDIS	Belgian federation of distributors
GDP	Gross Domestic Product
GHG	Greenhouse Gas
HCB	Hexachlorobenzene
Hhld	Household
IBEC	The Irish Business and Employers Confederation
ISO 14001	Environmental management systems
IWMA	Irish Waste Management Association
JCPRA	Japan Containers and Packaging Recycling Association
JRC	Joint Research Centre (European Commission)
LA	Local authority
LAB	Association Belgium
LCA	Life cycle assessment
MBO	Milieubeleidsovereenkomst-environmental policy agreements with producers
MBT	Mechanical biological treatment
MDG	Market Development Group
MPC	Marginal private costs
MRF	Materials recovery facility
MSC	Marginal social costs
MSW	Municipal solid waste

NAVETEX	National Association of Textile Retailers
NBWS	National biodegradable waste strategy
NGO	Non-governmental organization
NFIW	National Association of Informative Magazines
NIR	Near infrared
NVGV	National Organisation of Pharmaceutical Wholesalers
Octa BDE'	Octa-brominated diphenyl ether
OECD	Organisation for Economic Co-operation and Development
OEE	Office of Environmental Enforcement
OFBMW	Organic fraction of biodegradable municipal waste
OPHACO	Belgian Association of Pharmaceutical Cooperatives
OVAM	The Public Flemish Waste Agency
PAHs	Polycyclic aromatic hydrocarbons
PAYT	Pay-as-you-throw (pay-by-use)
PBU	Pay-by-use
PBUC	Pay by use charge
PCBs	Polychlorinated biphenyls
Penta BDE'	Penta brominated diphenyl ether
PERN	Packaging export recovery note
PET	Polyethylene terephthalate
PMD	Plastiek, Metaal en Drinkverpakkingen (packaging made of plastic, metal and drinks cartons)
PPP	Public private partnership
POPs	Persistent organic pollutants
PRN	Packaging recovery note
PRO	Producer responsibility organisation
R&D	Research and development
RBRC	Rechargeable Battery Recycling Corporation
RECUPEL	Flemish producer responsibility organisation dealing with waste electrical and electronic equipment
RECYBAT	Flemish producer responsibility organisation dealing with accumulators.
RIA	Regulatory impact assessment
RPS	Repak payment system
RWMPs	Regional waste management plans
SNIFFER	Scotland and Northern Ireland Forum for Environmental Research

UUPP	International Federation of Periodical Press
UN-ECE	United Nations Economic Commission for Europe
WEEE	Waste electrical and electronic equipment
WFD	Waste framework directive
WFL	Waste facility levy
WID	Waste incineration directive
WRAP	Waste and Resources Action Programme (UK)
VALORLUB	Belgian producer responsibility organisation dealing with waste oils
VDV	Association of food retailers
VEGRAB	Federation of printing companies
VLACO	The Flemish organisation for promoting composting and compost use
VLAREA	Flemish regulation for waste
VFG	Vegetable, fruit and garden (biowaste)
VROM	The Netherlands Ministry of Housing, Spatial Planning and the Environment
VUKPP	Federation of Catholic Periodical Press

1.0 Introduction

This report provides a summary view of the work carried out for an International Review of Waste Management Policy. The work was undertaken on behalf of the Department of the Environment, Heritage and Local Government by a consortium, led by Eunomia Research & Consulting, and including:

- Patrick J Tobin Ltd & Co. Ltd. (TOBIN, from Ireland);
- ARCADIS (Belgium)
- Öko Institut (Germany)
- TBU (Austria)
- Scuola Agraria del Parco di Monza (Italy).

The Review has been given heightened significance because of the fact that it follows directly from a commitment made under the Programme for Government, which states, inter alia, that (see also Box 1):

We will undertake an immediate international review of waste management plans, practices and procedures and act on its conclusions.

One of the largest challenges facing humankind at present is the threat of climate change. It will become clear, in Section 8.0, that addressing this challenge lies at the heart of many of the proposals being made in this review. The issues around climate change and waste management are complex. Much of the literature in the area does not include waste prevention within its scope. This shortcoming is brought ever more clearly into focus as recognition of the fact that materials ‘embody’ energy grows (see Annex 63). Finally, and partly for the above reasons, the presumption that generating energy from waste is synonymous with improving the climate change performance of waste management is not necessarily a correct one, and holds good only if certain conditions are fulfilled.

Particularly in the current economic environment, there is clearly a need to understand, also, the economic implications of what is being proposed. The analysis has not simply addressed matters from an environmental perspective. Some of the changes proposed are designed to improve the efficiency of the delivery of services, and reduce costs to households in particular. As such, the package of measures is designed to deliver cost effective improvements in the waste management system, whilst also seeking to internalise some of the principle externalities of waste management.

Box 1: Extract from the Programme for Government

Waste Management

This Government is strongly committed to a waste management hierarchy based on the cornerstones of reduction, re-use, recycling and marketing of recycled products.

We are also committed to meeting the targets to divert biodegradable waste from landfill required under the 1999 EU Landfill Directive. To achieve this, we are committed to the introduction of Mechanical Biological Treatment (MBT) facilities as one of a range of technologies.

We will ensure the highest operating standards for all waste management technologies based on best international practice. We will also ensure that all waste facilities have good transport links and where feasible are close to the national road or rail networks.

We will undertake an immediate international review of waste management plans, practices and procedures and act on its conclusions.

In the meantime, in order to reach our targets under EU legislation :

- We will ensure that for any future projects neither the State nor local authorities will be exposed to financial risk to 'put or pay' clauses in waste facilities.
- We will not alter the landfill levy in such a way as to give a competitive advantage to incineration.

In particular the Government will:

- Establish new ambitious waste management targets for maximum prevention, re-use, recycling and modern waste treatment to ensure that we match the best performance in the EU for recycling with the objective that only 10% of waste or less is consigned to landfill (down from 66% now).
- Ensure that the landfills currently provided for under regional waste management plans should be the last to be constructed for a generation.
- Drive down the cost of waste management charges to householders and business by ensuring that our waste management system is competitive and uses all available technologies to achieve this including the use of waste for generating sustainable electricity.
- Ensure the implementation of the National Strategy on Biodegradable Waste which aims to divert 80% of biodegradable waste from landfill through segregated collection of biodegradable waste, and the generation of compost.
- Establish community monitoring arrangements of major waste management facilities, including on-line monitoring where appropriate, with specific powers/rights to information.
- Expand the network of bottle banks, recycling centres and segregated collection and introduce household hazardous waste collection (e.g. paint cans etc) in all suitable recycling centres.
- Ensure flat rates on waste disposal will be abolished and a mandatory system of weight-related charges for waste collection introduced.

1.1 Objectives of the Study

The initial Request for Tender for the study set out the following objectives:

The purpose of the study is to inform a policy review [...]

The study should: -

- *identify possible changes to policy at national level in order to assist Ireland to move towards a sustainable resource and waste policy including minimising the creation of waste and self-sufficiency in the reuse and recycling of materials, and*
- *examine the legal, institutional, and organisational arrangements currently in place and analyse potential changes which could assist in achieving Ireland's policy goals, and meeting national and international obligations.*

The document went on to establish overall policy goals for a sustainable resource and waste policy. These were to include: -

- *minimising waste generation and the hazardous nature of certain wastes*
- *minimising raw material use, especially non-renewable resources*
- *minimising energy use, especially non-renewable resources*
- *minimising pollution, including eliminating or restricting emissions of persistent organic pollutants in line with the Stockholm Convention*
- *protecting and promoting public health*
- *maximising economic benefit, including the revenue that can be gained from the waste resource, providing the above goals are met*
- *maximising opportunities for enterprise in reuse, remanufacturing and reprocessing*
- *a sustainable production and consumption approach.*

It is clearly not possible to simultaneously maximise and minimise across this range of parameters, although it is also becoming increasingly clear that what was once regarded as 'waste management' is changing, albeit slowly, into a much wider field of endeavour. This field of endeavour is one where 'wastes' are managed in a manner consistent with improving economic well-being, and in which due consideration is given to the nature of materials which may become wastes at some point in time. Consideration of how best to manage 'wastes' is, precisely because of the desire to increase the efficiency with which resources are used, reaching upstream, to affect product design and also, consumption choices.

1.2 Issues for Irish Waste Management

Throughout the period of the study, new policy initiatives have been in development and have reached varying stages of completion. This has presented a challenge for the review. The task would be significant enough without having to try to understand the full effect of initiatives which have not yet been fully worked up, as well as others in the final throes of their detailed design.

In addition, there remain High Court cases for which the rulings are still pending which potentially have a bearing upon the way in which some of the recommendations are implemented.¹ The delay in these rulings is unfortunate, but clearly not simply for this reason. The absence of legal certainty on some key matters affecting the market, which such delays reflect, has a paralysing effect on the market, since would-be investors and developers crave the certainty which they hope the resolution of such cases will bring. Paralysis is undesirable at any time, but it is particularly unwelcome in the year before the first of the Landfill Directive targets has to be met by Ireland.

For the same reason, it has been argued that this review – and the awaiting of its outcomes - has contributed to this paralysis. There is clearly some truth in this, but one of the objectives of the review is to recommend how clarity might be given to policy to enable matters to develop more swiftly, and more cost effectively.

1.3 This Report

The report seeks to present the main policy proposals and recommendations, and the basic rationale for these. The structure of the report is as follows:

- Scope and Approach;
- Towards Sustainable Materials Management;
- Issues for Waste Management in Ireland;
- Policy and Outcomes in Other Countries;
- Policy Recommendations;
- Expected Outcomes.

The study has generated a significant body of evidence in support of the observations made and the proposals put forward. Supporting information can be found in a number of Annexes, which are to be found in a separate document. Several of these are referred to in passing throughout this document.

2.0 Scope and Approach

2.1 A Focus on Policy

The study focuses on ‘policy’. It is not a review of best practice in terms of operations, and nor is it a review of initiatives undertaken at a local or unilateral level by, for example, a single business.

The Oxford English Dictionary defines a policy as:

¹ The relevant cases are those involving Panda and Greenstar separately seeking a ruling on a variation to the Dublin waste plan (The High Court 2008 no 420 JR and The High Court Record No. 2008/460JR, respectively).

“a course or principle of action adopted or proposed by an organisation or individual”.

Policies establish the intent to take action and/or create specific desired outcomes.

For the purposes of this research, this definition of policies is extended to include policy instruments through which the policy is to be realised. This covers incentives or disincentives to action through such instruments as economic, legislative, regulatory mechanisms, statements of intent, directives, voluntary agreements, and goals and targets. Policies ‘change the rules’ by which people formulate their actions and, by doing so, alter future outcomes. The key feature of policies is that they create the conditions through which actors formulate their actions.

For the avoidance of doubt, we consider that *policies* are distinct from *initiatives*, or actions undertaken unilaterally by specific actors. We also concentrate on policies capable of being implemented at the national level (given the client for this work).

2.2 Scope in Terms of Waste

The study is intended to cover:

- *"municipal solid waste" meaning household waste as well as commercial and other waste which, because of its nature or composition, is similar to household waste; and*
- *"construction and demolition waste" meaning waste, which arises from construction, renovation and demolition activities but excluding excavated soil and stones.*

It does not cover hazardous wastes other than to the extent that the management of the above wastes has a strong bearing upon such wastes.

2.3 Overview of Approach

In order to review international experience with a view to improving domestic policy, we approached the task in the following way:

- Seeking to understand the current state of affairs in Ireland, and what relation it bears to existing policy (the reader is referred to the Annexes reviewing policy in Ireland);
- Understanding what the empirical evidence suggests is already possible in other countries, and elicit the key policy drivers which have influenced outcomes (the reader is referred to the Annexes reviewing policies in other countries);
- Estimate how much further one could go - what might be possible - in the most favourable outcome (in other words, what ‘best policies’ might achieve where best technologies / outcomes occur); and
- Recommend changes to policies and institutional structures, in the light of a) to c), which would enable Ireland to deliver the most favourable outcome.

This is the approach we follow below.

2.4 Approach to Review of Policies

The work underpinning this review has involved reviewing how different countries have developed policies to address specific issues in waste management. The study reviewed the approach by assessing the policies on an 'instrument-by-instrument' basis.

The study has necessarily had to rely upon secondary literature to understand the effects of policies. Although some have criticised this, and argue in favour of more primary research, the criticisms generally reflect a lack of appreciation of the reality, which is as follows:

- The study has reviewed a very wide range of policies across a large number of countries;
- Relatively few thorough evaluations of the effects of specific policies exist; and
- To carry out primary research across such a wide range of countries and policies would constitute a lifetime's work.

In light of a relative paucity of quality policy evaluations, we have endeavoured to delve further into these matters than was initially deemed necessary.

Similarly, some consultees and some others viewing this study have suggested that any recommendation should be accompanied by a full cost benefit analysis. In a study of this nature, this would be both premature, whilst also being, a very significant task given the number of recommendations. It is not, generally, possible to conduct a full cost-benefit analysis of a policy proposal until that proposal is well developed (the costs and benefits of implementation will depend upon the detailed design).

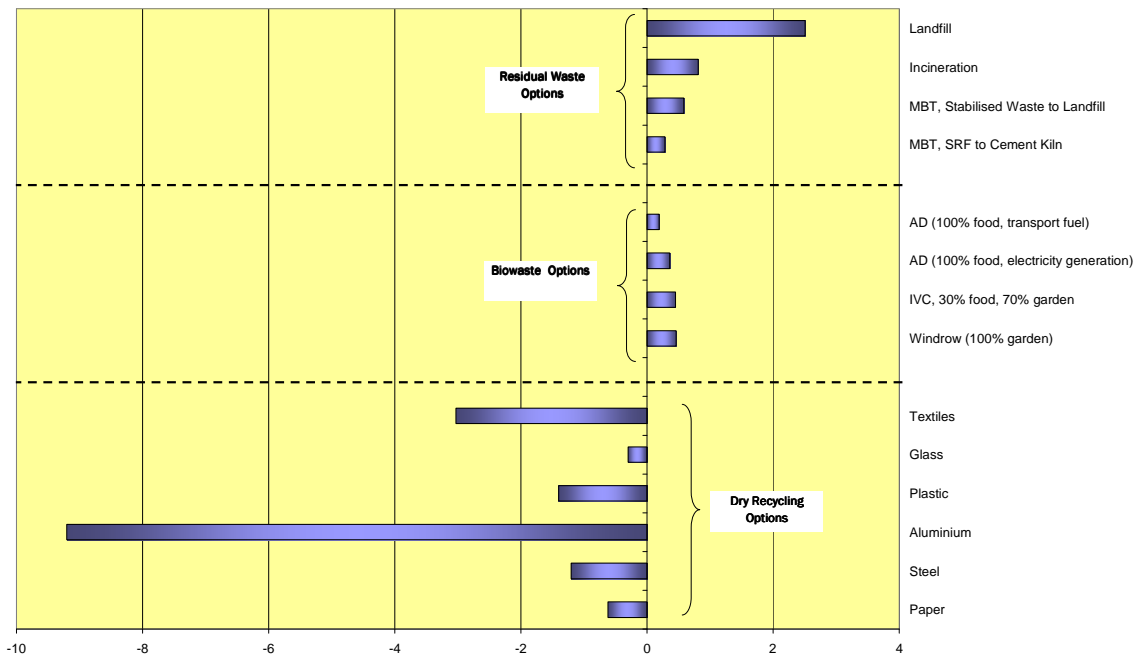
Furthermore, in this work, the changes proposed are not necessarily 'discrete'. The costs and benefits of one change being undertaken have an impact on the costs and benefits of undertaking another. The task of working up any specific policy for its subsequent implementation is not a trivial task. The point at which a policy is well developed (in terms of its detailed design) is the appropriate time at which to conduct such an analysis (rather than in advance of a policy being taken forward for consideration).

Notwithstanding this point, we have carried out pieces of analysis which seek to assess:

- The likely environmental costs and benefits of choosing one residual waste management method rather than another (see Annex 63 and Figure 2-1);
- As part of this, the potential greenhouse gas benefits to be derived from achieving the outcomes which are proposed (see Annex 63 and Figure 2-2); and
- Some key issues in respect of costs, particularly in respect of household waste management (see Annex 64).

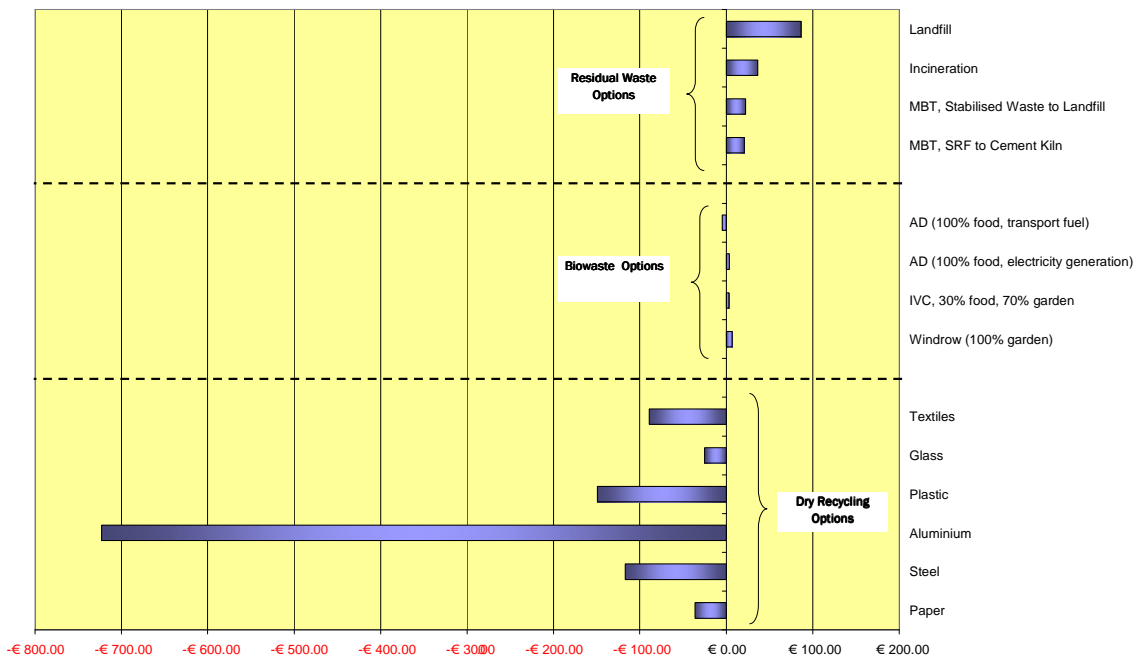
The last of these is a particular challenge for understanding in the Irish context for reasons discussed below (see Section 4.5). Potential costs and benefits are discussed further in the context of the recommendations, though these do not substitute for specific cost-benefit analysis.

Figure 2-1: Estimated Climate Change Impacts of Waste Management Options



Source: Various – see Annex 63

Figure 2-2: Estimated External Costs of Waste Management Options



Source: Various – see Annex 63

3.0 Towards Sustainable Materials Management

The waste sector is affected by a plethora of regulations and instruments which affect either all, or part of, a sector which is becoming increasingly heterogeneous. The move away from a 'disposal oriented' society necessarily moves 'the waste sector' into a situation where, as the economy moves 'waste' materials into more valuable applications, the products and services so derived effectively compete in market sectors for these products and services. Hence, the waste sector is now intimately affected by policies and influences coming through from the commodity markets, and the energy / fuel markets (see, for example, Annex 51).

There is also a development within the economy which stands to affect the physical size of the 'waste sector'. This is the trend towards the prevention of waste at source, which is becoming increasingly important in the minds of businesses, as well as in the minds – hence, in part, the rationale for this study - of policy makers. Moves to decouple waste generation from economic activity are likely to define a new era of 'waste and resources' policy. Evidence of the deepening of these trends can be found in:

- The latest version of the Waste Framework Directive;²
- The increased significance being accorded, within the European Commission, to the theme of Sustainable Production and Consumption;³ and
- In the OECD, where the 'end-off-pipe-and-life' focus of the past is giving way to a new approach characterised as 'sustainable materials management'.⁴

In this sense, the 'waste sector', as conventionally conceived, is in direct competition with the growing trends to:

- Dematerialise,
- Increase resource efficiency;

² See Directive 2008/98/EC of the European Parliament and the Council of 19 November 2008 on Waste and Repealing Certain Directives.

³ The SCP approach links all stages of the material life-cycle and is recognised in the EU's action plan on SCP and sustainable industry policy (European Commission (2008) *Sustainable Consumption and Production and Sustainable Industry Policy Action Plan*, Available: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008DC0397:EN:NOT>). This currently focuses on reducing greenhouse gas emissions, but the Action Plan states, "detailed material-based analysis and targets will be addressed at a later stage, based on environmental significance and on access to natural resources."

⁴ The OECD Working Group on Waste Prevention and Recycling (WGWRP) has the following working definition for Sustainable Materials Management (SMM): "Sustainable Materials Management is an approach to promote sustainable materials use, integrating actions targeted at reducing negative environmental impacts and preserving natural capital throughout the life-cycle of materials, taking into account economic efficiency and social equity" (OECD (2005) *Outcome of the First OECD Workshop on Sustainable Materials Management*, Report to the Working Group on Waste Prevention and Recycling, [http://www.oilis.oecd.org/olis/2005doc.nsf/LinkTo/NT0000686E/\\$FILE/JT03232834.PDF](http://www.oilis.oecd.org/olis/2005doc.nsf/LinkTo/NT0000686E/$FILE/JT03232834.PDF)).

- Make use of ‘by-products’; and
- Achieve bottom line gains, and improvements in reputational utility, through reducing waste generation.

Underwriting the significance of these trends is the Irish Government’s growing determination (and that of many other Governments) to address the issue of climate change. The recent G8 summit at L’Aquila, at which the leaders of the G8 agreed to cut emissions by 80% by 2050 (relative to 1990), suggests that momentum may yet build towards significant cuts in greenhouse gas emissions in years to come.⁵

Such cuts will not be possible in the absence of *continuing improvement* in the management of resources across the economy, and it seems likely to lead to increased pressure to:

- Reduce waste generation in the first place;
- Increase the extent to which that waste which is generated is valorised, and in ways which contribute to reducing carbon emissions; and
- Importantly, maintain flexibility within the waste management system to ‘do better’ in future.

The growing strength of the interactions between policy, economy and climate change makes it increasingly difficult to understand ‘the drivers’ affecting the waste sector. This is for the simple reason that **an increasingly broad array of policies and drivers is likely to exert influence on the waste sector as it continues to deepen the extent to which it ‘crosses over’ into productive sectors of the economy. This will be motivated increasingly strongly by growing concerns around climate change, these concerns themselves giving rise to new drivers and instruments, as well as changes in existing ones.**

This is the context for this review.

3.1 Looking Forward

Congratulations are clearly due to many stakeholders – households, industry and commerce, schools, local authorities, the waste management industry, the Environmental Protection Agency, the Department of the Environment Heritage and Local Government – for their involvement in bringing about a considerable change in Irish waste management over the past decade and a half. The change has been marked, but the intention here is to look forward to the challenges and opportunities lying ahead.

Several stakeholders we have spoken to have highlighted the lack of certainty occasioned by this review. It should be said, however, that some strong signals have already emerged from Government, not least in the Programme for Government, and in the objectives for this review. Some stakeholders clearly seek to draw too close a

⁵ See BBC (2009) *Ban criticises G8 climate efforts*, 9 July 2009, <http://news.bbc.co.uk/1/hi/world/europe/8141715.stm>

parallel between the terms ‘certainty’ and ‘stasis’. If there is one certainty, it is that the management of materials will continue to improve over time, as it has done in the past. Some premium, therefore, needs to be placed upon flexibility in the overall approach to waste management, the aim being to ensure that operational practice is not set in stone for decades hence. The emerging paradigms are those of resource efficiency, sustainable materials management and sustainable consumption and production.

Unfortunately, experience in respect of *policy* in respect of these emerging paradigms is still focused upon end-of-life-and-pipe management. Programmes conceived from within the sustainable materials management paradigm are in their infancy. Such programmes are emerging in Japan (Sound Material Cycle society)⁶, in Denmark (Product-Oriented Environmental Initiative)⁷, in Belgium (in ‘closing the loop’)⁸, and in the UK (roadmaps for sustainable consumption and production).⁹ Several of these programmes have undertaken limited development of *policy* (as defined in this report) thus far.

Consequently, a review of waste management policies currently in place tends to be somewhat backward looking. The main focus of policy development has been in respect of conventional ‘waste policies’, albeit with a steadily modernising twist. The focus has moved progressively up the hierarchy over the years, yet attention in years to come will surely turn, increasingly, to policies which reach further upstream in the production and consumption cycle, focusing upon the design phase of products, encouraging the use and consumption of more environmentally benign materials and products,¹⁰ as well as a reduction in materials use.¹¹ What follows from this is that

⁶ Japan’s Ministry of the Environment, *Fundamental Plan for Establishing a Sound Material-Cycle Society* (outline), Available: <http://www.env.go.jp/en/recycle/smcs/outline.pdf>. Japan responded to the global economic crisis of 2008/09 by announcing a draft plan called, “*The Innovation for Green Economy and Society*” in 2009 (see Minister of the Environment, Dr. Tetsuo Saito (2009) *The Innovation for Green Economy and Society*, Presentation April 20th 2009 (see <http://www.env.go.jp/en/focus/attach/090318-a3.pdf>).

⁷ Danish EPA website, *Evaluation product panels: Introduction to product panels*, see: http://www2.mst.dk/common/Udgivramme/Frame.asp?http://www2.mst.dk/udgiv/publications/2003/87-7972-547-3/html/kap02_eng.htm

⁸ Acker, K.V. (2009) *A Transition Towards Sustainable Materials Management in Flanders*, Presented at Sustainable Development, A Challenge for European Research, Brussels, 26-28 April 2009, Available: http://ec.europa.eu/research/sd/conference/2009/papers/15/karel_van_acker_-_sustainable_materials_management.pdf

⁹ Defra (2008) *Progress Report on Sustainable Products and Materials*, Available: <http://www.defra.gov.uk/environment/business/pdf/prod-materials-report0708.pdf>

¹⁰ See Tickner, J. A., Geiser, K., Coffin, M. (2005) *The U.S. Experience in Promoting Sustainable Chemistry*, ESPR; The Royal Australian Green Chemistry Institute, *Australia’s Green Chemistry Challenge Awards* Available: <http://www.raci.org.au/national/awards/greenchemistry.html>; Canadian Green Chemistry Network, Available: <http://www.greenchemistry.ca/>

¹¹ R. Bleischwitz, S. Giljum, M. Kuhndt and F. Schmidt-Bleek et al. (2009) *Eco-Innovation – Putting the EU on the Path to a Resource and Energy Efficiency Economy*, Available: http://www.wupperinst.org/uploads/tx_wbeitrag/ws38.pdf

'predict and provide' approaches are unlikely to inform waste management policy in years ahead. Again, flexibility will be important.

Ireland has an opportunity to be part of these significant changes in future. The Department for the Environment, Heritage and Local Government has already shown considerable foresight in establishing a National Waste Prevention Programme, which has developed world-class initiatives under the auspices of the EPA.¹² Policy instruments such as the plastic bag levy have also captured the imagination of other countries, and have led to similar initiatives being considered or implemented in other countries and regional / local administrations.¹³ The suggestions in respect of policy which are made in this document are intended to help further cement Irish leadership in novel and innovative approaches to managing waste. They are very far from the last word on policy development, however, and it will be important for policy reviews, building upon this one, to be carried out at periodic intervals to ensure that Ireland is close to the cutting edge in respect of waste management.

4.0 Current and Future Issues for Ireland

There are a number of issues which still confront Irish waste management. This Section picks up on a range of issues which have been raised and identified as we have conducted this study. As an overall comment, the structure of the waste management market in Ireland is a curious mix of an attempt to allow the free market to deliver, and a more *dirigiste* tendency, reflecting the need to give certainty to would-be developers of more capital intense infrastructure. This is giving rise to tensions in the market, and resort to court cases to seek resolution of these issues. There is, therefore, a need to identify the basis for the tensions, as well as to understand how the potential for a sustainable materials management approach can be unlocked.

4.1 Landfill Directive

Article 5 (2) of the Landfill Directive implies that Ireland must:¹⁴

- by 2010, reduce biodegradable municipal waste (BMW) going to landfills to 75% of the total amount (by weight) of BMW produced in 1995;
- by 2013, reduce BMW going to landfills to 50% of the total amount (by weight) of BMW produced in 1995;
- by 2016, reduce BMW going to landfills to 35% of the total amount (by weight) of BMW produced in 1995.

¹² See Annex 18.

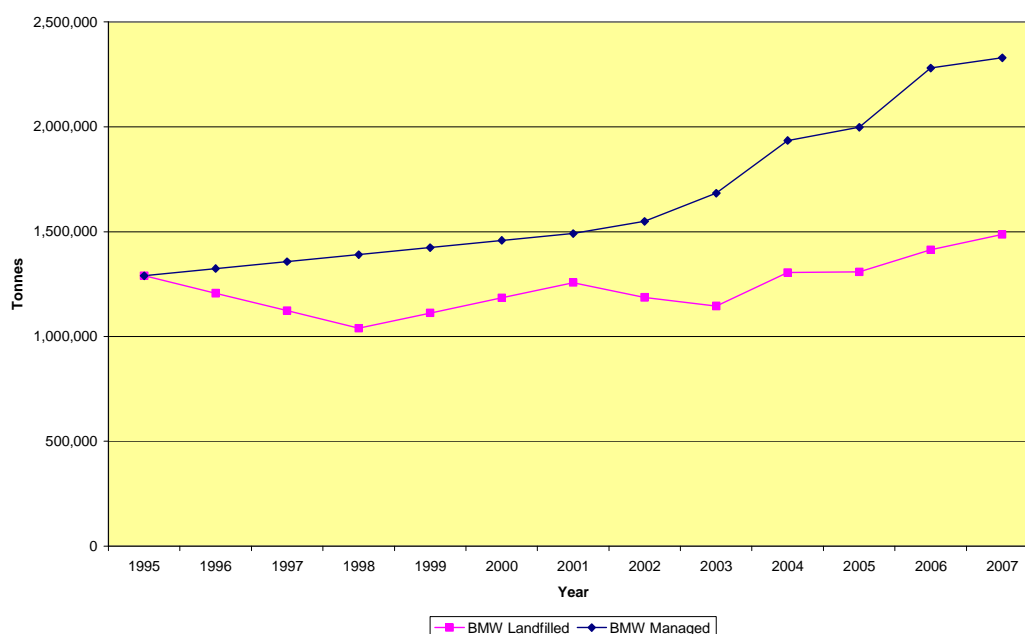
¹³ See Annex 27.

¹⁴ Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste *Official Journal L 182* , 16/07/1999 pp. 1 – 19.

At the time of writing, the most recent data which is available on a national level is the data from 2007. This data was published at the start of 2009.¹⁵

On the basis of 2007 figures, according to the EPA, Ireland was landfilling some 519,000 tonnes in excess of what it would be allowed to landfill in 2010 under the Landfill Directive. Despite improvements in recycling of household and commercial waste, the rate of growth in BMW has counteracted these efforts in terms of their contribution to Landfill Directive targets. The country has effectively been ‘running to stand still’, with landfilled BMW still higher in 2007 than it was in 1995 (see Figure 4-1).

Figure 4-1: Evolution in BMW Managed and BMW Landfilled



Source: EPA National Waste Reports.

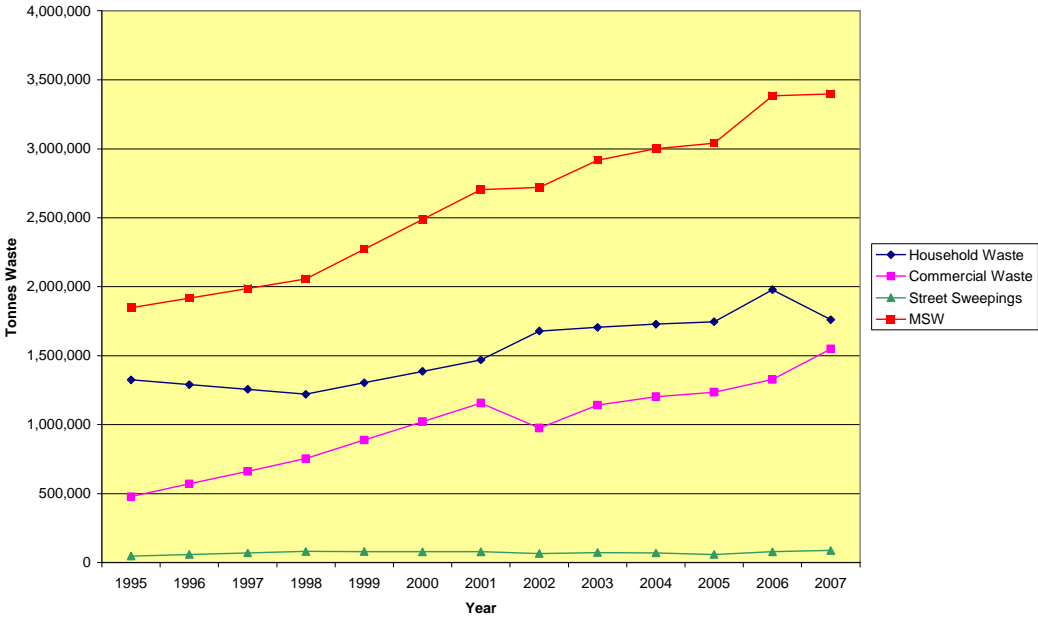
Note: Managed BMW is interpolated for years between 1995 and 2001. BMW landfilled is interpolated for 1996, 1997, 1999 and 2000. In both cases, evolution between known data points is assumed to be linear.

The reasons for this relate in principle to the growth in waste over the period since 1995. Figure 4-2 shows how waste has grown since 1995 in the household and commercial waste sectors. Household waste growth has been slower, with per capita household waste remaining broadly constant over the 6 years to 2007 (the growth reflects a growing population). By contrast, commercial waste has risen at an average

¹⁵ EPA (2009) *National Waste Report 2007*, Johnstown Castle Estate: EPA. In passing, one would comment that in future, it would be useful to have interim figures, albeit perhaps before verification, to pick up on trends that are occurring as soon as they emerge (especially, one might argue, given the economic situation at the time of writing). Any attempt to understand Ireland's *current* position vis a vis the Landfill Directive is compromised by the absence of up to date data.

compound rate of 9% over the 12 years to 2007 (8% over the second half of the period).

Figure 4-2: Evolution of MSW and its Components, 1995-2007



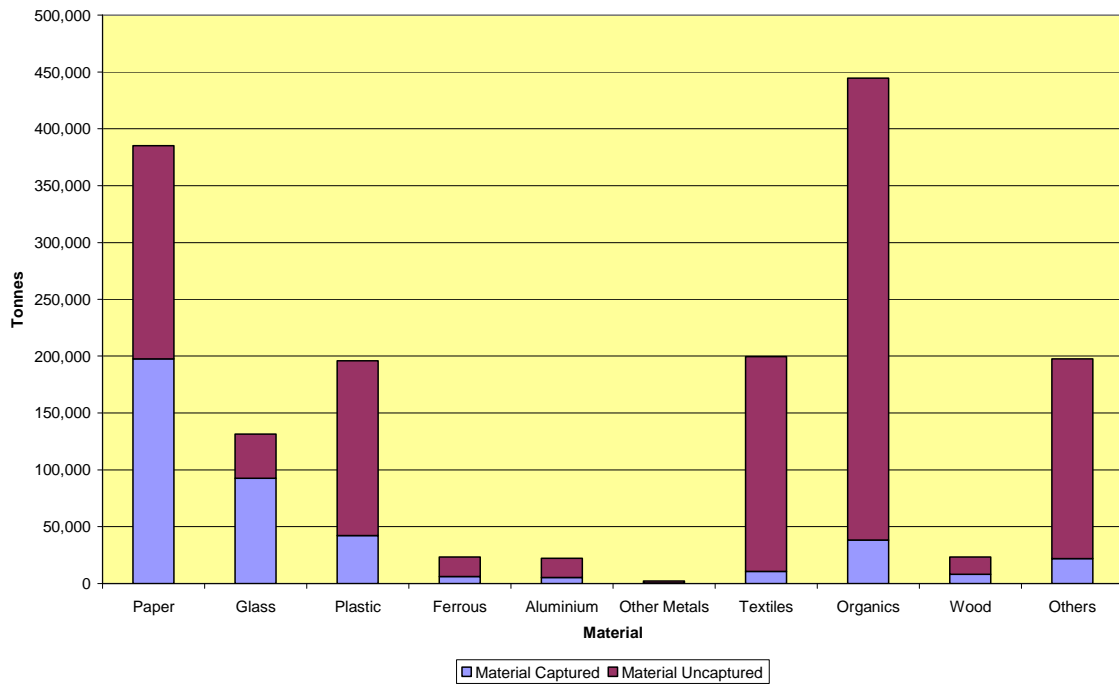
Source: EPA National Waste Report 2001, EPA National Waste Report 2007

Another reason why more progress has not been made is that whilst progress has taken place in respect of collecting dry recyclables, very little has been happening, as of 2007, in respect of organic wastes, despite the fact that this the material which is to be found in the largest quantity in municipal waste. The capture of organic wastes from municipal waste was only around 9% in 2007. The picture showing the achievement of collection systems in capturing materials from household and commercial waste streams is shown in Figure 4-3 and Figure 4-4. It can be seen from these Figures that there are also, according to composition studies, large quantities of paper and card in both household and commercial streams which, as of 2007, remained uncaptured by collection systems. Finally, the uncaptured textiles in the household stream is very large.¹⁶

These streams are the key biodegradable municipal waste streams and policy clearly needs to be developed, and indeed, is being developed, to ensure these materials are captured for recycling (and re-use where textiles are concerned), anaerobic digestion and composting, or dealt with through home composting (in the case of organic wastes).

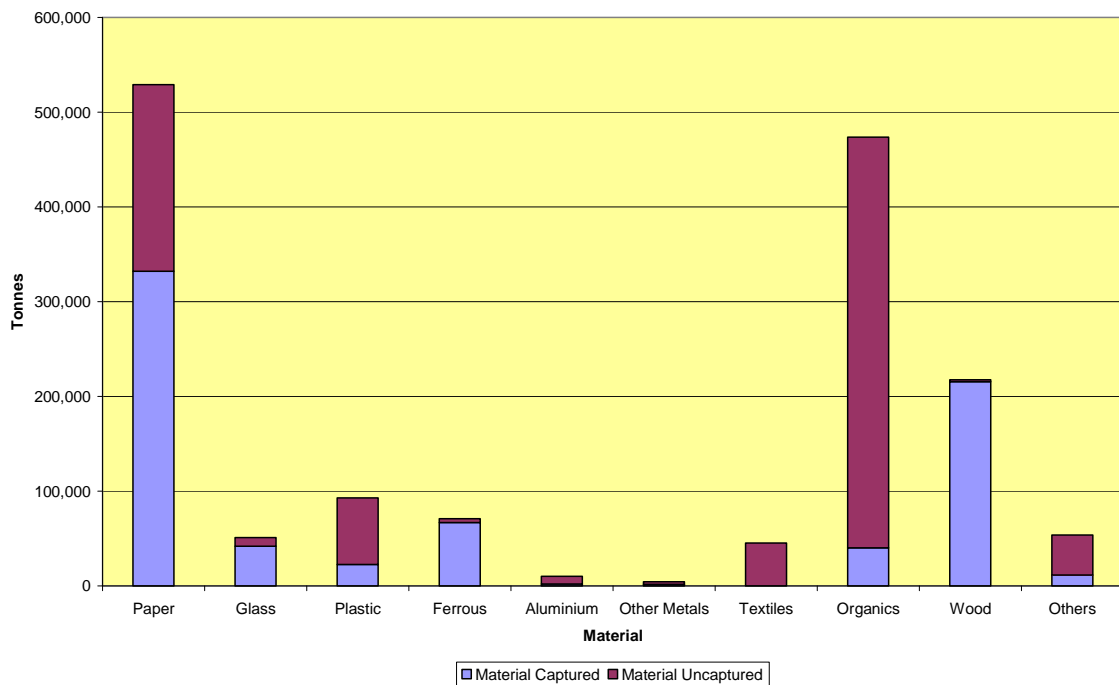
¹⁶ The issue of whether textiles – including nappies – should be considered ‘100% biodegradable’ is taken up below, it being of significance for the target facing Ireland. The textiles fraction also appears to be unusually large in Ireland when compared with other countries.

Figure 4-3: Materials Captured (recovered) and Uncaptured (landfilled), Household Waste



Source: EPA (2009) National Waste Report 2007, Johnstown Castle Estate: EPA.

Figure 4-4: Materials Captured (recovered) and Uncaptured (landfilled), Commercial Waste



Source: EPA (2009) National Waste Report 2007, Johnstown Castle Estate: EPA.

It remains the case that there is little by way of residual waste treatment capacity available in Ireland, though several developers are in the process of either building facilities, or taking their plans through to the stage where building is likely to commence, whilst cement kilns either already have revised, or are seeking revisions to, their operating licenses to enable them to accept solid recovered fuel (SRF) derived from materials such as MSW.

'Biodegradable municipal waste' is routinely calculated (in Ireland) as including the fractions paper and card, textiles, wood, and organic wastes. The question of exactly how it should be accounted for in future is under development by the EPA, and has not, therefore, been set out in detail in official documents. It is intended that this further guidance will be issued around the same time as proposed decisions (for landfill licence reviews) are issued, allowing licensees to take the accounting procedures into account in their licence objections.¹⁷

It goes without saying that performance in diverting BMW from landfill will depend upon how BMW is defined. In this respect, the current position - that 100% of all textiles should be considered biodegradable, clearly, an incorrect assumption - simply makes it more difficult for Ireland to meet its targets. Similarly, under the new Pre-treatment Guidelines, what is implied should be made clear, i.e. that once waste has been stabilised, it will no longer be considered biodegradable for the purposes of the Landfill Directive. Although it has been confirmed by EPA several times in the context of the policy review that once a biostabilised waste satisfies the AT₄ limit of 10mgO₂/gDM, then it is no longer deemed to be biodegradable for the purpose of calculating BMW intake at landfill, this has not been made explicit in existing documents.

The gap between the latest (2007) official figures, and where Ireland needs to be in 2010, is a worrying one.¹⁸ A key requirement of this study has been to understand how policy might need to be changed to ensure Landfill Directive targets are met. Clearly, time is of the essence, but where matters of definition simply make it more difficult to achieve these targets, it seems reasonable to seek to adjust any erroneous accounting exercise (see Annex 56 for more details).

4.2 Targets

The key policy documents underpinning Irish waste management set out a number of targets. '*Changing Our Ways*' set out various quantitative targets to be achieved over a 15-year period (i.e. to 2013).¹⁹ These targets remained unchanged in a later policy

¹⁷ This is in the context of the development of development of pre-treatment requirements for residual waste (see EPA (2009) *Municipal Solid Waste - Pre-treatment and Residuals Management: An EPA Technical Guidance Document*, Johnstown Castle Estate: EPA).

¹⁸ It would be desirable to have more timely data in respect of performance against Landfill Directive (and other) targets. This is especially important in the context of the recent economic downturn.

¹⁹ DoELG (1998) *Waste Management: Changing our Ways*, September 1998.

document.²⁰ In addition there was a stated aim of recovering 50% of packaging waste by 2005 (which follows from the Packaging Directive).

The 35% recycling target, established in 1998, which had been regarded as 'particularly challenging' as late as 2004,²¹ was more or less achieved by 2005, even though barely any organic waste was being separately collected for composting or anaerobic digestion (see Figure 4-3 and Figure 4-4). On the one hand, this highlights the rapidity of progress, but on the other, it suggests that targets have not been adjusted in the light of evidence regarding performance to ensure they remained 'challenging'. The recovery rate reported by the EPA (which, strictly speaking, does not appear to be a recycling rate, but approximates very closely to one) was 36.5% in 2007.²²

When new targets were advanced, and presented in the National Biodegradable Waste Strategy (NBWS) in 2006, they were buried within a lengthy document, and it was not clear what 'targets' really were targets, and who was charged with meeting them.²³ The NBWS repeatedly makes reference to the regions and their plans. It suggests that they have to meet these targets, but it was not made entirely clear in all cases how the regions should construe the targets (see Annex 6 and Annex 59 for further discussion).

In summary:

- Some of the older targets were lacking in ambition. Other, more recent targets have lacked force – and would probably not be met in the absence of further significant policy change - since there has been no mechanism to implement them;
- The newer targets in the NBWS – like the old ones – are not addressed at anyone in particular. Since no sanctions are to be applied (because it is not clear to whom the targets attach, and hence, who would be the subject of any sanction), then it seems reasonable to question whether any targets set out in the NBWS would be met without significant additional policy intervention.

There is a clear need for targets which:

- reflect the potential for improvement which exists in Ireland, taking account of experience in other countries, and the specific context of Ireland;
- are, as far as possible, targeted at specific actors; and
- are, where actors are targeted, backed either by incentives, or sanctions for non-compliance, so as to ensure targets are indeed met.

²⁰ DoEHLG (2002) *Preventing and Recycling Waste: Delivering Change*, March 2002.

²¹ DoEHLG (2004) *Managing Waste: Taking Stock & Moving Forward*, April 2004.

²² EPA (2009) *National Waste Report 2007*, Johnstown Castle Estate: EPA.

²³ DoEHLG (2006) *National Biodegradable Waste Strategy*. April 2006.

As far as possible, targets need to be specified such that they give the targeted actors clear responsibility for meeting the targets. The corollary of this is that the targeted actors need to be the appropriate actors to deliver on targets. Where targets are set to guide progress, but where no obvious 'addressee' for the target exists, policy should be oriented to delivering that target, so that where performance is lagging, policy is reviewed and updated accordingly. Targets should also be reviewed periodically.

4.3 The Role of the Regional Waste Plans

The 1998 policy statement '*Changing Our Ways*' advocated the development of regional waste management. The result of this was the formation of waste management planning regions, with three counties developing their own separate waste management plans. The Regional Waste Management Plans (RWMPs) are effectively the means through which Ireland discharges its obligations under Article 28 (formerly under Article 7) of the Waste Framework Directive, which sets out the requirements for such plans.²⁴

Expected benefits of the RWMPs included:

- Economies of scale;
- Efficiency of collection services;
- Beneficial partnerships between the public and private sector; and
- A framework for the development of an integrated waste management approach.

It was also expected that following the development of a plan, procurement processes for waste infrastructure not provided by the private sector would follow.

Several stakeholders consulted during the course of this exercise expressed the view that they felt that the RWMPs were ineffective. Some made comments to the effect that investment was made despite, rather than because of, the RWMPs. Others suggested that they felt a national plan was necessary, lamenting the fact that this was never introduced (it was proposed). Some of the advocates of a national coordinating mechanism took the view that the RWMPs should remain. The City and County Managers Association (CCMA), for example, highlights the need for national co-ordination:²⁵

It may also be the case that over-reliance on the regional structure tends to inhibit the planned development of strategic infrastructure for the country as a whole.

²⁴ Directive 2008/98/EC of the European Parliament and the Council of 19 November 2008 on Waste and Repealing Certain Directives

²⁵ CCMA (2007) *The Local Authority Perspective on the Realities of Irish Waste Management*, a Position Paper Presented by the City and County Managers' Association, 23rd April 2007.

The CCMA is of the view that there is a strong need emerging for national co-ordination, both in the framing of sustainable policy and in the development of the necessary infrastructure across the regions (emphasis from the original).

Some, however, suggested that the RWMPs should simply be cast aside in favour of a national waste board, or waste management authority.

The RWMPs have been, if anything, even less responsive to the changing realities than national policy. The regions could argue that they have simply responded to the policy framework as it stood. National policy has, as mentioned above, not always been entirely clear about the targets and policies which it expects regions to implement. However, targets such as those in the NBWS should be reflected in the RWMPs, and in particular, given that the NBWS was completed after the revision of many RWMPs, the Annual Implementation Reports on the RWMPs. Circular WPPR 17/08 states:²⁶

4.9 Annual Reports on the implementation of waste management plans should be sent to the Department. In addition, Annual Reports should also be transmitted to the EPA, so that the information can be taken fully into account by the Agency when compiling their annual National Waste Reports. Annex IV provides an outline template of the format of an Annual Waste Management Plan Implementation Report.

DoEHLG confirms that such reports have been received only from Dublin, Midlands, Mid-west (Limerick, Clare and Kerry) and Connacht. A review of these reports highlights the fact that the Regions have not, in general, sought to understand (for example) how much paper and card, or textiles, or organic waste is being captured in their Region. These are some of the more obviously 'transposable' of the NBWS targets, but even have not been tracked thus far by the Regions in Annual Implementation Reports.

4.4 Producer Responsibility

The EU has developed a number of so-called Producer Responsibility Directives, including on Packaging, Waste Electrical and Electronic Equipment (WEEE), End-of-life Vehicles (ELVs) and Batteries. Article 8 of the revised Waste Framework Directive effectively encourages Member States to implement measures in respect of Extended Producer Responsibility. Article 8(2) states:

2. Member States may take appropriate measures to encourage the design of products in order to reduce their environmental impacts and the generation of waste in the course of the production and subsequent use of products, and in order to ensure that the recovery and disposal of products that have become waste take place in accordance with Articles 4 and 13.

²⁶ DoEHLG (2008) *National Strategy on Biodegradable waste: Implementation of Segregated "Brown Bin" Collection for Biowaste and Home Composting*, Circular WPPR 17/08 to each City and County Manager, 31 July 2008.

Ireland has implemented producer responsibility regulations for packaging, WEEE, ELVs and Batteries. Implementation largely seeks to achieve the minimum targets set down in legislation. In some cases, it is not clear to what extent the producers are financially responsible for meeting targets, and nor is it always clear what sanctions would be deployed if compliance was not achieved.

Given the issues related to the financing of household waste management (discussed below), and in light of the potential environmental benefits to be achieved, it would seem sensible to apply producer responsibility to as full an extent as possible, seeking to deliver high rates of recycling, seeking to encourage waste prevention, and, critically, ensuring that, in line with the Polluter Pays Principle, the full costs of the recovery system that has to be put in place are visited upon producers (and hence, are reflected in prices paid by consumers).

4.5 Costs

There is a paucity of quality data on the costs of waste management in Ireland. Landfill gate fees are generally well known, as are the charges applied to households for waste collection, but charges and gate fees are *not* the same as costs.

The point has been made to us, in carrying out this study, that we should have regard to the economic situation when making proposals, and should not seek to impose significant additional costs. Local authorities, businesses and households are all facing up to the consequences of the recent economic decline, with local authorities seeing the Local Government Fund cut, in nominal terms, for the first time in recent years. Businesses and households are also affected by the downturn.

What continues to surprise us is the apparently very high cost of waste management services provided to households. This matter is explored in Annex 64, where we show that for many households that have been served with 2-bin collections, it is extremely difficult to reconcile the costs of providing the service with the charges levied, unless one assumes very high levels of inefficiency, or high levels of profit.

The costs of household waste management in Ireland are high. The explanation for this cannot simply be that 'landfill costs in Ireland are high'. Relative to other leading EU countries, the costs of landfilling before tax in Ireland are high, but inclusive of tax, the costs of landfilling are rather similar to the levels that prevail in many other countries.²⁷ Furthermore, each household is responsible for less than a tonne of 'doorstep collected refuse'. Even with landfill gate fees at €130 per tonne or so, disposal of the collected refuse would be costing less than €100 per household. Given that some households are paying €400 per annum and sometimes more for their household collection, and that the average for a service providing, typically, a dry recyclables service and a refuse collection, was around €300 per annum, the suggestion is that the costs of providing a household *collection* of refuse and

²⁷ Whilst it is tempting to look at landfill gate fees as the principle driver to move waste up the hierarchy, in practice, a range of instruments is used. In many countries, landfill taxes are rendered increasingly irrelevant – though still not entirely so – by the presence of landfill bans (see Annexes 52 to 54).

recycling (i.e. excluding the costs of disposal) have been of the order €200 per annum. This figure is astronomically high given the quality of service (in terms of coverage and frequency) to which this applies. It compares with figures of the order €60 per household per annum in the UK for a similar service. Such differences cannot be explained away – as some have sought to do – through appeal to the cost of input factors, or to the rurality of parts of Ireland. The issue is far more fundamental and relates to the interplay of a range of factors, but the obvious point is that it ought to be possible to deliver efficiency savings in respect of household collections in future.

We can find no meaningful investigation of why collection costs are as they are in Ireland, despite the fact that it appears that households are paying, in some areas, perhaps double what they could be paying if the service was provided to them in an efficient manner. It is paradoxical that, in the context of a study where one is asked to have consideration for the economic situation and to costs, that no one has been able to furnish us with any quality information on costs (as opposed to charges). One submission made as part of the consultative process, which purported to demonstrate the costs of rolling out brown bin collections, merely served to highlight the inefficiencies which appear to exist within existing collection services.

4.6 The Market for Waste Collection

The issue of costs cannot be completely divorced from the matter of the configuration of the waste collection market. One feature of Irish waste management is that the household collection system is one in which, effectively, the local authority and private companies *may* compete for the custom of the householder. This is an unusual situation by international standards.²⁸ Whilst this situation exists in some jurisdictions, far more common in the case of household waste management is the situation where the household collection service is provided, exclusively, either by the local authority, a local authority owned company, or a contractor tasked with delivering the service to all households. In the last of these cases, the service is typically tendered out under a contract, normally of 5-7 years' duration, reflecting the operating life of the principle assets in the collection service (i.e. vehicles).

The CCMA describes the existing situation as a transitional market:²⁹

At present, the waste sector in Ireland could be characterised as a transitional market, with four models of service provision in operation:

- *Collection directly by local authorities;*
- *Private sector entry into the collection market where local authority no longer provides a collection service;*
- *Private and public sector operate in the same market;*

²⁸ We believe that, within Europe, only Poland and Kosovo follow a similar approach.

²⁹ CCMA (2007) *The Local Authority Perspective on the Realities of Irish Waste Management*, a Position Paper Presented by the City and County Managers' Association, 23rd April 2007

- *Contracting/franchising out by local authorities to other operators of elements of the service.*

The most notable developments in recent years have been the rising costs associated with waste collection and disposal, and the acceleration in the pace of private sector involvement and consolidation in the Irish waste market.

The description of the market as ‘transitional’ begs the question as to where this transitional stage is intended to lead. The CCMA goes on to say that ‘*what is needed is a fundamental review of the entire waste management market*’.

A situation where several companies operate the same route for collection is not an efficient outcome for the delivery of household waste collection services. If there is genuine competition, then the reduced density of logistics is likely to increase costs rather than reduce them. Similar views have been expressed by the Competition Authority³⁰ and by the OECD³¹ (see Annex 3 for further discussion).

It should be noted that legal cases are pending regarding the collection market. Section 33 of the Waste Management Act states:

- (1)
 - (a) *Each local authority shall collect, or arrange for the collection of, household waste within its functional area.*
 - (b) *The corporation of a borough (other than a county borough) or the council of an urban district may collect, or arrange for the collection of, household waste.*
- (2) *Subsection (1) (a) shall not apply to household waste in any part of a local authority's functional area to the extent that any of the conditions mentioned in subsection (3) applies to that part or, as appropriate, to that household waste.*
- (3) *The conditions referred to in subsection (2) are—*
 - (a) *an adequate waste collection service is available in the part concerned of the local authority's functional area,*
 - (b) *the estimated costs of the collection of the waste concerned by the local authority would, in the opinion of the authority, be unreasonably high,*
 - (c) *the local authority is satisfied that adequate arrangements for the disposal of the waste concerned can reasonably be made by the holder of the waste.*

³⁰ See The Competition Authority (2005) *Decision of The Competition Authority (Case COM/108/02) concerning Alleged Excessive Pricing by Greenstar Holdings in the Provision of Household Waste Collection Services in Northeast Wicklow*, 30th August 2005, available at: <http://tca.ie/search.aspx?SearchTerm=e/05/002>

³¹ OECD (2000) *Competition in Local Services: Solid Waste Management*, DAFFE/CLP(2000)13.

- (4) *A local authority may collect, or arrange for the collection of waste, other than household waste.*
- (5) *A local authority may enter into arrangements with one or more other local authorities, or with one or more other persons, for the collection on its behalf by the said authority or authorities or, as the case may be, by the said person or persons, of waste in its functional area or in a part or parts of that area.*

To the extent that there appear to be difficulties in arriving at a conclusion to some outstanding legal cases regarding the terms under which the private sector should be allowed to compete in the household waste collection market, the above Section appears to be, implicitly, problematic in that it is not sufficiently clear with regard to the local authority's responsibility to collect waste. The CCMA points out that existing contracts are being undermined, partly as a result of this lack of clarity. In the absence of legal clarity, however, it could be argued that local authorities might not have been in a position to contract out services on the basis of their having unique access to households. Existing legal uncertainties, as well as the fact that households do not have to avail themselves of collection systems (local authority or otherwise), make it difficult to specify such contracts in a manner which makes bidding for them attractive to would-be service providers.

4.7 Financing

Where non-household waste management is concerned, the approach to financing the system is fairly straightforward; the mechanism works on a cost recovery basis.

The financing of service in respect of household waste is somewhat different. In the countries which show the most advanced performance in waste management, local authority waste management is funded by a combination of the following:

- Revenue from central government;
- Taxes derived from local government; and
- Charges levied directly on the householder for the service.

The first two of these can be used to fund those costs which are relatively fixed, the last can be used to fund costs which are of a more variable nature, and can be designed to incentivise changes in behaviour (to reduce waste generation and increase recycling / composting).

Local authorities in Ireland operate services some of which are revenue generating, and effectively should be self-financing, but others of which are not self-financing, and which are, unless funds are made available, a drain on local government resources. The Local Government Fund is the source of just over 20% of all financial resources to Local Government. In addition, some funds are made available to local authorities for these purposes from DoEHLG (through, for example, the Environmental Fund), but what is not clear is that they cover all these costs, whilst some of the activities targeted by the Environmental Fund could be supported more explicitly through Producer Responsibility mechanisms. To the extent that these revenues do not cover costs, the CCMA argues that local authorities necessarily have to raise revenue for the waste management service function through charges for collection

over and above the costs of providing the collection service. They argue also that the 'surcharge' increases as the proportion of households using the service falls (either as a result of rising charges, or as a result of competition from the private sector, or – as seems likely – a combination of the two) so that the issues faced by local authorities in respect of pricing services are more complex than those facing the private sector.³²

An opposing perspective comes from the private sector, which is critical of the fact that, for example, levies from the Environmental Fund are made available *only* to local authorities. It seems to us that such funding would be entirely legitimate to the extent that the Funds are devoted only to those services – for example, civic amenity site provision and operation – which are not likely to be self-financing, and where the private sector is not directly competing. If it really was the intention to allow local authorities and private sector to compete on a level playing field, implicitly, an obvious solution would have been to ensure that local authority activities which are not self-funding are supported by Government, whilst others which are self funding are not, and are subject to the same tax regime.

It is fair to say that during this review, it has become very clear to us that some form of local government taxation, or precepting of funds (which exists in most other jurisdictions), would be a desirable counterpart to the provision of quality local waste management services. Not only does this enable funds to be raised to cover the costs of those services which are not self-financing, but it also acts to reduce the variable element of the total costs of the waste collection service. This makes it less likely, where households have an option (as currently in Ireland), that they would choose not to avail themselves of a quality collection service. We recognise that a change in local government funding is unlikely as a consequence of this review. However, we note also that an approach which ear-marked a specified amount of revenue from the Local Government Fund for the provision of household waste services would be a sensible one, with these seeking to support:

- The cost of those activities which are not self-funding and which cannot be funded through producer responsibility revenues; and
- A proportion of the costs of household waste management services, intended to reduce the flat rate element payable by households, and to support waivers as necessary (with the intention that all households should be subject to variable fee elements so as to preserve incentive effects).

4.8 Directing Waste

Article 20(2)(g) of The Waste Management (Collection Permit) Regulations urges the nominated authority (for issuing the permit) to, *inter alia*:

take steps to ensure that—

³² This contention requires some closer examination to understand differences between, for example, local authorities which have completely withdrawn from the collection market, and those which still play a prominent role in the market.

(i) all, or a specified proportion, of waste collected by the permit holder, or class or classes of such waste, is source-segregated, treated or recovered, in such manner as may be specified,

(ii) in particular that waste is—

(I) where practicable and having regard to the waste hierarchy, delivered to facilities which reuse, recycle or recover waste.

(II) presented, collected, handled and transported in a form which enables the facilities to which the waste is delivered to comply with specific conditions contained in, as the case may be, the waste licence, IPPC licence, waste facility permit or certificate of registration in relation to performance targets established for the levels of recycling or recovery of waste.

(iii) waste which has been source segregated by the waste producer is not sent for disposal or collected, transported, mixed or handled so as to make it unsuitable for recycling or recovery.

The rationale appears sound enough – the aim is to ensure that waste is moved up the waste management hierarchy.

In practice, implementation may give rise to situations in which commercial collectors of waste have significant (or unknown) costs imposed upon them. In addition, if direction implies a requirement to deliver to one specific facility (explicitly or implicitly), the facility may be placed in a monopoly position, able to sell all, or part of, its capacity at an excessive price which the collector has no choice other than to pay.

A CCMA paper, written from the perspective of local authority finance, perhaps unwittingly reinforces the point:³³

As indicated earlier the issue of falling gate fees is a matter of serious concern for local authorities. The lack of the power to direct waste means that private operators can pick and choose which facilities to use for the refuse they collect. In practice, this has resulted in these operators switching regularly as they naturally seek to exploit the cheapest possible landfill solutions, thus driving down landfill charges. The ‘race to the bottom’ in terms of landfill charges is having a number of unintended knock-on effects including reducing the incentive to recycle. [our emphasis]

What is being implied is that it would be preferable if waste could be directed to specific facilities, which would be then able to set prices as they saw fit. The ‘race to the bottom’ being referred to is effectively the pressure on prices which a competitive market can, in appropriate circumstances, deliver. The danger is that the power to direct waste can lead both to the *de facto* establishment of monopolies, and the protection of inefficient operations. Appropriately designed approaches can overcome this.

³³ CCMA (2007) *The Local Authority Perspective on the Realities of Irish Waste Management*, a Position Paper Presented by the City and County Managers’ Association, 23rd April 2007

4.9 Hazardous Residues

The majority of RWMPs have included plans to develop thermal treatment facilities. An inevitable consequence of the operation of most of these facilities is air pollution control residues. These are typically hazardous in nature. Ireland has no hazardous waste landfills so the export of this material seems likely. The National Hazardous Waste Management Plan targets self-sufficiency in treatment, but notes that:³⁴

One facility, KTK Landfill (waste licence register number W0081-03), is authorised to accept up to 6,000 tonnes of waste construction materials containing asbestos (EWC code 17 06 05). This facility is scheduled to close by 2009. No other commercially available capacity exists for hazardous waste landfill in Ireland and there are no facilities currently proposed to replace KTK's asbestos disposal capacity from 2009.*

It suggests that if no proposals for facilities (for landfilling hazardous waste) are forthcoming before the end of 2009, policies may be considered designed to deliver such a landfill.

This issue may become more significant still in light of recent investigations concerning the eco-toxicity of bottom ash from incineration. This was recently considered in the context of a proposed Section 60 Policy Direction, but the policy implications would appear to warrant more fundamental consideration than a Policy Direction.³⁵

4.10 Construction and Demolition Waste

The revised Waste Framework Directive sets out a target for the recycling of construction and demolition wastes, though the method for calculating this has not yet been made clear. Data on construction and demolition wastes is generally poor across countries, and there are clearly problems, as reported by the EPA, with the existing data in Ireland. The EPA remarks that data in respect of construction and demolition wastes is not of the quality it would wish, though it might be observed that few countries have data on C&D wastes that is of comparable quality to that which they hold for municipal wastes.³⁶

The recovery of construction and demolition waste, as far as can be discerned, is reported by the EPA at 72%, though the rate is very different for soil and stones (81%) to that for other materials (44%).³⁷ Various measures and guidelines have been considered to improve recycling of such wastes. The evidence concerning outcomes is somewhat limited and anecdotal.

³⁴ EPA (2008) *National Hazardous Waste Management Plan, 2008-2012*, Johnstown Castle, Wexford.

³⁵ Eunomia (2009) *Section 60 Policy Direction Capping Incineration of Municipal Waste and Other Matters*, Environmental Report for DoEHLG, June 2009.

³⁶ EPA (2009) *National Waste Report 2007*, Johnstown Castle Estate: EPA.

³⁷ EPA (2009) *National Waste Report 2007*, Johnstown Castle Estate: EPA.

Evidently, this is a sector where waste quantities have been growing as the economy has grown. It seems reasonable to suggest that quantities, such as they can be accurately known, will have declined in the most recent years (i.e. since 2007).

4.11 Planning for Strategic Facilities

'Strategic', in planning terms, is often deemed to be synonymous with the term 'big'. Yet small facilities may be highly 'strategic', whereas, some might argue, many 'big' projects are far from 'strategic' in the strict sense of the word's meaning. In Ireland at present, all facilities seeking to treat source segregated biowastes are strategic (reasons for this are outlined in Annexes 51 and 56). Without them, the prospects of Ireland meeting Landfill Directive targets are significantly reduced.

An Bord Pleanála defines strategic infrastructure as follows:

Strategic infrastructure development can generally be described as development which is of strategic economic or social importance to the State or a region. It also includes development which will contribute significantly to the fulfilment of any of the objectives of the National Spatial Strategy or any regional planning Guidelines for an area, or which would have a significant effects on the area of more than one planning authority.

The Planning and Development (Strategic Infrastructure) Act 2006 was implemented to streamline the process, but the procedure it suggests should be followed is probably not well suited to streamlined delivery of treatment facilities for source segregated biowaste.

4.12 Green Procurement

EU legislation allows for public purchasers (national or local administrations, schools, hospitals etc.) to integrate environmental considerations into the tender documents when they decide to buy goods, services or works for their day-to-day activities (Directive 2004/17/EC & 2004/18/EC).

The current legislative framework has resulted in a non-binding target of 50% for the average level of Green Public Procurement in each Member State from 2010, progress towards which will be monitored using the methodology proposed by the consortia of PricewaterhouseCoopers, Significant and Ecofys published in January 2009.³⁸

In working towards this, the European Commission set the deadline of 2006 for National Action Plans to have been adopted, but some countries, including Ireland, (see below) have not yet done this. Others have adopted ambitious green and

³⁸ PricewaterhouseCoopers, Significant and Ecofys (2009) *Collection of Statistical Information on Green Public Procurement in the EU: Report on Data Collection Results*, Available: http://ec.europa.eu/environment/gpp/pdf/statistical_information.pdf

sustainable procurement targets across a range of priority sectors as a result of the renewed EU Sustainable Development Strategy.³⁹

The EPA recommended, as part of its Hazardous Waste Management Plan, a green procurement plan be developed to address the hazardousness of materials. It included a recommendation to:⁴⁰

Specify a policy for green procurement and provide guidelines for the substitution or reduction in use of hazardous materials in public procurement.

In a written answer in response to questions regarding Green Procurement, the Minister for the Environment, Heritage and Local Government wrote:⁴¹

My Department is committed to the preparation of an action plan on green public procurement. In doing so, we will work with the Department of Finance's National Public Procurement Policy Unit which has overall responsibility for public procurement policy in Ireland.

We will also work with the National Procurement Operations Unit in the Office of Public Works. The new Unit will be a centre of excellence for public procurement generally and will facilitate the integration of whole-of-Government policy issues in areas such as sustainability and the environment into public procurement practice for the organisations served by the Unit.

The potential for delivering environmental improvement, not just in waste management terms, through encouraging a greening of public spending on goods and services is expected to be highly significant. This is an area which has been highlighted by the Market Development Group as an overarching theme,⁴² and whilst this is strongly welcomed, there is likely to be a requirement for leadership from government to make significant progress in the area. It is quite clear that green procurement is not 'simply' a waste / resources matter. As the Minister's reply notes, it will be necessary to ensure that such a policy is implemented in a cross-departmental manner, and in such a way that it reaches permeates the activities of local government also.

³⁹ The Dutch government has set a 100% Sustainable Procurement target for 2010 and the Austrian government has set targets by priority sector including 95% for IT, 80% for electricity, 30% for paper, 95% for cleaning products and 20% for vehicles. The Finnish Government has set 70 % and 100 % sustainable procurement target by 2010 and 2015, respectively, for central government. The targets for municipalities and local State government are 25 % and 50 %, respectively. For more information, see: Ministry of the Environment (2009) *Sustainable Public Procurement: Public sector becomes a pioneer in sustainable procurement*, May 2009, Available: <http://www.ymparisto.fi/download.asp?contentid=103507&lan=en>

⁴⁰ EPA (2008) *National Hazardous Waste Management Plan, 2008-2012*, Johnstown Castle, Wexford.

⁴¹ Written answer from the Minister for the Environment, Heritage and Local Government (Mr Gormley) for Tuesday 31st March 2009 in response to Question Nos 375 and 376.

⁴² Market Development Group (2007) *Market Development Programme for Waste and Resources 2007-11*, DoEHLG: Dublin; Market Development Programme (2009) *Market Development Programme for Waste and Resources, Action Plan 2009*.

4.13 Markets for Recyclables

Recyclable materials are secondary materials which, in closed loop recycling systems, substitute for primary ones. An increasingly broad array of secondary materials are traded on a global scale. The markets for these materials in particular are influenced by developments in primary materials markets.

In the second half of 2008, the economic downturn led to a reduction in demand for primary and secondary materials, and prices for both fell. This has been mentioned by several stakeholders as a key issue for this report. It was also the subject of discussions at the Environment Council in the EU, which made suggestions as to how markets could be assisted.⁴³ It seems reasonable to argue that the focus of a waste policy review should not be the development of initiatives to address directly the cyclical movements in market prices. However, the proposal for full financial responsibility under producer responsibility should, when in place, imply that the funding element required from producers moves up and down as market prices for materials move down and up, respectively.

It has been stated that Ireland is in a more difficult position in respect of recycling because of its dependency on export markets. Yet Ireland's comparative advantage does not obviously lie in the processing of all secondary materials, and there are many countries which, at the margin, export a considerable proportion of the material they collect for recycling (including the UK, to which the bulk of recyclable material is exported, in the first instance, from Ireland).⁴⁴ Some reprocessing industries, potentially in respect of plastics and glass, for example, may develop where secure supplies of quality material are available. Tempting as it may be to encourage or stimulate reprocessing industries, this is not a route to be pursued at all costs. If this were to occur, then the potential inefficiency of such protected reprocessing industries might undermine the very activity – recycling – they were designed to serve.

What is clear is that issues of quality in respect of collected materials have to be respected where one is reliant on export markets. Collectors need to establish relationships with end users of material and to build relationships of trust through supplying quality materials. More stable contractual relationships may be less vulnerable to the price volatility demonstrated by the spot market.

Furthermore, to the extent that in Ireland, the cost of landfilling is high, then any domestic reprocessors which are in place, or which are seeking to develop, will also find themselves at a disadvantage where materials are of low quality. To the extent that reprocessors are recipients of material with high rates of contamination, then there is an associated cost of disposing of this material.

⁴³ Council of the European Union (2009) *The Fall in Demand for Recycled Materials – Information from the Presidency*, 6918/09, 25 February 2009. Note that two of the suggested measures which rest with the competence of national authorities are included in the recommendations below.

⁴⁴ There are good reasons to believe that much of this is re-exported from the UK.

Finally, the least traded ‘recycled material’ is likely to be compost / digestate (although there is some desire to allow for movements across the border to and from Northern Ireland – see Annex 65). As such, the progress made in developing an industry standard is welcome, but this needs to be given heightened relevance sooner rather than later, though with an eye to developments at the European level.⁴⁵

4.14 Policy Evaluation

Few countries have a strong tradition in respect of policy evaluation. As much is clear from the paucity of high quality evaluations of policy in other countries, but Ireland is no exception. The absence of quality policy evaluations elsewhere does not imply that Ireland should not seek to engage in some such evaluations, even if these might be, perhaps, limited in their ambition. The key here is to understand what is, and is not working, what is the principle cause of what effect, and how existing mechanisms might be altered to improve a policy’s function.

In the context of this study, comments have been made that we have been reliant upon existing sources, and that there is limited critical evaluation. The two comments, taken together, appear to imply that existing documents are insufficiently critical – in the academic sense of the word – in their assessment of performance. The tendency has been to draw out positive messages, without necessarily considering what might be shortcomings in existing approaches, nor the degree to which measures have driven, or contributed to, specific outcomes.

This is especially important in the current context, and given some of the issues mentioned above. Why, when the Landfill Directive was implemented in 1999 (and the targets were mooted and more-or-less known in advance of that date), was more biodegradable municipal waste landfilled in 2007 than in 1995? What policy / policies (if any) have been working to achieve that objective? What other policies might have been required?

Careful consideration needs to be given as to how policies are not only reviewed, but also changed, and where necessary, how new policies will be implemented. This is necessary to enable Ireland to continue to progress towards a sustainable materials management approach. This review process, therefore, has to be considered as the first of a series of policy reviews. A lesson from the past is that targets should be reviewed, though arguably, if they are appropriately ambitious, then the targets would be subject to revision less frequently.

4.15 Summary

If one takes a view of Ireland at present, the waste management market is in a degree of turmoil:

⁴⁵ Munoo Prasad and Percy Foster (2009) Development of an Industry-led Quality Standard for Source-Separated Biodegradable Material Derived Compost (2006-WRM-DS-26), *STRIVE Report No. 22*, Wexford: EPA.

- a) There is uncertainty about who should and should not be allowed to collect household waste;
- b) Even where it is not disputed that a competitive market should be allowed to function in waste collection (commercial and industrial waste), the Waste Management (Collection Permit) Regulations appear to allow the competent authority to specify, to an increasing extent, how waste should be collected in different regions, though with significant variation – for a given operator - across the regions; and
- c) Again, with commercial waste, it would appear that local authorities will seek to direct waste to specific types of facility, particularly where they have made contractual commitments to deliver a quantity of waste to a facility which exceeds the quantity which they themselves collect. In contexts where plans designate one such facility, and where planning applications may subsequently be refused on grounds of being misaligned with the plan, it might well be that such facilities are able to exert considerable market power.

The approach uneasily combines a dirigiste, plan-led approach with a supposed desire to allow the market to operate freely. This strange combination of free market and command and control tendencies is emerging from an appreciation that there are limits upon what a free market can achieve in the absence of clear and certain price signals. In addition, major capital investments in waste infrastructure are risky in the absence of guarantees of waste flowing into the facility which amount to a substantial proportion of the facility's capacity. This is especially true at the current time where debt finance for waste facilities is being made available on rather less favourable terms than was the case prior to the credit crunch, and where lenders are seeking to de-risk their activities.

5.0 Policy and Outcomes in Other Countries

The review of policies has looked at a wide range of instruments across different countries. These include:

- Pay-by use (Annexes 7 to 10);
- Deposit refund schemes (Annexes 16 to 17);
- Producer responsibility for packaging (Annexes 12 to 14);
- Producer responsibility for WEEE (Annexes 19 to 21);
- Producer responsibility for ELVs (Annexes 22 and 23);
- Producer responsibility for batteries (Annexes 24 to 26);
- Producer responsibility for other streams (Annex 15);
- Product levies and taxes (Annexes 27 to 32);
- Residual waste levies (Annexes 52 and 54);
- Green public procurement (Annex 57);
- Standards for compost / digestion residuals (Annex 36);

- Site waste management plans for construction and demolition (C&D) waste (Annexes 42 and 43);
- Minimum recycling requirements for household waste (Annex 34);
- Minimum recycling requirements for commercial waste (Annex 35);
- Minimum recycling requirements for construction and demolition waste (Annex 48);
- Aggregates taxes (Annex 46);
- Demolition protocol (Annex 45);
- Product standards for aggregates (Annex 47);
- Landfill and incineration levies (Annexes 52 and 54);
- Landfill bans (Annexes 52 to 54);
- Landfill allowances (Annex 55);
- Recycling targets (Annex 59); and
- Targets for residual household waste (Annex 59).

These instruments are reviewed in the named Annexes. We have also reviewed some key Irish policies, as well as interventions such as the National Waste Prevention Programme, which are not strictly policies, under our definition, but which have emerged as important programmes.

The study sought to appraise implementation of specific policies with a view to understanding which policies could be useful, and to inform how existing policies in Ireland might be adapted to deliver enhanced performance, on the basis of experience of their use elsewhere. The fundamental point, however, regarding a sound overall approach to waste policy development, is that there is a need to combine policies in effective packages.

There have been a number of studies which have sought to understand the factors which:

- Help to reduce waste arisings; or
- Increase recycling rates; or
- Increase recovery rates; or
- Reduce the amount of waste sent to landfill.⁴⁶

⁴⁶ Green Alliance (2002) *Creative Policy Packages for Waste: Lessons for the UK*, October 2002; David Davies (2004) *High Diversion of Municipal Waste: Is it Achievable? Volume 1: Summary Report*, Report for the Resource Recovery Forum; SLR (2005) *Delivering Key Waste Management Infrastructure: Lessons Learned from Europe*, Final Report, November 2005; European Environment Agency (2007) *The Road from Landfilling to Recycling: Common Destination, Different Routes*, European Environment Agency, Copenhagen; ETC/RWM (2008) *Waste Prevention, Waste Management and Landfill Policies Effectiveness. Outline of a Quantitative Analysis at European level*. ETC/ RWM working paper 10/2008. European Topic Centre on Resource and Waste Management, Copenhagen; European

Complementing these are the statistical analyses produced by bodies such as Eurostat on a periodic basis.⁴⁷ The quality and comparability of the statistical data is compromised by the generally variable nature of waste data, the fact that different countries are at different stages in development of suitable data reporting systems, and the fact that the definitions used in respect of, for example, 'municipal waste' are variable across the different countries (and within some countries, the definition itself gives rise to a certain 'fluidity' of this waste as it moves in and out of certain administratively defined boundaries). Other 'cross country studies' have been undertaken with regard to specific themes, or policies, or waste streams (and these are referred to throughout the reviews in the Annexes).

The studies offer little by way of statistically conclusive evidence. They highlight the fact that countries which are successful (in whatever key respect) tend to resort to a mix of key policy instruments. One study suggests that countries may be in danger of using too many policies to achieve their stated objectives.⁴⁸

Policies which target waste prevention, and do so successfully, are relatively few and far between. Some policies, such as producer responsibility schemes, probably have a marginally stronger effect on waste generation than others as a consequence of their financing mechanism (see, for instance, Annex 13). A recent EEA report states:

There is no evidence of the Landfill Directive having prevented waste generation. A previous EEA policy effectiveness study came to a similar conclusion regarding the Packaging Directive's lack of impact on waste production (EEA, 2005a). The conclusion is also supported by the econometric analysis of EU-25 Member States (ETC/RWM, 2008h). That study did reveal a relative decoupling of waste generation from income, however, and confirmed that the Landfill Directive had brought about some diversion of municipal waste from landfill in the European Union.

It should be noted that although the Landfill Directive was not explicitly aimed at preventing waste, prevention of biodegradable waste would have made a contribution to meeting Article 5 targets.

As regards recycling and composting / digestion, key instruments tend to be:

- Producer responsibility mechanisms, especially where these incorporate high targets, and incentives for meeting these. It is notable that the three countries

Environment Agency (2009) *Diverting Waste from Landfill: Effectiveness of Waste-management Policies in the European Union*, EEA Report No 7/2009. The European-focus of these studies might be considered inappropriate, but the fact remains that European countries are, with very few exceptions in some areas, the lead nations in respect of waste management performance.

⁴⁷ For the latest of these, see Eurostat (2009) *Generation and Treatment of Waste*, Environment and Energy, 30/2009.

⁴⁸ OECD (2005) *Instrument Mixes Used to Address Household Waste: Further Analyses and Additional Case Study*, ENV/EPOC/WGWPR(2005)4/REV1, Paris: OECD.

with the highest packaging recycling rates effectively set high targets and ensure producers finance the recovery system;⁴⁹

- Targets for recycling, often incorporated within, or linked to, producer responsibility mechanisms. Because of the difficulty in setting waste prevention targets (some of which relates to data quality), an interesting means of combining prevention and recycling effects is the Flemish target for residual household waste, now also adopted in Wales (at the same level as Flanders) and England (at a higher, less stringent, level);
- Mandates for separate collection of targeted materials. These are likely to be especially important in the commercial and industrial sector where it is more difficult to set ‘targets’ for the simple reason that responsibility for them is diffuse; and
- Policies which make residual waste treatment and disposal expensive, including:
 - Landfill taxes and, as used in a growing number of countries, incineration; and
 - Landfill bans and restrictions.

With the exception of Germany and some North American cases, the use of landfill bans (or restrictions in Germany’s case, and very weak bans in the case of Massachusetts) is always accompanied by the deployment of landfill taxes. Where disposal is already expensive (because of a tax), the principle effect of landfill bans and restrictions appears to be to encourage a switch from the landfill of untreated waste to either incineration or MBT, depending upon the nature of the restriction / ban. The effect is to give certainty to would be developers that sending waste to landfill without treatment is to be phased out.

The relative contribution of these to various performance characteristics has not been statistically demonstrated. In each country, it is sometimes possible to estimate the relative significance of different policies. However, generally, more detailed examination is required. The basic principle of policy is simple:

1. The economics of source separation is heavily influenced by the avoided costs of disposal;
2. Positive instruments such as producer responsibility, mandates and targets are used to pull material into recycling and composting / digestion; and
3. Instruments such as levies and bans (the latter, having the effect of an infinite levy) are used to increase the costs of disposal and treatment of residual waste, so ‘pushing’ source separation.

⁴⁹ This does not mean that they actively run the collection systems themselves. This is not the case in Flanders, for example.

As regards residual waste, countries which might be regarded as leaders in this regard seem intent on either:

- Reducing the amount of waste landfilled; or
- Reducing the amount of waste which is landfilled without prior treatment.

The instruments used are the same as those used to support recycling efforts, namely, levies and bans on landfill and incineration, and in some cases, residuals treated by mechanical biological treatment (MBT).

It goes without saying that taxes and bans on *landfill* will tend to move waste away from landfill. They will not, in and of themselves, determine that waste will be recycled or composted / digested, let alone, prevented or re-used. The fate of material is determined by the relative cost of alternative management options and / or other mechanisms designed to increase prevention of waste, and re-use, recycling and composting / digestion of materials.

Some countries clearly focus more upon ensuring that waste is not landfilled, and seem comfortable with a high proportion of waste from households being incinerated.⁵⁰ Others use a range of accompanying policies to ensure that waste is not simply shifted from landfill to incineration, or they ensure that measures to encourage movement of waste into recycling are in place beforehand.⁵¹

The rates of recycling of municipal waste for the leading EU Member States – these are Austria, Germany, Belgium, Netherlands and Italy – are 64%, 62%, 60%, 50% and 60%, respectively, of municipal waste according to preliminary figures produced from Eurostat data for 2007. The figures for Austria, Germany and Belgium are country estimates, with the figures for 2006 suggesting rates of 67%, 62% and 58% respectively.⁵²

⁵⁰ The best example is Denmark, where the management of household waste is heavily weighted towards incineration. The argument that incineration and recycling are comfortable bed-fellows is not supported by the comparative statistics of, for example, Denmark and the Flemish Region of Belgium. The former recycles less than 30% of household waste and incinerates the vast majority of the rest. The latter does almost the complete opposite, recycling some 70% of household waste, and incinerating the majority of the rest. Clearly, both countries avoid, in large part, the landfilling of untreated household waste. The different outcomes relate to the deployment of different accompanying instruments.

⁵¹ The Swedish experience with landfill bans is interesting in this respect. The initial ban on combustible waste – leading primarily to a switch from landfill to incineration – was followed by a target for source segregation of biowaste, and a ban on landfilling of organic wastes, as a means to encourage source separation of biowastes as opposed to incineration (see Annex 52). The latter set of policies appears to have had some success, albeit limited, in ensuring that the previous ban did not simply cause switching from landfill to incineration (not least, one suspects, because organic wastes are a subset of combustible wastes).

⁵² This data has been generated from figures reported to EUROSTAT.

6.0 Policy Recommendations

The following policy recommendations are made. It is important to re-iterate that the focus is on *policy*. However because of the imminence of the Landfill Directive targets, we have been asked to consider these from a more strategic standpoint. We do this here, but still with the emphasis on identifying relevant policies for moving Ireland towards the Landfill Directive targets in the short term.

6.1 Landfill Directive

Whilst Section 4.1 highlighted the effects of growth in waste and the way in which this has effectively offset efforts made to reduce BMW being landfilled, mainly through recycling, the situation has changed in more recent times. The recent downturn in the economy is clearly having an impact upon economic activity, and household spending, and hence, is likely to affect waste generation. GDP fell by 3% in real terms in the year 2008. The decline is expected to be sharper still for 2009, whilst economic forecasts are, as is quite usual, varied for 2010.

In order to understand how well Ireland might fare in respect of its 2010 Landfill Directive targets, some estimation is required of the growth rate, and of what performance might be in respect of recycling in 2010. It is worth noting that no data has been made available to us which is of more recent vintage than the 2007 data from the EPA.

The projection in Figure 6-1 assumes:

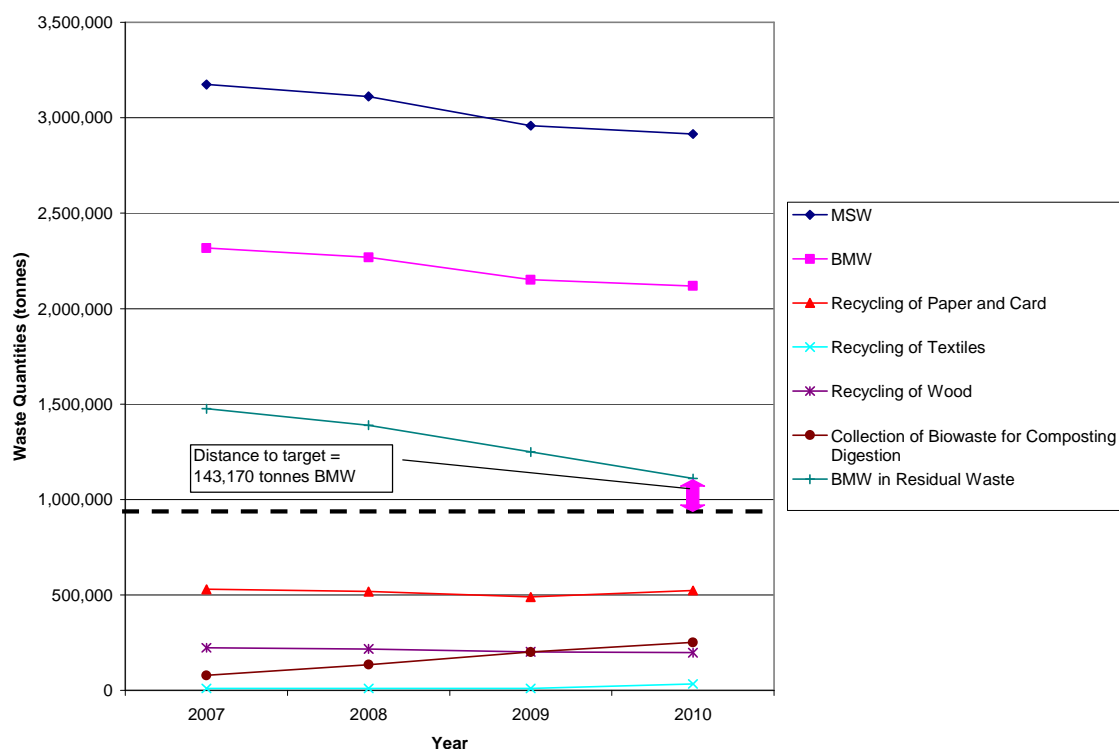
- A net fall of 8% in municipal waste by 2010 relative to 2007 figures (see Annex 56);⁵³
- Ireland's recycling of paper and card achieves a 60% capture rate in 2010 (the rate in 2007 was just under 55%);
- The capture of organic wastes reaches 30% in 2010 (the rate in 2007 was 9%, but there has been some progress in rolling out 'brown bin' collections, partly in response to Circular WPPR 17/08).⁵⁴ It should be noted that this might be considered an estimate which lies at the optimistic end of the 'realistic' spectrum, and would reflect the effects of the Circular (response to which would be expected to be lagged, in time), as well as the effects of the Waste Management (Food Waste) Regulations, now in draft form; and
- The capture of textiles increases to 15% by 2010. Once again, this might be considered to be at the optimistic end of the realistic spectrum.

⁵³ It is extremely difficult to estimate the quantity of BMW in the coming years, especially in the period under examination where the economic situation and trajectory are quite different to those which have been in place in recent years, and where there is no data which gives a hint as to the likely consequences. There is considerable uncertainty around these figures.

⁵⁴ DoEHLG (2008) *National Strategy on Biodegradable waste: Implementation of Segregated "Brown Bin" Collection for Biowaste and Home Composting*, Circular WPPR 17/08 to each City and County Manager, 31 July 2008.

Under these assumptions, there would be 143,000 tonnes more BMW in residual waste than could be landfilled under the 2010 target.

Figure 6-1: Estimated Performance Against 2010 Landfill Directive Target (30% Capture of Organics, 60% Capture of Paper and Card, 15% Capture of Textiles)



The treatment possibilities for this residual waste then become important. Here, there appear to be four possibilities:

1. The residual waste is incinerated. There would appear to be only one possibility in this respect by 2010. This is the Carranstown plant at Meath, though it seems unlikely that this would be operating for the whole year, and perhaps, not any part of it.
2. The residual waste is used to prepare SRF for export. This has been happening for some years, with more than 30,000 tonnes exported to UK and Sweden in 2007. The pressure to export is likely to increase in future as the levy on landfill increases (and is applied to and other residual waste treatment) and with the introduction of pre-treatment requirements;
3. The residual waste is used to prepare SRF for co-incineration at cement kilns. The capacity of the kilns is likely to be of the order 100,000 -150,000 tonnes SRF for the year. The issue is one of whether facilities will be operational which can produce this quantity of SRF to the desired specification; and
4. The residual waste is stabilised prior to being landfilled. Here, there are facilities which are primed for this purpose, but the question remains as to whether the incentive exists for this to occur. This may flow from the EPA's Pre-treatment Guidelines

The sum total of these certainly has the potential to deliver the required diversion from landfill. Depending upon the fuel preparation process, the quantity of BMW which the combustion of SRF at 2) and 3) diverts would be of the order 78,000 – 135,000 tonnes.

Much also depends on how the accounting against the targets is carried out. The proportion of textiles that is assumed to be biodegradable is currently 100%. This is clearly incorrect. If this proportion is revised to 65%,⁵⁵ then the target to divert BMW falls by 70,000 tonnes, and the target falls by 100,000 tonnes if the figure of 50% is used.⁵⁶ Given how close Ireland may be to meeting these targets, such a change – which merely improves the accuracy of the accounting – could be rather important in the final analysis.

Between 2010 and 2013, the quantity of BMW that can be landfilled declines sharply. Although, by that time, it might be expected that additional capacity for residual waste treatment may be available, on both cost (see Annex 64) and environmental grounds (see Figure 2-1 and Figure 2-2, also Annex 63), and particularly if a revised landfill levy internalises externalities as proposed below (see Annex 56), then it would seem right to seek to increase efforts to achieve the 2013 targets through stepping up efforts in respect of source separation of dry recyclables, and putrescible / organic wastes where these wastes are treated through anaerobic digestion.

The following policies are proposed:

RECOMMENDATION 1:

Legislation requiring that all collectors who collect household waste provide, within their service offering to households (either themselves, or through collaborating with other providers), the following:

- A) A collection of paper and card for recycling at least fortnightly, and no less frequently than the collection of refuse;**
- B) A collection of textiles for recycling at least monthly;**
- C) A collection of food waste at least weekly;**
- D) A collection of steel and aluminium cans at least fortnightly, and no less frequently than the collection of refuse;**
- E) A collection of plastic bottles at least fortnightly, and no less frequently than the collection of refuse.**
- F) Either a collection of glass containers at least fortnightly, and no less frequently than the collection of refuse, or a network of bring banks with a density of at least 1 per 600 inhabitants;**

⁵⁵ The UK, for example, uses a figure of 50%. We understand that other nations use similar figures.

⁵⁶ These figures are based upon an estimate of the quantity of textiles in the MSW stream in 1995 from the composition figures in DoEHLG (2002) *Preventing and Recycling Waste: Delivering Change*, March 2002.

The Brown Bin Circular has been implemented in a patchy manner – the intention would be to ensure this was implemented either through the Waste Collection Permit Regulations, or through a Section 60 Policy Direction. The former is preferable because of the greater force in law, but the latter might facilitate speedier implementation.

The funding of the packaging collections would be expected to be covered by funds generated through the producer responsibility scheme where the system was operated on an efficient basis (see below).

Policies of this nature are in place in other countries, seeking to develop common standards of service (without specifying exactly how the collection should be carried out). However, it is typically more straightforward to do this in other countries because of the link from local authority to waste collection service. Table 6-1 below shows the prevalence of various forms of mandate such as those mentioned above in the household waste sector.

Table 6-1: Materials Requiring Separate Collection According to Country

Country	Biowaste	Glass	Plastics	Paper / card	Aluminium	Steel/ tin	Beverage Composite	Textiles	Wood
AT	✓	✓	✓	✓	✓	✓	✓		
BE	VFG and all food waste	✓	Plastic bottles	✓	✓	✓	✓	✓	
CH	✓	✓	PET	✓	✓	Tin	✓		
CZ		✓	✓	✓			✓		
DE	✓	✓	✓	✓	✓	tinplate	✓		
DK		✓		✓					
England & Wales	Any two recyclables								
FI		✓	✓	✓	✓	✓	✓		
HU	✓	✓	✓	✓	✓	✓			
IT*	✓	✓	✓	✓	✓	✓		✓	✓
NL	✓	✓		✓				✓	
PT		✓	✓	✓	✓	✓			✓
SI	Garden and food		✓	✓	✓	✓			
SE			✓	✓	✓	✓	✓		✓
South Korea	✓	✓	✓	✓	✓	✓	✓	✓	
Taiwan	✓	✓	✓	✓	✓	✓	✓	✓	
USA (New Jersey)		✓		✓	✓	✓			

*separate collection specified as requirement for Waste Management Regional Plans, with targets in place for the various materials, but does not directly state that source-separation is mandatory.

Source: Table compiled from a variety of sources including the Federal Office for the Environment (2008), the European Topic Centre on Resource and Waste Management, Fogarty et al. (2008), the Ministry of the Environment of the Czech Republic, ECOTEC Research and Consulting Limited (2000), Taiwan Government Information Office, and OECD (2006).

RECOMMENDATION 2:

Legislation to ensure that all household waste recycling centres are equipped with facilities for the separate collection of garden waste and textiles. Reporting of performance at household waste recycling centres by the EPA suggests this is not yet the case. All civic amenity sites should also be required to charge for the delivery of unsorted residual waste in line with the principles of pay-by-use. This is more likely to be implementable through a Section 60 Policy Direction. Consideration should also be given to setting minimum standards for civic amenity sites covering other materials. As costs of residual waste treatment/ disposal rise, intensifying efforts to collect waste separately will *reduce* the costs of waste management.

Local authorities should ensure that sites are adequately staffed by trained individuals that help to maximise segregation. In addition, once local authorities take control of waste collection, they should ensure that charges for residual waste at civic amenity sites are aligned with those levied on households through PBU systems;

RECOMMENDATION 3:

The Waste Management (Food Waste) Regulations, currently in preparation, will require commercial producers to avail themselves of a food waste collection service. This is an important measure and needs to be implemented swiftly, but with a view to ensuring that the necessary treatment capacity is available. The date at which the Regulations enter into force will be important in terms of determining the degree to which there is an effect in 2010.

Note that we do not feel it makes sense to force collectors to provide the whole range of services to commercial companies. This should allow for the possibility that specialist food waste collectors enter into the market. Similarly, on the household side, it should not be a requirement that a given collection company has to provide all services to households. The service offering of any company should include food waste collection, but not necessarily provided by the company itself.

Accompanying measures:

- 1) Engage with the European Commission / Eurostat to:
 - A) Re-calculate targets in recognition of the fact that textiles are not 100% biodegradable; and
 - B) Notify the Commission of the measure.
- 2) EPA to make clear to all the means of calculating the biodegradable content of municipal waste being landfilled, including which materials are biodegradable and to what extent, the effect of stabilisation (as defined in the pre-Treatment

Regulations) on biodegradability, and the impact of waste prevention measures such as home composting on the calculation;⁵⁷

- 3) The development of a compost standard should help to delineate the boundaries between high quality compost and other materials. This should assist in enabling compost to be marketed with greater confidence to consumers. However, standards alone might not be sufficient to develop markets, and it has become common in other countries for quality assurance schemes to be established so as to support the development of outlets for compost. We understand Cré is developing such a quality assurance scheme (QAS). The development of a standard and associated QAS scheme should be given a high level of priority given that there is a need to develop the facilities for managing source separated biowaste, and hence, markets for their output;
- 4) Although all providers of waste collection services should, by now, be collecting using pay-by-use charging, the most recent evidence available suggests that some collectors were still not using such a charging mechanism. We argue in Annexes 3 and 7 that the existing institutional set-up is not a favourable one for introducing pay-by-use, whilst nor is the general scope of provision for recycling. The international review of pay-by-use in Annex 8 highlights the fact that unless pay-by-use services are accompanied by recycling services which are broad in scope and easy to use, perverse outcomes such as illegal dumping and burning, are more likely to occur. Once the range of services referred to above are in place, then the requirement to implement pay-by-use should be enforced. This will be given further impetus by the residual household waste targets set out below. It is important, in our view, that guidance in respect of best practice in charging is developed. Local authorities should choose the appropriate scheme from either pay per sack (likely to be appropriate in more crowded urban situations), pay per set out of bin, or pay per unit of weight in bin (or a combination of last two);
- 5) Local authorities and An Bord Pleanála must be given targets for decision making in respect of facilities for treating separately collected biowaste. It is tempting for planners to adopt the view that only large facilities are 'strategic'. Yet in the current context, every biowaste treatment facility is highly strategic. It does not make sense for such facilities to be dealt with through the mechanisms introduced under the Strategic Infrastructure Act. Rather, what is required is that decisions are expedited speedily within the existing framework. We suggest that either in a service agreement with DoEHLG, or through alternative means:
 - A) In all cases, applications should be informed of their completeness within 4 weeks of application;
 - B) At least 90% of all such facilities should have their applications determined within 14 weeks of receipt of a satisfactory application.

⁵⁷ We understand this is 'work in progress', and as such, we have not been made aware of the details of the proposed approach. It is worth noting that the UK experience of 'mass balance accounting' has given rise to perverse outcomes in this regard (see Annex 55).

In the absence of such a measure, the collection infrastructure will outpace the development of treatment infrastructure. Noting the Recommendation below concerning Regional Waste Management Plans, An Bord Pleanála should not feel constrained by existing RWMPs to the extent that they imply a limit on the development of capacity for biowaste treatment;

- 6) The EPA's recent issuing of Technical Guidance on Municipal Solid Waste - Pre-treatment and Residuals Guidance should assist in delivering Landfill Directive targets.⁵⁸ There are reasons to believe that it will not be sufficient, at least not until 2016, when the pre-treatment requirement effectively eliminates the biodegradability of landfilled waste of municipal origin. We suggest that the requirement to biologically pre-treat waste prior to its being landfilled (to the proposed standard for stability) be brought forward to 2013. This is likely to give additional certainty that the 2013 targets will be met. However, we also suggest that the target level of stability at which waste is considered no longer biodegradable for the purpose of the Landfill Directive is set at 10 mg O₂/g d.m and not at 7 mg O₂/g d.m. for the period from 2013. Changing the standard from 10 mg O₂/g d.m to 7 mg O₂/g d.m will simply diminish capacity with practically zero environmental benefit.

6.2 Targets

It was highlighted above how many of the targets for waste management in Ireland are already being met. It was also suggested that the targets would benefit from having a well identified addressee, with incentives for compliance, or sanctions for noncompliance.

In the short term, with the law unclear as to who is responsible for dealing with household waste, it might be argued that it is not clear how one could apply targets to local authorities which one might ideally apply to them. Several local authorities have withdrawn from the waste collection market, and whilst they may have some control over the nature of collection services through setting conditions attaching to collection permits, they have less control over service quality (or, indeed, the charges made for service provision). The link between the target and the addressee is weakened if the addressee is no longer directly in control of the service.

On the other hand, if targets are applied to the local authority, then as long as the targets were backed by sanctions, local authorities might be expected to be more proactive in using the means available to them to meet these targets. Indeed, they might seek to become more involved in service provision, or failing that, doing what they can to enhance service quality. This would, additionally, have an incentive to ensure civic amenity sites were well staffed and operated.

The EPA suggests that in 2007, household waste generated, including uncollected household waste, was 0.41 tonnes per capita, of which 26% was recovered (mostly

⁵⁸ EPA (2009) *Municipal Solid Waste - Pre-treatment and Residuals Management: An EPA Technical Guidance Document*, Johnstown Castle Estate: EPA.

recycled). Assuming all uncollected waste is not recycled (and this may be an over-estimate), the total residual household waste per inhabitant for Ireland in 2007 was just over 300kg per inhabitant. Some local authorities, such as Cork County, were showing far lower rates in 2007. Others, such as Cork City, were reporting far higher rates. Performance is highly variable, as is performance in respect of recycling rates.⁵⁹

Flanders makes use of a residual waste target, expressed in per inhabitant terms, and has set this at 150kg per inhabitant. The overwhelming majority of local authorities in Flanders are meeting this target. Wales has set the same target in its consultation draft strategy. England has also included this target in its waste strategy. The aim is to reduce waste not re-used recycled or composted to 225kg per person by 2020 (50% below current levels).⁶⁰

RECOMMENDATION 4:

The following targets residual household waste are proposed:

- **Less than 250kg per inhabitant by 2011;**
- **Less than 200kg per inhabitant by 2014;**
- **Less than 175kg per inhabitant by 2017; and**
- **Less than 150kg per inhabitant by 2020.**

These targets would apply to each local authority responsible for waste management.

In order to give local authorities an incentive to ensure that improvement in this regard is delivered, we propose the following incentive mechanism, adapted from an approach used in Wallonia in Belgium:

- 1. Where a local authority exceeds its allowance, a levy will be applied to the total excess residual waste;**
- 2. We suggest that the levy is applied at the level of €50 per tonne of excess residual waste.⁶¹ The levy rate should be announced in advance, but could be made flexible to deliver the right magnitude of incentive; and**
- 3. The revenue received will be refunded back to all authorities who are below the target level. The refunds will be in proportion to the over-performance against the target (measured in total tonnes per authority).**

⁵⁹ These figures are based upon the EPA (2009) *National Waste Report 2007*, Johnstown Castle Estate: EPA.

⁶⁰ See Annex 59 for Flemish policy in this regard; for Wales, see Welsh Assembly Government (2009) *Towards Zero Waste: One Wales, One Planet*; for England, see Defra (2007) *Waste Strategy for England 2007*, May 2007.

⁶¹ This initial proposal is based upon an estimate of a figure which would suitably incentivise the shift of material from the refuse to the recycling streams. This figure could be set higher to give additional certainty, but consideration needs to be given to the situation in respect of public finances.

This system is revenue neutral across the authorities and gives an incentive to all authorities to continue to improve against these target levels (so as to reduce the exposure to the levy, or to increase the revenues received in the form of refunds).

We expect these targets to lead – as in Walloon and Flanders in Belgium - to the widespread introduction of PBU (see also above). Despite the fact that this should be universal in Ireland at present, it still is not the case. The Irish implementation of PBU has not been without problems (see Annex 7), but once the standards of service are well defined, some of these problems should become of less concern.

Whilst household waste quantities are relatively well understood, the quantities of commercial waste vary by sub-sector and by size of business, and the statistical data is of somewhat questionable quality. The aim *should* be to set targets for waste prevention, and to set targets for recycling. However, regarding prevention, the best target would be to set one against trend, but the quality of the trend data is not sufficiently high.

Regarding both recycling and waste prevention, it is not clear to whom these targets would meaningfully apply. A requirement to demonstrate this at the level of each individual enterprise would be cumbersome and administratively complex, as well as being possibly unfair given that some businesses / sectors may be expanding, and others contracting.

It ought to be possible to achieve recycling rates in excess of those achieved in the household sector because of the fact that waste streams tend to arise in larger quantities and in more homogeneous form.

In 2006 and 2007, recovery rates (the vast majority being materials recovery) were 54.7% and 47.5%, respectively. These rates were achieved despite barely any organic waste being collected for composting and digestion. Given that composition data suggests that this constitutes slightly in excess of 30% of the waste stream, there is clearly considerable room for improvement.

RECOMMENDATION 5:

Commercial waste recycling rates should reach

- 55% in 2010;
- 60% in 2012;
- 65% in 2014; and
- 70% in 2016.

Significant under-performance against these rates in later years would be expected to lead to a broadening of the range of materials which businesses were obliged to separate at source, or, in exceptional circumstances, re-consideration of the levies mentioned below. This is because there appears to be little way of making the target 'stick' on any specific actor, or set of actors, so that this target should be one which is driven by policy and changes therein. Policy should be actively monitored and updated to ensure the target is met.

We see no merit in setting prevention targets for the commercial waste sector at this stage given the uncertainties regarding the quality of the existing trend data, as well

as the potential effects of ongoing changes in the structure of production. A prevention target would only be meaningful if it implied 'prevention against an established trend', and if a suitable indicator were to be developed which could highlight a positive outcome against that trend. We propose that such a target should only be set once a full and thorough investigation of the available commercial waste data has been carried out, and as and when such trend data is available on a reliable basis. It should also be noted that in the current economic climate, short-term reductions in commercial waste are to be expected independent of specific measures taken to reduce waste generation.

We did consider setting a target for packaging in terms of the residual packaging waste per inhabitant. This would have been a novel target to set, and one that, like the residual household waste, would stimulate both waste prevention and recycling. Ireland's performance against this indicator looks rather poor by comparison with other countries. However, it should be said that the underlying data is not necessarily reliable, and so target setting might be premature until such better data becomes available.

For construction and demolition wastes, the potential for high recycling rates is also clear. Already, the recovery rate is estimated at 72%, though the rate is very different for soil and stones (81%) to that for other materials (44%).⁶² The quality of data for this stream is, however, poor.

In many countries, sophisticated sorting is now applied routinely to this waste stream, with very high recycling rates being attained. Countries such as the Netherlands claim recovery rates as high as 95%, though this is not all through recycling, but includes high calorific fractions extracted at sorting plants for subsequent energy recovery.

We propose below one measure for attaining high recycling rates from construction and demolition projects (see Section 6.3), whilst the levy on residual waste (see below) would be expected to stimulate further sorting prior to any residual waste being sent for treatment or disposal.

In principle, targets could be set. However, in practice, because measurement of current performance is subject to some uncertainty, performance against such targets would not be clearly measurable. In due course, there will be a need for reporting on targets under the new Waste Framework Directive. Even so, the level of performance to which Ireland might be aspiring should be as below.

RECOMMENDATION 6:

The target rates for the recycling of construction and demolition waste are:

- **75% in 2010;**
- **80% in 2012;**
- **85% in 2014; and**
- **90% in 2016.**

⁶² EPA (2009) *National Waste Report 2007*, Johnstown Castle Estate: EPA.

These targets should be considered as the levels which Ireland should aspire to, thereby recognising that such high targets can be achieved, and that policy will be oriented to achieve these in future. Policy should be reviewed so as to keep matters on track.

6.3 Refunded Compliance Bonds for Construction and Demolition Projects

One policy reviewed in the International Review was refunded compliance bonds.⁶³ Under this arrangement, contractors would be required to pay, to the local authority, a financial sum related to the size of the project at its commencement in addition to a small administrative fee (intended to cover the administrative costs of the system). The financial sum would be retained as a bond to ensure that the project exceeded a specified recycling rate, which could be set higher (in line with green procurement principles) for public sector projects.

The size of bond paid would vary by project size, and all of the bond, excluding the administrative fee, would be returned on demonstrating that the desired recycling rate had been achieved. A proportion of the fund would be refunded for partial compliance with the desired target.

The mechanism would require materials from the project to be sent to authorised facilities, which had demonstrated that they could recycle the proportion of material suggested by the developer. As such, a procedure for authorising the reprocessors who receive the material would be required. This authorisation procedure would be appropriate for the EPA to undertake, with the principle aim being to highlight the potential of a facility to deal with materials in a particular way.

The *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects*, published by the Minister for the Environment, Heritage and Local Government, provide guidance on the preparation of Project Construction and Demolition Waste Management Plans for certain classes of project, which exceeds specified threshold limits. The requirement for such Plans extends equally to both public and private sector developments. They provide clients, developers, designers, practitioners, contractors, sub-contractors and competent authorities with an agreed basis for determining the adequacy of C&D Waste Management Plans.

Under the Guidelines, Project C&D Waste Management Plans should be prepared for projects in excess of any of the following thresholds and in certain (not all) cases are a condition of the planning consent for a particular development:

- New residential development of 10 houses or more;
- New developments other than above, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 m²;

⁶³ See Annex 43.

- Demolition/renovation/refurbishment projects generating in excess of 100m³ in volume, of C&D waste; and
- Civil Engineering projects producing in excess of 500m³ of waste, excluding waste materials used for development works on the site.

It would be expected that developers would need to prepare site waste management plans in order to demonstrate how they planned to meet the specified recycling targets. As such, site waste management plans would become mandatory for developments captured by this measure. This might require amendment of the Planning and Development Regulations to ensure that such plans are integral to the assessment of planning applications for significant developments above the threshold for this measure.

RECOMMENDATION 7:

We propose that for:

- **New residential development of 10 houses or more;**
- **New developments other than above, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 m²;**
- **Demolition/renovation/refurbishment projects generating in excess of 100m³ in volume, of C&D waste;**
- **Civil Engineering projects producing in excess of 500m³ of waste, excluding waste materials used for development works on the site;**

A site waste management plan would be mandatory, and that the plans should demonstrate that the following recycling targets will met

- **80% in 2011;**
- **85% in 2012;**
- **90% in 2014; and**
- **92% in 2016.**

Bonds would be payable by developers, to be determined in the detailed working up of these proposals.

It is important to note that the above targets should, where the measures capture sufficient numbers of developments, enable the 70% recycling rate in the Waste Framework Directive to be met in a relatively straightforward manner (and indeed, the currently available data suggests the target is already being met).

The above instrument, and the data so generated, should shed light upon the proportion of C&D waste which falls under the scope of the developments proposed above. In view of the desire to achieve higher recycling rates of this material (see above), it would be appropriate to vary, as necessary, the cut-offs for the developments falling under the policy so as to ensure the proposed recycling targets are being met.

6.4 Residual Waste Levy

With the exception of Germany, all European countries with high recycling rates make use of a levy on landfill to increase the costs of residual waste disposal. In Germany, a restriction on landfilling has a similar effect. A growing number of countries also make use of levies on incineration. Few such levies are based on an assessment of environmental externalities. This study has sought to do this in the case of residual waste treatments (details can be found in Annex 63).

The aim of the levy is to internalise externalities of waste treatment, and give additional certainty to the market that landfilling of untreated waste is likely to be the most expensive destination for municipal wastes and residual (non-inert) construction and demolition wastes in the future. It also supports the market for recycling, in line with what has been proposed by the Environment Council at the European level.⁶⁴ In particular, it incentivises prevention, re-use, and source separation of materials for recycling and composting / digestion.

RECOMMENDATION 8:

The proposed levy structure is set out in Table 6-2. The aim is to respect the principle of seeking to ensure that the environmental externalities are internalised.

There may be other novel technologies which need to be considered for inclusion within the levy structure. The principle of seeking to ensure that (relative) environmental externalities are reflected in the rates should be respected, and until such processes clearly demonstrate their performance in commercial operation, a default levy of €20 per tonne should be applied to the process itself.

It is important to note that the levy rates in Table 6-1 below take into account benefits from avoiding the generation of electricity from alternative fossil fuel sources. To this end, to the extent that other policy instruments give financial support to the generation of energy from such sources, it would be appropriate to increase the levies on those technologies which are the beneficiaries of such incentive schemes. This is entirely consistent with an approach to seeking to tax negative externalities and support the generation of positive ones.

6.5 Producer Responsibility

It was mentioned above that the Irish system for financing waste management is unusual in that the full burden of the costs of the household waste collection service falls directly upon the household, and there is no system of local taxation used to generate revenue to support these costs. For various reasons, the Irish system seems to impose significant costs upon households.

⁶⁴ Council of the European Union (2009) *The Fall in Demand for Recycled Materials – Information from the Presidency*, 6918/09, 25 February 2009. Note that two of the suggested measures which rest with the competence of national authorities are included in the recommendations below.

Table 6-2: Proposed Structure for a Residual Waste Levy

	Proposed levy rates, 2010 2011 2012
Landfill (residual MSW not meeting the stability threshold under the EPA Pre-treatment Guidelines)	€40/t €60/t €85/t
Incineration / Advanced Thermal Treatment	€10 /t €20 /t €26 /t plus non-GHG pollutant related taxes (per kg of pollutant, all years) NH ₃ € 9.15 VOCs € 2.50 PM _{2.5} € 52.00 SO _x € 17.30 NO _x € 13.60 Cd € 26.00 Cr € 21.00 Hg € 7,400.00 Ni € 2.60 Pb € 740.00 Dioxin €46,000,000.00 As € 99.00
MBT processes	€5/t €12/t €20/t
Landfilling of Stabilised Biowaste, Standard Landfill	€5 /tonne sent to landfill €15 /tonne sent to landfill €25 /tonne sent to landfill
Landfilling of Stabilised Biowaste, Dedicated Cell	€0/ tonne sent to landfill €0/ tonne sent to landfill €5/ tonne sent to landfill
SRF to incineration	As for incineration, but expressed per tonne SRF
SRF to cement kiln	£0

Most of the 'waste' in the household waste stream falls into one of four categories:

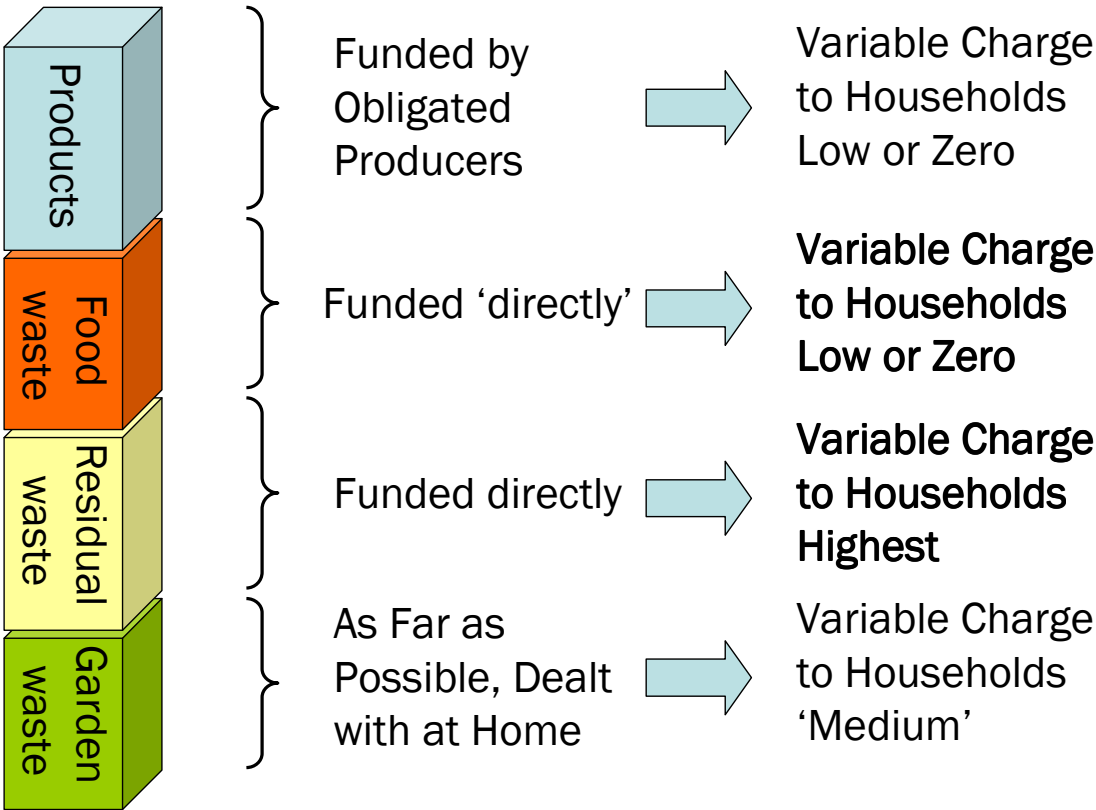
- Products which have been discarded;
- Packaging;
- Food waste; and
- Garden waste.

In principle, all products and packaging are amenable to being addressed through some form of producer responsibility mechanism.

Countries which have achieved the highest rates of recycling under producer responsibility, and those which purport to demonstrate some effect, at the margin, on waste generation, have sought to ensure that producers are made fully financially responsible for their obligation, and that there is a requirement to provide widespread recycling infrastructure. The principle is a sound one as it internalises the cost of managing waste within the cost structure of the producers, and effectively ensures that the proportion of the targeted material which falls under this financial mechanism is (more or less) maximised.

The flip side of this is that no part of the obligation is funded by local authorities / households. This is important in the Irish context as it should, in principle, be an instrument that can be deployed to reduce the costs of household waste management at the point of use. At the margin, this might also reduce the number of non-users of collection services. The principle is set out in Figure 6-2. It is a principle that is reflected in, for example, Flanders, where the Producer Responsibility mechanisms effectively fund around 15% of the total costs of waste management.

Figure 6-2: Producer Responsibility – Role in Financing Household Waste Management



It should be noted that this does not necessarily affect the costs of meeting a given obligation. It simply affects the distribution of costs (i.e. upon whom the costs fall).⁶⁵ In countries where producers are not made fully financially responsible for their obligation, the balance of the cost falls on other parties, typically (directly or indirectly), the generality of the population, some of whom may not even consume the product targeted by the measure.

It is difficult to see what advantage there could be in *not* making producers fully financially responsible for their obligation given the simple trade-off between marginal increases in product prices as opposed to marginal increases in the revenue take (either in tax or waste charges) from local authorities, households and non-obligated businesses. The case where producers are fully financially responsible is likely to be more efficient from the economic perspective. The combination of producers being made financially responsible for recycling, and consumers being charged for disposal in line with pay-by-use, provides an efficient policy framework for developing recycling performance in the household waste sector.

We propose, therefore, that a policy principle is established:

RECOMMENDATION 9:

Where producer responsibility measures are in place, the principle is established whereby producers will be expected to be fully financially responsible for delivering the services required to meet their obligation. Sanctions should be applied in the event of non-compliance, with compliance being the subject of adequate enforcement checks.

In this context, the existing measures should be reviewed to ensure that the financial responsibility of the producers reflects their obligation. It is clearly not intended to have producers support inefficient systems. On the contrary, the intention is that compliance schemes and producers should have an interest in ensuring that the schemes run to deliver the service, which helps to achieve the targets, are efficient. In a context where information on costs is scarce, this might help improve the richness of information available regarding costs.

In addition, it goes without saying that the more material is covered by producer responsibility schemes, and the higher is the target which a given scheme has to achieve, then the lower will be the quantity of residual waste in the household stream and the higher will be the commercial waste recycling rate (see Section 6.2 above). Producer responsibility measures should, therefore, support the targets set out above.

⁶⁵ This is why it is generally a mistake to assume that 'what producers pay' in different countries amounts to 'the cost' of meeting an obligation. The costs to producers and the total costs of compliance are two, often entirely, different measures.

RECOMMENDATION 10:

The targets under Article 11 of the Waste Management (Packaging) Regulations be increased such that in future, the minimum recycling target increases to 75% (up from 63.6% in 2007) by 2013.

In lieu of the fact that these targets will require active participation by all concerned, we suggest that the *de minimis* thresholds under Article 5 of the Waste Management (Packaging) Regulations should be abolished.

Finally, the revisions to the Waste Framework Directive have led to the possibility that Article 5 of the Waste Management (Packaging) Regulations could be mis-interpreted to imply that a suitable destination for separately collected packaging would be incineration. For the avoidance of doubt, it may be sensible to revise the wording to reflect the original intent of Article 5.

We considered the case for a deposit refund scheme. The evidence is not sufficiently strong to support a recommendation of this nature, principally because the information regarding implementation costs is not such that the costs can be said to unequivocally justify the benefits. It is worth adding that the arguments against the measure are not sufficiently well made for this proposal to be considered to have been rejected outright. We suggest that the matter is looked into more closely, particularly in respect of costs, through a dedicated study on the matter. The study should seek to answer the following questions:

- What would be the characteristics of a deposit refund system likely to deliver high (i.e. 90% plus) capture of targeted containers?
- What would be the most cost effective way of implementing such a system, and what would these costs be?
- What would be the change in cost for the kerbside collection system, taking into account changes in material flows, and considering also unreturned deposits where:
 - The kerbside system continued to collect the materials targeted by the deposit refund scheme; and
 - The kerbside system ceased to collect the materials targeted by the deposit refund scheme;
- What would be the effect on costs of the reduction in litter achieved through the introduction of the scheme?
- What would be the balance of environmental costs and benefits?
- Where it proves impossible to estimate the environmental benefits from marginal reductions in litter, how sensitive are the overall costs and benefits (financial and environmental) to the level of disamenity associated with littering?

Should the above targets for packaging recycling show signs of not being met, then to the extent that the case for deposit refunds might be shown to have merit on the basis of a more detailed study as suggested above, that might be a suitable moment at which to introduce such a measure.

The recent proposed revision to the EU WEEE Directive includes a change in collection targets from 4 kg per annum per inhabitant to a 65% collection rate, calculated according to the average amount of EEE placed on the market in the two preceding years. This proposed target is more in line with the current Japanese system and is likely to imply an improvement in performance is required over and above current levels of achievement. In addition, in order to encourage the re-use of whole appliances, it is proposed that such re-use be included within the 65% target. The 65% target is likely to be challenging, though achievable. We understand that DoEHLG is in the process of developing a protocol designed to further the case for re-use.

RECOMMENDATION 11:

The recommendation, therefore, is to update the Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005 in line with the proposal for revised targets from the EU.

The NBWS mentioned that producer responsibility initiatives would be implemented for newspaper and magazines, and telephone directories. It added

further initiatives will be considered for other relevant elements of BMW, such as Junk Mail and other forms of 'direct marketing', and textiles / clothing.

The relevance of these materials to the NBWS is obvious. It seems reasonable that these measures should be worked up into full-blown measures.

RECOMMENDATION 12:

We recommend that producer responsibility initiatives are extended to newspaper and magazines as well as junk mail and other forms of direct marketing.

6.6 Levies on Disposable Items

Ireland has achieved a degree of international fame for its levy on plastic bags. It is clear that potential exists for new levies, particularly on items which are deemed to lead to excessive generation of waste in the face of obvious alternatives. Product levies can have the effect of reducing consumption, and stimulating the use of alternatives.

RECOMMENDATION 13:

It is recommended that consideration is given to the wider implementation of product levies, principally targeting disposable products in widespread use. Suitable targets – recognising that alternatives are available – would be, for example, razors and cutlery. Here, the alternatives are readily available.

For some items, depending upon the feasibility of establishing take-back, or separate collection networks, it may be useful to consider such levies as a supporting measure in the context of producer responsibility – obligated producers would be subject to the levy if they fail to meet the targets set under the producer responsibility scheme. This approach has been used in the context of ecotax legislation in Belgium (see Annex 30).

6.7 Levelling the Playing Field

In its recent review of the public sector, the OECD noted:⁶⁶

Local authorities are not subject to value-added tax (VAT) for their waste management services as in the case for the private sector. While this is not an issue at the household level, it is an issue for commercial customers where service users cannot claim back VAT. This allows local authorities to offer their services 13.5% cheaper; this disadvantage for business was calculated at EUR 30 million.

Local authorities are also partially subsidised for their waste management activities. Local public waste infrastructure projects (both capital and operating costs) are partly funded by the Environment Fund, to which the private sector is not eligible, though this is also to compensate, in part, for the local authorities' recycling activities. By the end of 2005, EUR 42 million of the Fund had been used to support local authority investments in waste management and recycling infrastructure. It is important to note that EUR 42 million relates to the total spent from the fund in 2005 and does not relate entirely to investment in waste recycling infrastructure, but also includes areas such as enforcement and awareness campaign schemes to prevent/reuse waste, etc.

One of the aims of this review is to more clearly demarcate the scope of activity where the market is to be allowed to be given freer reign (in the market for commercial, industrial and construction and demolition waste) and where the market is to be managed more through arrangements put in place by local authorities (household waste). In principle, however, there will remain parts of the market where local authorities and private waste companies 'compete', including where local authorities market test in-house provision to ensure value for money for households is being delivered. It would be counter-productive if, in seeking to improve the efficiency of service provision, a cost advantage was ceded to local authorities through the tax system, or through the award of revenues from the environmental fund in support of activities where different service providers actively compete. Indeed, this would tend to limit the degree to which local authorities were incentivised to deliver efficient services.

RECOMMENDATION 14:

Consequently, we recommend that disbursements from the Environment Fund should always consider the following:

- a) **Where possible, funds are awarded in a competitive manner, and that there are criteria for evaluating the success of bids, and hence also, for evaluating the benefits of the revenue spend;**

⁶⁶ OECD (2008) *Ireland: Toward an Integrated Public Service*, Paris: OECD, available at: http://www.oecd.org/document/31/0,3343,en_2649_33735_40529119_1_1_1_1,00.html

- b) In cases where there is no competition, local authorities should only be the sole beneficiary in cases where disbursements are not used to support any activity in which the public sector and private sector are in direct competition (for example, cleaning up old landfills, or in civic amenity site provision);
- c) In all cases where it is intended that the local authority may be a beneficiary, and where the private sector also provides the service under consideration, then the relevant funds should be made available to all relevant parties, preferably on a competitive basis, to ensure that disbursements deliver value for money;

This ought to ensure that the revenues from the Environment Fund should not distort competition in future.

With regard to VAT, the sentiment of the OECD is clear enough. We would agree with this. If players are competing in the same market, it makes little sense to give one competitor a major advantage through the VAT system.

RECOMMENDATION 15:

We recommend, therefore, that in the context of ongoing review of local government finance, the law in relation to the treatment of local authorities for VAT be reviewed. In principle, the aim should be to achieve the following:

- To ensure that where commercial companies bid for tenders being let by local authorities for the provision of services to households, the cost of the services to households is affected by VAT in the same way as it would be if the service was provided by the local authority itself. Ways of doing this could include either allowing local authorities to claw back the VAT on, or exempt from VAT, the services provided to households;
- To ensure that where commercial companies and local authorities compete directly in the market, that the two services are treated equivalently from the point of view of VAT. One way of doing this would be to require local authorities to charge VAT to customers where they engage in what is effectively the provision of a commercial service.

In the absence of these changes, the rather obvious point is that local authorities, in benchmarking the value for money of their services, would effectively have a significant head start in seeking to demonstrate such value. Indeed, the consequences might be to preserve existing levels of inefficiency as long as these were not in excess of the implied level of cost advantage implied by the VAT regime.

6.8 Environmental Fund

Notwithstanding the expected decline in the landfilling of waste in future, in the short term, revenues from the residual waste levy would be expected to increase in future, reaching a figure of the order €70 million in 2011/2012 and declining thereafter, but not necessarily sharply. In the context of a sector for which there are relatively few 'easy' revenue sources, this fund is of extreme importance. It has also given rise to tensions through its being unavailable to the private sector. This raises issues as to what the Environment Fund should be used for in future. This is an important question which needs to be considered as part of the wider question of how waste

management should be funded. It does not seem appropriate, for example, for funds to be issued in support of Producer Responsibility obligations. These are the obligations of producers, and should rest with them (rather than being funded, effectively, through taxation).

RECOMMENDATION 16:

Appropriate purposes for the use of money from the Environment Fund are given in Section 74 (9) of the Waste Management Act. These are wide-ranging. The approach to awarding funds does not seem to be strongly targeted at addressing priority areas.⁶⁷ It also fails to recognise adequately the market context in which its support is given.

It is clear that the short-term priority for waste management in Ireland is the treatment of source segregated biowastes. We propose that, subject to the levy rates under Section 6.4 above being implemented, a fund of at least €10 million is earmarked for 2010 and 2011 and 2012 to support the capital cost of the treatment to source segregated organic waste from the municipal stream. The fund needs to be developed in line with State Aid rules. The aim should be to set up a competitive scheme and invite bids for the fund, outlining clearly the evaluation criteria which will be used to assess bids. One of these should be to demonstrate how it is anticipated that the organic waste will be sourced. This Fund should be open to private and public sector alike.

Another priority area which should be considered for support under a competition is waste prevention. Quality initiatives from businesses and local authorities should be funded, as well as the work in delivering the National Waste Prevention Programme (though there are reasons why it might be favourable for long-term commitments to be made from central government regarding the NWPP).

Other funding needs clearly exist, such as dealing with legacy sites, and it is worth noting that Austria used revenue from its landfill levy to support the clean up of old sites.⁶⁸ Consideration should be given to supporting clean-up, though care needs to be taken to ensure such funds are well spent.

The activities supported by the Environmental Fund should be critically appraised periodically to ensure that the Fund is delivering value for money. In this respect, all awards ought to be made with a clear understanding of what the objectives are, how they will be delivered, the additionality (i.e. the change which will be delivered over and above the current situation) to be gained from the funding, and what (in the case of grant-supported projects and initiatives) is the 'exit strategy' to ensure they are sustained beyond the period of the funding award.

A concern with the Fund is that it may be the main source of revenue for some key activities of local authorities. It is questionable that this should be the role of this Fund. The use of the Fund should be placed into context alongside the ongoing review

⁶⁷ For a review of issues regarding grant funding, see Annex 60.

⁶⁸ See Annex 52.

of local government finance to ensure that the Fund does not play a role which might more appropriately be delivered through the Local Government Fund. In principle, the medium- to long-term objective ought to be to channel more revenue into general taxation, but in the absence of clear pointers in respect of local government funding, the Fund continues to play a useful role.

6.9 Green Procurement

As indicated in Section 4.12, Ireland is lagging somewhat in preparing a national action plan for Green Procurement. It is tempting to state that this plan should be prepared with a degree of urgency. However, the aim must be to seek to embed such principles across Government departments and through tiers of Government, and this institutional aspect has often proved challenging to address. In the short term, DoEHLG and the EPA should be well placed to lead on this matter, and to start changing their own practices immediately.

Examples of simple changes which will affect the waste sector are:

- Introducing recycled content specifications for suppliers of goods;
- Setting targets for the use of recycled materials in state-supported construction projects;
- Specifying the use of waste derived composts in projects involving gardening / landscaping etc.;
- Specifying that biowaste treatment facilities deliver products which comply with compost standards, and are part of a quality assurance scheme (when available);
- Requesting that suppliers furnish information regarding environmental policies; and
- Specifying that all suppliers and tenderers print documents on both sides of paper, and use 100% recycled paper.

These are obvious steps on the way to a much broader transformation which should affect waste, but will include much else besides. One further possibility in public procurement might be to link some public procurement (e.g. hotel stays) to schemes being run under the National Waste Prevention Programme. This would encourage, for example, the hospitality industry to be assessed for the Green Hospitality Award.

RECOMMENDATION 17:

The development of a National Action Plan for Green Procurement needs to be progressed with a degree of urgency.

6.10 Ash Residues

There is an increasing body of evidence which suggests that bottom ash from incineration is eco-toxic.⁶⁹ On the basis of this evidence, it seems reasonable to proceed on the basis of the assumption that bottom ash is hazardous until it has been shown to be otherwise. The difficulties in respect of bottom ash lie in the fact that, whereas for some pollutants of concern, there are more or less specific sources of these in waste, for bottom ash, some of the relevant metals are widely distributed across components of the waste stream (though some materials contain higher concentrations than others). Of particular concern are certain compounds of lead and zinc which are ecotoxic.

Some form of treatment could be considered, but as discussed elsewhere, the effects of some approaches in use are not obviously beneficial.⁷⁰ The advantages of requiring appropriate analysis of the residues for their content of the relevant ecotoxic metal compounds (zinc oxide, zinc chloride, and all compounds of lead), in addition to the standard analysis required under the Waste Incineration Directive / IPPC Directive) are that compliance with European legislation would be assured and long-term environmental problems are likely to be reduced. These are very difficult to quantify, but nonetheless, the approach is likely to secure environmental benefits.

RECOMMENDATION 18:

Bottom ash should be treated as hazardous until it has been demonstrated otherwise. The EPA will need to develop protocols for sampling and testing of bottom ash and the assessment of H14 ecotoxicity to demonstrate whether the waste is hazardous or not. This should be reflected in operating licences for facilities producing such ash.⁷¹

6.11 Waste Planning

RECOMMENDATION 19:

We propose that the RWMPs be replaced with one national waste plan. This would require a change in the Waste Management Act. We propose that the process of changing the law, and developing the Plan, should be initiated as a matter of urgency as soon as a decision has been taken as to which of the policy recommendations made in this document are to be taken forward. In the interim, whilst a National Plan is being developed around these policies, these policies would then guide the implementation of waste management at the local level in the intervening period. Planning decisions should reflect the policies being implemented.

⁶⁹ See, for example, H. Moser and J. Römbke (2009) *Ecotoxicological Characterization of Waste: Results and Experiences of an International Ring Test*, New York: Springer.

⁷⁰ Eunomia (2009) *Section 60 Policy Direction Capping Incineration of Municipal Waste and Other Matters*, Environmental Report for DoEHLG, June 2009.

⁷¹ The UK's position was set out recently in Environment Agency (2008) *Technical Guidance WM2 Hazardous Waste: Interpretation of the Definition and Classification of Hazardous Waste* (2nd edition v2.2) First Published June 2003, Second edition November 2005, Updated October 2006 and May 2008.

The ultimate responsibility for developing a National Waste Plan would rest with the Minister. A Ministerial Programme Board chaired by the Minister and including representatives from DoEHLG, EPA, IBEC, IWMA, Cré, CCMA, the CIF, An Taisce and environmental NGOs, would be responsible for steering the Plan. The Minister would, however, still make the executive decisions.

Local authorities would still be encouraged to work together where it makes sense for them to do so. Where they are obviously collaborating on major projects, as in the Dublin Region, for example, there is no reason why such collaboration should not continue provided it is aligned with the broader thrust of policy.

Early tasks for such a Board would be to determine the approaches to instigating institutional changes recommended below in Recommendations 20-22.

6.12 Responsibility for Household Waste Collection

We believe that the issue of high costs could be partially resolved through moving household collections into the control of local authorities. This has the potential to deliver services more efficiently to the household, and would enable local authorities to charge the true costs of collection to households.

RECOMMENDATION 20:

We recommend that the Waste Management Act is amended such that household waste collection is made the responsibility of local authorities. Household waste may be collected only by the local authority itself, or by an enterprise acting on its behalf. As under the existing Section 33 of the Waste Management Act, local authorities would be entitled to deliver services jointly (see Figure 6-3). We suggest that this change makes clear that the law will enter into force at a later date (we suggest 2014). It is important to i) legislate for this early and ii) allow time to elapse before the law enters into force

This has the potential to:

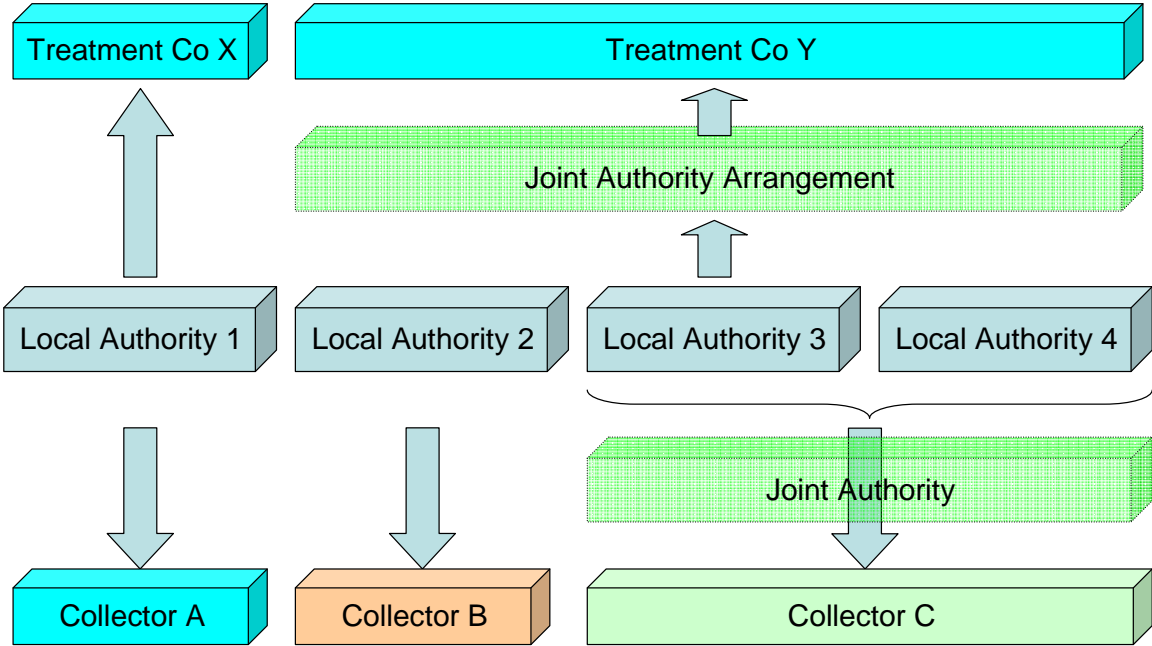
- Enable collectors to benefit from economies of density, so reducing the cost of service delivery to the users;
- As a result, increase the take-up of services across a given geographical area;
- Enable the quality and scope of the collection service to be specified through the tendering mechanism;
- Squeeze out monopoly rents where service operators are operating as a local monopoly; and
- Enable a stronger link to be made between the collection and treatment of waste, improving the prospects for development of the desired infrastructure.

In short, it should allow for similar or greater environmental quality to be attained at lower cost (or alternatively, greater environmental benefits will be generated at the same cost).

Competition for the market would enable greater certainty to be given to developers, in the context of managed procurements, as to the supply of material into a given facility. This ought to rationalise the development of facilities, and make tenders

attractive to a range of bidders, not least those who see less merit in taking significant commercial risks in developing facilities. This is likely to be of particular significance at the current time with access to credit severely constrained, and those offering credit seeking to de-risk their investments as far as possible. Ongoing UK experience with public private partnership (PPP) projects provides some sobering experience in this regard.⁷²

Figure 6-3: Potential Joint Working Structure for Local Authorities Issuing Collection and Treatment Contracts



In this regard, it makes sense to seek to ensure that contracts are let for what the authorities reasonably control. If local authorities contract with private operators for specified tonnages of material, then in principle, any additional capacity available at a facility can be priced at a market-determined rate. The direction of waste into specific facilities risks, in this context, exposing commercial collectors to monopoly pricing. To the extent that the intention is to ensure that no waste is landfilled before being treated, the residual waste levy proposed below, alongside the EPA’s Pre-treatment Guidelines, should provide sufficient stimulus to the treatment market to enable the development of alternatives to the landfilling of residual waste without any form of treatment.

⁷² See, for example, *The Observer* (2009) Treasury Set to Bail Out Second Recession-hit PFI, 10 May 2009, <http://www.guardian.co.uk/business/2009/may/10/pfi-vt-bail-out-treasury> and letsrecycle.com (2009) Delight at greater Manchester PFI deal Close, http://www.letsrecycle.com/do/ecco.py/view_item?listid=38&listcatid=218&listitemid=51746.

RECOMMENDATION 21

We recommend that the Waste Management Act also makes clear that no local authority should enter into a contract for waste collection, treatment or disposal for a quantity of waste which exceeds the quantity which it, or a contractor acting on its behalf, can reasonably expect to be in direct control of. We suggest that this change makes clear that this aspect of the law will apply to all contracts extending, in the case of collection, more than 2 years beyond the entering into force of the above clause, and in the case of treatment, more than 7 years beyond the entering into force of the above clause. The distinction between ‘contracting’ and ‘a facility’s capacity’ needs to be made clear.

For the avoidance of doubt, we recommend that the Waste Collection Permit Regulations be amended such that it be made clear that commercial waste cannot be directed to a *specific* facility of any type, and that as far as residual commercial waste is concerned, the treatment / disposal of the material would be expected to be determined by the market and the relevant legislation in place (the levy described under Section 6.4 is unlikely to make landfilling an attractive option). This measure should apply as soon as possible after drafting.

The limit on the quantities for which local authorities can contract should not be confused with the capacity of a treatment facility which might be built. The limit on contracting is not a limit on facility size. However, local authorities who have entered into, or who are considering entering into, such an arrangement would be required to change their plans.

The intention of these changes would be to seek to bring order to the current system and to clarify where the freedom of the market begins and ends

It is worth noting that the combination of measures proposed in this Policy Review would, in our view, if implemented in full, render the need for measures to limit incineration capacity, envisaged under the Section 60 Policy Direction, more or less redundant. Incineration would be no more, or less, constrained than other residual waste treatments, but the emphasis would remain on shifting waste up the waste management hierarchy, leading to the achievement of significant environmental benefits.

6.13 Obligation to Use a Waste Collection Service

Once local authorities are made responsible for the collection of waste, it will make sense to require all households to avail themselves of the available waste collection service. The current situation, in which the quantity of uncollected waste is a matter of speculation, and where high charges for waste collection have acted, if anything, to lower connection rates to the household collection system, is not acceptable in a country of Ireland’s standing. This and the recommendation under Section 6.12 will also make it possible for local authorities to:

- Devise tenders which are more attractive to potential bidders;
- Plan more coherently for treatment capacity for household waste;

- Implement waiver mechanisms for less well-off households in possession of more complete knowledge regarding the revenue implications of the total service.

In addition, the household waste management infrastructure – from civic amenity sites, to bring banks, to collection services – can be made more coherent across the piece in terms of the level of service provision, and in terms of the incentives for improved waste management.

RECOMMENDATION 22

We recommend that once the recommendations under Section 6.12 have been implemented, all households will be required to use, and pay for, the waste collection service provided by the local authority or its contractor (subject to waivers etc.).

6.14 Backyard Burning of Waste

Emissions from domestic premises are covered under the Air Pollution Act 1987. This Act gives local authorities the lead role in control of air pollutants from premises. Section 24(2) of the Act imposes a general obligation on the occupier *‘not to cause or permit an emission in such a quantity or in such a manner as to be a nuisance.’* The Act, though somewhat unspecific, is of significance to domestic burning, though it is not exactly clear what constitutes a nuisance.

RECOMMENDATION 23

Legislation should be implemented to make clear that backyard burning of waste is illegal.⁷³

6.15 Renewable Energy Incentives

Three incentive mechanisms for the use of biogas from anaerobic digestion deserve to be examined to ensure they are aligned with the relative environmental benefits. For Ireland, it would seem that the best outcome for biogas use would be as vehicle fuel (see Annex 63). The incentives need to be aligned to support this.

RECOMMENDATION 24

Incentive mechanisms need to be examined to ensure that they are correctly aligned with the options for use of biogas, in terms of their environmental performance. This needs to be addressed swiftly to ensure that projects which are in, or are approaching, development are incentivised to operate in the most beneficial manner.

⁷³ As this report was being finalised, the Waste Management (Prohibition of Waste Disposal by Burning) Regulations 2009 (S.I. No 286 of 2009) were issued, and these make more explicit the offence of disposal of waste by uncontrolled burning. Various actions are prohibited by the Regulations, including such disposal within the curtilage of a dwelling.

6.16 Border Issues

It seems clear that the measures recommended – among them, the proposed levy on residual waste, the measures designed to increase recycling and the increased targets under producer responsibility, notably for WEEE, and the EPA's approach to pre-treatment - will create additional pressures to export waste from Ireland.

The laws surrounding the import and export of waste are the subject of a separate Annex, Annex 65, which seeks to propose a range of measures which might align Irish policy in respect of waste movements with what might be considered best practice.

It is recommended that the proposals in Annex 65 are considered with a view to ensuring that exports of waste which do take place are legitimate, and that they will not give rise to problems when exported.

It should be noted that effective enforcement of the existing legislation can provide a driver to improve the quality of materials collected for recycling. It is also important to ensure that 'sham' operations are prevented from flourishing at the expense of investors in the domestic market who have established viable waste treatment operations.

7.0 Sequencing and Dependencies

The aim has been to deliver a package of Recommendations which is coherent. There are linkages across policies, and whilst many Recommendations can be seen as providing 'a menu', most will have consequences for one or more of the other Recommendations, and so the measures need to be seen in the round.

Some have commented that this review has held matters up in respect of decisions regarding investments going forward. The sooner decisions are made regarding which Recommendations are to be taken forward, and which are not, then the less likely there are to be any additional hold ups. There are, however, some very clear messages in the Recommendations. These include, for example, that generally, shifting management of waste into the upper tiers of the hierarchy is a good idea.

Most of the recommendations are capable, at least in principle, of being implemented urgently, and indeed, it can be argued that some *need* to be. The time which it might take to deliver on some of the Recommendations may be longer for some than for others.

7.1 Urgent for Announcement

Those which need to be announced, and deserve to be announced quickly as a matter of policy, are as follows (in each case, we suggest the recommendations upon which they are based):

RECOMMENDATION 4:

The following targets residual household waste are proposed:

- Less than 250kg per inhabitant by 2011;
- Less than 200kg per inhabitant by 2014;
- Less than 175kg per inhabitant by 2017; and
- Less than 150kg per inhabitant by 2020.

These targets would apply to each local authority responsible for waste management.

In order to give local authorities an incentive to ensure that improvement in this regard is delivered, we propose the following incentive mechanism, adapted from an approach used in Wallonia in Belgium:

4. Where a local authority exceeds its allowance, a levy will be applied to the total excess residual waste;
5. We suggest that the levy is applied at the level of €50 per tonne of excess residual waste. The levy rate should be announced in advance, but could be made flexible to deliver the right magnitude of incentive; and
6. The revenue received will be refunded back to all authorities who are below the target level. The refunds will be in proportion to the over-performance against the target (measured in total tonnes per authority).

This system is revenue neutral across the authorities and gives an incentive to all authorities to continue to improve against these target levels (so as to reduce the exposure to the levy, or to increase the revenues received in the form of refunds).

We expect these targets to lead – as in Walloon and Flanders in Belgium - to the widespread introduction of PBU (see also above). Despite the fact that this should be universal in Ireland at present, it still is not the case. The Irish implementation of PBU has not been without problems (see Annex 7), but once the standards of service are well defined, some of these problems should become of less concern.

These targets are most likely to be met if there is a commitment to introduce the residual waste levy as proposed (or similar – Recc 8), to implement the producer responsibility measures (Reccs 9 – 12), and to implement the requirements for biodegradable waste collection Reccs 1 and 2). They are complemented by the limit upon contracting under Reccs 20 and 21, and are likely to be made more achievable through Recc 22, requiring households to use the service. Arguably, Recc 23 makes matters slightly more difficult, but there are sound reasons for implementing such regulations.

RECOMMENDATION 5:

Commercial waste recycling rates should reach

- 55% in 2010;
- 60% in 2012;
- 65% in 2014; and
- 70% in 2016.

Significant under-performance against these rates in later years would be expected to lead to a broadening of the range of materials which businesses were obliged to separate at source, or, in exceptional circumstances, re-consideration of the levies mentioned below. This is because there appears to be little way of making the target 'stick' on any specific actor, or set of actors, so that this target should be one which is driven by policy and changes therein. Policy should be actively monitored and updated to ensure the target is met.

These targets are most likely to be met if there is a commitment to introduce the waste levy as proposed (or similar – Recc 8), to implement the producer responsibility measures (Reccs 9-12), and to implement Recc 3. They may also benefit from Recc 21 relative to the current situation.

RECOMMENDATION 6:

The target rates for the recycling of construction and demolition waste are:

- 75% in 2010;
- 80% in 2012;
- 85% in 2014; and
- 90% in 2016.

These targets should be considered as the levels which Ireland should aspire to, thereby recognising that such high targets *can* be achieved, and that policy will be

oriented to achieve these in future. Policy should be reviewed so as to keep matters on track.

These targets are most likely to be met if there is a commitment to introduce the residual waste levy as proposed (or similar – Recc 8), to implement the producer responsibility measures (Reccs 9-12, though the *additional* effect relative to the status quo is likely to be limited), and if Recc 7 is implemented.

RECOMMENDATION 9:

Where producer responsibility measures are in place, the principle is established whereby producers will be expected to be fully financially responsible for delivering the services required to meet their obligation. Sanctions should be applied in the event of non-compliance, with compliance being the subject of adequate enforcement checks.

7.2 Conditional Announcements

It makes sense to announce the intent to pursue Recc 19 only once it is clear what recommendations will be implemented. If this recommendation is not taken up, then clearly the RWMPs would need to be revised in line with those recommendations which are taken up. Furthermore, some of the major institutional changes which are recommended (Reccs 20-22), which would ideally be carried forward on the basis of discussions across the sector, would need to be implemented through existing structures.

RECOMMENDATION 19:

We propose that the RWMPs be replaced with one national waste plan. This would require a change in the Waste Management Act. We propose that the process of changing the law, and developing the Plan, should be initiated as a matter of urgency as soon as a decision has been taken as to which of the policy recommendations made in this document are to be taken forward. In the interim, whilst a National Plan is being developed around these policies, these policies would then guide the implementation of waste management at the local level in the intervening period. Planning decisions should reflect the policies being implemented.

The ultimate responsibility for developing a National Waste Plan would rest with the Minister. A Ministerial Programme Board chaired by the Minister and including representatives from DoEHLG, EPA, IBEC, IWMA, Cré, CCMA, the CIF, An Taisce and environmental NGOs, would be responsible for steering the Plan. The Minister would, however, still make the executive decisions.

7.3 Urgent for Implementation, No Dependencies

Those for which there are no dependencies, and which are urgent are:

RECOMMENDATION 1:

Legislation requiring that all collectors who collect household waste provide, within their service offering to households (either themselves, or through collaborating with other providers), the following:

- A) A collection of paper and card for recycling at least fortnightly, and no less frequently than the collection of refuse;
- B) A collection of textiles for recycling at least monthly;
- C) A collection of food waste at least weekly;
- D) A collection of steel and aluminium cans at least fortnightly, and no less frequently than the collection of refuse;
- E) A collection of plastic bottles at least fortnightly, and no less frequently than the collection of refuse.
- F) Either a collection of glass containers at least fortnightly, and no less frequently than the collection of refuse, or a network of bring banks with a density of at least 1 per 600 inhabitants:

The Brown Bin Circular has been implemented in a patchy manner – the intention would be to ensure this was implemented either through the Waste Collection Permit Regulations, or through a Section 60 Policy Direction. The former is preferable because of the greater force in law, but the latter might facilitate speedier implementation.

The funding of the packaging collections would be expected to be covered by funds generated through the producer responsibility scheme where the system was operated on an efficient basis (see below).

These clearly support Recc 4 and are intended to assist in meeting Landfill Directive targets.

RECOMMENDATION 2:

Legislation to ensure that all household waste recycling centres are equipped with facilities for the separate collection of garden waste and textiles. Reporting of performance at household waste recycling centres by the EPA suggests this is not yet the case. All civic amenity sites should also be required to charge for the delivery of unsorted residual waste in line with the principles of pay-by-use. This is more likely to be implementable through a Section 60 Policy Direction. Consideration should also be given to setting minimum standards for civic amenity sites covering other materials. As costs of residual waste treatment/ disposal rise, intensifying efforts to collect waste separately will *reduce* the costs of waste management.

Local authorities should ensure that sites are adequately staffed by trained individuals that help to maximise segregation. In addition, once local authorities take control of waste collection, they should ensure that charges for residual waste at civic amenity sites are aligned with those levied on households through PBU systems;

These clearly support Recc 4 and are intended to assist in meeting Landfill Directive targets.

RECOMMENDATION 3:

The Waste Management (Food Waste) Regulations, currently in preparation, will require commercial producers to avail themselves of a food waste collection service. This is an important measure and needs to be implemented swiftly, but with a view to ensuring that the necessary treatment capacity is available. The date at which the

Regulations enter into force will be important in terms of determining the degree to which there is an effect in 2010.

These clearly support Recc 5 and are intended to assist in meeting Landfill Directive targets.

RECOMMENDATION 8:

The proposed levy structure is set out in Table 6-2. The aim is to respect the principle of seeking to ensure that the environmental externalities are internalised.

There may be other novel technologies which need to be considered for inclusion within the levy structure. The principle of seeking to ensure that (relative) environmental externalities are reflected in the rates should be respected, and until such processes clearly demonstrate their performance in commercial operation, a default levy of €20 per tonne should be applied to the process itself.

It is important to note that the levy rates in Table 6-1 below take into account benefits from avoiding the generation of electricity from alternative fossil fuel sources. To this end, to the extent that other policy instruments give financial support to the generation of energy from such sources, it would be appropriate to increase the levies on those technologies which are the beneficiaries of such incentive schemes. This is entirely consistent with an approach to seeking to tax negative externalities and support the generation of positive ones.

This clearly supports Reccs 4 to 6 and are intended to assist in meeting Landfill Directive targets, as well as in delivering stronger incentives to prevent waste, as well as giving some additional incentive to the development of non-landfill infrastructure for dealing with residual waste. In essence, they also support the pre-treatment requirements being developed by the EPA.

RECOMMENDATION 10:

The targets under Article 11 of the Waste Management (Packaging) Regulations be increased such that in future, the minimum recycling target increases to 75% (up from 63.6% in 2007) by 2013.

In lieu of the fact that these targets will require active participation by all concerned, we suggest that the *de minimis* thresholds under Article 5 of the Waste Management (Packaging) Regulations should be abolished.

This should assist in meeting Recommendation 4 and 5, and to some extent, Recommendation 6 also.

RECOMMENDATION 11:

The recommendation, therefore, is to update the Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005 in line with the proposal for revised targets from the EU.

This should assist in meeting Recommendation 4 and 5.

RECOMMENDATION 14:

We recommend that disbursements from the Environment Fund should always consider the following:

- a) Where possible, funds are awarded in a competitive manner, and that there are criteria for evaluating the success of bids, and hence also, for evaluating the benefits of the revenue spend;
- b) In cases where there is no competition, local authorities should only be the sole beneficiary in cases where disbursements are not used to support any activity in which the public sector and private sector are in direct competition (for example, cleaning up old landfills, or in civic amenity site provision);
- c) In all cases where it is intended that the local authority may be a beneficiary, and where the private sector also provides the service under consideration, then the relevant funds should be made available to all relevant parties, preferably on a competitive basis, to ensure that disbursements deliver value for money;

This ought to ensure that the revenues from the Environment Fund should not distort competition in future.

This Recommendation complements Recommendation 15 below in seeking to level the playing field in areas where local authorities and the private sector compete. These Recommendations also complement Recommendations 20-22.

RECOMMENDATION 15:

We recommend, therefore, that in the context of ongoing review of local government finance, the law in relation to the treatment of local authorities for VAT be reviewed. In principle, the aim should be to achieve the following:

- To ensure that where commercial companies bid for tenders being let by local authorities for the provision of services to households, the cost of the services to households is affected by VAT in the same way as it would be if the service was provided by the local authority itself. Ways of doing this could include either allowing local authorities to claw back the VAT on, or exempt from VAT, the services provided to households;
- To ensure that where commercial companies and local authorities compete directly in the market, that the two services are treated equivalently from the point of view of VAT. One way of doing this would be to require local authorities to charge VAT to customers where they engage in what is effectively the provision of a commercial service.

RECOMMENDATION 16:

Appropriate purposes for the use of money from the Environment Fund are given in Section 74 (9) of the Waste Management Act. These are wide-ranging. The approach to awarding funds does not seem to be strongly targeted at addressing priority areas.⁷⁴ It also fails to recognise adequately the market context in which its support is given.

⁷⁴ For a review of issues regarding grant funding, see Annex 60.

It is clear that the short-term priority for waste management in Ireland is the treatment of source segregated biowastes. We propose that, subject to the levy rates under Section 6.4 above being implemented, a fund of at least €10 million is earmarked for 2010 and 2011 and 2012 to support the capital cost of the treatment to source segregated organic waste from the municipal stream. The fund needs to be developed in line with State Aid rules. The aim should be to set up a competitive scheme and invite bids for the fund, outlining clearly the evaluation criteria which will be used to assess bids. One of these should be to demonstrate how it is anticipated that the organic waste will be sourced. This Fund should be open to private and public sector alike.

Another priority area which should be considered for support under a competition is waste prevention. Quality initiatives from businesses and local authorities should be funded, as well as the work in delivering the National Waste Prevention Programme (though there are reasons why it might be favourable for long-term commitments to be made from central government regarding the NWPP).

Other funding needs clearly exist, such as dealing with legacy sites, and it is worth noting that Austria used revenue from its landfill levy to support the clean up of old sites.⁷⁵ Consideration should be given to supporting clean-up, though care needs to be taken to ensure such funds are well spent.

The activities supported by the Environmental Fund should be critically appraised periodically to ensure that the Fund is delivering value for money. In this respect, all awards ought to be made with a clear understanding of what the objectives are, how they will be delivered, the additionality (i.e. the change which will be delivered over and above the current situation) to be gained from the funding, and what (in the case of grant-supported projects and initiatives) is the 'exit strategy' to ensure they are sustained beyond the period of the funding award.

Recommendation 16 is intended to ensure value for money in the spend from the Environmental Fund. This is taxpayers money and at a time when financial constraints are pressing, there is an imperative to spend these funds wisely, not least since they are likely to increase in the short-term.

RECOMMENDATION 17:

The development of a National Action Plan for Green Procurement needs to be progressed with a degree of urgency.

Evidently, this should help to stimulate greater 'circularity' in the cycle of resource use. It has a role to play in, for example, the development of outlets for the products of composting and anaerobic digestion, so helping to deliver on the Landfill Directive targets.

RECOMMENDATION 24

Incentive mechanisms need to be examined to ensure that they are correctly aligned with the options for use of biogas, in terms of their environmental performance. This

⁷⁵ See Annex 52.

needs to be addressed swiftly to ensure that projects which are in, or are approaching, development are incentivised to operate in the most beneficial manner.

Incentives for the generation of renewable energy have the potential to influence decision making. The suggestion is that incentives should be aligned with externalities.

7.4 Aim for 2011 Implementation, No Dependencies

The following require more work and will not be capable of being implemented immediately.

RECOMMENDATION 7:

We propose that for:

- **New residential development of 10 houses or more;**
- **New developments other than above, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 m²;**
- **Demolition/renovation/refurbishment projects generating in excess of 100m³ in volume, of C&D waste;**
- **Civil Engineering projects producing in excess of 500m³ of waste, excluding waste materials used for development works on the site;**

A site waste management plan would be mandatory, and that the plans should demonstrate that the following recycling targets will met

- **80% in 2011;**
- **85% in 2012;**
- **90% in 2014; and**
- **92% in 2016**

Bonds would be payable by developers, to be determined in the detailed working up of these proposals.

This seeks to support Recommendation 6. It will be supported by Recommendation 8.

RECOMMENDATION 18:

Bottom ash should be treated as hazardous until it has been demonstrated otherwise. The EPA will need to develop protocols for sampling and testing of bottom ash and the assessment of H14 ecotoxicity to demonstrate whether the waste is hazardous or not. This should be reflected in operating licences for facilities producing such ash.

RECOMMENDATION 12:

We recommend that producer responsibility initiatives are extended to newspaper and magazines as well as junk mail and other forms of direct marketing.

This would support Recommendation 4, as well as potentially providing revenue in support of local authority collections in line with Recommendation 9.

7.5 Linked Policies

The main linked policies relate to Reccs 20, 21 and 22. These are effectively a package. Recommendation 22b, however, can and should be implemented independently of any decision regarding 22a. Recc 22 should definitely NOT be implemented prior to 21 taking full effect. Reccs 21 and 22 are important as they make it more likely that Recc 4 targets will be achieved, and they allow for a more holistic and coherent approach to the household waste management system. The enable targets to be placed upon local authorities since it gives them responsibility to deliver these.

RECOMMENDATION 20:

We recommend that the Waste Management Act is amended such that household waste collection is made the responsibility of local authorities. Household waste may be collected only by the local authority itself, or by an enterprise acting on its behalf. As under the existing Section 33 of the Waste Management Act, local authorities would be entitled to deliver services jointly (see Figure 6-3). We suggest that this change makes clear that the law will enter into force at a later date (we suggest 2014). It is important to i) legislate for this early and ii) allow time to elapse before the law enters into force

RECOMMENDATION 22

We recommend that once the recommendations under Section 6.12 have been implemented, all households will be required to use, and pay for, the waste collection service provided by the local authority or its contractor (subject to waivers etc.).

RECOMMENDATION 21

- a) **We recommend that the Waste Management Act also makes clear that no local authority should enter into a contract for waste collection, treatment or disposal for a quantity of waste which exceeds the quantity which it, or a contractor acting on its behalf, can reasonably expect to be in direct control of. We suggest that this change makes clear that this aspect of the law will apply to all contracts extending, in the case of collection, more than 2 years beyond the entering into force of the above clause, and in the case of treatment, more than 7 years beyond the entering into force of the above clause. The distinction between 'contracting' and 'a facility's capacity' needs to be made clear.**
- b) **For the avoidance of doubt, we recommend that the Waste Collection Permit Regulations be amended such that it be made clear that commercial waste cannot be directed to a *specific* facility of any type, and that as far as residual commercial waste is concerned, the treatment / disposal of the material would be expected to be determined by the market and the relevant legislation in place (the levy described under Section 6.4 is unlikely to make landfilling an attractive option). This measure should apply as soon as possible after drafting.**

7.6 Less Urgent Measures

Recommendations which could be considered in due course and would appear to be less urgent are as follows.

RECOMMENDATION 13:

It is recommended that consideration is given to the wider implementation of product levies, principally targeting disposable products in widespread use. Suitable targets – recognising that alternatives are available - would be, for example, razors and cutlery. Here, the alternatives are readily available.

For some items, depending upon the feasibility of establishing take-back, or separate collection networks, it may be useful to consider such levies as a supporting measure in the context of producer responsibility – obligated producers would be subject to the levy if they fail to meet the targets set under the producer responsibility scheme. This approach has been used in the context of ecotax legislation in Belgium (see Annex 30).

7.7 Already in Place

The following recommendation has effectively been implemented.

RECOMMENDATION 23

Legislation should be implemented to make clear that backyard burning of waste is illegal.

8.0 Expected Results

The results of implementing the above policies would be expected to include an improvement in environmental quality and the creation of new jobs. The cost implications, relative to the business as current situation, are difficult to discern, but it seems reasonable to state that they will not necessarily increase, and the prospects for cost savings to be made are significant.

If one considers the matter from the current perspective, and in reference to Figure 2-2, the principle externalities which are internalised by existing policy are:

- A fraction of the externalities from landfilling;
- A proportion, possibly a considerable one, of the externalities of vehicle transport (involved in collection) through fuel duty; and
- For some treatments, the benefits associated with generating energy from non-fossil sources.

Some payments, such as the payments made by Repak, do act to internalise some of the benefits of the recycling of packaging materials (though they do so at different rates in the commercial and household sector, reflecting the marginal financial costs of acquiring these materials from the different waste streams).

The majority of the remaining externalities are not internalised in current decisions. Evidently, the differential external benefits associated with switching waste away from residual waste treatments, especially landfill, and into recycling routes are considerable, though they appear smaller for biowaste treatment options.⁷⁶

The recommendations aim to internalise the negative externalities of waste management, whilst seeking to set targets and incentivise outcomes that are likely to capture more of the external benefits of recycling.

Some may argue that the report does not extend sufficiently far in respect of waste prevention. Waste prevention is clearly a matter which must be pursued with some vigour, not only for its private benefits, and because the best form of wasting is wasting less, but because, especially with materials such as food, there is growing evidence that whatever the costs or benefits of managing the material as waste, the external benefits of prevention appear to be very high indeed.

There is a growing body of evidence, which looks to be 'no longer anecdotal', which suggests that the targeted collection of food waste may sensitise populations to their levels of food waste, and leads to a reduction in the quantities wasted. In Somerset in

⁷⁶ Strictly speaking, it would be incorrect to subtract externalities associated with residual waste treatment from the benefits of recycling as the externalities of residual waste refer to the effect of treating tonnes of mixed waste, whereas the recycling related externalities are associated with the effects by specific material. Furthermore, anecdotal evidence in respect of food waste collections suggests that introducing these may have the effect of preventing waste generated

the UK, this effect has been reported as high as 25%. To put this in context, where WRAP estimate that around 4.5 tonnes of carbon dioxide are saved for each tonne of food waste prevented, then for each household, close to 1 tonne of carbon dioxide could be saved through food waste prevention alone if dedicated food waste collections are offered to households.

In addition, the avoided costs of disposal should drive waste prevention, as well as recycling. Businesses will find that the residual waste levy should stimulate further intensification of ongoing waste prevention activities. Finally, the residual household waste target is specifically intended to stimulate prevention as well as recycling and this is a key reason for setting this type of target rather than a household recycling rate target.

The principle effects of the changes, therefore, relative to what might be considered business as usual would be expected to be an increase in recycling and composting / digestion at the expense of non-landfill residual waste treatments, with some stimulus also provided to waste prevention. Business as usual now *includes* the EPA's Pre-treatment Guidelines, so that by 2016, no municipal waste could be landfilled without first being stabilised through biological treatment. As a result, the principal effect of the proposed changes in policy would be to increase recycling and composting / digestion at the expense of other forms of residual waste treatment, including incineration, but possibly also, MBT (this depends upon one's view as to what the expected effect of the Pre-treatment Guidelines would be on the resultant pattern of residual waste treatment).⁷⁷

In terms of costs, the implications are clearly complex. A key issue to highlight, however, is the potential effect on the cost to households of waste collection services. The current costs are high. It does not appear fanciful to suggest that these costs could fall by €50 per household per annum, and possibly more, in some areas, as a consequence of moving collection into the control of local authorities and improving the efficiency of service delivery. Where this includes contracting out to the private sector, the quality of the approach to procuring services will, undoubtedly, have a major influence on the extent to which the potential savings available to households might be realised.

Crucially, the existing tensions in the market might be resolved. The intention is to make a sharper distinction between:

1. The area of waste management where the market is to reign free - the non-household sector - the aim being to steer this market through relevant policy instruments to give some certainty to the market (requiring sorting of a range of materials, and using a levy to internalise externalities of waste treatment); and

⁷⁷ We are not aware of any modelling that has taken place in respect of this. Evidently, the effect of the pre-treatment guidelines will be influenced by the nature of any residual waste levy.

2. The area of waste management where the market is to be managed more through contracted flows of material – the household sector – the aim being to improve the economics of service of provision.

There will be short- to medium-term disruption, but the medium- to long-term benefits are likely to justify this change.

8.1 Greenhouse Gas Emissions and Environmental Benefits

Greenhouse gas emissions from Ireland were reported as 69.2 million tonnes in 2007.⁷⁸ The emissions inventories are as reported under the United Nations Framework Convention on Climate Change under guidelines prepared by the Intergovernmental Panel on Climate Change (IPCC).

The effects of waste management on climate change inventories are complex, and are affected by whether or not primary materials are imported or produced domestically, and on whether secondary materials are exported or reprocessed domestically. Because of the way climate change emissions are reported under national inventories, the effects of changing waste management practices on global climate change and the effects upon inventories will be different. These differences may well be rendered less significant in the event that, in due course, nations agree to develop a more integrated global market for 'carbon' and other greenhouse gas emissions, though the prospects for this are not immediate.

Using figures from Annex 63, we have estimated that the potential annual benefits by 2016, in terms of global climate change, of the policies mentioned (relative to 2007 performance in respect of recycling and composting, and relative to the situation where all residual waste is treated prior to landfilling) will be of the order:

- 0.9 million tonnes CO₂ equivalent from the increased recycling of dry recyclables;
- slightly over 200,000 tonnes CO₂ equivalent associated with food waste prevention;
- a net contribution of around 240,000 tonnes CO₂ equivalent from biowaste treatment; and
- avoided emissions from residual waste treatment of the order 0.46 million tonnes CO₂ equivalent.

This gives net emissions of the order 1.42 million tonnes CO₂ equivalent. These figures include all sources of carbon, fossil and non-fossil, demonstrating real benefits to society.⁷⁹

⁷⁸ EPA (2009) *Ireland's Greenhouse Gas Emissions in 2007*, Johnstown Castle Estate, Wexford: EPA, 15th April 2009.

⁷⁹ These figures do not take into account any effect, in terms of additional carbon sequestration, which may result from changes in the forest stock as a result of increases in recycling. One USEPA study (USEPA (2002) *Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks*, EPA530-R-02-006, May 2002) suggests that this is highly significant, and if the

These emissions relate to the *municipal* waste sector alone. There would be expected to be additional benefits from the construction and demolition waste sector. Even so, those savings in GHG emissions derived from municipal waste alone are highly significant in the Irish context.

As regards wider environmental benefits, in the year 2016, we estimate that the changes set in train would generate a net environmental benefit in the year of the order €77 million from the municipal waste stream. We were asked by many during the course of this study to carry out a cost benefit analysis of every measure being considered. This would clearly not have been possible in the time available, and does not sit well alongside criticism that the review itself was leading to delays. However, the benefits of the package – equivalent to around €50 per household – suggests that additional costs are unlikely to outweigh these benefits. The avoided disposal costs in Ireland are already sufficient to drive recycling to high levels. In the commercial sector, as long as service offerings are priced so as to allow users of separate collection services to benefit from the avoided costs of refuse collection and disposal, costs should be kept in check. There will, however, be effects in respect of the transition from one market situation to another, and this issue needs to be given careful consideration in the very near future.

8.2 Employment

There are relatively few recent studies which incorporate a comprehensive survey of the potential gains in employment from waste management. The effective switch in the management of waste from landfill to recycling and composting / digestion would be expected to create additional jobs, not all of which would necessarily arise in Ireland.

We have estimated jobs created only from the collection and sorting industries, and from the composting and digestion of organic wastes. We have estimated these net of jobs which would be lost in the residual waste collection and disposal side. Hence, these are 'net jobs' from the waste management switch. We estimate a figure just over 300 for the municipal waste changes alone.

To the extent that Ireland does develop additional domestic reprocessing industries, one would expect these employment figures to increase.

8.3 Financial Costs

There are just under 1.5 million households in Ireland. More than 1 million of these avail themselves of household collections. More efficient procurement and provision of household collection services should be capable of reducing charges by a figure of the order €50 per household, perhaps more in some areas, and less in others. This amounts to a total net private benefit of the order €50 million. These gains are not

estimate was used in these calculations, additional benefits would be of the order 0.8 million tonnes CO₂.

assured, but it is far from fanciful to imagine that they could be achieved in due course.

In the construction and demolition sector, there are measures proposed which might appear to be imposing new costs. However, the net financial position of developers may actually improve as a consequence of the improved planning for, and implementation of, waste management practices at major sites. The experience in other countries has been, where construction and demolition wastes are concerned, that such planning often brings with it financial as well as environmental benefits (see Annex 43).

There will be some additional costs in terms of residual waste management. However, to the extent that these effectively seek to internalise environmental damages, these are justified from the perspective of ensuring that the net costs and benefits to society are accounted for in future decisions regarding waste management. It should be noted that the environmental benefits of recycling – highlighted in Figure 2-1 above – are not captured at present in any policy instrument. As such, any additional costs which might occur in respect of recycling should also be set against the environmental benefits which might be derived from the activity, albeit that some of these benefits might not accrue directly to Ireland itself. As discussed above, the benefits are likely to be significant.

There are some actors who might appear likely to experience additional costs, such as those who are obligated under producer responsibility. Here, the effects are complicated. The producers themselves may face increases in cost, but in the case of packaging, for example, the extent of any increase depends on the extent to which collection services can be re-optimised to be made more efficient. In the case of new producer responsibility measures, again, some actors will face new costs, but the net change in cost of dealing with the material may not be significant where collection systems are efficiently designed. The principle effect of the changes we have proposed for producer responsibility should be to shift the *distribution* of cost such that the costs of dealing with specific materials are visited upon the targeted producers rather than those paying for the waste management service. To the extent that targets are increased, as for packaging, then unless it could clearly be demonstrated that 60% recycling constituted some ‘rather-difficult-to-demonstrate’ optimal situation from the perspective of collection of packaging for collection, then it seems reasonable to ensure that as more of this material is recycled, financial responsibility for this rests with the obligated producers.

Commercial waste producers may find themselves facing higher costs, especially in the short term where food waste collections are implemented, and especially if there is a dearth of treatment capacity. Again, there are reasons to believe that such additional costs can be kept to a minimum as long as biowaste treatment facilities are operating in a competitive environment, and where collection systems offered to commercial waste producers enable the producers to benefit from the avoided costs of collection and treatment / disposal of their residual waste. Once externalities from residual waste treatment are internalised, the rationale for separate collection will be enhanced for collectors, and as long as this is reflected in pricing structures, also to producers.

There will be an increase in the costs of dealing with bottom ash if only through the costs of sampling and testing (if these are demonstrably non-hazardous). Where they are hazardous, additional costs would be expected to arise, but these would be arising, effectively, from a more correct implementation of already existing law.