A treatise of the current and future waste management scenario in Ireland and in particular in the Midland s Waste Management Region

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On Behalf Of: Glanpower Ltd

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Executive Summary:

Waste Management in Ireland is in a state of flux at present. We have the proposed building of an incinerator in Poolbeg, Ringsend Co. Dublin which should take in waste approximately 600,000T from all over the country including Dublin and the Indaver Ireland incinerator at Duleek Co. Meath approximately 200,000 T again from the North East Region plus theDublin Region. We have adequate landfill capacity for almost 33% more waste than we generate annually and because of these factors we have no incentive to get better. At a time when we are supposed to rationalising landfill availability we give a permit to Nevitt landfill to dispose of in-excess of 300,000T of waste per annum. We need to divert organic waste from landfill to meet the requirements of the landfill directive and we are being instructed by government policy that the way forward is through Mechanical Biological treatment of our waste. This involves the separating out of the organic fraction of our waste and anaerobically digesting or composting the organic residual and utilising the remaining residual material in waste to energy plants. Glapower are proposing to facilitate this locally to the midlands region and ensure that this material does not need to be shipped overseas for energy creation elsewhere. The establishment of the proposed infrastructure i.e. MBT plants, composting facilities and efficient waste to energy facilities is of paramount importance in the successful implementation of any proposed philosophy and the

government at present require private entities to help deliver on these objectives. Glanpower are using private capital to implement an efficient clean infrastructure to do this.

Waste generation figures suggest that regionally generated waste volumes will support the establishment of the facility however Glanpower would not wish to have regional restrictions imposed on it if waste can travel freely to all other forms of disposal namely landfill. Market forces have dictated that waste in Ireland is managed nationally and waste will travel to the point of least expense. Until strict regulations exist for the inter-regional treatment and recovery of waste Glapower would be at a competitive disadvantage were it restricted to regional intake.

The Glanpower proposal fits the requirements of planning policy and also those of the regional waste management plan and the site location is central to the region.

If government targets are to be met regarding the management of waste the Glanpower proposal will go a long way to helping the region achieve landfill diversion targets and stability for the future in waste management.

1.0 Introduction:

Waste Management in Ireland is currently in a transitionary period where there is a requirement to move away from conventional waste management practices and embrace the principles of sustainability and incoming European Legislation. This requires a sizeable shift in the way in which material is collected and also in the methodology by which we recover, re-use, recover and ultimately dispose of waste materials Nationally. The proximity principle in general will dictate that we must in future handle our own wastes however a

less stringent interpretation of regionality within Ireland will assist in teh roll-out of a more integrated and sustainable waste management infrastructure

This Report will review the current waste situation in Ireland and assess the infrastructure available to accommodate the waste streams being generated.

In fulfilment of Phase 1 of the establishment of Glanpower as a leading Energy Provider in Ireland partly through the modicum of Energy-from-Waste the report will address specifically the Midlands Waste Management area and will review the potential of the area to support the types of innovative technologies being proffered by Glanpower.

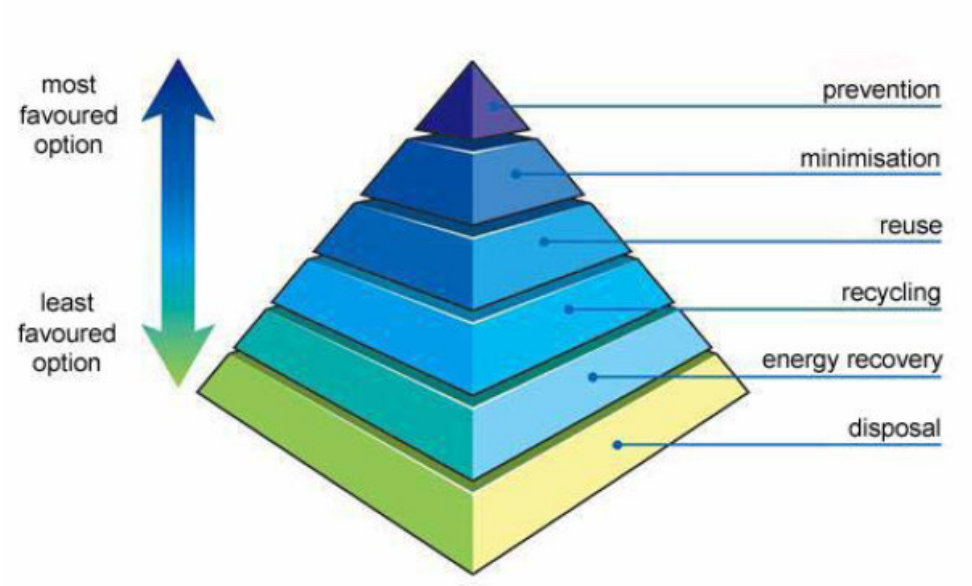
2.0 Waste Management in Ireland:

2.1 A Review of Waste Management Policy in Ireland

Irish waste management has made enormous strides over the past decade. The statistics tell a story of impressive improvements in performance in many areas, whilst some of the improvements are not so readily revealed though appeal to statistics alone (for example, with regard to the effects of closing down old 'dumps'which posed a threat to the environment).

The changes which Ireland has made have been, to a considerable degree, motivated by policies emanating from Europe. Much focus tends to fall upon the so-called Producer Responsibility Directives in this regard, yet the impact of changes to the operation and regulation of landfills has also been significant. This has increased the costs of disposal, and thereby increased the benefits associated with avoiding disposal (through prevention, re-use, recycling and alternative treatments). Recycling,in particular, is likely to have been incentivised by the escalation in landfill gate fees. It is key regarded as key that the landfill fee is maintained at a level commensurate with incentivising recycling.

The overall policy of the Government in relation to waste management is set out in An Action Programme for the Millennium and related policy documents. It is firmly grounded in an internationally recognised hierarchy of options:



- Prevention;
- Minimisation;
- Reuse/
- Recycling;
- Energy Recovery
- Environmentally sustainable disposal of waste which cannot be prevented or recovered.

There has been a very defined pathway for government thinking as regards waste policy and it has been brought to bear via the following documents in the following timeline:

DoELG (1998)	*Waste Management: Changing our Ways, September 1998.*
DoELG (2002)	*Preventing and Recycling Waste: Delivering Change, March 2002.*
DoEHLG (2004)	*Taking Stock and Moving Forward, April 2004.*
DoEHLG (2006)	*National Biodegradable Waste Strategy, April 2006.*
EPA (2009)	*National Waste Report 2007, Wexford: EPA.*
EPA (2009)	*National Waste Report 2008, Wexford: EPA.*

Government policy in relation to waste management is set out in the policy statement entitled “Waste Management: Changing Our Ways” published by the Department of Environment and Local Government (DoELG) in September 1998.

The document highlights the fact that the *"general objective is to stabilise, and in the longer term reverse, the growth in waste generation, though it is recognised that achievement of this objective will require determined and ambitious measures from producers and consumers, as well as local authorities."*

However it outlines that in the short term *"more sustainable practices need to be applied in relation to the management of waste arisings."*

The policy document sets out a number of targets for waste management which are very important in the context of the proposed development and include:

- the diversion of 50% of overall household waste away from landfill;
- a minimum 65% reduction in biodegradable wastes consigned to landfill;
- the development of waste recovery facilities employing environmentally beneficial technologies, as an alternative to landfill;
- recycling of 35% of municipal waste;
- recycling at least 50% of C&D waste within a five year period, with a progressive increase to at least 85% over fifteen years; and
- rationalisation of municipal waste landfills.

On 5th April 2004, a further national waste management policy document – **'Waste Management: Taking Stock and Moving Forward'** was launched. 'Taking Stock' assesses progress on the implementation of a variety of aspects of the Waste Management Act 1996 over the preceding five years. It sets down new challenges in light of the findings of this assessment.

Section 3.5.2 of this policy document address waste to energy and thermal treatment options for the management of wastes. It notes that most of the waste management plans developed in Ireland envisaged a role for some sort of waste to energy or thermal treatment as part of the overall set of waste management measures to be adopted. The table in the same Section of the policy document outlines the progress at that point that has been achieved in terms of waste to energy / thermal treatment. It was highlighted at the time that the Midlands Region had thermal treatment provided for in the Waste Management Plan for the Region.

The document also notes that *"While most Plans envisaged the provision of thermal treatment as a long-term objective, the time that can be required in order to procure such projects (they are envisaged for delivery through PPP's) and to complete the necessary planning and environmental licensing processes means that those regions which have yet to show progress in this regard need to initiate action in the shorter-term."*

It is generally accepted in EU and National waste policy that diversion away from landfill is of utmost importance, with landfill being at the bottom of the waste management hierarchy. This sentiment is echoed in this policy document where it states that *"While the Plans have set targets designed to achieve the national policy objective of maximum*

diversion of waste away from landfill, this can only be achieved if the other aspects of the Plans (i.e. recycling and thermal treatment) are fully implemented."

Furthermore, it is stated that *"The importance of full and timely delivery on the recycling and thermal treatment objectives of the Waste Management Plans cannot be overstated. The alternative scenario would see greater pressure than expected on landfill capacity for longer periods of time, requiring the adoption by local authorities of responses which provide further short-term solutions, without prejudicing the achievement of the longer-term goal of achieving maximum diversion from landfill."*

Key Point 10 in Section 4.5.6 of 'Waste Management: Taking Stock and Moving Forward' outlines the policy in relation to waste to energy / thermal treatment:

"Thermal treatment, with energy recovery, has a role to play as one element in the integrated approach to waste management; facilities will be subject to stringent controls through licenses issued by the EPA and through subsequent licence enforcement and facility monitoring."

The Irish Government in its programme for Government have stated "*"We will ensure that the landfills currently provided for under regional waste management plans should be the last to be constructed for a generation".*

So is the Government policy set on the path of Waste-to-Energy per say ?

The answer if reading between the lines for each waste management strategy in the country is that waste-to-energy is supported by each waste management region and in their Regional Waste Management Plans each region has stipulated the volume or size of the facility that should be constructed.

Midlands Region Waste Management Plan 2005 -2010:

In order to support an integrated approach to waste management in the Region, after waste prevention and minimisation, and maximum recycling measures have taken place, nonhazardous residual waste (municipal, industrial and agri) from the Region shall be directed to thermal treatment in preference to landfill in line with the EU waste hierarchy. It is estimated that a minimum capacity of 150,000 tpa will be required.

South East Region: 2005 - 2010

7.5 Waste Treatment
Residual Waste Treatment
As our need for energy increases, the recovery of energy trapped in waste materials can benefit the environment by replacing energy from non-renewal sources.
Even after extensive recycling, the residual waste stream still has a high combustible content available for energy recovery. It is a specific policy of this plan to recover and beneficially reuse this energy from the combustible residual waste stream.
The proposed integrated waste management facility, for the region, would generate 128 GWh/annum, enough to meet the needs of 15,000 households.
The Policy is to
• Support/promote/provide the recovery of energy from waste, which includes:-
• Landfill gas recovery and utilisation.
• Thermal treatment with energy recovery either for electricity generation or combined heat and power.
• Anaerobic digestion systems with recovery of biogas from agricultural waste streams.
• provide for an integrated waste management facility with associated waste transfer systems.
• Development of integrated waste treatment services including thermal treatment. Accordingly the development of other material recycling/recovery facilities accepting residual waste streams.
• Provide an integrated waste facility incorporating thermal treatment and energy recovery by 2011
• The thermal treatment facility would have a capacity chosen to meet the residual waste disposal needs of the South East Region while also taking cognisance of therequirements for

Connaught Region: 2006 – 2011

Provide Thermal Treatment Service to the Region as part of an integrated approach to waste management in line with EU and National Policy. (It is estimated that a Thermal Treatment Plant with a capacity of c175,000 tonnes per annum will be required to service the region by 2016.
The provision of thermal treatment capacity is a critical objective of the Plan to ensure that the requirements of the Landfill Directive (1999) can be met and to provide a more sustainable option for residual waste than landfill. Other thermal options will also be considered and the local authorities will be receptive to the use of other sources of fuel used by industry such as meat and bone meal (MBM), poultry litter and spent mushroom compost.

Replacement Waste Management Plan for Limerick/Clare/Kerry Region 2006-2011

"In order to support an integrated approach to Waste management in the Region, after minimisation and recycling measures have taken place, residual waste shall be directed to thermal treatment in preference to landfill, in line with the EU waste hierarchy. Thermal treatment is an essential element to meet the landfill diversion targets included in the plan. It is estimated that a minimum thermal treatment capacity of 150,000 tpa will be required to meet the needs of the Region. This policy will encourage industry to substitute the use of fuels with alternative fuel sources."

The policy for all of the other waste regions is along the same lines and discussion with stakeholders does not lead the author to believe that any of the newly drafted plans will significantly alter this perspective. An integrated approach to the attainment of the goals for meeting the Landfill Directive is a key governmental requirement and at present a mix between Biological Mechanical treatment and energy recovery via thermal treatment appears to be potentially the best long-term strategy for Ireland.

The Government have however shifted policy in favour of MBT (Mechanical Biological Treatment) of municipal or organic bearing waste streams in order to comply with the terms of the landfill Directive.

The Agreed Programme for the current Government states:

"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."

More recently, the Minister for the Environment, Heritage and Local Government has made clear his intention to ensure MBT plays a more prominent role in Irish waste management than had previously been envisaged.

Key in light of what Glanpower are doing is the tenet “as one of a range of technologies”. The key reason being that strategically the mechanical biological treatment of waste will not stand up as a philosophy unless it is supported by Landfill (MBT + Product Stabilisation = Landfill possibly) or by some form of waste to energy. Again energy recovery from waste is preferred in the waste hierarchy over landfill and has been demonstrated on all levels to be more economically viable.

On 15/07/2010 the Minister for the Environment and Local Government publish a draft policy document highlighting the governments intentions for waste management policy into the future for the Country. It states “Its core objective is to put sustainability at the core of Ireland’s resource and waste management policy. It presents a paradigm shift in the approach to waste management in Ireland towards resource management with significant potential to add value and create jobs in the economy”. It is very clear that the aim of the government is to “move away from traditional landfill and mass burn incineration, towards higher levels of recycling and mechanical/biological treatment. Solid recovered fuel produced through such treatment methods can be used to displace fossil fuels, thereby reducing greenhouse gas emissions and supporting Ireland’s contribution to the global efforts to address the very significant and pressing challenge of climate change”. In lay man’s terms the government want to promote the segregation and collection of different waste streams at source and recycle and re-use the most part of the waste and recover energy where possible for all fractions. This policy is very supportive of the Glanpower etos as the residual fraction of waste for the mechanical biological treatment of waste material will be best utilised in a Glanpower Energy facility.

This draft statement builds on the commitments in the Programme for Government agreed in 2007 which clearly flagged a future for waste management that would seek to take advantage of the development of technologies such as Mechanical Biological Treatment (MBT), to ensure the achievement of maximum environmental performance. These commitments were reinforced in the Renewed Programme agreed in 2009 which undertook to use a resource management approach to waste and embed resource recovery and sustainable production and consumption systems in waste policy

While the policies of the past provided a strong foundation for significant improvement of the waste management landscape in Ireland by reference to best practice prevailing at the time, the intervening period has seen a significant evolution in the waste management sector and in international best practice in waste and resource management.

A number of policy initiatives were already in train in parallel with the preparation of the International Review and this draft policy statement for consultation, and have since been implemented. An issue of paramount concern for the Government, and one which is addressed also in the International Review, is the essential requirement to meet Ireland's targets for the diversion of biodegradable municipal waste from landfill under the Landfill Directive (1999/31/EC). New requirements have been introduced since 1 July 2010 under the Waste Management (Food Waste) Regulations 2009. These regulations relate to food waste arising in premises engaged in the supply of food to consumers and cover a broad range of commercial outlets, including shops, supermarkets, hotels, restaurants, pubs and office canteens. Producers of food waste at these premises are now required to segregate such waste, ensure that it is collected by authorised waste collectors and then recovered at an authorised recovery facility.

The diversion from landfill is also being supported by the 50% increase in the Landfill Levy to its current level of €30 per tonne, and further significant increases are to commence in 2011.

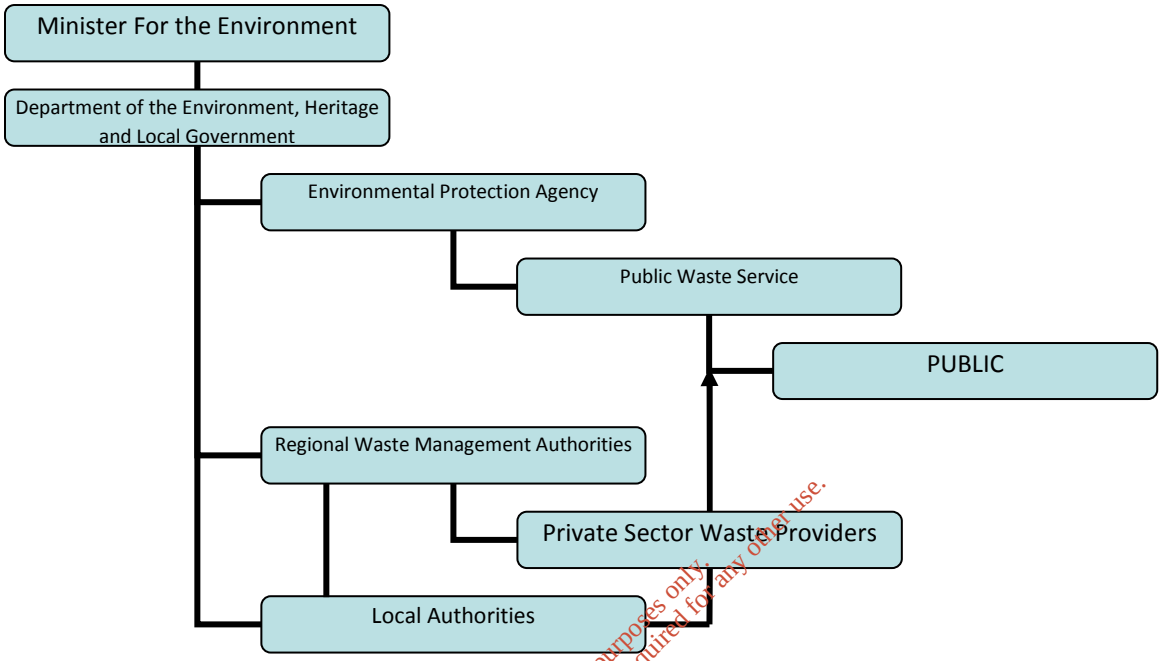
An important further change is the proposal to change the waste planning mechanism for the country. Planning of waste management has taken place in recent years on a regional basis. The regions were created through decisions of local authorities to group together to achieve improved economies of scale. However, as an island economy, the Irish waste market is peripheral in European terms and is relatively small in scale. The policy document accepts the findings of the International review that because of the above it may be better to look at developing a national framework for waste management policy. Thie Framework plan would be designed to "support the prioritisation of the foregoing principles in the waste management plans required under the Waste Framework Directive, which would continue to be developed and delivered at regional level".

In relation to the issue of direction of waste it is the proposed future government policy that "the direction of waste may only be made to ensure the maximum extraction of materials from the waste concerned and to derive maximum environmental performance". This would suggest that waste can be directed only to facilities higher on the waste hierarchy categorisation and would support the diversion of waste from landfill to recovery via energy from waste options.

It is key throughout the Governments proposed policy document that the waste is to be heretofore referred to as a resource and utilisation of that resource is key. The policy document stresses that the legislative changes must be cognisant of future technology and always strive to ascend the waste management hierarchy. This philosophy mirrors the philosophy of Glanpower is striving to maximise the energy from waste and contribute to landfill diversion targets and maximise residual re-use.

2.2 Responsibilities and Stakeholders

The key stakeholders in waste management in Ireland follow the following hierarchical structure:



The international review of waste policy commissioned by the government highlighted the lack of centralised joined up thinking in waste management in Ireland as a major flaw for the country. It doubts that the current system of Waste Management Regions is effective in achieving the coherency required to meet EU legislative criteria and also to enable the waste and energy sector to assist Ireland in meeting its commitments on climate change. In the recent High court decision in the case of Panda Waste V's Dublin City Council where Dublin city Council defended their right as perceived legislative custodian of waste for the region to divert waste to specific disposal / recovery outlets as it sought to reduce the environmental impact of current collection activities. The court ruled in favour of Panda waste and deemed that the Government had opened up the waste collection market to the private sector and hence it would be uncompetitive for the council (who also engage in the market) to be able to dictate the direction of waste flow. This decision has effectively changed the overall thinking with regard to the Local authority involvement in the waste collection business and as such they appear since then to be moving back a role of overseer.

The international review of waste policy also suggested that serious consideration is given to the establishment of a "Central Waste Board" which would decide National Policy in relation to collection and infrastructure. There is no indication that as yet that this will be implemented as policy.

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.

A recent study "International Review of Waste Management Policy: Summary Report, Department of Environment Heritage and Local Government September 2009" highlighted the hierarchy of responsibility for implementation of the waste management strategy for Ireland and was rather critical of the overall lack of responsibility for coherent joined up thinking nationally. It likens the current system of Regional waste Management Authorities to the former health boards and looking at the manner in which they conduct their business it is understandable to assume that there will never be a body ultimately responsible for waste management in any of the regions.

In general with each waste management region managing the waste infrastructure with each region and with each region being heavily reliant on landfill currently the onus has fallen to the private sector waste operators to become involved in the delivery of the methodologies and infrastructure required to handle the proposed volumes of waste in conjunction with the proposed policy measures as mentioned in section 2.1 above. This in effect makes the private sector one of the very key stakeholders in the delivery of waste management infrastructure for the country. The proposed system of levies coupled with the very vast mind set changes required in the country rto achieve the very ambitious diversion targets proposed by the government may lead to the country being legislatively prepared but infrastructurally under-prepared for future requirements. As it seem the key future key stakeholders in the waste industry in Ireland will be:

Government – to make the policy

National Waste body – to decide on the implementation of policy nationally

Regional waste management bodies – to implement and manage national policy

Local Authorities – to enforce regional waste management plans

Private Waste Contractors – to provide the infrastructure to facilitate policy

Public – to effect waste segregation at source to facilitate reuse of resources.

2.3 Legislative Framework for waste Management Policy in Ireland

All National Waste Management Policy in Ireland bears cognisance of the requirements of EU Legislation and transposes it into Irish National legislation. The key policy attitudes which have been responsible for the Irish Waste Management Legislative Framework are derived from the policy documents and reports below:

DoELG (1998) *Waste Management: Changing our Ways*, September 1998.
DoELG (2002) *Preventing and Recycling Waste: Delivering Change*, March 2002.
DoEHLG (2004) *Taking Stock and Moving Forward*, April 2004.
DoEHLG (2006) *National Biodegradable Waste Strategy,* April 2006.
EPA (2009) *National Waste Report 2007*, Wexford: EPA.
EPA (2009) *National Waste Report 2008*, Wexford: EPA.

The historical genesis and key responsibilities within this framework is listed below:

Waste Management Act 1996

The Waste Management Act, 1996 was enacted in May, 1996. This Act was subsequently amended by the Waste Management (Amendment) Act 2001 and the Protection of the Environment Act 2003. The main objectives of the Act are:

- a more effective organisation of public auth authority functions in relation to waste management, involving new or redefined roles for the Minister, the EPA and local authorities,
- enabling measures designed to improve performance in relation to the prevention and recovery of waste, and
- a comprehensive regulatory framework for the application of higher environmental standards, in response to EU and national requirements.

EPA Responsibilities:

- the making and regular review of a National Hazardous Waste Management Plan (NHWMP),
- integrated licensing of all significant waste recovery and disposal activities, including all landfills;
- the establishment and maintenance of a National Waste Database (1992 EPA Act),

- development of criteria and procedures for the selection, management, operation and termination of use of landfill sites (1992 EPA Act),
- authorisation of waste imports.

Major Local Authorities Responsibilities:

- the making and regular review of waste management plans (WMPs) in relation to non-hazardous wastes,
- authorisation and control of commercial waste collection activities (under forthcoming Regulations and using existing Bye-law powers),
- authorisation of waste exports (TFS) and monitoring of internal movements of hazardous wastes,
- authorisation of waste permitting of small scale recovery and disposal activities,
- ensuring adequate waste collection, recovery and disposal arrangements in their functional areas,
- general enforcement of 1996 Act (as amended)
- monitoring and inspection of waste activities generally, and
- application of nutrient management planning requirements.

The Minister's Responsibilities:

- issue policy direction to the EPA and local authorities regarding the more important aspects of waste management,
- make regulations, particularly in relation to measures to promote waste prevention and recovery, and
- promulgate a programme of in-house waste management for public authorities.

Waste Management (Amendment) Act 2001 (No 36 of 2001)

The Waste Management (Amendment) Act, 2001 was enacted on 17 July, 2001 and its primary purpose was to provide a legal mechanism by which the first Regional Waste Management Plans could be made.

- Section 4 of the Act, provides that the making of a waste management plan will become an executive (management) function, a change from the Waste Management Act 1996, where the power was a reserved (elected member) function.

The Act also provides for a levy on the landfill of waste, at an initial rate of not more than £15 (€19) per tonne.

Protection of the Environment Act 2003 (No. 27 of 2003)

This Act made a number of amendments to the 1996 Waste Management Act, but in relation to the primary purpose of the 2001 Amendment Act (re waste management plans), Section 26 provides that the review , variation or replacement of a waste management plan shall be an executive function

Other relevant Environmental Regulations are set out for waste management and bear reference to the following:

2008	Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations 2008 S.I. No. 524 of 2008 These Regulations apply to closed landfills where disposal or recovery activities are carried on.
2008	Waste Management (Landfill Levy) Regulations 2008 S.I. No. 199 of 2008 Lanfill Levy Regulations in respect of the disposal of waste at a landfill facility.
2008	Waste Management (Registration of Brokers and Dealers) Regulations 2008 S.I. No. 113 of 2008 Amends Waste Management (Licensing) Regulation 2004. These regulate waste contractors who arrange shipment of waste.
2008	Waste Management (Facility Permit and Registration) (Amendment) Regulations 2008 S.I No. 86 of 2008 Amendment Regulation to the Waste Management (Facility Permit and Registration) Regulations 2007
2007	Waste Management (Facility Permit and Registration) Regulations 2007 The processes and procedures for obtaining a waste management permit
2006	Waste Framework Directive 2006 A wide-ranging European document setting out a future vision of waste management
2006	Waste management (end of life vehicles) regulations 2006 A manual for the environmentally friendly disposal of end-of-life vehicles
2004	Waste Management (Licensing) Regulations 2004 A seminal document for organisations or businesses intending to set up a waste disposal site
2003	Protection of the Environment Act, 2003 Protection of the Environmental Act, 2003
2000	European Union Directive On Waste Incineration 2000 A directive detailing the necessity to limit emissions from waste incineration
1999	Council Of Europe Directive On The Landfill Of Waste 1999 A directive designed to minimise the use of landfills for waste disposal
1998	Waste Management (Permit) Regulations, 1998

	The processes and procedures for obtaining a waste management permit	
1996	Waste Management Act 1996	
	Act governing all waste management activities in Ireland	

Significant changes nationally will occur as a result of the EPA published guidance on municipal waste pre-treatment and, on foot of that guidance, proceeded to review the municipal waste landfill licences in the State and attach appropriate pre-treatment licence conditions. It is expected that this licence review process will be substantially completed by the end of 2009. The EPA pre-treatment guidance also dealt with the required reduction in biodegradable waste to landfill arising from the EU Landfill Directive (1999/31/EC), the first compliance date being in 2010. On account of this obligation, special attention has been given to municipal waste management in this report and, in particular, the biodegradable component. A key impact of the Landfill Directive obligations will be the availability of an increased tonnage of recyclables. The Market Development Programme (funded by the DEHLG) proposes to develop a range of support tools for the national recycling and recovery market.

Significant change to national waste management law arising from EU initiatives is also imminent. The EU published its new Waste Framework Directive (WsFD) at the end of 2008 (2008/98/EC), and this is required to be transposed into national law by 12 December 2010.

This new law will significantly influence waste policy in Europe for years to come. The WsFD reflects the EU waste policy direction set out in the current EU Waste Strategy. The stated long-term goal in the EU Strategy is for the EU to become a recycling society that seeks to avoid waste and which uses waste as a resource; accordingly, the Strategy places a strong emphasis on waste prevention.
The new WsFD consolidates and repeals the current Waste Framework Directive (2006/12/EC), the Hazardous Waste Directive (91/689/EEC) and the Waste Oils Directive (74/439/EEC). It also attempts to introduce greater legal clarity in relation to its scope; for example in the area of exclusions (what the directive does not cover), definitions, end-of-waste, and waste or by-products decisions. The new WsFD also introduces new or enhanced provisions in the areas of:

- Extended waste producer responsibility;
- Waste prevention;
- Waste prevention programmes;
- Biowaste management;
- Waste hierarchy;
- Product producer responsibility;
- Inspections;
- Enforcement sanctions;

- Separate collections for waste streams.

The Directive requires – where technically, environmentally and economically practicable – that, by 2015, there must be separate collections for paper, metal, plastic and glass.

The Directive also requires that – subject to BAT there must be separate collections of biowaste.

Moreover, the new Directive establishes certain targets:

• By 2020, there must be recycling and preparing for reuse of 50% by weight of discarded household paper, plastic, metal and glass.

• By 2020, there must be recycling, recovery and preparing for reuse of 70% by weight of discarded nonhazardous C&D waste.

These targets are in addition to existing EU recovery/recycling targets specified, for example, in the End of Life Vehicles (ELV) Directive (2000/53/EC), the Waste Electronic and Electrical Equipment Directive (WEEE) (2002/96/EC), the Batteries Directive (2006/66/EC), and the Packaging Waste Directive (94/62/EC).

3.0 Ireland Specific Waste Statistics

The Environmental Protection Agency (EPA) is responsible for producing national statistics on waste generation and management in the Republic of Ireland, including information on waste exports and imports. The objective of their annual report is to present the most up to date information available on waste generation and management in Ireland.

The National Waste Report 2008 is for the calendar year 2008 (published in 2009) and deals with municipal solid wastes (household, commercial and local authority cleansing wastes) and industrial wastes (reported every second year) generated and recovered/disposed in 2008. This report is the most recent report available to the author at the time of production of this document.

The key summary points nationally in relation to this report are:

- A total of 3,224,281 t of municipal waste was generated, a 5% reduction on 2007 figures;

- The recovery of municipal waste increased by 1% to yield an overall recovery rate of 37.5%.

- The disposal of municipal waste to landfill decreased by a corresponding 1%;

- The quantity of biodegradable municipal waste disposed at landfill decreased by 19% to 1,196,044 t; this leaves Ireland 280,000 t short of the first Landfill Directive target due by July 2010;

- Of the 2,091,709 t of biodegradable municipal waste available, 57% was consigned to landfill;

- Household waste generation dropped by 5% to 1,677,338 t, notwithstanding a reported population rise of c. 83,100 persons;

- Of the total managed household waste (1,556,879 t), some 26% was recovered;

- Commercial waste generation dropped by 5% to 1,477,397 t, of which 49% was recovered;

- Home composting increased by c. 7% to an estimated 36,713 t;

- The quantity of organic waste collected from household kerbsides doubled to 37,920t;

- A 2-bin service (residuals bin and dry recyclables bin) was provided to 95% of serviced households;
- A 3-bin service (residuals, dry recyclables and organics bins) was provided to 21% of serviced households;

- The private sector collected 57% of the 1,161,152 t of waste reported as collected from households;

- The recovery of non-hazardous municipal waste that took place in Ireland amounted to 22%;

- The UK remains the principal initial destination for Irish municipal waste recyclables;

- Due to the significant price reduction in the international recyclates market in late-2008, waste operators reported considerable volumes of mixed dry recyclables and segregated recyclable waste streams in storage at the end of 2008 (approximately 40,000 t more in storage than at the end of 2007).

Waste infrastructure

- A total of 31 active landfills accepted municipal waste for disposal;

- Local authorities reported that there were 96 civic amenity sites and 1,989 bring banks in operation compared to 90 and 1,960 respectively in 2007;

- The reported tonnage of waste brought to civic amenity sites and bring banks was 302,755 t, an increase of 1% on 2007.

The report concluded the following:

- The 5% decline in the generation of municipal waste mirrored the fall in Gross Domestic Product (GDP) between 2007 and 2008. The data also show that household waste generation fell despite a rise in population, and that recovery rates generally improved across most waste streams.

- Significant progress has been made in managing waste in Ireland, particularly in respect of municipal waste generation and management.

- There remains considerable effort required in relation to diversion of biodegradable waste from landfill.

- Ireland is well advanced concerning achievement of its EU recovery/recycling obligations in relation to a range of EU waste directives.

- Development of essential waste infrastructure continues to be a challenge in the State. Facilities for the separate collection of waste, for materials recovery/recycling, for treatment of the biodegradable proportion of municipal waste, for waste-to-energy etc. are underdeveloped or absent.

- Separate collection of waste, for materials recovery/recycling, for treatment of the biodegradable proportion of municipal waste, for waste-to-energy etc. are underdeveloped or absent.

- Using the Economic and Social Research Institute's (ESRI) Sustainable Development Model for Ireland (ISus) to forecast national environmental emissions and resource use up to 2030, it is estimated that the total volume of municipal waste is likely to increase quite substantially within the coming decade, necessitating future investment in waste management infrastructure.

The report recognised the following:

The diversion of very large quantities of food waste from landfill is a priority that must be addressed. Diversion of biodegradeable material from landfill is one of the high risk deliverables yet to be achieved in relation to the Landfill Directive criteria:

1999/31/EC	Landfill Directive	5(2)	(16-7-2006) 16-7-2010[16]	Biodegradable municipal waste going to landfills must be reduced to 75% of the total quantity (by weight) biodegradable municipal waste produced in 1995 (< 916,000 t)	+ 280,000 t	- Risk - Due July 2010
			(16-7-2009) 16-7-2013	Biodegradable municipal waste going to landfills must be reduced to 50% of the total quantity (by weight) biodegradable municipal waste produced in 1995 (< 610,000 t)	+ 586,000 t (est)[17]	- Risk - Due July 2013
			16-7-2016	Biodegradable municipal waste going to landfills must be reduced to 35% of the total quantity (by weight) biodegradable municipal waste produced in 1995 (427,000 t)	+ 769,000 t (est)[17]	- Risk - Due July 2016

The growing need for businesses to reduce costs in the current difficult economic climate underlines the need for continued support for resource efficiency and conservation

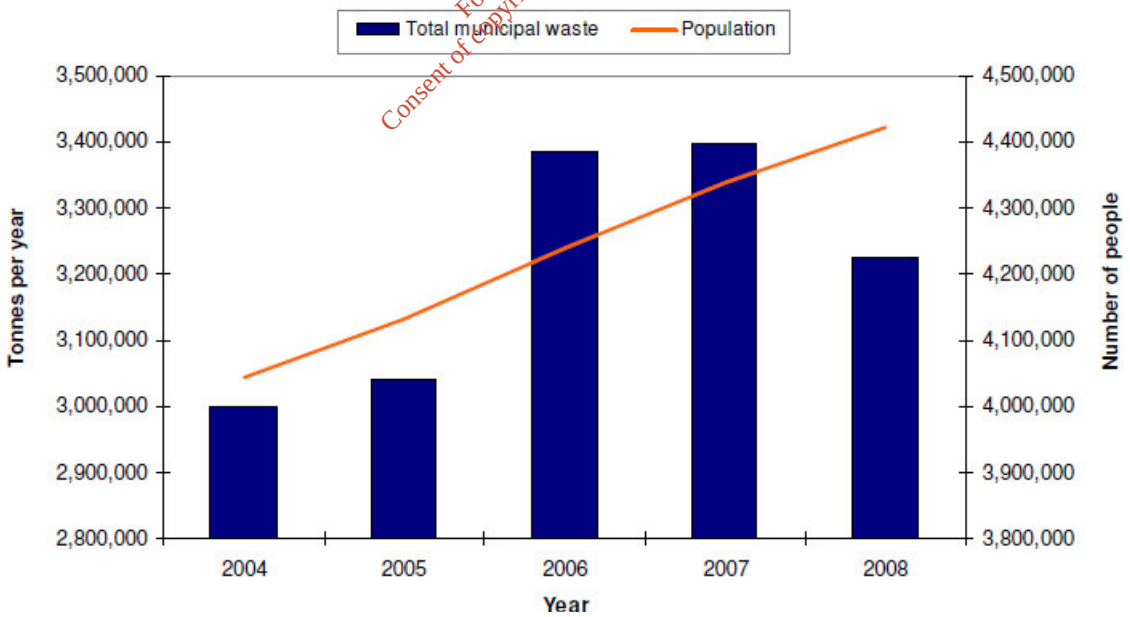
initiatives in relation to waste, water and energy, such as those provided under the National Waste Prevention Programme (NWPP).

Trends in Municipal Waste:

In 2008, it is estimated that a total of 3,224,281 t of municipal waste18 was generated in Ireland, a decrease of 5%on the 2007 figures. This is a significant downward shift. The graph below goes some way to assist in an explanation, indicating that between 2007 and 2008 the drop in waste generation in Ireland mirrored the fall in national Gross Domestic Product (GDP). These Central Statistics Office (CSO) figures also indicate a levelling off in personal consumption – household waste generation, *inter alia*, reflects personal consumption patterns.

	2003	2004	2005	2006	2007	2008
Household waste (t)	1,704,844	1,728,154	1,746,408	1,978,716	1,761,167	[19]1,677,338
Commercial waste (t)	1,141,264	1,202,824	1,235,629	1,327,068	1,549,075	1,477,397
Cleansing waste (t)	71,779	69,661	58,677	78,822	87,441	69,546
Total municipal waste (t)	**2,917,886**	**3,000,638**	**3,040,714**	**3,384,606**	**3,397,683**	**3,224,281**
% change	7.3	2.8	1.3	11.3	0.4	-5.1

(Source: recovery organisations survey; landfill survey, local authority survey)



Trends in generation of municipal waste, 2004□2008

The volume of future streams of municipal waste are intricately linked to the performance of the economy and its ability to move out of recession. The Economic and Social Research Institute (ESRI) using the ISus model, projected future volumes of *managed* municipal waste (i.e. excludes uncollected household waste) on the ESRI's *Recovery Scenarios for Ireland* , which projects that the Irish economy will grow quite rapidly in the 2011- 2015 period on the basis that the world economy recovers by 2010 and that the Irish economy improves its competitiveness position versus its trading partners. The projections for managed municipal waste are plotted in Figure 3, which shows that by 2010 managed municipal waste will have fallen back almost to 2005 levels. Over the 2008- 2011 period, managed municipal waste is expected to average at roughly 3 million tonnes per annum. Assuming an economic recovery in 2011 and beyond, it is anticipated that the volume of municipal waste will increase by 3-4% per annum. With that level of growth, the total volume of municipal waste to be managed will increase by roughly one million tonnes within 10 years. While there may be sufficient management capacity in the immediate future, the volume of municipal waste is likely to increase quite substantially within the coming decade, necessitating future investment in waste management infrastructure.

As stated previously, in 2008 3,103,820 tonnes of MSW were collected and managed in Ireland (not inclusive of illegal dumping). The quantity of municipal waste recovered in 2008 increased by 1% on that reported in 2007, while the landfill of municipal waste decreased by a corresponding amount. The recovery rate continues to exceed the national target of 35% recycling by 2013. The improvement in recovery rates occurred notwithstanding the significant price drop in the international recyclates market in the latter half of 2008. The total managed municipal waste arisings comprised 1,556,879 t of household wastes; 1,477,395 t of commercial wastes and 69,546 t of cleansing wastes.

Material	Quantity managed (t)[23]	Quantity landfilled (t)	National landfill rate (%)	Quantity recovered (t)	National recovery rate (%)
Total	3,103,820	[23]1,938,712	62.5	1,165,108	37.5

(Source: recovery organisations survey, local authority survey, landfill survey and EPA municipal waste composition survey[24])

The reported quantity of household waste managed by the waste industry decreased in 2008 from that reported for 2007, by approximately 4.2% to 1,556,879 t.

	2003	2004	2005	2006	2007	2008
Quantity disposed to landfill (t)	1,231,109	1,214,908	1,198,504	1,379,246	1,200,980	1,155,567
Quantity recovered (t)	185,753	285,872	344,964	393,995	424,510	401,312
Total (t)	1,416,862	1,500,780	1,543,468	1,773,242	1,625,490	1,556,879

	Quantity managed (t)	Quantity landfilled (t)	National landfill rate (%)	Quantity recovered (t)	National recovery rate (%)
Total managed household waste[40]:	1,556,879	1,155,567	74	401,312	26

The quantity of household waste recovered decreased by 5.5% to 401,312 t; however, when the fall in household waste generation is factored in, the net recovery rate (at 26%) is identical to that reported for 2007.

Commercial waste includes waste arising from non-commercial municipal premises such as schools, hospitals etc., as well as non-process industrial waste (from canteens, offices, packaging waste etc.). After household waste, the commercial waste stream is the next largest component of municipal waste. Management of commercial waste decreased by 4.6% to 1,477,397 t in 2008, from 1,549,075 t in 2007. Landfill decreased by 1.2% since 2007, yielding a concurrent 1.2% rise in commercial waste recovery rates.

	Quantity managed (t)	Quantity landfilled[43] (t)	National landfill rate (%)	Quantity recovered (t)	National recovery rate (%)
Total	1,477,397	758,178	51	719,219	49

The national waste report will also look at the breakdown of all waste types and pays particular attention to the biodegradable fraction to assess the meeting of the landfill diversion targets as set by the Landfill Directive:

Managed municipal waste Source Stream	Available biodegradable waste portion (t)	BMW content residual consigned to landfill (t)
Household	906,302	581,037
Commercial	1,140,550	570,150
Cleansing	44,857	44,857
Total:	**2,091,709**	**1,196,044**

As per table above we currently consign 1.2 million tonnes of biodegradable material to landfill and the table below sets out the targets for the next 6 years.

Target year	Maximum quantity allowed to be landfilled (t, rounded)
2010	916,000
2013	610,000
2016	427,000

In 2007 Ireland was 280,000 T away from meeting its first Landfill directive Target and this represents a significant step towards meeting the overall diversion target for 2010. Achievement of this is due to a combination of factors including 100% increase in biowaste collection and diversion since 2007, greater penetration of separate collection systems, a reduction in municipal waste generation, improved statistical differentiation between waste streams, and improved ability to factor stream specific biodegradability content at material flow level rather than use generic factors at clustered waste stream level.

The Isus Model has predicted that if the waste generation figures modelled the GDP for the period 2008 – 2010 the diversionary targets for BMW could be met. This could also mean that the restrictions to be imposed on the intake of BMW to landfill (maximum allowable BMW content in MSW accepted at landfill should be of 40% (by weight) for 2010; 24% (by weight) for 2013; and, 15% (by weight) for 2016 and subsequent year) could be relaxed if necessary.

National Waste Infrastructure

Municipal landfill

A total of 32 landfills accepted 2,040,806 t of municipal solid waste (MSW) in 2008 for both recovery and disposal. One of the 32 landfills did not accept any waste for disposal, i.e. only restoration material comprising composted municipal organics was accepted. Across all facilities, some 102,092 t was used in a recovery capacity (wood chip and composted/stabilised organics used for cover, landscaping, etc).

EPA Licence Reg. No.[97]	Landfill	Waste Management Planning Region	Household waste disposed (t)	Street sweepings, garden, parks & cemetery waste disposed (t)	Commercial waste disposed (inc. non-process industrial) (t)	'Organic' waste (recovered) (t)	Total MSW to landfill (t)
W0001-03	North Kerry	Clare Limerick Kerry	40,369	1,419	20,620	602	**63,010**
W0017-03	Gortadroma	Clare Limerick Kerry	28,387	849	26,658	390	**56,284**
W0109-01	Inagh	Clare Limerick Kerry	28,001	708	5,930	6,843	**41,482**
W0178-01	Connaught Region	Connaught	47,223	582	49,503	0	**97,308**
W0059-02	Ballaghaderreen	Connaught	17,250	151	3,679	769	**21,849**
W0021-01	Derrinumera	Connaught	11,632	736	3,060	1,557	**16,985**
W0067-01	Rathroeen	Connaught	9,858	1,289	5,008	721	**16,876**
W0013-01	Carrowbrowne	Connaught	0	0	0	7,261	**7,261**
W0068-02	Youghal	Cork	58,256	0	45,702	0	**103,958**
W0012-02	Kinsale Road	Cork	40,559	6,922	7,843	3,342	**58,666**
W0089-01	Derryconnell	Cork	8,259	0	760	0	**9,019**
W0024-02	Ballynacarrick	Donegal	11,826	1,263	16,317	0	**29,406**
W0004-03	Arthurstown	Dublin	301,829	0	0	0	**301,829**
W0009-02	Balleally	Dublin	65,066	949	13,962	0	**79,977**
W0081-03	KTK	Kildare	0	0	208,751	34,619	**243,370**
W0201-02	Drehid	Kildare	61,069	3	57,177	11,468	**129,717**
W0047-02	Kerdiffstown[98]	Kildare	4,335	0	4,335	1,637	**10,307**
W0029-02	Derryclure	Midlands	22,579	0	27,673	0	**50,252**
W0028-02	Ballydonagh	Midlands	20,010	712	25,784	0	**46,506**
W0026-02	Kyletelesha	Midlands	28,674	0	14,590	700	**43,964**
W0078-02	Ballaghaveny	Midlands	19,505	1,490	4,024	8	**25,027**
W0146-01	Knockharley	North East	23,127	0	101,525	17,951	**142,603**
W0077-02	Corranure	North East	67,051	573	16,845	2,000	**86,469**
W0060-01	Whiteriver	North East	17,920	0	58,972	0	**76,892**
W0020-01	Scotch Corner	North East	19,954	706	12,236	3,032	**35,928**
W0025-02	Powerstown	South East	28,739	1,612	5,256	5,769	**41,376**
W0030-02	Dunmore	South East	11,792	1,537	5,817	0	**19,146**
W0074-02	Donohill	South East	12,216	1,323	1,151	349	**15,039**
W0191-01	Holmestown	South East	9,940	437	1,206	2,369	**13,952**
W0016-02	Killurin	South East	3,337	248	210	0	**3,795**
W0165-01	Ballynagran	Wicklow	105,539	451	0	705	**106,695**
W0066-02	Rampere	Wicklow	31,265	1,009	13,584	0	**45,858**
		Total	**1,155,567**	**24,969**	**758,178**	**102,092**	**2,040,806**

The 1,938,714 t of municipal waste disposed in the MSW landfills consisted of 1,155,567 t of household waste and 783,147 t of non-household waste.

National MSW landfill disposal capacity

EPA Licence Reg. No.[99]	Licensee	Landfill	Waste Management Planning Region	Approximate remaining disposal capacity (t)[100]	Approximate remaining life expectancy)[101]	
					Site	Region
W0001-03	Kerry Co. Co.	North Kerry	Clare Limerick Kerry	649,000	10	16
W0017-03	Limerick Co. Co.	Gortadroma	Clare Limerick Kerry	1,333,000	24	
W0109-01	Clare Co. Co.	Inagh	Clare Limerick Kerry	473,000	14	
W0021-01	Mayo Co. Co.	Derrinumera	Connaught	80,000	5	9
W0059-02	Roscommon Co. Co.	Ballaghaderreen	Connaught	78,000	4	
W0067-01	Mayo Co. Co.	Rathroeen	Connaught	140,000	9	
W0178-01	Greenstar Holdings	Connaught Reg.	Connaught	1,115,000	11	
W0012-02	Cork City Co.	Kinsale Road	Cork	100,000	Closes 2009	(32)
W0068-02	Cork Co. Co .	Youghal	Cork	100,000	Closes 2009	
W0089-01	Cork Co. Co.	Derryconnell	Cork	2,000	Closes 2009	
W0161-01	Cork Co. Co.	Bottlehill	Cork	5,392,000	Not operational yet	
W0024-02	Donegal Co. Co.	Ballynacarrick	Donegal	118,000	4	4
W0004-03	South Dublin Co. Co.	Arthurstown	Dublin	434,000	1	1.5
W0009-02	Fingal Co. Co.	Balleally	Dublin	202,000	2	
W0047-02	Neiphin Trading Ltd	Kerdiffstown[102]	Kildare	250,000	-	c. 11
W0081-03	KTK Landfill Ltd	KTK	Kildare	180,000	Closes 2009	
W0201-02	Bord na Móna plc	Drehid	Kildare	3,416,000	30	
W0026-02	Laois Co. Co.	Kyletelesha	Midlands	388,000	9	10
W0028-02	Westmeath Co. Co.	Ballydonagh	Midlands	100,000	2	
W0029-02	Offaly Co. Co.	Derryclure	Midlands	954,000	19	
W0078-02	North Tipp Co. Co.	Ballaghaveny	Midlands	189,000	8	
W0020-01	Monaghan Co. Co.	Scotch Corner	North East	250,000	8	14
W0060-01	Louth Co. Co.	Whiteriver	North East	800,000	10	
W0077-02	Cavan Co. Co.	Corranure	North East	323,000	4	
W0146-01	Greenstar Holdings	Knockharley	North East	3,007,000	24	
W0025-02	Carlow Co. Co.	Powerstown	South East	140,000	4	13
W0030-02	Kilkenny Co. Co.	Dunmore	South East	14,000	Closes 2009	
W0074-02	South Tipp Co. Co.	Donohill	South East	42,000	3	
W0191-01	Wexford Co. Co.	Holmestown	South East	888,000	Opened 2008	
W0066-02	Wicklow Co. Co.	Rampere	Wicklow	143,000	3	19
W0165-01	Greenstar Holdings	Ballynagran	Wicklow	2,772,000	26	
			Total	**24,072,000**	**National capacity c. 12 yrs**	

32 landfills accepted municipal waste for disposal and recovery in 2008. A further 35 facilities hold landfill licences but are closed to landfill activities. Ten of the 32 active landfills had no other non-landfill associated waste infrastructure. Across the 67 licensed landfill facilities, there were 31 associated civic amenity sites (10 of these civic amenity sites are active at licensed landfills that are no longer accepting waste for disposal). Four landfill licensed sites report having associated composting facilities. Only 2 landfills report having active landfilling, civic amenity sites and composting facilities.

Thermal Treatment

Commercial incineration as a waste treatment option for municipal waste is not available in Ireland at the time of writing this report. In November 2005, the EPA granted licences for two commercial incinerators. The licences provide for the operation of waste incineration facilities by Indaver Ireland at Carranstown, Co. Meath (W0167-01) and Ringaskiddy, Co. Cork (W0186-01). In December 2008, the EPA granted a licence for a third municipal waste incinerator at Ringsend in Dublin (W0232-01). None of these facilities are operating as of July 2010 and only the Carranstown facility has commenced construction.

In 2008, recovery operators reported that 88,574 t of non-hazardous waste was used as a fuel (other than in direction incineration) or other means to generate energy (primarily wood). Lagan Cement Limited (P0487-05) accepted refuse derived fuel for combustion during 2008. In previous years all refuse derived fuel had been exported for combustion.

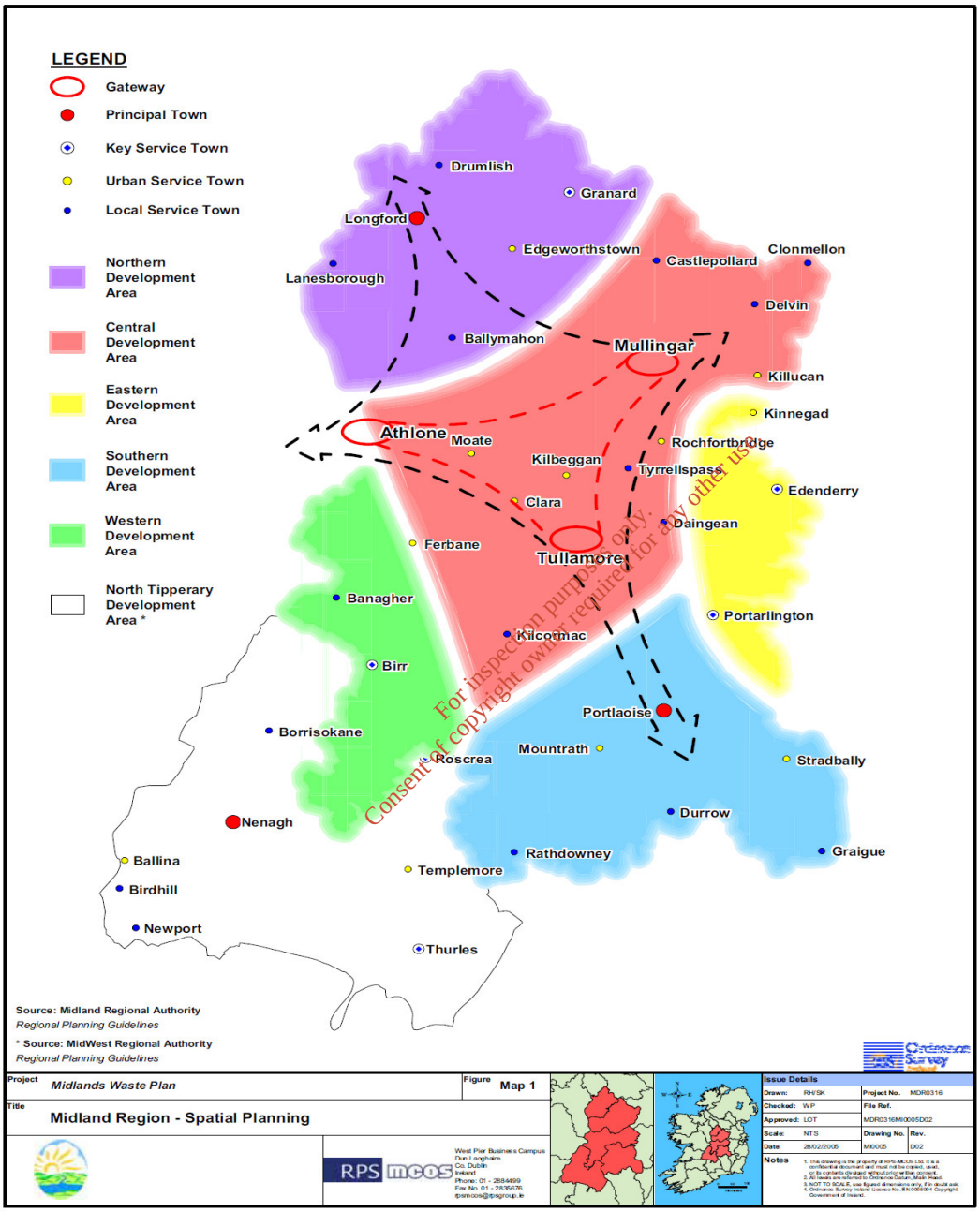
Composting Facilities / Anaerobic Digestion Facilities
In relation to the diversion of municipal waste from landfill and the development of bespoke facilities for the further treatment of Biodegradable Municipal Waste there are no reported infrastructure capacity figures at this juncture. It is understood however that a number of waste handlers are currently (as of July 2010) engaged in these activities. The 2009 National waste report will highlight the installed capacity here.

4.0 Midlands Regional Waste Statistics

The key Government Waste Management Policy Statement entitled 'Changing Our Ways' was published in 1998, which encouraged Local Authorities to adopt a regional approach to Waste Management Planning. This was a progressive move from the traditional scenario

where waste management was organised by individual Local Authorities independently. As a result of this policy, a total of ten plans were prepared, including seven Regional plans where a regional approach was adopted.

Waste Management Planning considerations in the Midlands Region are determined by counties of Laois, Longford, Offaly, Westmeath and North Tipperary.



The following table represents the Household Waste generation statistics for the Midlands Region in 2008:

Local authority	Mixed residual collection (black bins) (t)	Separate kerbside collection of mixed dry recyclables (green bins) (t)	Separate kerbside collection of food and garden waste (brown bins) (t)	Household waste brought to bring banks (t)	Household waste brought to CA sites (t)	Household waste delivered directly to landfill face by householders (t)	Estimate of home composting (t)	"Uncollected" household waste (t)	Total household waste (t)
Laois	11,242	4,555	0	912	2,485	0	460	6,602	26,256
Offaly	12,634	3,724	0	1,155	4,994	3373	381	876	27,137
Longford	7,012	2,300	0	779	1,305	0	422	4,408	16,226
North Tipperary	13,523	4,216	22	1,244	3,944	2052	275	266	25,542
Westmeath	15,892	4,286	86	1,414	2,645	2905	155	412	27,795
Midlands Region sub-total	**60,303**	**19,081**	**108**	**5,504**	**15,373**	**8330**	**1,693**	**12,564**	**122,956**

60,303 T Mixed residual collected (black bin)
19,081 T Mixed Dry Recyclables (Green Bin)
108 T Food and Garden Waste (Brown Bin)
5504 T Mixed residual Waste (Black Bin) Brought to Bring Banks
15,373 T Mixed residual Waste (Black Bin) brought to Civic Amenity Sites
8,330 T Household waste delivered directly to landfill face by householders
1,693T Estimate of home composting
12,564T Uncollected household waste

Total Household municipal waste generated in the Region (2008) – 122,956 T

EPA Licence Reg. No.[87]	Landfill	Waste Management Planning Region	Household waste disposed (t)	Street sweepings, garden, parks & cemetery waste disposed (t)	Commercial waste disposed (inc. non-process industrial) (t)	'Organic' waste (recovered) (t)	Total MSW to landfill (t)
W0029-02	Derryclure	Midlands	22,579	0	27,673	0	**50,252**
W0028-02	Ballydonagh	Midlands	20,010	712	25,784	0	**46,506**
W0026-02	Kyletelesha	Midlands	28,674	0	14,590	700	**43,964**
W0078-02	Ballaghaveny	Midlands	19,505	1,490	4,024	8	**25,027**

The regional waste management plan for 2005 – 2010 projected that the total amount of commercial and industrial waste generated annually in the region would be at 120,000 T per annum and that it would track the GDP figures. The actual landfilled in the region in 2008 was 72,071 tonnes.

Total Commercial and Industrial waste landfilled 2008 – 72,071 T

Total Landfill available material in the midlands region = 195,027 T

Available Landfill capacity in the Midlands:

At present as of July 2010 the following represents the available landfill capacity in the Midlands Waste Management Region and is based on EPA waste acceptance figures at the landfills:

Waste Region	Landfill	Current Status	Waste Deposited Based on Epa Figures(2007)	Approved Landfill Capacity	Excess
Midlands	Ballaghveny	Closed	29169		-29169
	Ballydonagh	Closed	51678		-51678
	Derryclure	Operational	59118	40,000	-19118
	Kyletelesha	Operational	41174	47100	5926
Total			181,139	87,100	-94,039

This figure represents the projected landfill capacity for the region in 2012 and it suggests that regionally there is a deficit of 94,039 tonnes in capacity. It suggests that if the region is to be self sustaining the available capacity must increase in the region.

5.0 Glanpower Tullamore and how it fits the National Waste Framework

Glanpower propose to develop a facility whose primary function will be the generation of energy using a fuel mixture of biomass and solid recovered fuel (SRF). The aim for the facility will be the development of a renewable energy facility which will stimulate the production of energy from biomass as a renewable source and also energy from recovered waste also as a renewable source. The energy will be captured in the form of electricity and recovered heat.

The proposed facility will take in 75000 tonnes of fuel and subject the material to a pre-processing stage whereby the fines material, the moisture, the hard particles, the PVC, the metal fraction, hazardous fraction and unclassified non-combustible material will be separated out. The remaining fraction i.e. the residual fraction will be put into the energy recovery process.

In order to assess the suitability of the process to the area it was key to assess the facility from a National policy perspective, a Regional policy perspective, and a regional spatial planning perspective.

The National waste policy as described in section 1 has had a concerted focus since 1998 and the publication of the “Waste Management: Changing our ways” policy document has been the starting point for improving waste management in Ireland. Waste management policy in Ireland is now as of July 2010 also going through a flux period where the government are endeavouring to implement policy to divert biodegradable organic waste

from landfill initially but also in the medium to long term ultimately phase out the landfilling of waste altogether. As per section two above the minister aims to implement a policy to promote firstly the biological mechanical treatment of waste. In simplistic terms this involves taking in waste which is similar to the black bin waste in every household. Separating out the fines, the papers, plastics, metals and the hard inorganic particles and stones. It is the intention then to compost or anaerobically digest the organic material, utilise the residual fraction. It will ultimately be the goal of Glanpower to provide the infrastructure basis for the recovery of energy from the residual fraction.

In general terms if we analyse the proposed changes to waste policy there will be required changes to both the policy on infrastructural networks and the collection mechanisms. It is widely touted that the collection of waste will be via the roll out of a 3-bin collection system whereby each household will have a recycle bin, a general waste bin and a food / biodegradable matter bin. In the draft policy document as issued on 15/07/2010 by the respective collection frequencies are even discussed. It is felt firstly that this policy is a step too far as the existing waste infrastructure with the mechanical treatment lines would facilitate the removal of the organic fraction if designed correctly and this would alleviate the requirement for a third bin and reduce the number of annual collection journeys considerably.

If we take the total waste generation figures in a 3 bin system the % breakdown would be as follows:

Collected household waste composition profile (% by weight)

Waste Streams	Mixed residual waste (black bin)[118]
% Total collected (1,161,152 t)	74.2%
BMW Content	61.6%[119]
	Weight %
Organic waste	24.0%
Garden waste	6.5%
Papers	12.5%
Cardboards	3.6%
Composites	1.0%
Textiles	7.3%
Nappies	8.4%
Plastics	13.6%
Glass	3.3%
Metals	3.1%
Wood	1.2%
Hazardous waste	0.9%
WEEE	0.3%
Unclassified combustibles	1.4%
Unclassified incombustibles	1.2%
Fines smaller than 20mm	11.7%
Total	100%

In this context under a 3-bin collection system the residual waste bin would contain all of the above material in the stated percentages by weight.

Relating that to the Glanpower proposal the following would be the case:

Black Bin Waste Content in a 3-bin collection scenario

Waste Streams	% by Weight	Glanpower	Glanpower Processable	Est % Moisture	Moisture Removed
Organic Waste	24	18000	18000	55	10800
Garden waste	6.5	4875	4875	55	2925
Papers	12.5	9375	9375	13	1687.5
Cardboard	3.6	2700	2700	12	459
Composites	1	750	750	8	97.5
Textiles	7.3	5475	5475	8	711.75
Nappies	8.4	6300	6300	30	2205
Plastics	13.6	10200	10200	8	1326
Glass	3.3	2475	2475	0	
metals	3.1	2325	2325	0	
wood	1.2	900	900	20	225
Hazardous Wastes	0.9	675	675	0	
WEEE	0.3	225	225	0	
Unclassified Combustibles	1.4	1050	1050	15	210
Unclassified Incombustibles	1.2	900	900	0	
Fines smaller than 20mm	11.7	8775	8775	45	4387.5
	100	75000	75000		25034.25

Total Volume to be processed by Glanpower via the Pyrolysis unit(T):	49965.75

It is interesting to note that the organic fraction in the 3-bin sourced separated waste fraction is still relatively high. In the Sunday Business Post of July 25th 2010 a senior waste management consultant with RPS said that anecdotally people were still reluctant to put large volumes of waste into the brown bin. It is estimated that the changeover will be a long and protracted one and it begs the question of whether policy would be better served with the 2-bin system as always in a pay-by-weight scenario to encourage recycling at source. Any organic fraction can be removed from the process in a dedicated Mechanical line.

The above represents the philosophy of Glanpower and as can be seen they must take in approximately 75,000T of black bin source separated waste to facilitate the achieving of the 50,000T of material for processing. Through the availability of the unique bespoke drying system Glanpower can process the organics fraction through the mechanical separation drying phase to enable the energy recovery at the pyrolysis stage.

It must also be noted that Glanpowers philosophy is to utilise biomass and Solid recovered fuel in the process so it will facilitate the usage of biomass and renewable crops at all time as part of the philosophy ensure that the Refit criteria for utilisation of renewable media is adhered to. The Company has already engaged in a process of evaluation of the existing available biomass content and in the calculation of the future requirements for the material.

As per section 4 above Glanpower could source all of the material for the proposed facility locally. There is currently 195,027 Tonnes of landfill material available for landfill in the

region including household waste and commercial and industrial fraction. If we take the following scenario:

Total Household Waste – 122,956 T for landfill Total C&I Waste – 72,071 T for landfill Total available for landfill:- 195,027

If we assume 35% of the total MSW fraction can be removed via a 3-bin collection system we would be left with the following:

Total 79921.40 tonnes of MSW for Landfill / Further treatment
Total C&I – 72071 tonnes:

This would represent a landfill requirement for the region of 151,992.40 Tonnes. The region landfill capacity at present is 87100 T in Derryclure landfill and Kyletelesha landfill. Both landfills are currently under local authority ownership and it is widely stated that the Kyletelesha landfill is for sale and the Offaly County Council have expressed concern in the local papers in Offaly recently that it has not been able to get the volume of waste to justify the operation of the landfill. The residual volume then would be as follows:

Total waste handling required (151,992.40) – Total available landfill Capacity (87100) – Glanpower proposal (75000 T) = -10107.60 T Extra Capacity

This 10,000 T extra capacity could be viewed as meeting the ESRI proposed increases in waste generation figures up to 2016. It is this authors opinion that the 2009 figures will show that the amount of waste available will have mirrored the drop in GDP during the recession. Increases in recycling rates, home composting rates and the possible introduction of the 3-bin system will ensure diversion of organics from landfill. Taking the policy direction on board it is difficult to predict an exact figure for waste generation but the Glanpower approach to the overall waste management issue for the region would be to offer a solution equated to the current landfill capacity. Other alternatives i.e. composting and dedicated SRF production will account for handling of waste streams.

The Midlands region has obviously become a net exporter of waste and the landfill figures will back up that statement. (2009 figures should reflect this sentiment also when published). The actual on-the-ground scenario for waste implies as has been the case for a number of years that the waste will follow the price and at present there are landfills offering waste disposal services at figures in the order of 2 to 3 times lower than the regional offerings.

Glanpower are of the opinion that with the proposed differential in the proposed levy structure of energy from waste versus landfill disposal that the economical basis is there to allow a move upwards in waste management hierarch and a diversion of waste from landfill. The efficiency of the proposed process and the ability of the business plan to compete even against the lower gate fees means that there is now a very viable alternative to landfill in

the region. The offering of thermal treatment has been touted for some time as the solution to the over dependency on landfill and the midlands regional waste management strategy supports the development of a waste to energy facility. Glanpower would argue that the region cannot sustain a facility of teh magnitude of 150,000 T if the government draft policy document of waste as issued 15.07.10 is to achieve its ojective. The implementation of a Mechanical Biological Treatment (MBT) philosophy will require the establishment of waste mechanical treatment facilities **(Glanpower front end),** organic fraction treatment facilities (composting facilities / **Glanpower Front-end)** and energy recovery for the residual solid recovered fuel (SRF) **(Glanpower Pyrolysis Unit)** which is the end product of the mechanical separation process.

The Glanpower process recognises also that there will always be a requirement for landfill as there will be an inert residual i.e. vitrified Char product which will be landfilled. This product will be approximately 3 % of the overall throughput of the process and will constitute 1500 T. Despite the fact that this material has been tested in the UK and deemed inert and suitable for use in road building it is envisaged that inert landfill / landfill cover will be the main outlet for the product at the beginning of the project.

In summation the region supports the establishment of waste to energy as a methodology for handling waste. The region is a net exporter of waste at present. This does not support the government objective of each region being able to be self-sufficient in the provision of waste management treatment and disposal infrastructure. There is adequate volume of fuel available to justify the establishment of this facility. The faclility will allow the region to meeti its diversion from landfill targets which will aid in the national objective also.