

SOUTHERN WASTE MANAGEMENT PARTNERSHIP



Armagh



Banbridge



Cookstown



Craigavon



Dungannon



Fermanagh



Newry &
Mourne



Omagh

WASTE MANAGEMENT PLAN

Status: Final
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EXECUTIVE SUMMARY

INTRODUCTION

The Southern Waste Management Partnership comprises of eight authorities, as shown below:

Figure ES.1 The Southern Waste Management Partnership



These local authority areas are situated in the southern region of Northern Ireland and represent approximately 48% of the total area and 27% of the population of the Country.

The Southern Waste Management Partnership (SWaMP) is a voluntary grouping, established in response to Article 23 of the Waste and Contaminated Land (Northern Ireland) Order, 1997, which requires individual Councils within Northern Ireland to produce a Waste Management Plan. The Councils considered that there would be mutual benefits in relation to economies of scale and sharing of resources from a regional approach to waste planning.

The purpose of the Plan is to set out a framework for the management of controlled wastes arising in the SWaMP Region over the period 2006 to 2020. This includes identifying capacity needs, potential sites and/or siting criteria, and the services needed for the collection, treatment and disposal of the wastes.

This Plan seeks to build upon the significant progress made by the previous Waste Management Plan, which set out detailed actions for the period 2000 to 2005. The revised Plan has been developed on the basis of a Review and consultation with stakeholders, including the public.

The overall aim of the Plan is to *develop a waste management system that meets the region's needs and contributes to economic and sustainable development.*

The defined objectives of the Plan are as follows:

1. *To develop an integrated network of facilities to meet the needs of the SWaMP Region.*
2. *To minimise the amount of waste produced within the Region.*
3. *To maximise resource efficiency.*
4. *To minimise environmental impacts.*
5. *To ensure that the identified facilities and services are in place in time to enable District Councils to meet their statutory targets and obligations.*
6. *To encourage regional self-sufficiency, as far as practicable and economical, within the SWaMP Region.*
7. *To ensure that the actions and measures identified in the Plan are:*
 - *Deliverable, with respect to timescales for implementation; and*
 - *Practical, building upon existing services and facilities within the Region.*
8. *To identify and manage risks (financial, planning and contractual) in a systematic manner, to ensure that risks lie with those parties best placed to manage them effectively.*
9. *To adopt a regional approach to the sharing of targets to ensure that SWaMP as a whole is able to meet its targets, with individual action and targets agreed for each Council, taking into account demographic factors, including spread of population and associated costs for the provision of services.*

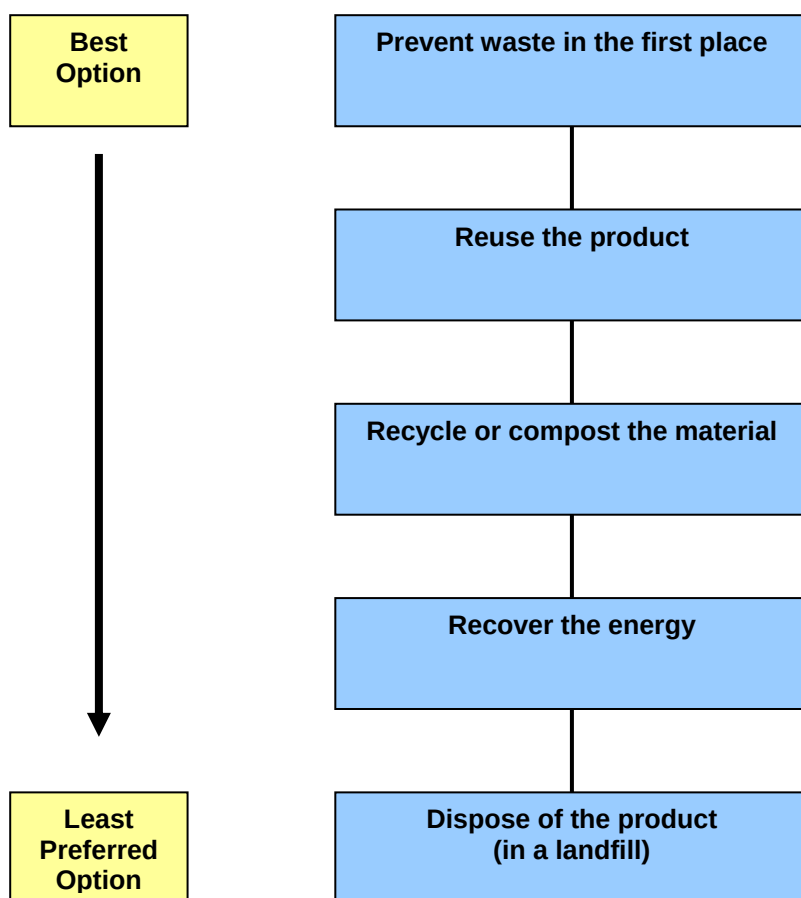
The Plan is divided into three parts as follows:

- Chapters 1-5: Background- comprising the introduction, and chapters on the SWaMP Region, Drivers for Change- The EU Policy Context and the Northern Ireland Legislative and Policy Context and also an introduction to waste technologies.
- Chapters 6-12: Waste Streams- Chapters on each of the controlled waste streams.
- Chapter 13-14: Planning and Delivery – Chapters on the development planning issues, including capacity needs, siting criteria and potential sites and implementation, monitoring and review.

BACKGROUND

Drivers for Change

EU waste policy and legislation determines, to a very significant degree, the measures that impact on the management of wastes in Northern Ireland and within the Region. These measures are either transposed through legislation, or incorporated into waste management policy, and are based on the Waste Hierarchy, as shown in Figure ES.2.

Figure ES.2 The Waste Hierarchy

The Plan reviews the current policy and legislation as well as recent developments in policy which are causing a shift away from the traditional methods of waste management and towards more sustainable resource management, with waste representing a key resource for the future.

The Waste Framework Directive will be amended, with two key provisions likely to include:

- Waste Prevention- the requirement of a Waste Prevention Plan and associated targets
- Efficiency Threshold- the introduction of a 60% threshold for energy recovery by thermal treatment, to distinguish between recovery and disposal.

The Northern Ireland Policy and Legislative Context

The Northern Ireland Waste Management Strategy provides the framework for compliance with regulatory and statutory obligations such as the EU Landfill Directive, which places a responsibility on SWaMP to divert biodegradable municipal wastes away from landfill over the key dates 2010, 2013 and 2020. In addition to this, the Strategy also provides a framework for the establishing an integrated network of waste management facilities for Northern Ireland, as required by the EU Waste Framework Directive.

In order to achieve this, the Strategy is built around the following six key strands:

- Strand 1 Waste Prevention
- Strand 2 Recycling and Recovery
- Strand 3 Waste Planning
- Strand 4 Data and Research
- Strand 5 Legislation and Enforcement
- Strand 6 Learning and Communication

There are a number of targets set out for the recycling and recovery of municipal waste, commercial and industrial waste and construction, demolition and excavation wastes. These are summarised in Box ES.1.

Box ES.1 Summary of NIWMS Recycling and Recovery Targets

Municipal Waste

Recycling and composting of household wastes to be at:

- 35% by 2010
- 40% by 2015
- 45% by 2020

Commercial and Industrial Waste

60% of Commercial and Industrial Waste to be recycled by 2020

Construction, Demolition and Excavation Waste

75% of Construction, Demolition and Excavation Waste to be recycled or reused by 2020

The targets identified above are subservient to the NILAS targets, in that no additional penalties are envisaged. However, targets similar to these in the rest of the UK do have a statutory basis and therefore it is anticipated that the Department of the Environment will consult within 3 years on proposals to take the powers to set such targets.

Working alongside the Northern Ireland Waste Management Strategy, the Northern Ireland Best Practicable Environmental Option was developed by the Department of the Environment and covered the three main waste streams of municipal solid waste, commercial and industrial waste and construction, demolition and excavation wastes.

The key outcomes for this BPEO assessment for municipal waste, used to inform the Northern Ireland Waste Management Strategy, are summarised in Box ES.2.

Box ES.2 Summary of BPEO Requirements for Municipal Waste**BPEO for 2010**

- A 3 bin system for separate collection of mixed dry recyclables, organic waste and residual waste for all households- where practicable.
- A combination of Mechanical Biological Treatment (MBT) and Anaerobic Digestion (AD) for treatment of residual wastes.
- Only 55% of waste going directly to landfill.

BPEO for 2013

- A combination of all three technologies (MBT, AD and Thermal) to treat residual wastes.
- Less than 40% of waste going directly to landfill.

BPEO for 2020

- A combination of all three technologies- MBT, AD and Thermal for about 30% of the waste is required in order to meet EU Targets.
- No more than 25% of waste going directly to landfill.

MANAGEMENT OF WASTE STREAMS***Municipal Wastes***

The management of municipal wastes presents significant challenges, being the focus of public interest, and also because there are statutory targets attached. There is the need for more to be done to limit and reduce the quantities generated, and to increase the levels of recycling and recovery.

A Technical Assessment was undertaken to identify the specific requirements for the management of municipal wastes. Based on the results of this assessment, and the feedback from the public consultation undertaken as part of the review of the Plan, the BPEO for the Region includes three main elements:

- **Waste Prevention** - limiting annual waste growth.
- **Materials Recovery** - a three bin system for separate collection of dry recyclables, organic waste (garden and food wastes) and residual waste for all households- where practicable and as appropriate.
- **Energy Recovery and Residual Waste Treatment** - The mix of waste technologies, to include Mechanical Biological Treatment (but not mass burn incineration), with the objectives of:
 - **Additional materials recovery** to meet Strategy targets.
 - **Reduction in biodegradability** to meet statutory BMW landfill diversion and NILAS targets.
 - **Energy Recovery** through the production of a fuel for the generation of both electricity and heat- to maximise the value of the waste as a resource.

There are a number of additional infrastructural requirements for the future management of municipal wastes. These are outlined in Table ES.1.

Table ES. 1 Indicative Additional Municipal Waste Infrastructural Requirements by 2020

Supporting Infrastructure	Additional Capacity Requirements	Indicative Number of Additional Facilities	Comments
Recycling/ Recovery	20-25,000 tpa	Existing capacity	Existing infrastructure has the capacity to accommodate the increased recycling requirement into the medium term for MDR.
Anaerobic Digestion/ In-vessel Composting	30-35,000 tpa	1-2 facilities for Biowastes	Tender process will determine number of facilities for biowaste.
Mechanical Biological Treatment	160-180,000 tpa	2 with capacity 75-80,000 tpa 1 with capacity 20-30,000 tpa	Anticipated synergies between municipal and C&I sectors. This would be best realised by sizing plants to accommodate both C&I and municipal wastes, to deliver economies of scale.
Landfill	150,000 tpa by 2009/10 70,000 tpa by 2012/13	Existing capacity	District Councils to review landfill capacity within the Region and identify future needs.

Commercial and Industrial Wastes

The cost effective management of commercial and industrial wastes will present a significant challenge for the future. The over reliance on low cost disposal in past years cannot continue and therefore there is a need for the whole sector to make a shift towards more resource efficient and less wasteful practices in order to remain competitive in the increasingly challenging commercial environment.

A Best Practicable Environmental Option, for Commercial and Industrial wastes within the Region is represented by:

- **Waste Prevention** to limit the growth in the quantities of C&I waste produced to less than 1% per annum.
- **Materials Recovery/Recycling** – 60% by 2020 (excluding healthcare, hazardous and similar wastes that require specialised treatment).

- **Biological Treatment** in the form of Anaerobic Digestion (with Combined Heat and Power where appropriate) or In-vessel Composting (as appropriate to the particular waste stream) and with synergies maximised as far as possible with the agricultural industry).
- **Mechanical Biological Treatment** with energy recovery through anaerobic digestion and/or production of a fuel for energy recovery purposes.
- **Landfill Disposal** reduced to 13% by 2020.

Packaging Waste

In Northern Ireland, the legislation governing Packaging Waste is the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland) 2004. The main aspect of these regulations is the imposition of obligations on those businesses (producers) who satisfy certain threshold criteria to recover and recycle specified quantities of packaging waste each year. Under the Regulations, a “producer” is defined as a legal entity who:

- Performs an activity
- Supplies packaging to another stage in the packaging chain, or to the final user of the packaging.

There are a number of targets, set out by the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland) 2004, which relate to the recovery and recycling of used packaging. These targets set a requirement for increased recovery and recycling of packaging materials up to 2008, where 70% of packaging waste is to be recovered (95% of this by recycling).

Over and above the requirements on businesses imposed by the Regulations, the Plan sets out a number of actions for the future management of packaging waste in Northern Ireland as follows:

- The extraction of high quality material, particularly from the household waste stream, as well as additional materials from the commercial and industrial waste stream.
- The development of a network of facilities to facilitate both the recycling and recovery of packaging wastes, by the acceptance of packaging waste from businesses at at least one civic amenity site per District.

Hazardous Wastes

The management of hazardous wastes has changed significantly in recent years as a result of more stringent legislation governing its treatment and disposal. This legislation has extended the definition of hazardous waste as well as banning the co-disposal of hazardous and non-hazardous wastes. The resulting impact of this has been an increase in the potential hazardous waste arisings as well as more stringent controls on disposal.

The Hazardous Waste Forum (HWF), consisting of key stakeholders, was established by Department of the Environment in 2003, to advise on a way forward for hazardous waste reduction, recovery and management. Based on the work of the HWF, the Plan sets out a number of options for the future management of hazardous wastes in Northern Ireland. These include:

- **Waste Prevention** – to limit the growth in hazardous waste arising.
- **Materials recovery**- to reuse and recycle as much of the waste stream as practicable, with the options for this being dependant on the nature of the hazardous waste. Examples of this include:
 - Recovery for use as a fuel
 - Solvent reclamation/regeneration
 - Recycling/reclamation of metals and metal compounds
 - Regeneration of acids and bases
 - Recovery/re-finishing of used oil
- **Residual treatment and energy recovery** to render the wastes safe for disposal and recover energy as a resource as far as practicable. Examples of this include blending with organic wastes to produce a secondary liquid fuel (SLF) for co-incineration in a cement kiln.

Construction, Demolition and Excavation Wastes

The amount of C, D & E waste generated is expected to increase if measures are not put in place to limit waste growth and promote resource efficiency.

There have been a number of targets set for the C, D & E sector, from a number of different sources including the Northern Ireland Waste Management Strategy and the Aggregates Credit Levy Scheme, which focuses on maximising the reuse and recycling of C, D & E wastes, and limiting the quantities disposed of to landfill.

The Plan therefore identifies key aspects for this waste stream as follows:

- **Waste prevention** to limit quantities of C, D & E waste produced, through the designing out of waste, and the specification of re-useable or recyclable materials, as far as is practicable.
- **Site waste management planning** using the published Guidance and checklists to identify opportunities for the re-use and recycling of waste, on and off-site, and improve site management practices.
- **On-site reuse and recycling** through the use of mobile plant to produce materials that are used on the project (e.g. crushing cement for reuse as fill).
- **Disposal** – the least preferred option, but unavoidable for some waste types, including some hazardous wastes.

Agricultural Wastes

Traditionally agricultural waste has been excluded from the waste management controls which apply to “controlled wastes” as defined under the Waste and Contaminated Land (Northern Ireland) Order, 1997.

However, the Waste Management (Northern Ireland) Regulations, 2006 are due to be implemented during 2006 and this will bring agricultural waste within the controlled waste framework. Key features of these Regulations will include:

- A legal duty on producers of agricultural waste to ensure that they do not treat, keep or dispose of agricultural waste in a manner likely to cause pollution to the environment or harm to human health.
- A ban on unregulated burning or burial or deposit of waste.
- Control on farm dumps, to comply with the Landfill Directive.
- Introduction of the “Duty of Care” and Waste Transfer Notes.

The Definition of agricultural waste does not, except under certain circumstances, include farmyard manures and slurries, therefore the quantities are relatively limited at approximately 41,000 tpa.

The implications of the Regulations will be that farmers will be able to store their waste on site for up to 12 months; take their waste to an appropriately licensed waste management site; transfer their waste to someone else who is legally authorised to carry waste as a registered carrier, for recovery or disposal off farm; register a license exemption with EHS to undertake some waste management activities on the farm. In practice agricultural wastes will be managed by a combination of these options.

Due to the small quantities of agricultural waste defined as “controlled waste”, in comparison to other waste streams, it is anticipated that the treatment of this waste can be accommodated within the proposed arrangements for other waste streams including commercial and industrial, municipal, hazardous and packaging wastes.

The Plan also identifies the potential for farmyard manures and slurries, although not controlled waste, to be used for energy recovery. An Expert Group for the Alternative Uses of Manures (EGAUM) have examined alternative uses for animal manures and have identified that there is a role for anaerobic digestion/combined heat and power (AD/CHP) plants for the intensive dairy and pig industries, and a litter fired generator for the poultry sector. There are also potential synergies with the agri-food processing sector.

PRIORITY AND OTHER WASTE STREAMS

Priority Waste Streams

Priority waste streams have been identified by the European Union’s Fifth Environmental Action Programme on account of one or more of the following: their volume, hazardous nature, potential for recycling, potential to create an economic benefit or the fact that legislation is changing the way in which these materials have traditionally been managed.

The priority waste streams include:

- Waste Electrical and Electronic Equipment (WEEE)
- End of Life Vehicles (ELVs)

- Tyres
- Batteries

The Producer Responsibility policy underlies the approach to the implementation of these Directives. The aim of the Producer Responsibility approach is to achieve a more sustainable approach to resource use and a reduction in the overall quantity of waste disposed of to landfill, by diverting materials for reuse, recycling and other forms of recovery. Producer responsibility places the responsibility for the costs of collection, sorting and treatment and recycling and recovery on the producers and promotes the concept of supply chain management.

The Plan sets out the management methods for each of these waste streams based on the legislative requirements.

Other Waste Streams

In addition to the priority waste streams, the Plan sets out measures for the management of two further waste streams namely:

- Sewage Sludge, which is the responsibility of DRD Water Service
- Clinical Wastes, which is managed through the Healthcare System

Implementation - Monitoring and Review

Implementation of the measures identified within the Plan is key to delivering the framework for the management of controlled wastes arising within the SWaMP Region. The Plan will be subject to a process of ongoing monitoring and review, particularly with respect to municipal wastes, for which the Councils have a statutory responsibility.

The Plan has identified a number of commitments for monitoring and regular review and it is anticipated that this process will form the basis of two levels of formal review. These commitments are presented in Box ES.3.

Box ES.3 Monitoring and Review of the Plan**Monitoring**

- Monitor a number of Key Performance Indicators (KPIs);
- Complete Waste Data Flow returns online on a quarterly basis;
- Validate the data used;
- Check overall performance against planned levels; and
- Identify issues of concern, and implement corrective actions, where required, should performance fall significantly behind planned levels.

Regular Review

- Assess the performance of the measures and actions set out in the Plan;
- Monitor the delivery of the infrastructure identified in the Plan;
- Review the effectiveness of the arrangements;
- Assess the impact of policy and legislative developments; and
- Review and update the arrangements and actions where necessary.

Formal Review

- Annual Review, with the publication of an Annual Report, to inform stakeholders on performance, both at the Group and individual Council level; and
- Plan Review, at not more than five yearly intervals, involving a full Review of the Plan, culminating in the publication of a modified Plan.

MEASURES AND ACTIONS

Commitment, and the acceptance of their roles and responsibilities by all players, is critical to delivery of the Plan's objectives. This is needed to make the shift to a more sustainable approach to the management of waste and hence comply with the requirements of the Northern Ireland Waste Management Strategy, and to ensure that statutory targets are met, minimising risks of significant fines for non-compliance.

The measures and actions identified within the Plan for key stakeholder groups are summarised in Box ES.4.

Box ES.4 Measures and Actions for Key Stakeholders**Government**

- Set the framework to encourage and facilitate a more resource efficient approach to waste management.
- Ensure effective and even handed regulation and enforcement.
- Show leadership by example in more sustainable management of waste.
- Initiate and engage in education and awareness activities to raise the profile of waste management.
- Provide support to District Councils in implementation of the SWaMP Waste Management Plan.
- Collect data on waste arisings and management routes.

District Councils

- Prepare and implement contracts for the procurement, delivery and operation of the infrastructure necessary for implementation of the Plan.
- Continued provision of services for the collection of municipal wastes (including commercial and industrial wastes where appropriate).
- Initiation of education and awareness activities, to all stakeholders to promote a more sustainable approach to waste management.
- Provide guidance and advice to stakeholders as required.
- Introduction of green procurement policies, to encourage a more resource efficient approach to waste management at a District Council level.

General Public

- Exercise careful purchasing decisions to reduce the amount of waste produced wherever practicable.
- Participate in recycling and composting initiatives through the careful segregation of waste at the household level.
- Separate out household hazardous waste and take to a local civic amenity site for safe disposal.
- Dispose of clinical waste in the relevant receptacles and return unused medicines to the pharmacy.
- Ensure End of Life Vehicles are sent to authorised collection and/or treatment facilities.

Waste Management Sector

- Development of the appropriate infrastructure for the recovery of waste materials and energy.
- Ensure waste is treated and disposed in appropriately licensed facilities in accordance with legislative requirements.
- Expansion of organisations to facilitate the source segregated collection of recyclable or recoverable materials.
- Advise clients on aspects of waste management as required.
- Respond to market development opportunities for the recyclable or recoverable materials.
- Support stakeholder education and awareness activities.
- Provide data on waste arisings and management routes as required.

Business and Industry

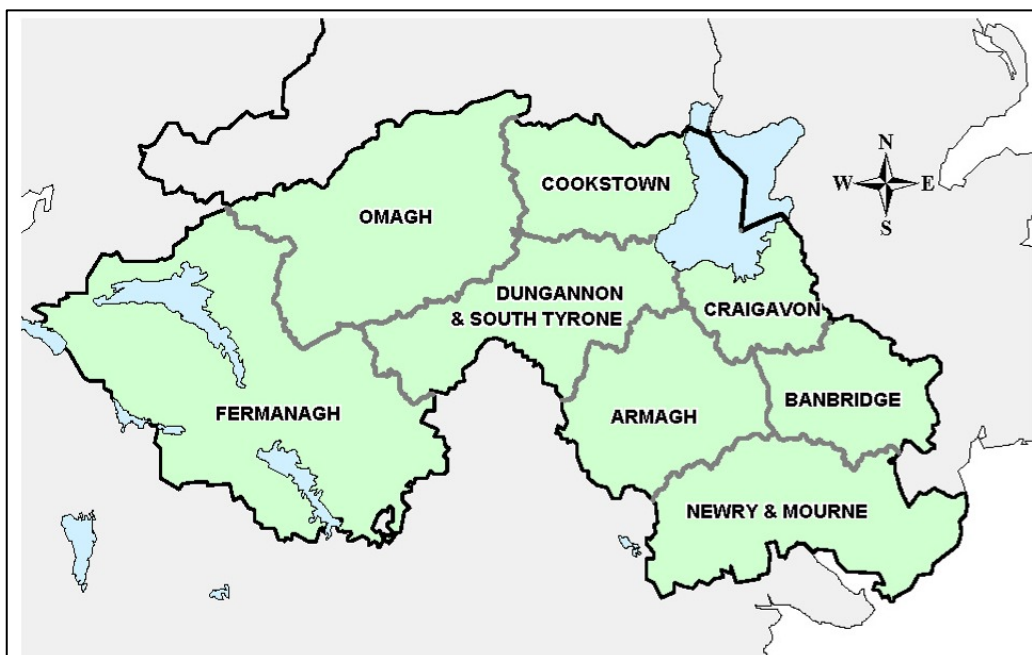
- Fulfil obligations and comply with waste management legislation and policy.
- Identify and prioritise ways in which quantities of waste can be reduced and the hazardous nature minimised.
- Maximise the recycling and recovery of wastes, where practicable, through segregation at source and the use of all available facilities and services.
- Provide data on waste arisings and management routes as required.
- Support education and awareness initiatives.
- Develop a more resource efficient approach to waste management.

1.0 INTRODUCTION

BACKGROUND

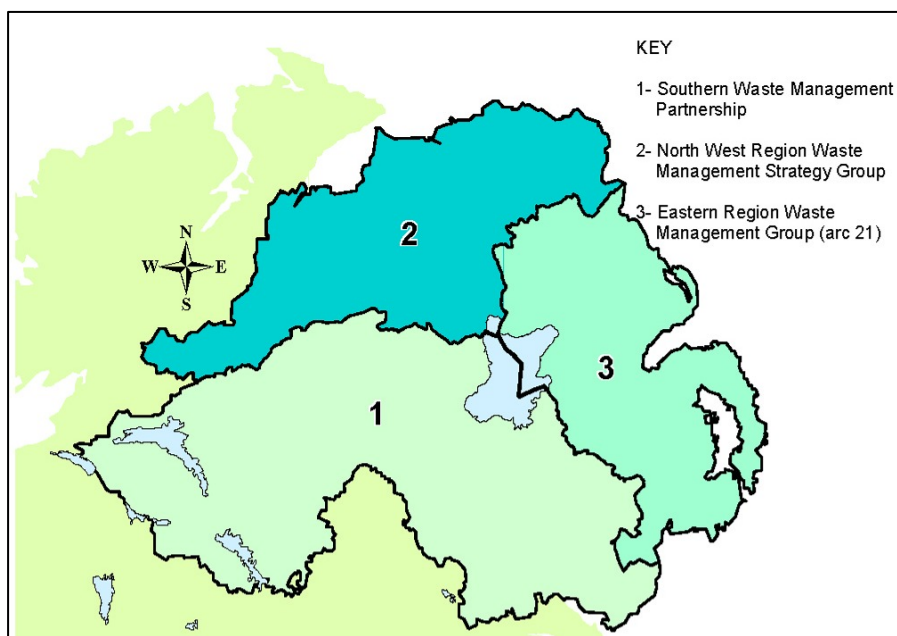
- 1.1 This Waste Management Plan, hereafter referred to as 'the Plan', has been prepared by the Southern Waste Management Partnership, in fulfilment of its councils' obligations under Article 23 of the Waste and Contaminated Land (Northern Ireland) Order 1997.
- 1.2 The Southern Waste Management Partnership (SWaMP) represents a voluntary grouping of eight district councils (Figure 1.1), who include, in alphabetical order:
- Armagh City and District Council
 - Banbridge District Council
 - Cookstown District Council
 - Craigavon District Council
 - Dungannon and South Tyrone Borough Council
 - Fermanagh District Council
 - Newry and Mourne District Council
 - Omagh District Council

Figure 1.1 The SWaMP Region



- 1.3 It is the responsibility of individual district councils in Northern Ireland to prepare a Waste Management Plan under the provisions of the Waste and Contaminated Land (Northern Ireland) Order 1997. SWaMP was originally established in 1999, as one of three sub-regional groups, in recognition by all district councils in Northern Ireland, of the mutual benefits to be gained from a regional approach to waste management planning.
- 1.4 The three waste planning groups (Figure 1.2) are as follows:
- ***Southern Waste Management Partnership*** (SWaMP) Geographically the largest group, extending from Newry and Mourne in the east to Fermanagh in the west.
www.swampni.org.uk
 - ***North West Region Waste Management Group***. The smallest group in population terms, but geographically spread out, from Moyle in the north east, to Strabane in the west.
www.northwestwasteplan.org.uk
 - ***arc21***. The eastern region, the largest by population and waste arisings, comprising 11 district councils, centred on Belfast and the surrounding areas.
www.arc21.org.uk

Figure 1.2 Waste Management Planning Groups



- 1.5 The three groups have co-operated both with each other, and with Environment and Heritage Service, on issues of mutual interest in the review of their respective waste management plans. This process will continue to ensure that the waste management plans, and their implementation, provide a coherent and effective approach to managing wastes across Northern Ireland for the benefit of the whole community.

AIMS AND OBJECTIVES

- 1.6 The purpose of the Plan is to set out the arrangements for the management of controlled wastes arising within the SWaMP Region over the period 2006 to 2020. This includes identifying capacity needs, potential sites and/or siting criteria, and the services needed for the collection, treatment and disposal of the wastes.
- 1.7 This Plan seeks to build upon the significant progress made by the previous Waste Management Plan, which set out detailed actions for the period 2000 to 2005. This revised Plan has been developed on the basis of a Review, and consultation with stakeholders, including the public.
- 1.8 The Plan also recognises that waste management policy and practice has continued to evolve at a European, national and regional level. It therefore seeks to take into account recent developments, including:
- The Thematic Strategy on the Prevention and Recycling of Waste
 - Towards Resource Management. The Northern Ireland Waste Management Strategy (2006)
 - The Northern Ireland Landfill Allowance Scheme (NILAS).
- 1.9 To promote sustainable waste management, and recognising the social dimension as well as the economic and environment, an overall aim has been defined by SWaMP for the Plan as follows:

Aim: *To develop a waste management system that meets the region's needs and contributes to economic and sustainable development.*

- 1.10 The objectives of the Plan are as follows:

Objectives:

- 1 To develop an integrated network of facilities to meet the needs of the SWaMP Region.*
- 2 To minimise the amount of waste produced within the region.*
- 3 To maximise resource efficiency.*

- 4 *To minimise environmental impacts.*
- 5 *To ensure that the identified facilities and services are in place in time to enable district councils to meet their statutory targets and obligations.*
- 6 *To encourage regional self sufficiency, as far as practicable and economical, within the SWaMP Region.*
- 7 *To ensure that the actions and measures identified in the Plan are:*
 - *Deliverable, with respect to timescales for implementation; and*
 - *Practical, building upon existing services and facilities within the region.*
- 8 *To identify and manage risks (financial, planning and contractual) in a systematic manner, to ensure that risks lie with those parties best placed to manage them effectively.*
- 9 *To adopt a regional approach to the sharing of targets to ensure that SWaMP as a whole is able to meet its targets, with individual action and targets agreed for each Council, taking into account demographic factors, including spread of population and associated costs for the provision of services.*

SCOPE

- 1.11 The district councils have a statutory responsibility to prepare a Waste Management Plan that covers all controlled waste streams, under Article 23 of the Waste and Contaminated Land (Northern Ireland) Order 1997.
- 1.12 This Plan therefore sets out the arrangements for the management of the following waste streams:
 - **Municipal Waste**, that is the waste collected by or on behalf of district councils (See Chapter 6)
 - **Commercial and Industrial Waste** (see Chapter 7)
 - **Construction, Demolition and Excavation Waste** (see Chapter 10)
 - **Hazardous Waste** (see Chapter 9)
 - **Packaging Waste** (see Chapter 8)
 - **Agricultural Waste** (see Chapter 11)
 - **Other Priority Wastes** (see Chapter 12)

PLANNING HORIZON

- 1.13 The Plan covers the period from 2006 to 2020, and sets out the arrangements and measures identified through the Review and consultation process. In addition, the Plan identifies key dates by which specified actions have to be implemented in order to ensure that the infrastructure facilities, contracts and services are in place to ensure councils can meet their statutory targets and obligations.

IMPLEMENTATION AND REVIEW

- 1.14 Implementation of the Plan is delivered through an annual Implementation Action Plan (IAP), that assesses and monitors progress against the planned performance and delivery programme. The IAP will identify, on an annual basis, any additional measures, actions or adjustments necessary, to ensure that the councils meet their statutory targets or take into account any other policy or regulatory developments as appropriate, subject to the approval of SWaMP.
- 1.15 The Plan will also be subject to a formal Review and consultation every five years (or more frequently if deemed necessary), to ensure that major contextual or policy changes are taken into account. This may include the Review of Public Administration, which will result in significant changes to local government structures and responsibilities.

FORMAT OF THE PLAN

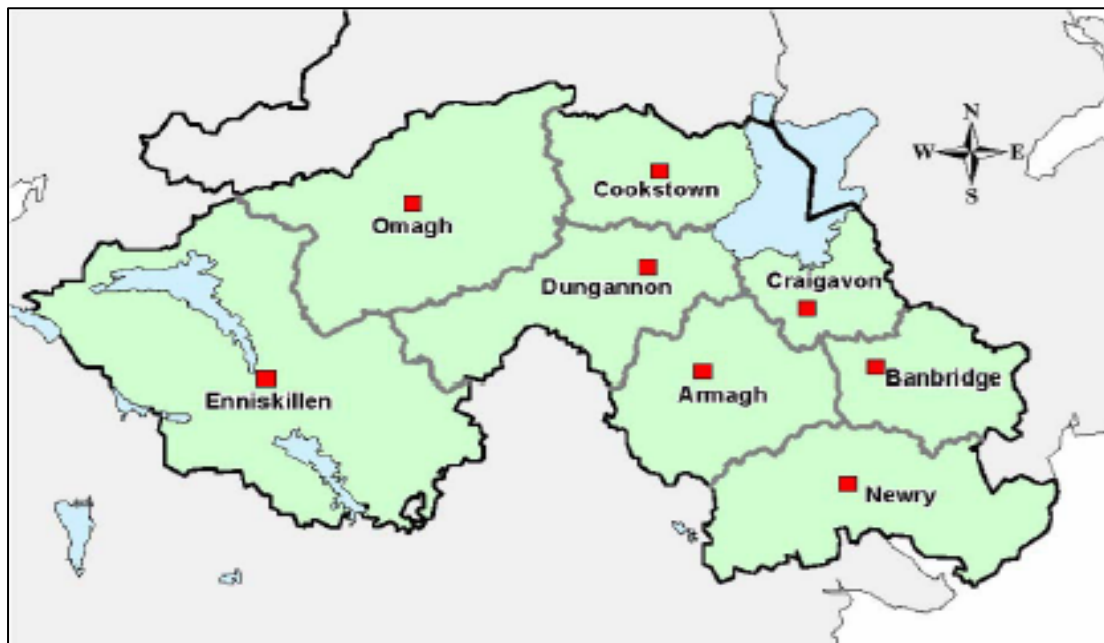
- 1.16 The Plan is divided into three parts as follows:
- **Chapter 1-5: Background** – comprising this Introduction, and chapters on the SWaMP Region, and the Policy and Legislative context as well as an introduction to waste technologies.
 - **Chapters 6-12: Waste Streams** – Chapters on each of the controlled waste streams.
 - **Chapters 13-14: Planning and Delivery**– Chapters on waste infrastructure and the planning process and implementation, monitoring and review.

2.0 GENERAL DESCRIPTION OF THE AREA

INTRODUCTION

- 2.1 The SWaMP Region, which is referred to within this Waste Management Plan, consists of the administrative areas of Armagh, Banbridge, Cookstown, Craigavon, Dungannon, Fermanagh, Newry and Mourne and Omagh. These areas are all situated in the southern region of Northern Ireland, have a combined area of 6,763 square kilometres, which is 48% of the area of the country, and a combined population of 449,179 (2001 census) which is 27.2% (2001 census) of the population of Northern Ireland. There are 20,455 VAT registered businesses in the area, which is around 38% of the total registered businesses in Northern Ireland as a whole. Within the SWaMP Region the principal towns are Armagh, Banbridge, Cookstown, Craigavon, Dungannon, Enniskillen, Newry and Omagh, as shown in Figure 2.1.

Figure 2.1 Principal Towns within the SWaMP Region



- 2.2 This section of the Waste Management Plan provides a general overview of each of the council areas within the SWaMP Region highlighting the present infrastructure and land use within each county.

GENERAL DESCRIPTION OF EACH COUNCIL AREA

- 2.3 This section provides a general overview of each of the council areas within the SWaMP Region highlighting the present infrastructure and land use within each area.

Armagh City and District Council

- 2.4 Armagh City and District covers an area of 671 kilometres squared and around 4.8% of Northern Ireland's Landmass with a population of 54,263 and 20,032 households. Armagh lies approximately 40 miles south of Belfast and is essentially a rural district with the largest centre of population in the area being Armagh City, the ecclesiastical capital of Ireland.
- 2.5 Armagh obtained city status in March 1995 and is rich in culture and heritage, making it an attractive location for tourism.
- 2.6 The public sector is the main source of employment, bringing income and spending into areas of Armagh currently being challenged by government policy. Cultural, education and industrial infrastructure are being continuously developed and Armagh's telecommunications systems are exceptional.
- 2.7 Agricultural activity is similar in most respects to the general trend in Northern Ireland, in that it has been in steady decline. There is a high dependence on agriculture within the area and a general feeling that for the farming community to survive, it must diversify.
- 2.8 Armagh has a diverse light industry and manufacturing base, with the single largest product being textiles. Agricultural machinery, furniture, plastics and domestic fittings are also produced in the area. Unemployment is lower at 3.65% than the Northern Irish average at 4.14% (2001, census). The service industries, food processing and tourism have all stimulated a lot of economic activity. Armagh City is the commercial and retail centre of the district, offering a mixture of national outlets and local, family run businesses retailing in high quality goods. There are 2,645 VAT registered businesses in the Armagh City and District Council, around 5% of the total number of Northern Ireland as a whole.
- 2.9 Further information on Armagh can be found at Armagh City and District Council website: <http://www.armagh.gov.uk>.

Banbridge District Council

- 2.10 Banbridge District covers an area of 480km² with a population of 41,392 and 17,078 households. Banbridge lies 25 miles south of Belfast on the main Belfast to Dublin road.
- 2.11 The level of unemployment within the area is very low at 2.83% this is the second lowest in Northern Ireland. The service sector is the largest area of employment within the District Council. Banbridge town is the commercial centre for the district and has been the focus of interest for a number of developers. The area has 1,775 VAT registered businesses of which many are manufacturing based. Banbridge today has a broad industrial base and recent years have seen rapid expansion in the small business sector.

2.12 Agriculture remains significant in terms of local employment. The Banbridge District has a rich natural and built heritage with a range of diverse habitats, including river, mountain, fell and farm land which continues to attract people to live there.

2.13 Further information on Banbridge can be found at Banbridge District Council website: <http://www.banbridge.com/home.asp>.

Cookstown District Council

2.14 Cookstown District covers an area of 609 km² with a population of 32,581 and 12,103 households. It occupies a uniquely central position in Northern Ireland and is an Area of Outstanding Natural Beauty (AONB).

2.15 Cookstown is situated between the contrasting scenery of Lough Neagh to the east and the rugged beauty of the northwest, offering some of Tyrone's finest scenery and attractions. Agriculture is important to the local economy with three livestock markets held weekly.

2.16 Cookstown District is also noted for its bacon factory, cheese factory and creamery. The Department of Agriculture and Rural Development has also an agricultural and food technology centre based at Loughry on the edge of the town.

2.17 Cookstown is a key service and commercial centre providing for much of mid-Ulster. It offers a range of educational, administrative and health services to an extensive hinterland in the rural west. The 1,830 VAT registered businesses located in the area give a lower than Northern Irish average Unemployment rate of 3.49%.

2.18 The town itself is located in a central position on the important North/South A29 route, which links to key transport corridors serving the major urban centres in Northern Ireland. It has maintained and strengthened its commercial and retail viability over recent years and has built up a strong reputation as an important shopping centre within mid-Ulster.

2.19 Cookstown District is very centrally located within NI and brings together a variety of landscapes. These range from flat lowlands along the eastern shores of Lough Neagh in the east to the rising uplands of the Sperrin Mountains in the west.

2.20 Further information on Cookstown can be found at Cookstown District Council website: <http://www.cookstown.gov.uk>.

Craigavon Borough Council

- 2.21 Craigavon Borough covers an area of 378 km² with a population of 80,671 and 33,580 households. Craigavon is one of the largest urban centres in Northern Ireland and is centered around the historic centres of Lurgan and Portadown on the southern shore of Lough Neagh. Craigavon, Northern Ireland's first "new town", designed in 1965, is situated 27 miles southwest of Belfast on the M1 and is served by two rail stations on the Belfast to Dublin rail route. Craigavon's location and infrastructure have been central to attracting new industry into the area and there has been growing manufacturing diversity with key specialisms in food, plastics, carpet manufacturing, engineering, metal products and textiles.
- 2.22 The area also has an excellent export orientated manufacturing base with an impressive record of foreign companies moving into the area and then expanding. There are adequate levels of skilled labour in the area and unemployment is lower than the Northern Irish average, at around 3.51%. There are 2,130 VAT registered businesses located in the area, around 3.96% of the total in Northern Ireland.
- 2.23 The rural area is characterised by diverse landscapes ranging from the lowland bogs of Lough Neagh Shore, to the orchard country in the southwest and the drumlin landscape in the southeast. The Upper Bann, which flows through the Borough, has a major influence on development patterns within its catchment.
- 2.24 Further information on Craigavon can be found at Craigavon Borough Council website: <http://www.craigavon.gov.uk>.

Dungannon and South Tyrone Borough Council

- 2.25 Dungannon and South Tyrone Borough Council covers an area of 816 km² with a population of 47,735 and 17,912 households. The area is steeped in history with a wealth of peaceful, natural beauty, stretching westwards from the shores of Lough Neagh up through the Clogher Valley and northwards to the foothills of the Sperrins.
- 2.26 It is very much a rural community where the main industry still remains agriculture. However, it maintains a number of modern industries with a fine range of manufactured goods, for example, textiles, engineering, crafts and food processing. The number of VAT registered businesses in 2004 was 2,695 with a lower unemployment rate than the Northern Irish average at 3.56%.

- 2.27 The town itself is situated at the end of the M1 motorway approximately 42 miles from Belfast. It is an important regional town in the rural west, acting as a centre for a wide range of services including education, health and shopping. It serves an extensive, largely rural, hinterland, due to the accessibility of the town and its role as an important centre for jobs and services.
- 2.28 Further information on Dungannon and South Tyrone Borough Council can be found at the District Councils website: <http://www.dungannon.gov.uk>.

Fermanagh District Council

- 2.29 Fermanagh District covers an area of 1,851 km² and is the largest local government district in Northern Ireland. It has a population of 57,527 and 22,977 households. Fermanagh, set in the southwest of Northern Ireland, is an Area of Outstanding Natural Beauty. The main commercial and administrative centre within Fermanagh is the town of Enniskillen.
- 2.30 Key industries within the area include agriculture, food processing, textiles, quarrying and tourism. Fermanagh has a high unemployment rate of 5.12% in comparison to the Northern Irish average of 4.14%. This in part will be due to the seasonality of the tourism employment sector. Over 6% of the total VAT registered business (around 3,330) located in Northern Ireland are in the Fermanagh District.
- 2.31 Confidence in Fermanagh is high at present. Major investment has taken place in the tourism and leisure infrastructure, including Enniskillen Airport, building upon the potential of Lough Erne and other indigenous resources. The £30m development of the Shannon-Erne link has created the longest inland navigable waterway in Europe.
- 2.32 Fermanagh is also renowned for its tranquil unpolluted lakes and rivers, its varied habitats and interesting geology. The importance of the County is reflected in the amount and extent of protected areas, such as National Nature Reserves, Areas of Special Scientific Interest (ASSI's), proposed Special Areas of Conservation (SAC's) and other designated areas.
- 2.33 Further information on Fermanagh can be found at Fermanagh District Council website: <http://www.fermanagh.gov.uk>.

Newry and Mourne District Council

- 2.34 Newry and Mourne District Council area covers 829 Km² with a population of 87,058 and 32,503 households.

- 2.35 The District borders the Irish Republic and contains the southern parts of Counties Armagh and Down. The local administrative centre and largest town within the district is Newry, with a population of 32,503, which has a long and distinguished commercial history.
- 2.36 Newry is strategically positioned on the main North/South A1 Road and railway line and thus occupies a gateway position in the Belfast to Dublin Transport Corridor. The Newry area has an excellent infrastructure to support industry and in recent years significant private and public sector investment has taken place.
- 2.37 Newry provides shopping, commercial, industrial, educational, health care and recreational services for an extensive rural hinterland. The Newry and Mourne District has around 3,405 businesses and an unemployment rate of around 4.71%.
- 2.38 Newry benefits from its location at the head of Carlingford Lough, between the Mourne and Ring of Gullion Areas of Outstanding Natural Beauty, in terms of the potential for recreational leisure and tourist opportunities. The historic town centre and conservation area, the Newry Canal and riverside setting all contribute to the town's identity and offer further potential for tourist related development.
- 2.39 The area is served by the modern port of Warrenpoint, which has direct container and Roll On/Roll Off services with mainland Britain as well as numerous freight services to European ports.
- 2.40 Kilkeel is one of Northern Ireland's main fishing ports with numerous fish processing plants.
- 2.41 South Armagh has also benefited from the recent economic prosperity of the District with particular emphasis on the economic regeneration of local communities such as Bessbrook, Newtownhamilton and Crossmaglen.
- 2.42 Further information on Newry and Mourne can be found at Newry and Mourne District Council website: <http://www.newryandmourne.gov.uk>.

Omagh District Council

- 2.43 The Omagh District Council area covers 1,129 Km² with a population of 47,952 and 17,710 households. Omagh is, after Fermanagh, the second largest local government district in Northern Ireland. Centrally positioned, the area offers an efficient communications system linking it to the other leading towns in the Northern Ireland.

-
- 2.44 The town of Omagh, a prosperous and thriving commercial administrative centre is situated on the Londonderry to Dublin transport corridor, 69 miles west of Belfast. The area has a large rural hinterland and agriculture is therefore a vital component of the local economy. It also has a small but important industrial base and around 2,645 VAT registered businesses. The service and tourism sector is the growing area of employment within the district as employment in agriculture declines. The 4.66% unemployment rate is just above the Northern Ireland average.
- 2.45 Much of the District is marginal upland and to the North, as it moves into the Sperrin Mountains, ground level rises to over 400m above mean sea level. The intricate landscape reflects the topographical variety and long settlement history of the district. Its urban focal point is the town of Omagh where the rivers Camowen and Drumragh come together to form the Strule.
- 2.46 Further information on Omagh can be found at Omagh District Council website: <http://www.omagh.gov.uk>.

3.0 DRIVERS FOR CHANGE - THE EU POLICY CONTEXT

INTRODUCTION

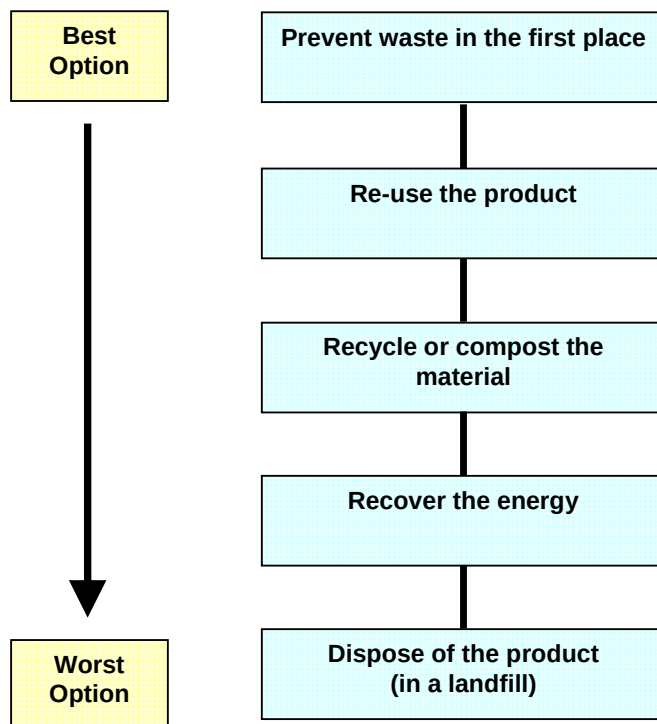
- 3.1 EU waste policy, which forms the basis for waste policy and legislation in Northern Ireland, has evolved significantly over the years. Despite being a relatively mature policy area, it is continuing to evolve, and at the present time, stands at a crossroads.
- 3.2 The Thematic Strategy on the Prevention and Recycling of Waste, which was adopted by the European Commission on 21 December 2005, has confirmed the need to shift direction in order to meet the challenges of the future in delivering a sustainable approach to waste and resource management.
- 3.3 This Chapter therefore provides an overview of current and anticipated waste policy and legislative measures emanating from within the European Union (EU) and the European Commission, in order to identify and understand the key issues that need to be taken into account in developing a waste management plan. A list of key legislation relevant to the management of wastes is presented in Annex A.
- 3.4 It should be stressed that this Chapter provides a simple overview of waste policy and legislation. It is not exhaustive, and does not detail every piece of legislation or every policy measure. It does not constitute legal advice, and hence appropriate guidance therefore should be sought from a professional advisor, or regulator, in relation to any issues to do with legal compliance.

CURRENT EU WASTE POLICY AND LEGISLATION

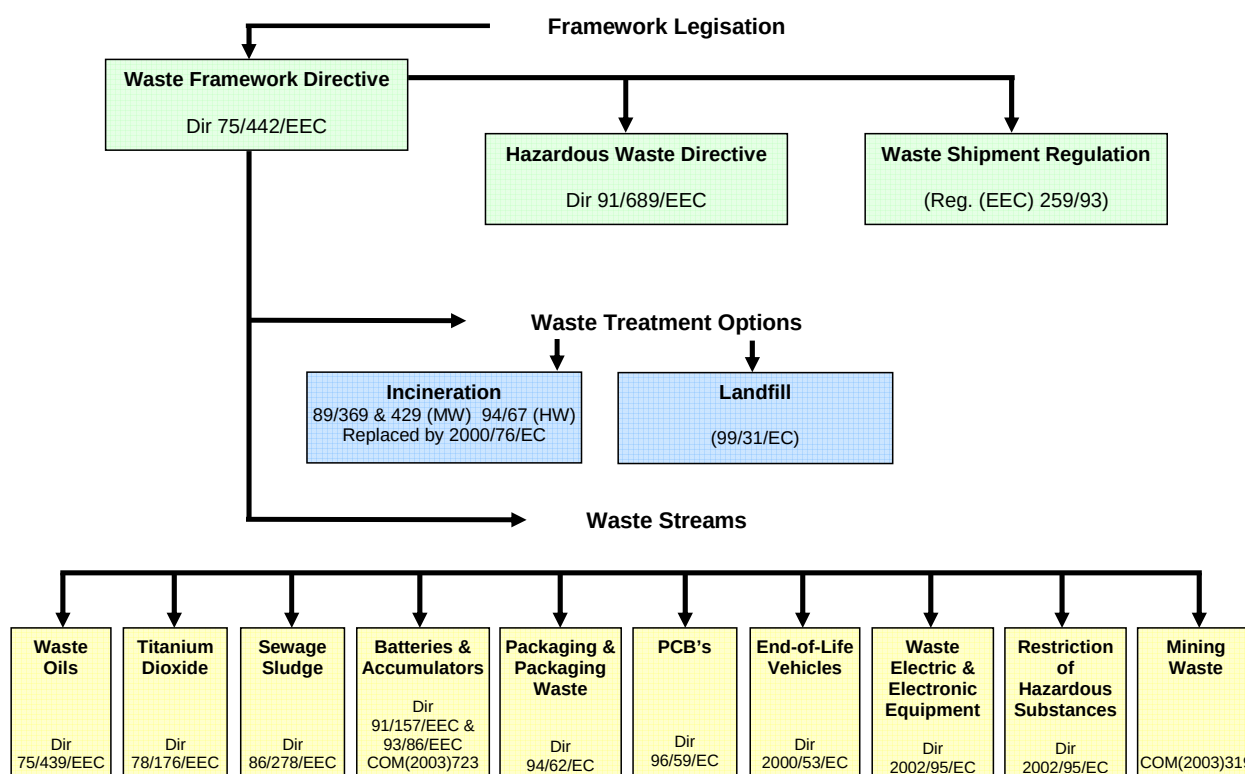
- 3.5 EU waste policy and legislation are inextricably intertwined, due to their history of development. Initially the focus was on putting in place measures to manage and control waste. This led to the adoption of the Waste Framework Directive (75/442/EEC) in 1975. This, together with the Hazardous Waste Directive, which was also originally adopted in 1975, and the Waste Shipment Regulation (Reg (EEC) 259/93) put in place the regulatory structure for waste. These pieces of legislation define waste, and other fundamental concepts including licensing, and put in place controls for the handling and movement of waste, to prevent damage to the environment or human health.
- 3.6 Recycling, re-use and energy recovery, in preference to the disposal of waste came with the 1996 Waste Strategy Communication from the European Commission which:
- Reinforced the Waste Hierarchy (see Figure 3.1);
 - Re-affirmed the 'polluter pays' principle for waste; and

- Developed the concept of Priority Waste Streams.

Figure 3.1 The Waste Hierarchy



- 3.7 The priority waste streams included those wastes that either had a high environmental impact, or where recycling/recovery had not really developed despite clear benefits. These have included End of Life Vehicles, Waste Electrical and Electronic Equipment and Packaging and Packaging Waste.
- 3.8 The legislative framework that developed, as further measures were identified to limit and control the impacts of either specific waste streams, or particular waste disposal facilities i.e. landfill and incineration, has resulted in a structured hierarchy of EU waste legislation.
- 3.9 As illustrated in Figure 3.2, the legislation can be classified as follows:
- Framework Directives
 - Waste Stream Specific Directives
 - Waste Treatment/Technology Specific Directives

Figure 3.2 Current EU Waste Legislative Framework

3.10 In addition to the above, the Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC) adopts an integrated approach to environmental protection for the activities of certain industrial installations. It uses the concept of Best Available Technology (BAT), and requires authorisations for operators. Its scope, which is likely to be extended, covers waste facilities, including landfills, incinerators and other waste disposal installations, subject to certain criteria.

Table 3.1 Summary of Selected Waste Directives and Key Provisions

Waste Framework Directive (75/442/EEC, as amended by 91/156/EEC and others)	
- Definition of waste - any substance or object which the holder discards or intends or is required to discard. - Promotes waste prevention and clean technologies. - Promotes the 'polluter pays' principle.	- Requires competent authorities to draw up waste management plans and develop an integrated network of facilities. - Establishes requirements for licensing and registration of carriers. - Prevention of pollution by waste disposal and recovery operations. - Encourages recovery (including materials and energy recovery) and reuse.
Landfill Directive (99/31/EEC)	
- Classification of landfills as: inert, non-hazardous, or hazardous. - Ban on co-disposal of hazardous and non-hazardous wastes.	- Targets for the progressive reduction of Biodegradable Municipal Waste disposed of to landfill (up to 2020). - Introduction of waste acceptance criteria. - Strict technical standards for development, operation and closure of landfills.
Hazardous Waste Directive (91/689/EEC)	
- Definition of hazardous waste. - Requirement for a hazardous waste management plan.	- Controls for the collection, transport, and storage of hazardous wastes. - Identification and registration of sites accepting hazardous wastes.
Packaging and Packaging Waste Directive (94/62/EC)	
Introduces targets for the recycling and recovery of packaging wastes.	- Encourages the reduction and re-use of packaging. - Requirement for chapter on Packaging Waste in Waste Plans.
Incineration Directive (2000/76/EC)	
Aims to minimise negative impacts on the environment and human health as a result of emissions to air, soil or water.	- Includes operational, control and monitoring requirements. - Sets emission limit values for substances released to atmosphere.
End of Life Vehicles Directive (2000/53/EC)	
To increase the rate of re-use and recovery to 95% for ELVs by 2015.	- Encourage design of vehicles for dismantling, re-use and recovery. - Regulation of disassembly of ELVs at Authorised Treatment Facilities.
Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC)	
- Promotes waste prevention and re-use. - Sets targets for recovery of WEEE.	- Introduce systems for separate collection of WEEE. - Encourage product design for dismantling, re-use and recovery.
Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC)	
- Focuses attention on making best use of resources. - Scope covers waste facilities, including landfill, subject to certain criteria.	- Adopts the concept of Best Available Technology (BAT). - Requires authorisations for operators of certain industrial installations. - Takes an integrated approach to environmental protection.

3.11 A summary of selected key provisions of these directives is included in Table 3.1. Further information on EU waste legislation is available from the following websites:

- *Environment and Heritage Service:*
<http://www.ehsni.gov.uk/environment/wasteManage/regulations.shtml>
- *Activities of the European Union – Summaries of Legislation - Waste:*
<http://europa.eu/scadplus/leg/en/s15002.htm>

DEVELOPMENTS IN EU WASTE POLICY

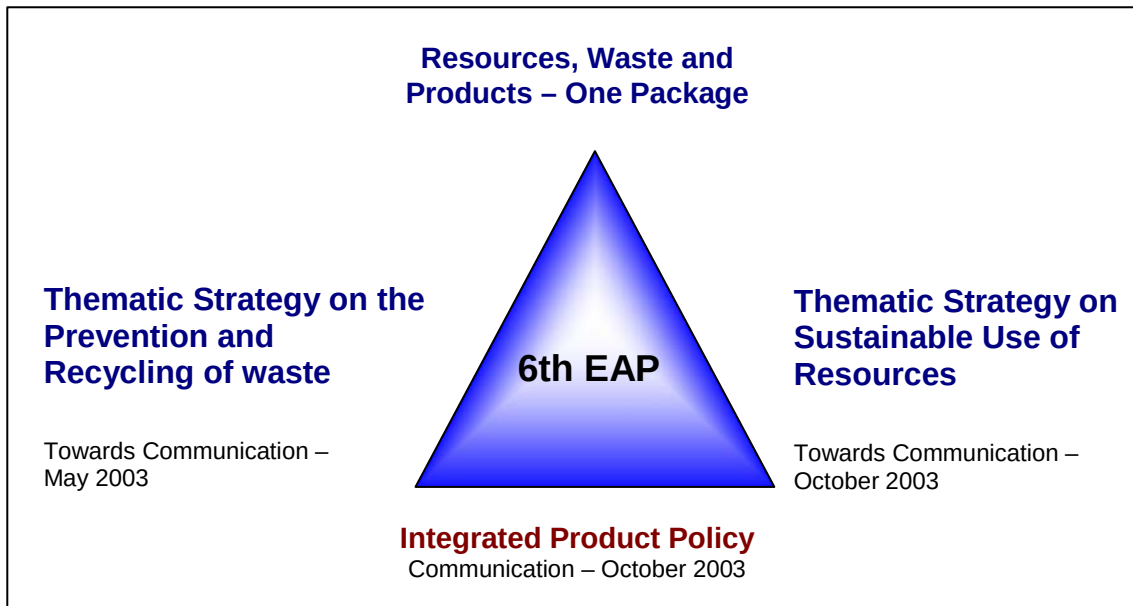
3.12 The drive for sustainability, which lies at the heart of EU policy development, has profound implications for environmental policy-making. Seven thematic strategies have been proposed by the European Commission. These address a range of environmental areas, including, inter alia:

- The Sustainable Use of Natural Resources;
- Waste Prevention and Recycling; and
- Soil Quality.

3.13 These thematic strategies are essential components in delivering the objectives set out in the Sixth Environmental Action Programme (6th EAP), entitled Environment 2010: Our Future Our Choice. The 6th EAP seeks to integrate resource, product and waste policies. Hence, the thematic strategies take a longer term perspective, providing broad analyses of environmental impacts and sectoral policies. They consider a range of options and the policy mix, including the use of market-based instruments.

3.14 The Thematic Strategy on the Prevention and Recycling of Waste, which was adopted by the European Commission on 21 December 2005, has confirmed the need for a shift in direction and focus in order to meet the challenges of delivering a sustainable approach to waste and resource management. It aims to stimulate a 'European recycling society'.

3.15 Conceptually, the thematic strategy considers waste as one side of a resource/product/waste triangle (Figure 3.3). On the one hand, waste is produced by our pattern of resource use in product manufacturing, packaging and distribution. On the other hand, the waste itself is a lost resource, offering significant, if at present largely unexploited potential for displacing the use of virgin materials.

Figure 3.3 The Resource/Product/Waste Triangle

- 3.16 Integrated Product Policy (IPP), a Communication adopted by the European Commission on 18 June 2003, is an integral component of the EU's sustainable development strategy. Still in the process of ongoing development and implementation, IPP seeks to minimise the adverse environmental impacts of a product by looking at all phases of a product's life-cycle, from 'cradle to grave', using a range of approaches including:
- Life cycle thinking
 - Working with the market
 - Continuous improvement
 - Stakeholder involvement
 - Use of a range of policy instruments
- 3.17 The objective of the Thematic Strategy on the Sustainable Use of Natural Uses, which was adopted by the European Commission on 21st December 2005, is to decouple environmental impacts from economic growth. It establishes a policy framework aimed at:
- Creating more value while using less resources (increased resource productivity);
 - Reducing the overall environmental impact of resources used (increased eco-efficiency);
 - Substituting currently used resources with better alternatives, if cleaner use cannot be achieved.
- 3.18 The Strategy, which uses life cycle thinking, proposes a number of measures, which includes:
- A Data Centre to bring together all available knowledge on natural resources and to inform decision-makers.
 - The development of national measures and programmes by Member States.
 - Consideration of environmental impacts of resource use in economic sector action plans.
 - The development of indicators to monitor and review progress.

- 3.19 The Resource Strategy provides the scientific and conceptual foundation for the Thematic Strategy on Waste Prevention and Recycling, advocating as it does, life cycle thinking to minimise the environmental impacts of resource use. Waste is the final stage in the life cycle, and in order to minimise the environmental impacts, waste policies need to consider the options which cause the least environmental impact in the whole life cycle of the resource and product.
- 3.20 Together, over time, these measures will influence our approach to resource use in the manufacture, packaging and distribution of products. As a result, it will affect, in an as yet unquantified way, the quantity and nature of materials entering the waste stream in the medium to longer term.

THEMATIC STRATEGY ON THE PREVENTION AND RECYCLING OF WASTE

- 3.21 The Thematic Strategy on the Prevention and Recycling of Waste, which was adopted on 21st December 2005, by the European Commission, has raised several aspects that are relevant to consider in the context of this Waste Management Plan. These include:
- By-products – when they should or should not be considered as waste.
 - Waste - and when waste ceases to be a waste.
 - The Waste Hierarchy and Life Cycle Thinking.
 - Recycling - standards and market barriers.
 - Energy recovery – is it recovery or is it disposal.

By-Products

- 3.22 Guidance is scheduled to be published in 2006, based on the jurisprudence of the European Court of Justice, on the issue of by-products, and when they should or should not be considered as waste. This should provide clarification in a number of areas, and assist in developing a more resource efficient approach to the management of such materials.

Definition of Waste

- 3.23 It is not proposed to amend the definition of waste, based on the concept of 'discard' (which has a special meaning in this context) in the Waste Framework Directive. However, it is proposed that amendments to the Directive will clarify, possibly on a waste stream specific basis, when wastes are no longer classified as waste, and can be regarded as fully recovered into new or secondary materials.

The Waste Hierarchy and Life Cycle Thinking

- 3.24 The Thematic Strategy promotes the use of life cycle thinking to support the decision-making processes in identifying the most environmentally efficient approaches to the management of wastes. As a consequence, it recognises the Waste Hierarchy as an excellent rule of thumb for prioritising management options, but decisions can be based on more scientifically based analyses and assessment.
- 3.25 This is illustrated by the Thematic Strategy Impact Assessment, which concludes that if plastic is clean and separated, the best option is likely to be recycling, whereas if the plastic is mixed, it is likely to be more efficient to incinerate and recover the energy.
- 3.26 Life cycle thinking, as a tool to assist decision-making processes, will need to be developed in the context of in waste management planning, and waste policy and strategy development in Northern Ireland.

Recycling and Barriers in the Market

- 3.27 Differences in standards are seen to distort the market at present, potentially generating flows of waste materials within (and outwith) the EU to lower standard facilities. The development of common standards for recycling and recovery therefore is seen as central to future EU waste policy, with common standards providing an effective solution, both economically and environmentally.

Energy Recovery

- 3.28 The distinction between recovery and disposal is an important one for waste planning purposes, particularly in the context of energy recovery. This is to be addressed through a proposed revision to the Waste Framework Directive, which provides for an efficiency threshold for energy recovery. At present a threshold of 60% is suggested. Therefore, for facilities with an energy efficiency of greater than 60%, the operation would be classified as recovery. For facilities with an energy efficiency of less than 60%, the operation would be classified as disposal.
- 3.29 This has important implications for waste management planning, where energy recovery forms part of the identified solution. Achievement of 60% efficiency requires the generation of both heat and power. As a result, energy recovery installations will either need to be sited in proximity to users of the heat (or where users of heat can be brought to).

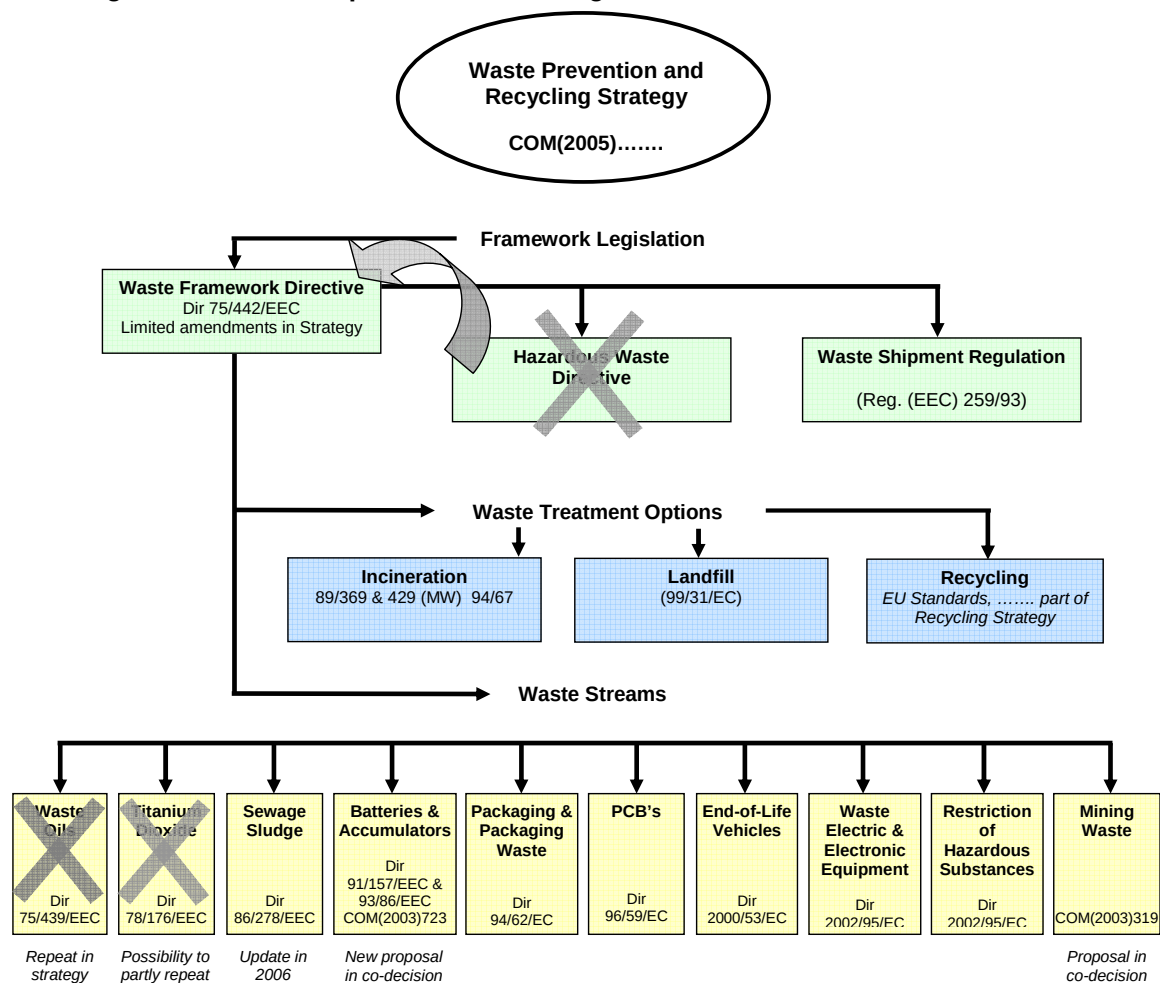
AMENDMENTS TO THE WASTE FRAMEWORK DIRECTIVE

3.30 As the first step in implementing aspects of the Thematic Strategy on Waste Prevention and Recycling, it is proposed to amend the Waste Framework Directive. The Commission published a Proposal (COM(2005) 667 final) on 21st December 2005, outlining these proposals, which include:

- Simplification of waste legislation and in particular the clarification of definitions.
- Introduction of an environmental objective, which incorporates life-cycle thinking.
- An obligation on Member States to develop waste prevention programmes.
- Determination of end-of-waste criteria for selected waste streams.
- The introduction of minimum standards or a procedure to establish minimum standards for a number of waste management operations.
- Clarification of the notions of recovery and disposal.
- Integration of the Hazardous Waste Directive into the Waste Framework Directive (whilst maintaining its substantive provisions).

3.31 As a result of these amendments, the EU legislative structure will change, as illustrated in Figure 3.4.

Figure 3.4 Anticipated EU Waste Legislative Framework



CONCLUDING COMMENTS

- 3.32 EU waste policy and legislation determines, to a very significant degree, the measures that impact on the management of wastes in Northern Ireland and within the region. These measures are either transposed through legislation, or incorporated into waste management policy (see Chapter 4).
- 3.33 This Review has highlighted the dynamic nature of the waste policy and legislative environment at an EU level, and significant changes are anticipated. Over and above the targets that have already been incorporated into our local legislative framework, the most significant aspect is the proposed efficiency threshold for energy recovery installations, as a means of distinguishing between recovery and disposal.

4.0 THE NORTHERN IRELAND POLICY AND LEGISLATIVE CONTEXT

INTRODUCTION

- 4.1 The framework within which waste management plans are developed is provided by specific legislative and policy measures which include:
- Waste Legislation - including UK legislation and Northern Ireland Orders and Regulations.
 - Waste Management Strategy - setting out government's policy for the management of waste. Associated guidance provides clarification and information on aspects of waste management policy, and its implementation.
 - Land Use Planning - Strategies, Area Plans and Planning Policy Statements.
- 4.2 It is this framework that implements the requirements of EU policy and directives (see Chapter 3) at the regional level. This Chapter therefore provides an overview of waste policy and legislation in place in Northern Ireland, to identify and consider those issues relevant to the Plan.
- 4.3 This Chapter does not constitute legal advice. It is not exhaustive, nor does it detail all legislation or every aspect of it. Appropriate guidance therefore should be sought from a professional advisor, or regulator, in relation to any issues to do with legal compliance.

WASTE LEGISLATION

- 4.4 Waste legislation is a complicated issue, and this section seeks to provide a simple overview, summarising the key relevant legislative provisions of the main pieces of legislation. A list of key legislation, relevant to the management of wastes, is presented in Annex A. Further information, which provides a greater level of detail, (and which is also subject to updating) can be found at:
- Environment and Heritage Service: www.ehsni.gov.uk
 - NetRegs: www.netregs.gov.uk

WASTE MANAGEMENT POLICY

The Northern Ireland Waste Management Strategy: Towards Resource Management

- 4.5 The Northern Ireland Waste Management Strategy: Towards Resource Management was published in March 2006, following a review of the original Strategy published in 2000, and provides the framework for establishing an integrated network of waste management facilities for Northern Ireland, as required by the EU Waste Framework Directive. It also incorporates Northern Ireland's measures for the management of biodegradable wastes in fulfillment of Article 5 (1) of the EU Landfill Directive.

Aim of the Strategy

- 4.6 The key aim of the Strategy is to help stakeholders to manage waste and resources effectively by using material resources in a way that reduces the quantities of waste produced and, where waste is generated, to manage it in a way that minimises its impact on the environment and public health and contributes positively to economic and social development.

Objectives of the Strategy

- 4.7 The key objectives of the Strategy are:

- To move from waste towards resource management.
- To demonstrate Government's commitment by setting an example to others of good waste practice and by using its purchasing power to drive change.
- To prevent waste where possible.
- To use the necessary Government powers (legislative, regulatory and economic) to ensure improved waste management practices.
- To maximise recycling and recovery of those materials which enter the waste stream.
- To develop an integrated network of regional waste management facilities that represents value for money for Northern Ireland.
- To attract investment, support economic development and create opportunities for increased employment and wealth creation.
- To improve data to support investment and facilitate monitoring.
- To maintain a regulatory framework which supports those businesses that work towards more efficient and sustainable use of resources.
- To promote, encourage and facilitate public action through providing the opportunity to contribute to environmental protection at individual and household levels.

Status of the Strategy

- 4.8 The Strategy is a statutory document under Article 19 of the Waste and Contaminated Land (Northern Ireland) Order 1997. It provides direction for transforming waste management practices in Northern Ireland; acts as a framework for the preparation of Waste Management Plans by District Councils and is a material consideration in determining planning applications and appeals.

Targets set out within the Strategy**Household Waste**

Recycling and composting of household wastes to be at:

35% by 2010

40% by 2015

45% by 2020

Commercial and Industrial Wastes

60% of Commercial and Industrial Waste to be recycled by 2020

Construction, Demolition and Excavation Waste

75% of Construction, Demolition and Excavation Wastes to be recycled and reused by 2020

- 4.9 A complete version of the Northern Ireland Waste Management Strategy can be downloaded from EHS website:

http://www.ehsni.gov.uk/environment/wasteManage/waste_management.shtml.

Northern Ireland Best Practicable Environmental Option (BPEO)

- 4.10 The Northern Ireland Best Practicable Environmental Option (BPEO) for waste management was developed by the Department of the Environment and covered the three main waste streams of municipal solid waste (MSW), Commercial and Industrial Waste (C&I) and Construction, Demolition and Excavation Waste (C, D&E). The aim of this document was to provide further guidance on the level of infrastructure and services required in order to allow Northern Ireland to meet its statutory obligations under the EU Waste Framework and Landfill Directives.
- 4.11 For each of the three waste streams, a broad range of options was considered, and these comprised different combinations of technologies to divert waste from landfill including: recycling, composting, anaerobic digestion, mechanical biological treatment, thermal treatment and advanced thermal treatment (pyrolysis and gasification). These options were assessed against key decision criteria including feasibility, environmental impact, cost and social impact.
- 4.12 The BPEO results for MSW, C&I and C,D&E wastes are as follows:

Municipal Solid Waste**BPEO for 2010**

- A recycling and composting rate of at least 35%.
- A 3 bin system for separate collection of dry recyclables, organic waste and residual waste for all households- where practicable.
- A combination of Mechanical Biological Treatment (MBT) and Anaerobic Digestion (AD) for about 10% of waste in order to meet EU Targets.
- Only 55% of waste going directly to landfill.
- No thermal treatment possible by 2010.

BPEO for 2013

- A recycling and composting rate of at least 40%.
- A combination of all three technologies (MBT, AD and Thermal) for about 20% of the waste is required in order to meet EU Targets.
- Less than 40% of waste going direct to landfill.

BPEO for 2020

- A recycling and composting rate of at least 45%.
- A combination of all three technologies - MBT, AD and Thermal for about 30% of the waste is required in order to meet EU Targets.
- No more than 25% of waste going direct to landfill.

Commercial and Industrial Waste

- A recycling and composting rate of around 40% by 2010, 50% by 2013 with a long term target of 60% by 2020, with the remaining waste treated by a balanced mix of alternative technologies (anaerobic digestion, mechanical biological treatment, and thermal treatment).
- Biological treatments to provide an alternative to landfilling by 2010 with thermal treatment being made available by 2013.
- A maximum of 13% of C&I waste to be landfilled by 2020.

Construction and Demolition Waste

- A Target of 75% of reuse and recycling of C, D & E wastes.

Source: Best Practicable Environmental Option for Waste Management in Northern Ireland: Guidance Document, Department of the Environment, June 2005.

4.13 A complete version of the NI BPEO Guidance can be downloaded from the Environment and Heritage Service website:

http://www.ehsni.gov.uk/environment/wasteManage/waste_management.shtml.

WASTE MANAGEMENT LEGISLATION**Primary Legislation*****Waste and Contaminated Land (Northern Ireland) Order, 1997***

- 4.14 This Order was enacted into Northern Ireland legislation in March 1998 and largely incorporates European Waste Framework Directive 75/442/EEC and the amended Framework Directive 91/156/EEC. The aim of the Order is to set out provisions relating to waste on land, the collection and disposal of waste, land contamination by pollution, the controlled use, supply or storage of prescribed substances and articles and the obtaining of information on potentially hazardous substances. The Order enacts provisions relating to the effective management of wastes including Duty of Care Regulations, Registration of Carriers and Waste Management Licensing. A key feature of the Order has been the creation of a centralised regulatory body by the establishment of a new inspectorate within Environment and Heritage Service.

The Waste and Emissions Trading Act, 2003

- 4.15 The main aim of this Act is to meet European landfill objectives and develop a system for the disposal of biodegradable waste, including biodegradable municipal waste. Within this Act, Government have been allocated landfill allowances to distribute to waste disposal authorities on a yearly basis. Landfill allowances can be bought, traded or sold to allow targets to be met. DOE determine how much biodegradable municipal waste can be sent to landfill and it is the responsibility of the allocating authority to ensure that these levels are not exceeded.

Environment (Northern Ireland) Order, 2002

- 4.16 The main aim of this Order is to make provision for a variety of environmental issues, with specific regard to pollution prevention and control, air quality and Areas of Special Scientific Interest (ASSI's). With regard to pollution, prevention and control, this Order implements EC Directive 96/61/EC on Integrated Pollution, Prevention and Control allowing polluting activities to be regulated and making amendments to existing waste and contaminated land legislation with regard to expiring waste licences.

Producer Responsibility Obligations (Northern Ireland) Order, 1998

- 4.17 This Order came into force in September 1998 and applies to Northern Ireland only. The Order establishes a legal base for Regulations and allows the Department of the Environment to impose obligations on people with regard to the re-use, recovery and recycling of various products and materials in accordance with the EC Packaging Directive 94/62/EC.

Litter (Northern Ireland) Order, 1994

- 4.18 The aim of this Order is to make provision for land to be kept clean and clear of litter including the control of littering and dog fouling at any place in the open air. The Order also allows for the specification of litter control areas within District Council Regions. As part of this Order, District Councils must keep a register of all street litter control notices served under the Order.

Secondary Legislation***The Landfill Allowances Scheme (Amendment) (Northern Ireland) Regulation, 2005***

- 4.19 The Northern Ireland Landfill Allowances Scheme (NILAS) came into force on 1st April 2005 and apply to Northern Ireland only. They supplement the Waste and Emissions Trading Act, 2003 by making detailed provisions for the allocation, borrowing, transfer and monitoring of landfill allowances allocated to District Councils.
- 4.20 The Landfill Allowances Scheme (Amendment) (Northern Ireland) Regulations, 2005 came into force on 1st March 2006 and provide an amendment to the Landfill Allowances Scheme whereby the level of penalty to which a District Council is liable for failing to meet the landfill diversion targets is reduced from £200 per tonne, as specified in the Waste and Emissions Trading Act, 2003 to £150 per tonne.

The Landfill (Northern Ireland) Regulations, 2003

- 4.21 These Regulations came into force in January 2004 and aim to make provisions for issuing permits to create and operate a landfill and set out a pollution control regime for landfilling. The Regulations provide the necessary powers to implement the objectives of the Landfill Directive 99/31/EC including:
- The categorisation of landfills as inert, non-hazardous and hazardous
 - Banning of certain types of waste to landfill
 - Standard waste acceptance procedures, which include the treatment of waste prior to landfilling
 - Operating permits, including the provisions for closure and aftercare
 - Technical standards for the lining and capping of landfills.

The Controlled Waste (Duty of Care) Regulations (Northern Ireland), 2002

- 4.22 Article 5 of the Waste and Contaminated Land (NI) Order, 1997 imposes a Duty of Care on persons concerned with controlled waste. Controlled waste (as defined by Article 31(1) of the Order describes controlled waste as household, commercial and industrial wastes. Article 31(1) provides for regulations to be made to modify the definition of controlled wastes.

4.23 These Regulations:

- Place the onus on the producer to ensure that any waste they produce is handled safely.
- Applies to anyone who produces, imports, carries, keeps, treats or disposes of controlled waste from business or industry.
- Has no time limit, and extends until the waste has either been finally and properly disposed of or fully recovered.
- Ensures that the movement of waste is recorded and monitored from the point of generation to the point of disposal.

4.24 This Duty of Care however does not extend to householders.

4.25 Breach of the Duty of Care is an offence, which on summary conviction is liable to a fine not exceeding the statutory maximum or, an unlimited fine if convicted on indictment.

Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland), 1999

4.26 Under the Waste and Contaminated Land (Northern Ireland) Order, 1997, it is an offence not to be registered with the Department of the Environment as a waste carrier. The requirement to register applies to any person who transports controlled waste, which that person had not produced themselves, to or from any place in Northern Ireland in the course of any business with a view to profit. The exception to this is construction (which includes improvement, repair or alteration) and demolition contractors who are required to register even if they are transporting their own waste. Construction (which includes improvement, repair or alteration) and Demolition contractors would have to be registered as carriers if they wished to transport waste.

Waste Management Licensing Regulations (Northern Ireland), 20034.27 The Waste Management Licensing Regulations (Northern Ireland) 2003, which came into operation on 19th December 2003, implement the waste licensing requirements of the Waste and Contaminated Land Order. Environment and Heritage are directly responsible for the implementation of these Regulations.

4.28 Under the 1997 Order, licenses will be required to authorise:

- The deposit of controlled waste in, or on, land
- The disposal and treatment (including recovery) of controlled waste
- The use of certain mobile plant to control or treat controlled waste.

4.29 All facilities must be covered by a licence unless they hold Pollution Prevention and Control (PPC) permits (as is the case for incinerators and landfills) or they hold a registered exemption from licensing.

The Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland), 1999

- 4.30 The Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 1999 came into force on 1 June 1999. These Regulations are concerned with the recovery and recycling obligations imposed on producers whose turnover exceeds £2 million and who handle more than 50 tonnes of packaging and packaging materials a year. Roles have been established for individual companies to register with the Environment and Heritage Service.
- 4.31 Changes to the national recycling and recovery targets were made by the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland) which also excluded wholesale operations from any obligation, as well as increasing the lower turnover threshold to £2million.
- 4.32 The national recycling and recovery targets for 2002 onwards have subsequently been increased by the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland).

Animal By Products Regulations (Northern Ireland), 2003

- 4.33 These Regulations came into force on 3rd December 2003 and apply to Northern Ireland only. They establish systems and standards with regard to animal by products not intended for human consumption.
- 4.34 The Regulations aim to protect animal and human health by strictly regulating the collection, transportation, storage, handling, processing and disposal of animal by- products as well as placing restrictions on Animal By Products and their use.
- 4.35 The Animal By-Products Regulations divides products into three categories and specifies the means of disposal for each category. Category 1 relates to materials of a very high risk, Category 2 to materials of high risk and Category 3 to those of low risk.
- 4.36 Category 1 materials must be destroyed and are banned from use as feedstock in biogas and composting plants. Category 2 materials may be used in composting and biogas plants but only after pre-treatment by rendering in approved Category 2 processing plants at 133⁰C, 3 bar pressure for a continuous period of 20 minutes. Kitchen and organic waste will contain category 3 animal by-products and hence the processing of these wastes in biogas or composting plants will require the following treatment:

- Treatment is to be enclosed (in-vessel).
- All material must be shredded to maintain a maximum particle size of 12mm.
- Anaerobic digestion plants must have a pasteurisation/hygienisation stage of 70°C for one hour or 57°C for 5 hours.
- Composting plants must have a pasteurisation/hygienisation stage of 70°C for one hour or 60°C for 2 days.
- Composting plants must have a two-stage system with separate digestion vessels for systems without mixers. Systems that involve material mixing may be able to achieve both stages in one vessel.
- Processes must be designed to prevent recontamination (by segregation of clean and unclean areas).
- Salmonella must be absent in the end product biofertiliser.
- The site and all plant must be validated by the SVS (State Veterinary Service).
- A HACCP (Hazard Analysis and Critical Control Points) Plan must be submitted prior to the facility commencing operation.
- Restrictions will be placed on using the biofertiliser on pasture land.

Transfrontier Shipment of Waste Regulations, 1994

- 4.37 These Regulations came into force on 6 May 1994 in Northern Ireland. These Regulations make provision in relation to Council Regulation (EEC) No 259/93 on the supervision and control of the shipment of waste within, into and out of the European Community and for the purpose of implementing Council Directive 75/442/EEC with regards to imports and exports of waste.
- 4.38 These Regulations deal with matter in the United Kingdom:
- Designate the authorities which are to be the competent authorities
 - Enable a competent authority of dispatch to require notifications of shipments of waste from their area to be sent to them instead of the competent authorities by the notifier
 - Require a certificate relating to financial guarantees and insurance to be obtained before the shipment of waste enters or leaves the UK
 - Confer power on competent authorities to ensure waste is returned to the UK or is recovered or disposed of where the authority is under an obligation to secure the return, recovery or disposal of the waste
 - Confer powers on customs officers to detain shipments of waste
 - Provide for the preparation of a waste management plan by the Secretary of State in accordance with the Waste Framework Directive
 - Set out offences, defences and penalties in relation to non-compliance
 - Confer power on the Secretary of State to require competent authorities to provide information to enable him to fulfill his functions.

The Controlled Waste Regulations (Northern Ireland), 2002

- 4.39 These Regulations came into force on the 27 August 2002 and apply to Northern Ireland only. They allow Regulations to be made for the treatment of waste of any description and are made in accordance with the Waste and Contaminated Land (Northern Ireland) Order. The Regulations provide definitions of the wastes to be classified under household waste, commercial and industrial waste as well as classifying the types of household waste for which a collection charge may be made by District Councils.

Pollution, Prevention and Control Regulations (Northern Ireland), 2003

- 4.40 The Pollution, Prevention and Control Regulations (Northern Ireland), 2003 establishes a regulatory system that employs an integrated approach to controlling the environmental aspects of industrial activities such as energy generation, metals, minerals, waste management of chemicals, textile treatment, food production and intensive farming. This system is designed to protect the environment as a whole through a single permitting process by promoting the use of clean technology using Best Available Techniques (BAT).

Landfill Tax Regulations, 1996 and Amendments

- 4.41 The Landfill Tax Regulations outline various administrative procedures which relate to the operation of the landfill tax system, specifically the registration of those organisations that intend to make disposals covered by the tax and the payment of tax.
- 4.42 These Regulations came into force on 1st May 2004 and apply to England, Wales and Northern Ireland. They amend the Landfill Tax Regulations, 1996 by increasing the maximum credit that landfill site operators may claim against their annual landfill tax liability.

Hazardous Waste Regulations

- 4.43 The Hazardous Waste Regulations set out a revised regime to control and track the movement of hazardous waste. The Regulations came into force on 16 July 2005 and apply to Northern Ireland only. They implement Directive 91/689/EEC, on hazardous waste and revoke the Special Waste Regulations (Northern Ireland) SR 1998/289.
- 4.44 They work in conjunction with the List of Wastes Regulations (Northern Ireland) SR 2005/301, which reproduce the list of wastes from Decision 2000/532/EC, which contains the current version of the European Waste Catalogue.

End of Life Vehicles Regulations

- 4.45 These Regulations came fully into force on 31 December 2003 and apply to England, Scotland, Wales and Northern Ireland. They deal with the vehicle producer's requirements with regard to:
- The prohibition of certain heavy metals in vehicles

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- The provision of information
 - Certificates of destruction
 - Imposing a cost for their disposal
- 4.46 The aim of the Regulations is to ensure the proper treatment, recycling and disposal of vehicles which have reached the end of their life, so they do not release hazardous substances which have the potential to pollute the environment.
- 4.47 Further information on Waste Management Policy and Legislation can be found at Netregs: www.netregs.gov.uk.

PLANNING POLICY

Shaping Our Future- Regional Development Strategy for Northern Ireland 2025

- 4.48 Shaping Our Future: The Regional Development Strategy for Northern Ireland 2025 (RDS) provides the framework required for the future development of Northern Ireland up to 2025. The aim of the Strategy is to promote a balanced and equitable pattern of sustainable development across Northern Ireland.
- 4.49 The Strategy sets a number of guidelines concerning the development of Waste Management Policy, the location of waste treatment and for waste disposal facilities, designed to support the Waste Management Plans for Northern Ireland. These include the need for the creation of partnerships to achieve sustainable waste management practices and reduce the amount of waste produced as well as the provision of an extensive network of recycling, recovery and secondary materials manufacturing facilities on a limited number of key sites, close to the centres of major urban waste production.

Planning Policy Statements

- 4.50 The Department of the Environment (DOE) has a statutory duty under Article 3 of the Planning Order (NI) 1991 to “formulate and coordinate policy for securing the orderly and consistent development of land and the planning of that development.” This policy is set out in Planning Policy Statements (PPS) which apply to the whole of Northern Ireland. The contents are taken into account in decisions involving planning applications and appeals, as well as in the formulation of Development Plans.

- 4.51 PPS 11 "Planning and Waste Management" sets out the Departmental Planning Policy with respect to the development of waste management facilities and supercedes Policy PSU 8 (New Infrastructure) and PSU 14 (Waste) of the Planning Strategy for Rural Northern Ireland. It should be considered within the context of current EU and Northern Ireland legislation and Policy including the Waste Framework Directive, Landfill Directive, Regional Development Strategy and the Northern Ireland Waste Management Strategy: Towards Resource Management.
- 4.52 The main objectives of PPS 11 are to:
- Promote the development, in appropriate locations, of waste management facilities that offer the BPEO in meeting need as identified by the relevant Waste Management Plan, or as demonstrated to the Department's satisfaction in the case of Waste Water Treatment Works;
 - Ensure that detrimental effects on people, the environment and local amenity associated with waste management facilities are avoided or minimised;
 - Secure appropriate restoration of proposed waste management sites for agreed after-uses.
- 4.53 Further information on PPS 11 can be found at Planning Service website:
http://www.planningni.gov.uk/AreaPlans_Policy/PPS/pps11/PPS11.pdf.

Development Plans

- 4.54 The purpose of a Development Plan, which may be in the form of area plans, local plans or subject plans, is to apply the regional policies of the Department and inform the relevant agencies (including the general public, statutory authorities and developers) of the policy framework and landuse proposals used to guide planning decisions within their local area. Particular sites for the development of waste management facilities may be identified within these plans, together with the need for appropriate waste management facilities associated with new development. Consideration will also be afforded to the potential impact of existing or approved waste management facilities when zoning adjoining lands for other forms of development.
- 4.55 The role of a Development Plan is to:
- Provide an essential framework for guiding investment by public, private and community sectors and help harness additional resources through collaboration in tackling problems;
 - Provide confidence for those wishing to develop and those affected by development proposals;
 - Establish a framework for positive co-ordination of public policies in joined-up government at both regional and local levels;

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- Provide an effective land supply phased and allocated to meet the full range of needs to support the life of the local community and social and economic progress;
 - Establish a process for involvement and ownership by local communities wishing to influence the future development of their area.

4.56 Further information on Development Plans in Northern Ireland can be obtained from the Planning Service website:

http://www.planningni.gov.uk/AreaPlans_Policy/Plans/Plans_name.htm.

5.0 APPROACHES FOR THE MANAGEMENT OF WASTE

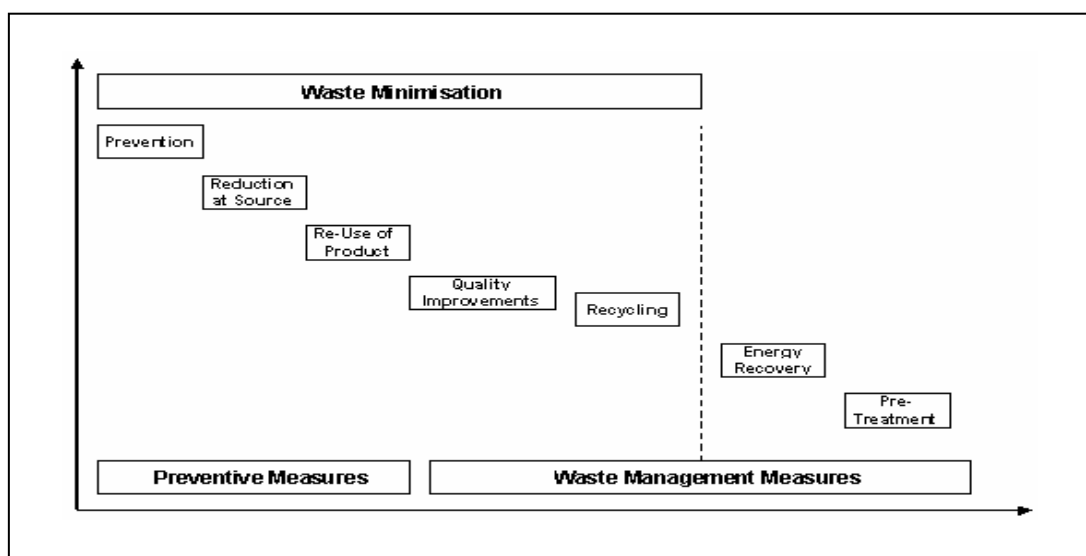
INTRODUCTION

- 5.1 This review provides an insight into the various techniques and technologies available for the current and future management of wastes within Northern Ireland.
- 5.2 It is designed to provide an overview of the technologies considered for the future management of wastes within the SWaMP Region and Northern Ireland in general, as identified within the Northern Ireland and sub-regional BPEO, and is therefore not intended to provide a definitive list of all technologies currently available.
- 5.3 A full description of all the technologies currently available for the management of wastes can be found at Environment Agency Data Centre website <http://www.environment-agency.gov.uk/wtd/> or the Defra New Technologies Website: <http://www.defra.gov.uk/environment/waste/wip/newtech/index.htm>.

WASTE PREVENTION

- 5.4 The Waste Management Strategy for Northern Ireland - Towards Resource Management has considered waste prevention as the number one priority for waste management.
- 5.5 The relationship between waste prevention, waste minimisation and other waste management measures is shown in the conceptual framework in Figure 5.1.

Figure 5.1 Waste Prevention Conceptual Framework



5.6 Waste prevention encompasses activities that reduce both the quantity and the hazardous character of the wastes. It can in principle be broken down into three types of actions:

- **Prevention:** the avoidance of waste generation
- **Reduction:** reduction at source
- **Re-Use:** involves the multiple use of a product in its original form.

5.7 For clarity, the definition of waste prevention in the context of the Waste Management Plan excludes materials recovery (recycling and composting) and energy recovery. Waste prevention therefore basically occurs before products or materials are identified or recognised as waste. For the purposes of this Plan, waste prevention is described as:

“The reduction of the quantity (weight and volume) and hazardousness of waste generated for collection and treatment for disposal by a third party”.

5.8 The Northern Ireland Waste Management Strategy has predicted that municipal waste is currently increasing at a rate of approximately 2.5% per year. It has been recognised that the high levels of waste growth are neither sustainable nor acceptable for the future. In this context, the implementation of waste prevention measures can play an important role in stabilising (by slowing or at best halting) the growth in household waste production, although many of the actions necessary to directly influence levels of waste production are beyond the direct powers of Local Authorities.

5.9 However, Local Authorities can play a vital coordinating, facilitating and leadership role for the various waste producing sectors in its area. This is likely to include long term education programmes and publicity campaigns.

5.10 A summary of advantages and disadvantages of Waste Prevention is given below:

Advantages of Waste Prevention	Disadvantages of Waste Prevention
▪ Councils can lead by example, facilitating industry and other sectors ▪ Environmental and other cost savings associated with production (including raw materials, energy, transport and processing) ▪ Reduced disposal needs and costs ▪ Reduced collection needs and costs ▪ Reduced hazardousness of waste	▪ Investment required to bring about waste reduction in some manufacturing processes could have an unacceptably long payback period ▪ Focusing on the minimisation of solid waste alone could result in an increase in other (aqueous or gaseous) wastes

RE-USE

5.11 Re-use involves putting an item to another use after its original function has been fulfilled. A number of factors have contributed to the decline of re-use systems:

- In modern economies, labour is expensive and primary raw materials cheap, disadvantaging the labour-intensive dismantling and refurbishment which forms the basis of re-use.
- Increasing centralisation of production results in greater transport distances for reusable products.
- Lack of producer responsibility has resulted in increasing 'built in obsolescence' with issues of re-use and dismantling being ignored by designers.
- Many of the actions necessary to promote re-use are beyond the powers of those responsible for the development of waste management strategies.

5.12 A summary of advantages and disadvantages of Re-use is given below:

Advantages of Re-Use	Disadvantages of Re-Use
▪ Environmental and other cost savings associated with production (including raw materials, energy, transport and processing) as many single trip products are replaced with one reusable one ▪ Costs savings for business and the consumer as reusable products need less frequent replacement than single trip products ▪ Reduced disposal needs and costs ▪ Reduced collection needs and costs ▪ New market opportunities produced eg. refillable products	▪ The environmental costs associated with the infrastructure and transport needed for return/refilling systems could outweigh the environmental benefits of re-use ▪ The costs and practical difficulties of collection, transport and cleansing ▪ Reduced market opportunities for disposable products ▪ Increased material use as re-useable products may need to be more robust than single trip products ▪ Not possible for local authorities to control

RECYCLING

5.13 Recycling is the collection and sorting of materials to produce a useable raw material or product. This usually involves the following three phases:

- **Collection**
- **Sorting**
- **Resale**

5.14 A summary of advantages and disadvantages of Recycling are given below:

Advantages of Recycling	Disadvantages of Recycling
▪ Environmental and other cost savings associated with production (including raw materials, energy, transport and processing) as the life of raw materials is extended and the value extracted from them is maximised ▪ Reduced disposal needs and costs ▪ Consumer participation through enhanced public awareness and understanding of environmental issues	▪ The costs and practical difficulties of collection, transport and reprocessing ▪ The occasional higher cost of recycled materials ▪ The instability of markets for recycled materials, which can rapidly be distorted by changes in the international or domestic supply or demand for these materials ▪ Disamenity associated with recycling facilities such as transport movements and unsightliness

5.15 Systems for the collection of recyclable materials are broken into two categories:

- **Civic Amenity Sites and Recycling Centres**
- **Kerbside**

Plate 5.1 Recycling Point



Civic Amenity Sites and Recycling Centres

- 5.16 Consisting of either Civic Amenity (CA) sites or dedicated Household Recycling Centres (HRC), these facilities can be located throughout the district to encourage active participation in recycling. Civic amenity sites and household recycling centres can provide substantial quantities of materials for recycling if located and promoted appropriately.

Kerbside Collection

- 5.17 Various alternative methods have been implemented throughout Northern Ireland for the kerbside collection of recyclable materials. These include the following systems:

- **Green/Blue Bin**
- **Blue/Black Box**

Green/Blue Bin

- 5.18 With the green/blue bins system, the householder is provided with a wheeled bin specifically for the collection of mixed dry recyclables. The bins are collected by conventional refuse collection vehicles, usually on an alternate weekly basis. The mixed dry recyclables are then taken to a Materials Recovery Facility (MRF) where the material is sorted and the recyclables densified and/or bailed for dispatch to market.

Blue Box

- 5.19 The blue box system involves issuing a rigid plastic box to householders in to which they are asked to place dry recyclables. The crew of the vehicles collecting the recyclables then sort the contents of the box placing them into the appropriate part of a compartmentalised vehicle. Depending on which materials are being collected, the recyclables are either taken to an MRF for further sorting or to a storage/transfer facility for bulking and transport to markets.

Plate 5.2 “Blue-Box” Kerbside Collection System***Materials Recovery Facilities (MRF)***

- 5.20 A Materials Recovery Facility is an installation in which different material components of co-mingled recyclables (mainly from households) are separated into individual waste streams of recycled materials, to meet the requirements of secondary markets or other end users.
- 5.21 The marketing of the recycled materials to various users is also an important function of the facility. MRF's tend to combine the use of both mechanical means and labour intensive hand sorting to separate out the various fractions of the recyclables. There are currently 3 Materials Recovery Facilities operational in Northern Ireland.

Plate 5.3 Sorting Conveyors within a Materials Recovery Facility (MRF)

- 5.22 An important issue in MRF design and operation is that of “dirty” versus “clean” MRF’s i.e. can MRF’s process mixed household waste successfully? The overall industry consensus appears to be that a successful MRF must be operated in conjunction with a source-separation kerbside system for clean recyclables, such as the green bin or blue box.

COMPOSTING

- 5.23 Composting plants convert organic (green) wastes into a reusable compost by an aerobic degradation process. Composting can be approached in two ways:

- **Centralised Composting**
- **Home Composting**

Centralised Composting

- 5.24 Centralised composting options include a range of options from open air composting to fully enclosed systems. The materials can be collected via either civic amenity sites or specially designed “compostainer” brown bins for kerbside collection. Due to the introduction of the Animal By-Products Regulations there is now a requirement that all catering and food waste should be treated to required specifications and temperatures within fully enclosed (In-vessel) composting systems.

Plate 5.4 Centralised Composting Facility



5.25 A summary of advantages and disadvantages of Centralised Composting are given below:

Advantages of Centralised Composting	Disadvantages of Centralised Composting
▪ Reduced disposal needs and costs ▪ Removes organic waste from landfill, so reducing methane emissions and potential groundwater contamination ▪ Reduces the use of natural resources such as peat and materials used to produce artificial fertilisers ▪ Returns organic matter to the soil	▪ Odours ▪ Spores and fungi ▪ Liquid effluent ▪ Limited markets for compost based products, although these markets are developing ▪ Variability of composting materials and products

Home Composting

5.26 The supply of home composting containers to households, combined with education and awareness programmes, has the potential to divert a significant proportion of the putrescible waste stream away from the bin. Home composting combines the advantages of centralised composting with additional benefits such as reducing environmental impacts from transport and processing. In addition, the composting of the materials by householders avoids the need to establish markets for compost-based products.

ANAEROBIC DIGESTION

5.27 Anaerobic Digestion is the degradation of organic wastes in the absence of oxygen and has been used for many years for the treatment of agricultural and sewage sludges. Although generally more expensive than composting, the process does have the advantage of producing gas for energy recovery in addition to a usable end product. At the present time, anaerobic digestion of mixed MSW has not been used on a commercial scale in either the UK or Ireland, although there has been a recent resurgence of interest in this technology for use as the biological component of MBT.

Plate 5.5 Anaerobic Digestion Plant

5.28 A summary of advantages and disadvantages of Anaerobic Digestion is given below:

Advantages of Anaerobic Digestion	Disadvantages of Anaerobic Digestion
▪ Possibility of using remaining inert material as a soil conditioner ▪ Suitable for many highly flammable, volatile, toxic and infectious waste streams which should not be landfilled ▪ Produces biogas for energy production ▪ Prevents putrescible waste from being landfilled and as a result can help reduce the production of landfill gas and leachate ▪ Reduces demand for landfill, other waste management and capacity	▪ Cost of separation from unsustainable wastes ▪ Requires careful screening to remove contaminants, particularly metals ▪ Requires controlled conditions and careful management to optimise gas production ▪ Produces a residue that may require landfilling ▪ Gas may require clean-up prior to use

MECHANICAL BIOLOGICAL TREATMENT

5.29 Mechanical Biological Treatment (MBT) is not a single treatment but is a generic term embracing a number of processes, using different combinations of mechanical and biological treatment to recover materials. The mechanical treatment is used as a means of preparing the waste for biological treatment. In this stage bulky materials and recyclables are removed and the remainder of the waste is homogenised and if necessary moistened. Biological treatment is then used to stabilise raw materials, and hence reduce the biodegradability, and obtain a mineralised product through the biodegradation of organic constituents. The main output from the MBT process is a refuse derived fuel (RDF) which has the potential to be used as a fuel, thus constituting energy recovery from the waste.

- 5.30 The purpose of using MBT processes is therefore three fold:
1. To reduce the biodegradability of municipal waste and therefore aid Councils in complying with the short term and early Landfill Directive targets.
 2. To increase the recovery of materials from the municipal waste stream and increase recycling rates.
 3. To produce an additional source of energy for the region in the form of a fuel, which could be used to service an energy recovery facility or could be used in appropriate third party applications, such as a cement kiln, if available.
- 5.31 The versatility of this process has resulted in MBT being the preferred technology for the future treatment of the residual waste stream.
- 5.32 A summary of the advantages and disadvantages of the MBT process are given below:

Advantages of MBT	Disadvantages of MBT
▪ Proven technology ▪ Provides additional materials recovery ▪ Provides a reduction in biodegradability ▪ Provides a source of energy through a number of potential means (including Anaerobic Digestion, Gasification and Pyrolysis) which can be used to generate combined heat and power	▪ A secure market outlet for fuels must be established either in the form of solid materials or energy

GASIFICATION

- 5.33 Gasification is a process in which both organic and inorganic wastes are thermally treated at high temperature with air/oxygen injection to produce metallic and mineralic solid residues and synthesis gas. The synthesis gas can then be used for energy production. There has been a great deal of interest recently in gasification (and pyrolysis) but to date there has been no “deal closure” in the UK and a stalling of markets within Europe. The process is however currently very active in Japan.
- 5.34 A summary of advantages and disadvantages of Gasification is given below:

Advantages of Gasification	Disadvantages of Gasification
- Produces gas for energy production - Reduces demand for landfill and other waste management capacity - Uses low emission technology	- Not commercially proven for MSW/household waste - May be considered similar to incineration and as a result of negative public perceptions this can lead to planning problems - Gas is often low in heating value - A high level of commitment to gasification may inhibit waste minimisation and recycling - A limited number of technology suppliers

PYROLYSIS

5.35 Pyrolysis is the thermal degradation of organic wastes either in the complete absence of oxygen or with a limited supply of oxygen. Both pyrolysis and gasification systems are used to convert solid waste into gaseous, liquid and solid fuels. Pyrolysis of mixed MSW presents a range of problems and the commercial viability of plants processing mixed MSW has yet to be proven.

5.36 A summary of advantages and disadvantages of Pyrolysis is given below:

Advantages of Pyrolysis	Disadvantages of Pyrolysis
- Produces a gas/liquid for energy production - Reduces demand for landfill and other waste management capacity	- Not commercially proven for MSW/household waste - Can be difficult to transfer heat to feedstock - Unlikely to be suitable for the direct degradation of untreated municipal solid waste - Can be difficult to control product quality - A high level of commitment to pyrolysis may inhibit waste minimisation and recycling

INCINERATION WITH ENERGY RECOVERY

5.37 Incineration has been defined in EU legislation as the thermal treatment of wastes with or without the recovery of the combustion heat generated. The process of Incineration is one of the most tightly regulated industrial sectors in Europe and has been the subject of stringent controls since 1989. This has been aided in recent years by the implementation of Directive 2000/76/EC on the Incineration of Waste (WID).

- 5.38 Wide ranges of waste streams are suitable for incineration. These include municipal/household waste, clinical waste and certain portions of industrial waste. The suitability is dependant on the provision of a high calorific value within the waste. It is considered to be a suitable treatment option for waste if combustion destroys or transforms it and removes any potential environmental hazards. Currently in the UK, incineration is widely recognised as the most suitable and therefore Best Practicable Environmental Option for the treatment and disposal of clinical waste.
- 5.39 In a municipal waste incinerator, waste is fed into a series of furnaces at temperatures of around 850-1200⁰C. A hazardous waste incinerator works on the same processes except for the fact that temperatures need to be maintained at a minimum of 1100⁰C for a minimum time period of two seconds. The waste remains in the furnaces for periods of around 40-70 minutes in order to ensure complete combustion. This process results in an ash residue called bottom ash (which must be landfilled) and waste gases. The waste gases are then cooled and passed through a series of filters and catalysts which remove potential pollutants such as dioxins. The resulting steam produced can be heated to temperatures around 400⁰C and can be used to drive turbines and produce energy in the form of electricity. This can then be used to power the plant, with the potential to sell the excess.
- 5.40 There have been negative impacts associated with the incineration process. These have included the release of toxic gases such as dioxins into the environment and these have, in the past, had a perceived impact on human health. The introduction of stringent controls on air quality and emissions since 1989, and also since the introduction of the Directive in 2000, has resulted in the incineration process becoming much cleaner and more environmentally friendly. Emissions from these facilities are now constantly regulated and monitored to ensure that any gaseous emissions are below permissible levels.

LANDFILL

- 5.41 Whatever combination of integrated waste management options are developed and even when recycling and recovery is maximised, landfilling will continue to be required. Modern landfills accepting municipal solid wastes have been designed to meet the requirements of the Landfill Directive, incorporating systems such as complete basal lining, leachate drainage, gas collection and flaring and restoration and aftercare provisions. However, costs are increasing rapidly due to the escalation of the Landfill Tax, which is at present rising by £3 per year up to a level of £35.

Plate 5.6 An Engineered Landfill Site Under Construction

5.42 A summary of advantages and disadvantages of an Engineered Landfill Site is given below:

Advantages of Landfill	Disadvantages of Landfill
▪ Landfill gas may be collected as a source of fuel for heat and power generation ▪ Large capacity remains in some areas ▪ Restored land provides opportunities for wildlife or leisure activities ▪ Normally the lowest cost waste disposal method in present market conditions	▪ Versatility and convenience of landfill make it less attractive for waste producers to be innovative in the way that they deal with their wastes ▪ However well engineered, there is a finite risk of contamination from operational landfill sites ▪ Landfill gas can pose significant risks including release of methane, an important greenhouse gas, into the atmosphere ▪ After landfilling, the land may retain some contamination and so be unsuitable for some uses ▪ Noise, odour, unsightliness and vehicle movements, may cause nuisance, in common with all waste recovery and disposal activities ▪ Energy recovery from landfill is less efficient than from some other disposal options, such as incineration

6.0 MUNICIPAL WASTE

INTRODUCTION

- 6.1 Significant progress has been made in recent years in managing the municipal wastes that we as a society produce. Recycling rates have risen from the low levels of the 1990s to more than 25% in 2005/06 – a major achievement. This step change has been delivered through the commitment and support of the people within the Region, coupled with the provision of the increased range of services, and provision of facilities for recycling, that was the primary objective of our last Waste Management Plan. However, major challenges still lie ahead.
- 6.2 Targets for recycling and recovery have been increased in the Waste Management Strategy, *Towards Resource Management*, and statutory targets, with significant penalties, now apply to the diversion of biodegradable municipal waste from landfill. More needs to be done therefore to limit and reduce the quantities of waste that we produce, and to increase the levels of recycling and recovery, building on the facilities and services that are already in place.
- 6.3 As well as waste prevention and recycling, treatment of residual waste is needed to ensure that the statutory targets are met. This waste is a resource, which has the potential to provide energy, reducing our reliance on fossil fuels. A key objective of this Waste Management Plan has to be the delivery of the waste treatment infrastructure needed to treat the residual waste.
- 6.4 This Chapter therefore sets out the measures for the future management of municipal wastes within the Region, to ensure that councils fulfil their statutory and policy obligations, and manage the risks of fines for non-compliance with statutory targets in a pro-active and considered manner, for the benefit of all sections of the community.

DEFINITIONS

- 6.5 Municipal waste is defined, for the purposes of this Plan, as *'household waste and any other waste that is under the control of (i.e. collected by) District Councils or agents acting on their behalf.'*
- 6.6 **Municipal waste** therefore comprises waste from two main sources, as follows:
- **Household waste**, which is waste arising from a domestic property or waste of similar composition from other properties such as residential homes or hospitals.
 - **Trade waste**, which is the waste collected from commercial premises by district councils, as part of their service provided under the provisions of the Waste and Contaminated Land (NI) Order 1997.

- 6.7 These wastes can be collected either directly at the household or premises by the council or its agents, or through civic amenity sites and bring banks, where they are brought by the public or businesses.
- 6.8 **Biodegradable municipal waste** (BMW) is defined as ‘any municipal waste that is capable of undergoing anaerobic or aerobic decomposition, such as food or garden waste, and paper and cardboard’.

MANAGEMENT AND CONTROL

- 6.9 Management and control of municipal wastes is provided by the legislative framework primarily under the Waste and Contaminated Land (Northern Ireland) Order 1997, and associated Regulations.
- 6.10 The main roles and responsibilities under the legislative provisions are summarised in Table 6.1.

Table 6.1 Summary of Key Roles and Responsibilities for Municipal Waste

Element	Responsibility
Waste management planning	District Councils
Collection of municipal wastes (as defined under the Waste and Contaminated Land (Northern Ireland) Order 1997).	District Councils
Segregation of wastes into separate receptacles for collection, including for recycling.	Waste Producers, including: Householders Businesses, etc.
Treatment and disposal of municipal waste. In many cases, this is affected through contractual arrangements with private companies.	District Councils

- 6.11 Obligations under the Duty of Care and Registration of Carriers, as described in Chapter 3, apply to councils, businesses and any other organisations involved in the management of municipal wastes, for all activities from collection, transportation, and treatment to recovery and disposal. These provisions do not however extend to householders and other members of the public.

TARGETS

- 6.12 The targets that apply to municipal waste come from a number of sources, and include:
- Statutory targets for the diversion of Biodegradable Municipal Waste (BMW) from landfill.

- Non-statutory targets for the recycling, composting and recovery of materials.
- Plan level targets for waste prevention – to limit the ongoing growth in municipal wastes.

6.13 Each of these are summarised below.

Landfill Diversion Targets

6.14 These targets originate from the requirements of the Landfill Directive (99/31/EC), which set targets limiting the quantities of BMW going to landfill, as follows:

- 75% of 1995 levels by 2010
- 50% of 1995 levels by 2013
- 35% of 1995 levels by 2020.

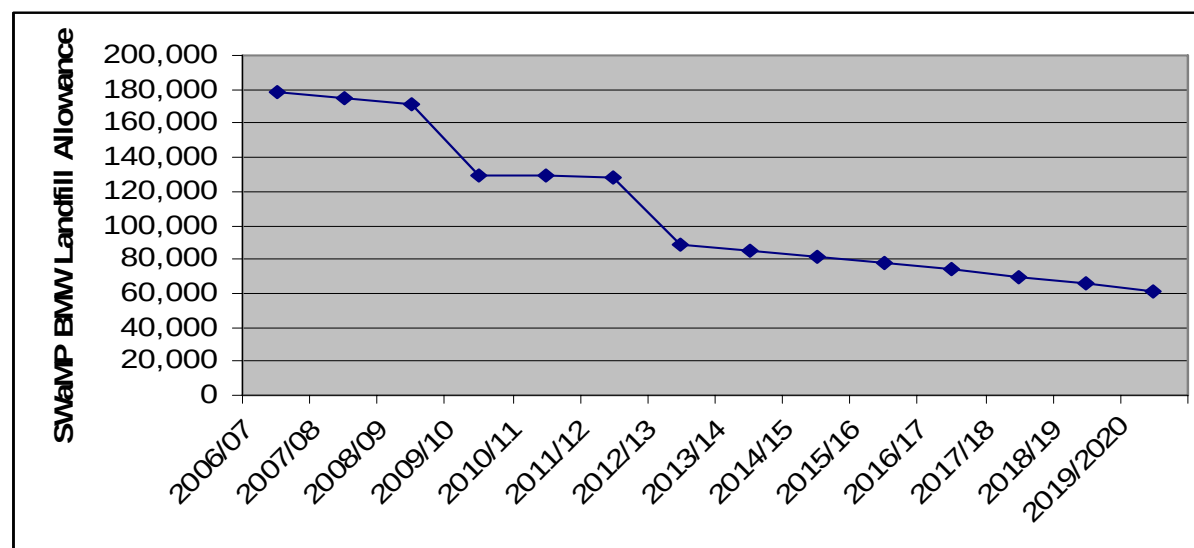
6.15 This requirement is implemented in Northern Ireland through the Landfill Allowances Scheme (Northern Ireland) Regulations, 2005 and is referred to as the Northern Ireland Landfill Allowance Scheme (NILAS). It allocates annual allowances to district councils for the amount of BMW allowed to be landfilled over the period up to 2020.

6.16 The allowances for the district councils within the SWaMP Region are presented in Table 6.2 and Figure 6.1. These are statutory targets with fines of £150 per tonne, for failure to comply. There is, within the Group, an agreement to share targets, to minimise the risks to individual councils. There is also provision within the legislation for allowances to be traded between councils in Northern Ireland.

6.17 These targets therefore represent the major driver in the management of municipal waste, with waste prevention, recycling, composting and other forms of waste treatment all contributing towards compliance.

Table 6.2 Summary of Landfill Allowances by District Council in the SWaMP Region to 2020

Council	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20
<i>Armagh</i>	21,394	20,964	20,531	15,420	15,441	15,334	10,546	10,089	9,632	9,172	8,710	8,236	7,763	7,290
<i>Banbridge</i>	16,824	16,577	16,325	12,324	12,412	12,395	8,573	8,247	7,915	7,577	7,235	6,842	6,449	6,055
<i>Cookstown</i>	12,920	12,678	12,435	9,356	9,387	9,344	6,440	6,175	5,908	5,638	5,367	5,075	4,784	4,492
<i>Craigavon</i>	31,763	31,141	30,516	22,928	22,972	22,825	15,708	15,037	14,365	13,689	13,011	12,304	11,597	10,890
<i>Dungannon</i>	18,793	18,431	18,066	13,580	13,614	13,534	9,320	8,928	8,536	8,140	7,742	7,321	6,901	6,480
<i>Fermanagh</i>	22,557	22,088	21,619	16,229	16,249	16,138	11,101	10,623	10,144	9,663	9,183	8,684	8,185	7,686
<i>Newry</i>	34,731	34,127	33,518	25,240	25,353	25,251	17,422	16,721	16,012	15,297	14,576	13,784	12,992	12,200
<i>Omagh</i>	19,047	18,678	18,305	13,760	13,793	13,711	9,442	9,043	8,642	8,241	7,837	7,411	6,985	6,559
SWaMP	178,028	174,684	171,316	128,837	129,221	128,531	88,551	84,864	81,153	77,417	73,661	69,658	65,654	61,651

Figure 6.1 Reduction in the Biodegradable Municipal Waste Landfill Allowances over time for SWaMP

Recycling and Composting Targets

- 6.18 Non-statutory/policy targets for the recycling and composting of household waste have been set by the Northern Ireland Waste Management Strategy: *Towards Resource Management*, as follows:
- 35% by 2010
 - 40% by 2015
 - 45% by 2020
- 6.19 The Strategy also sets a target for the recycling of Commercial and Industrial Waste as follows:
- 60% by 2020.
- 6.20 This target applies to the wastes from commercial and industrial premises collected by councils under their trade waste collection arrangements.

Waste Prevention Targets

- 6.21 No waste prevention targets are currently in place, but it is anticipated that the Waste Prevention Forum will set Waste Prevention targets for municipal waste by 2010 in order to facilitate a change in behaviour across all stakeholder groups.
- 6.22 In recognition of the priority that needs to be attached to Waste Prevention, and the unsustainability of high waste growth rates, the Group has set limits for the annual growth in municipal waste over the Plan period, up to 2020, as follows:
- 1.5% up to 2010
 - 1.0% from 2010 to 2013
 - 0.5% from 2013 to 2020
- 6.23 It is predicted that the behavioural changes required to allow SWaMP to meet these waste prevention targets will need to be driven from a high level. There will therefore be the need for significant commitment, not only from District Councils, but also from Department of the Environment in terms of the provision of support and resources required to ensure that these targets can be met. There should be parity between Northern Ireland and the rest of the UK, in terms of the funding and resources available for the implementation of waste prevention measures.

WASTE QUANTITIES AND COMPOSITION**Waste Quantities**

- 6.24 The municipal waste arisings for Northern Ireland and SWaMP for the reporting year 2004/05 have been extracted from the Key Performance Indicator and WasteDataFlow returns to Department of the Environment, and are summarised in Table 6.3.

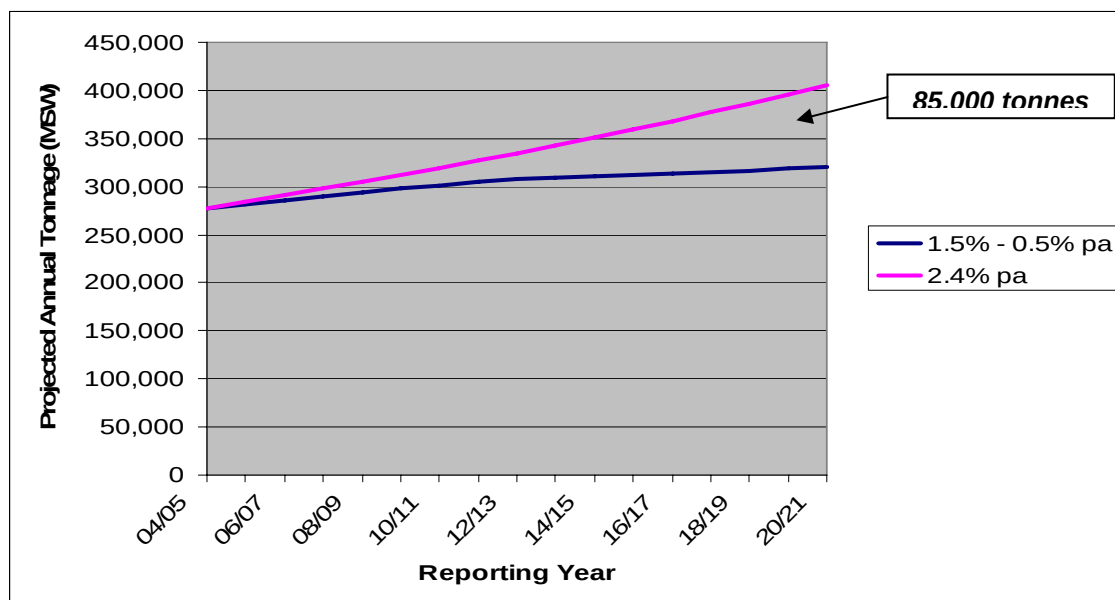
Table 6.3 Summary of Municipal Waste Arisings

Waste/Region	Arisings (tpa)	Recovered (%)	Landfilled (%)
Northern Ireland:			
Municipal Waste	1,055,900	18.1%	81.9%
Household Waste	926,396	18.7%	81.3%
SWaMP:			
Municipal Waste	277,029	22%	78%
Household Waste	244,077	23%	77%
Biodegradable Waste	196,691	21%	78%

- 6.25 The data indicate that SWaMP was responsible for producing just over a quarter (26.2%) of Northern Ireland's municipal waste in the reporting year 2004/05.
- 6.26 Historically, municipal waste within the region has been increasing, with an annual growth rate of just under 2.5% over the period from 1999 to 2005. This is consistent with experience elsewhere. Indeed, in the consultation paper for the Review of the Waste Management Strategy, the Department of the Environment projected that municipal waste would continue to grow at 2.4%, in the absence of waste prevention measures.
- 6.27 Within the region, waste growth at that rate is considered unsustainable. The public consultation (the results of which are presented in Annex B) also indicated very strong support for waste prevention. As a result, a Waste Prevention Programme will be implemented across the region. Recognising that this will take time, but allowing for the impact of such measures, for the purposes of waste planning, annual waste growth rates have been limited as follows:
- 1.5% up to 2010.
 - 1.0% from 2010 to 2013.
 - 0.5% from 2013 to 2020.

- 6.28 The impact of these 'limited' waste growth rates is illustrated in Figure 6.2. The difference between the two projections by 2020 is 85,000 tonnes, which represents a significant reduction in capacity requirements at that time if the waste prevention measures achieve their objectives.

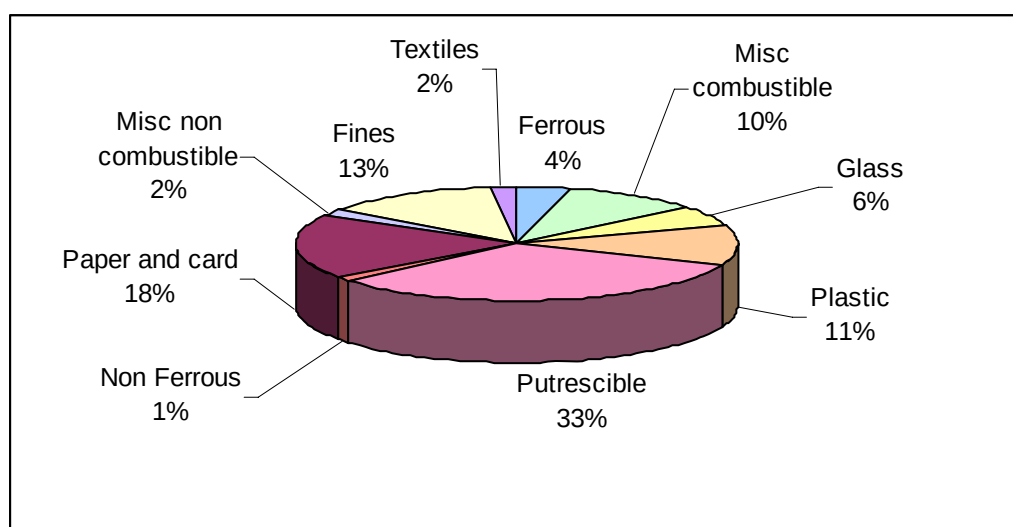
Figure 6.2 Waste Projections for the SWaMP Region



Waste Composition

- 6.29 The composition of municipal waste in Northern Ireland, taken from the Northern Ireland Household Waste Characterisation Study, 2000, carried out by NI2000 and supported by Environment and Heritage Service, is presented in Figure 6.3.

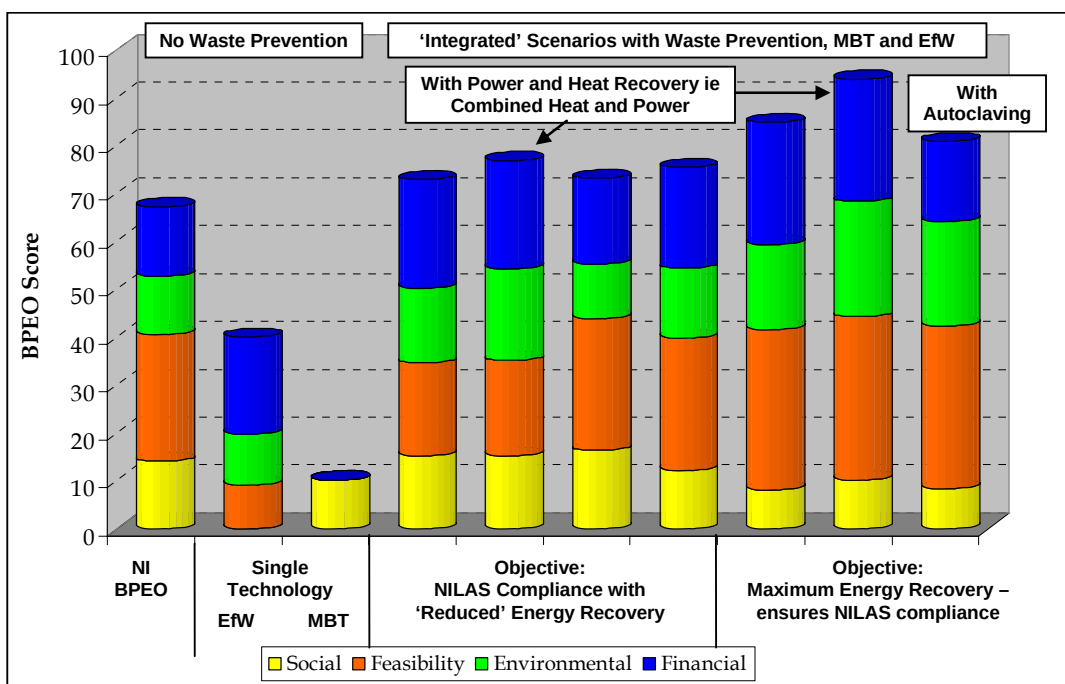
Figure 6.3 Northern Ireland Municipal Waste Composition



- 6.30 The data indicate that the municipal waste has a biodegradable content of 71%. It is this figure that has been used for determining the landfill allowances under NILAS. However, this high biodegradable content also presents a particular challenge for the management of municipal wastes, with the need to reduce the absolute tonnages to be landfilled to a very significant degree.

BEST PRACTICABLE ENVIRONMENTAL OPTION

- 6.31 Guidance on the Best Practicable Environmental Option for Waste Management in Northern Ireland was published in June 2005 by Environment and Heritage Service (EHS), and can be found on their website at:
http://www.ehsni.gov.uk/pubs/publications/NI_BPEO_Guidance_652kb.pdf.
- 6.32 In summary, for municipal waste, at a Northern Ireland level, the guidance indicates that BPEO is represented by:
- A 3 bin system for separate collection of dry recyclables, organic waste and residual waste for all households- where practicable.
 - Minimum recycling and composting rates of:
 - 35% by 2010
 - 40% by 2013
 - 45% by 2020
 - The use of a mix of waste technologies, to include:
 - Mechanical Biological Treatment and Anaerobic Digestion - to be in place by 2010
 - Thermal Treatment (Mass burn incineration) - to be on stream by 2013.
- 6.33 In accordance with the BPEO Guidance, an assessment was undertaken by the Group to inform the decision-making process in identifying the specific requirements for the region. This assessment, which is summarised in Annex C, compared a number of scenarios, taking into account feasibility, social, economic, and environmental criteria, against the published BPEO Guidance for Northern Ireland, as illustrated in Figure 6.4.

Figure 6.4 Scenario Assessment Summary

6.34 The assessment took into account a number of factors including, the modelling of waste prevention, to limit waste growth, and energy recovery in the form of both heat and power, both of which were key factors in the highest scoring scenarios. The identification of waste prevention, and combined heat and power generation as elements in the preferred scenarios, pre-empt but are consistent with, the proposed amendments to the Waste Framework Directive, including the introduction of efficiency thresholds, as described in Chapter 3.

6.35 For the purposes of modelling the alternative scenarios in the assessment, energy recovery was assumed to be represented by a waste-to-energy facility, the approach adopted in the NI BPEO Guidance. Recognising local factors, needs and priorities, the Consultation Paper proposed that energy recovery be achieved by the production of fuel as an output from the Mechanical Biological Treatment for use in third party applications. This approach has been reinforced by the results of the consultation process, with broad support for the principle of energy recovery, but a number of concerns being raised with respect to mass burn incineration.

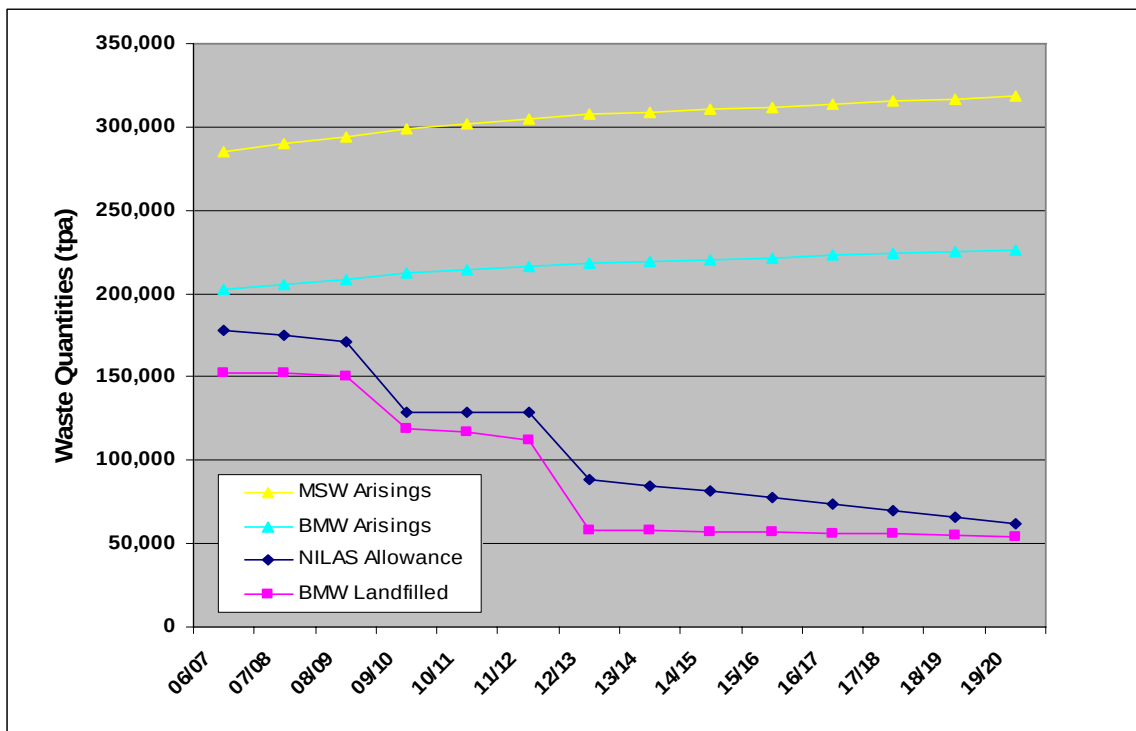
6.36 Based on the results of the assessment, and the feedback from the consultation process, BPEO for municipal waste in the region is defined as follows:

- **Waste prevention** – limiting annual waste growth rates to:
 - 1.5% up to 2010
 - 1.0% from 2010 to 2013
 - 0.5% from 2013 to 2020

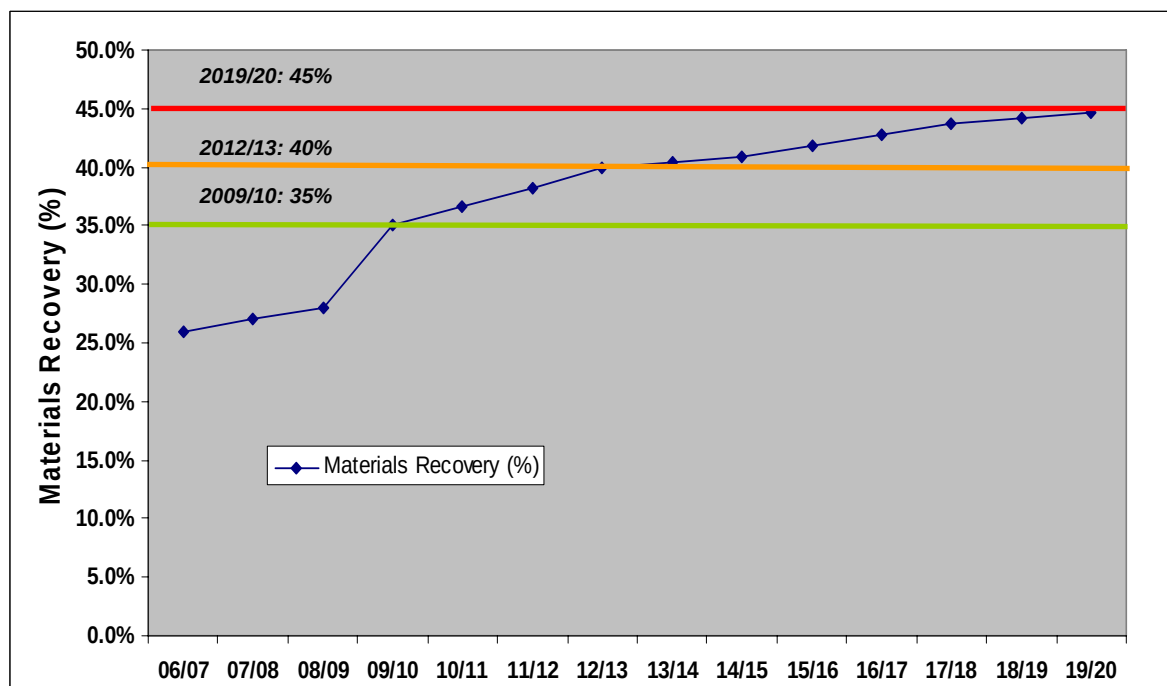
- **Materials Recovery** - a 3 bin system for separate collection of dry recyclables, organic waste (garden and food wastes) and residual waste for all households- where practicable and as appropriate, with minimum recycling and composting rates (through source-separate collection) of:
 - 30% by 2010
 - 35% by 2013
 - 40% by 2020
- **Energy Recovery and Residual Waste Treatment** – The mix of waste technologies, to include Mechanical Biological Treatment (MBT), with the objectives of:
 - **Additional materials recovery**, which coupled with the amounts to be collected through source separated collections, combine to meet the Strategy targets of 35%, 40% and 45% by 2010, 2013 and 2020 respectively.
 - **Reduction in biodegradability** – to meet statutory BMW landfill diversion and NILAS targets.
 - **Energy Recovery** through the production of a Fuel for the generation of both electricity and heat – to maximise the value of the waste as a resource in accordance with the Waste Hierarchy, to reduce reliance on fossil fuels and to comply with the objectives set for the Plan.

6.37 Under these proposals, the projected total quantities of Municipal Solid Waste (MSW) and Biodegradable Municipal Waste (BMW) arising and BMW landfilled are illustrated in Figure 6.5, together with the BMW landfill allowances for SWaMP under the NI Landfill Allowance Scheme (NILAS). This indicates that this approach complies with the statutory NILAS targets. It does however include several important assumptions that have implications for the delivery programme and minimum performance specification for MBT, as follows:

- Mechanical Biological Treatment (MBT) capacity needs to be available by 2009/10,
- 10% of the residual waste assigned to MBT is recovered as recycle,
- The MBT process delivers a minimum of 50% reduction in biodegradability of the waste treated,
- Outlets for the fuel produced should be available as soon as possible after the MBT plants are operational, but no later than 2012/13.

Figure 6.5 Biodegradable Municipal Waste Landfilled

6.38 The projected materials recovery percentages, based on source-separated collection of recyclables, additional materials recovery from the MBT process and composting is illustrated in Figure 6.6. This shows that the Strategy targets of 35%, 40% and 45% by 2010, 2013 and 2020 are projected to be achieved.

Figure 6.6 Projected Materials Recovery Rates

- 6.39 The costs of this scenario have estimated and are summarised in Table 6.4 for the Landfill Directive Target years. The Group will deliver new infrastructure through service contracts, and therefore these costs have been derived on the basis of estimated gate fees for each technology type, to provide an overall indication of the costs for waste management within the Region. It is assumed that these gate fees take into account revenue generated by the sale of materials and energy, and revenue generated by such activities has not been taken into account separately. Detailed costs, broken down by council for a minimum five year horizon, will be set out in the Annual Report and Implementation Action Plan, and will be updated on the basis of contracts awarded.

Table 6.4 Summary of Annual Waste Management Costs

Management Option	Costs (£Millions)			
Year	2006/07	2009/10	2012/13	2019/20
Waste Prevention	£0.3	£ 1.0	£ 1.0	£ 1.0
Waste Collection	£ 8.5	£ 9.6	£ 10.7	£ 11.9
Waste Treatment ¹	£ 3.6	£ 10.3	£ 14.7	£ 15.7
Waste Disposal	£ 12.9	£ 11.4	£ 7.2	£ 6.6
Total:	£ 25.3	£ 32.4	£ 33.6	£ 35.1

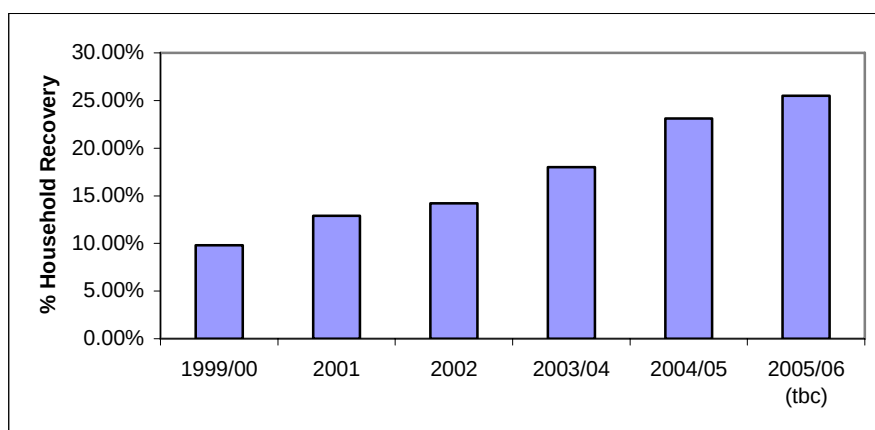
Note: 1. Includes both costs for MBT and materials recovery.

- 6.40 The estimated costs show a significant increase by 2009/10, of the order of 30%, with the Mechanical Biological Treatment Capacity coming on stream. However, these costs will be exceeded, if adequate treatment capacity is not available, as a consequence of which the waste landfilled, and attracts fines under the Northern Ireland Landfill Allowance Scheme (NILAS). A breakdown of these costs is presented in Annex E.
- 6.41 The average cost, on a per tonne basis for waste management within the Region is set to rise from about an average £90 per tonne at present, to approximately £115 per tonne. Collections costs, with the increase in source-separated collection, will increase from an average in the Group of about £45 per tonne, to the order of £55-60 per tonne. The average cost for treatment and disposal is estimated to also increase from about £55 – 60 per tonne to £70 -£75 per tonne. This figure can be compared against a fine under NILAS of £150 per tonne, demonstrating that it will be more cost effective to treat waste rather than run the risk of paying such fines.

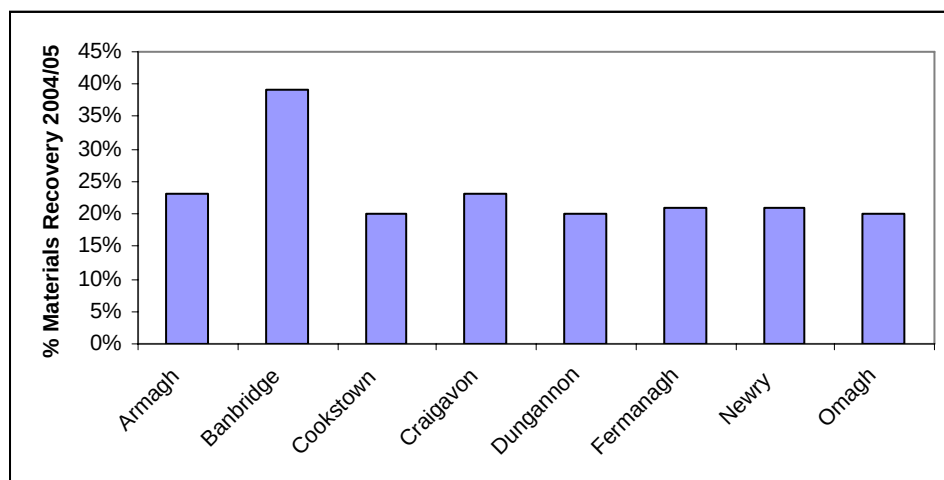
- 6.42 It has to be stressed that these costs are indicative only, with the actual costs determined by rates tendered through the various procurement processes. In addition, the costs are dependent to a very large degree on assumptions about the quantities of residual waste to be treated. For the purposes of modelling, it has been assumed that the increase in materials recovery is gradual over time, just attaining the Waste Strategy target at the designated time. If these targets were achieved earlier, or exceeded, or if waste growth did not reach the levels assumed, the capacity for residual waste treatment would be reduced accordingly. Similarly, if waste prevention measures are unsuccessful, and waste growth exceeds projections, additional treatment and disposal capacity will be required. Equally, the nature of the waste that has to be managed is changing, and changes in the biodegradability content, which is currently assumed to be 71%, will also have consequences for the projected residual waste treatment capacity. Flexibility and responsiveness therefore are key aspect of the approach within the Region.
- 6.43 Further aspects on the implementation and delivery of the infrastructure requirements is set out in the Section on the Proposed Arrangement for the Management of Municipal Wastes.

CURRENT ARRANGEMENTS FOR THE MANAGEMENT OF MUNICIPAL WASTE

- 6.44 The current arrangements in place within the Region for the management of municipal wastes are based on the BPEO defined for the region when the Waste Plan was prepared in 2002. These arrangements, which have contributed to significant progress in terms of more sustainable approach to waste management, and are summarised in Table 6.5, are made up of three main components, as follows:
- Education and Awareness Programme
 - Materials Recovery – Recycling and Composting
 - Landfill of Residual Wastes
- 6.45 These arrangements, which are described further below, have been successful in delivering a steady increase, year on year, in the recycling/composting rate since 1999/00, as shown in Figure 6.7. As a result, SWaMP achieved the Northern Ireland Waste Management Strategy target of recycling 25% of household waste in 2005/06, the key objective of the Plan.

Figure 6.7 Household Recycling Rates within the SWaMP Region from 1999/2000

6.46 Another characteristic of the performance within the region is the variation between individual councils, as illustrated in Figure 6.8. (The performance of Banbridge clearly demonstrates that a Materials Recovery rate of 40% can be achieved, and if all councils were to attain this level of performance, by 2009/10 or shortly thereafter, the MBT treatment capacity required would be influenced accordingly).

Figure 6.8 Household Materials Recovery Rates in 2004/05 by Individual Councils

6.47 The facilities currently in use for treating municipal wastes within the region are shown in Figure 6.9, and include:

- Civic Amenity/Household Waste Recycling Centres (29)
- Materials Recovery Facilities (3)
- Waste Transfer Stations (4)
- Composting Plants (1)
- Landfill Sites (6)

- 6.48 Mixed dry recyclables are transferred to Materials Recovery Facilities outside the SWaMP Region, at Toomebridge (Fermanagh), and Newtownabbey (Armagh and Banbridge). Green wastes are also transferred out of the area by Omagh, Dungannon, Cookstown and Fermanagh Councils, to composting facilities situated in the North West.

Figure 6.9 Map of Municipal Waste Facilities within the Region

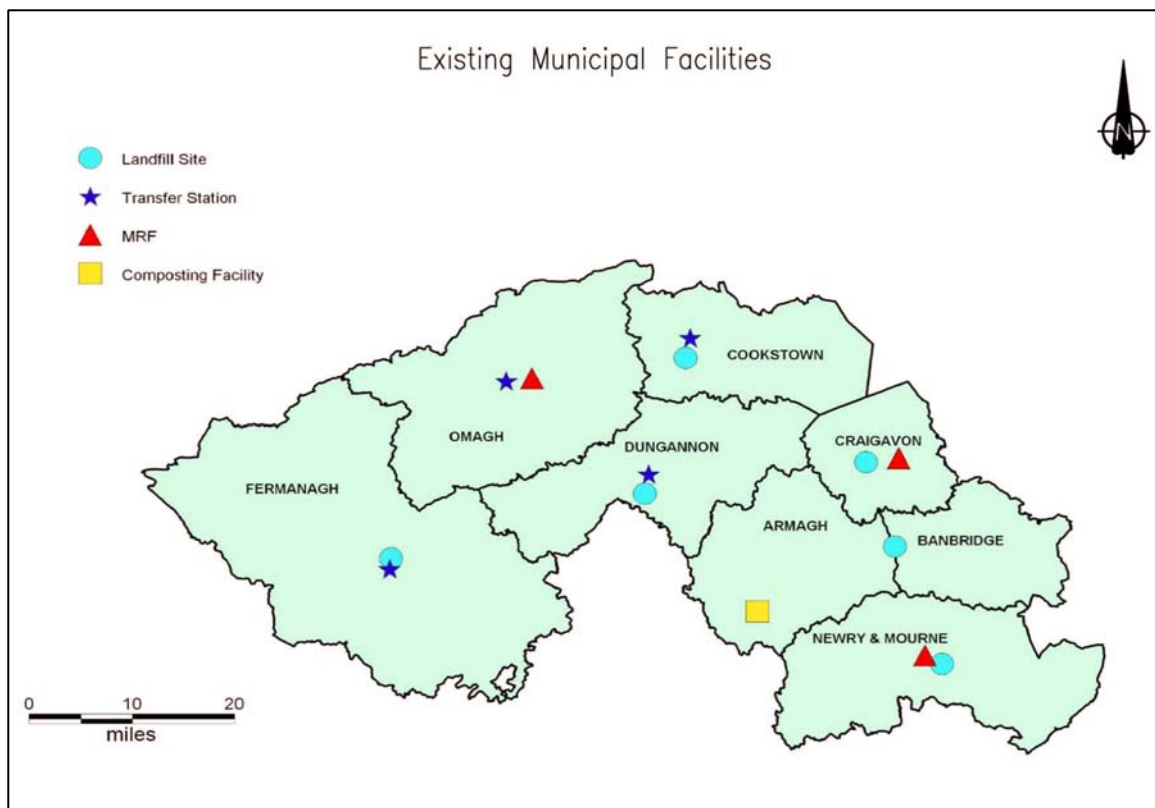


Table 6.5 Summary of Municipal Waste Management Arrangements (2005/06)

	ACTION	YEAR			
		2002	2003/04	2004/05	2005/06
Armagh	Civic Amenity Sites/Household Waste Recycling Centres	4	4	4	4
	Recycling Points	13	13	13	13
	Mixed Dry Recyclables bins/boxes	6,000	6,000	9,720	20,433
	Central Composting bins/boxes	6,000	6,000	9,720	9,720
Banbridge	Civic Amenity Sites/Household Waste Recycling Centres	3	3	3	3
	Recycling Points	20	25	26	27
	Mixed Dry Recyclables bins/boxes	2,500	8,000	10,000	13,000
	Central Composting bins/boxes	4,500	8,000	10,000	13,000
Cookstown	Civic Amenity Sites/Household Waste Recycling Centres	2	2	2	2
	Recycling Points	6	15	15	17
	Mixed Dry Recyclables bins/boxes	4,000	4,600	8,572	11,695
	Central Composting bins/boxes	0	0	0	3,000
Craigavon	Civic Amenity Sites/Household Waste Recycling Centres	2	2	2	2
	Recycling Points	8	8	8	8
	Mixed Dry Recyclables bins/boxes	16,000	18,000	31,500	34,252
	Central Composting bins/boxes	0	0	0	2,000
Dungannon	Civic Amenity Sites/Household Waste Recycling Centres	6	6	6	6
	Recycling Points	13	13	13	25
	Mixed Dry Recyclables bins/boxes	0	7,500	17,982	18,342
	Central Composting bins/boxes	2,820	3,095	4,110	7,142
Fermanagh	Civic Amenity Sites/Household Waste Recycling Centres	1	1	4	4
	Recycling Points	0	0	18	20
	Mixed Dry Recyclables bins/boxes	21,300	21,644	21,644	21,930
	Central Composting bins/boxes	0	0	0	0
Newry	Civic Amenity Sites/Household Waste Recycling Centres	7	7	7	7
	Recycling Points	9	17	32	36
	Mixed Dry Recyclables bins/boxes	0	500	7,500	15,000
	Central Composting bins/boxes	4,681	9,900	9,900	9,900
Omagh	Civic Amenity Sites/Household Waste Recycling Centres	1	1	1	1
	Recycling Points	11	11	13	26
	Mixed Dry Recyclables bins/boxes	0	16,248	17,710	18,144
	Central Composting bins/boxes	0	0	0	7,500

Education and Awareness

- 6.49 Education and Awareness has been a key component of the Waste Management Plan, with a strong focus in communicating with stakeholders in all areas, including schools, to change attitudes and behaviour.
- 6.50 This has been delivered through two main strands, namely:
- Officers, appointed within councils, with responsibility for education and awareness in recycling and waste prevention.
 - Wake-up-to-Waste, a media campaign across Northern Ireland, co-ordinated by Environment and Heritage Service, and working with district councils to raise awareness of the '3Rs' (Reduce, Re-use, Recycle).
- 6.51 The SWaMP Group formed a Recycling Officer Sub-Group in January 2004 to meet regularly and co-ordinate group promotional activities. As a result, the Group has co-ordinated a number of partnership promotions which have included Environmental Youth Speak 2005 and the joint purchase of promotional literature. This Group have produced a Communications Plan (included in Annex D), which has the aim of:
- Raising the level of awareness and usage of kerbside recycling schemes across the Region.
 - Maximising the number of households participation in the kerbside recycling schemes and quantity of recyclable materials handled through the Region's bring facility network.
 - Reaching residents of all ages through targeted promotional activities such as schools competitions, direct mail and use of the SWaMP website.
- 6.52 The key target audiences for this communication are as follows:
- Householders
 - Council employees
 - Community Groups
 - Schools
- 6.53 These groups are targeted through a range of communications, including:
- Direct mail in the form of printed literature
 - Staff training/Awareness to ensure staff are fully informed and able to answer queries
 - Public Relations in the form of press releases and radio communications
 - Advertising in the form of bus panels, adshel and billboards
 - Exhibitions and Roadshows at areas of high footfall throughout the Region
 - Promotion of the SWaMP website to provide additional information on existing and proposed services and activities.

- 6.54 The key elements of the education and awareness campaign are detailed in Annex D but summarised below:

Kerbside Recycling Promotion

- 6.55 This is in the form of a joint generic campaign to deliver a joint generic campaign with the aim being to raise the level of public awareness of the Region's kerbside collections of dry recyclables and the materials accepted through these schemes. The objectives of the study are to reach all households within the Region to reduce participation levels and reduce contamination levels. This is to be achieved through advertising, direct leaflets to households, press briefings, public relations, exhibitions and roadshows.

Environmental Calendar

- 6.56 Newry and Mourne District Council and Craigavon Borough Council have, over the past few years, produced an A4 Environmental Calendar. During 2006/07 SWaMP aims to run a competition within each district to find twelve suitable pieces of artwork for a district calendar. The aim of the project is to raise awareness of annual environmental promotions whilst acting as a reminder of Councils recycling services.

Christmas and New Year Recycling Campaign

- 6.57 A number of seasonal promotions are organised during December and January. These include both Christmas card and Christmas tree recycling. The aim of this is to target three seasonal waste streams to raise awareness of the high levels of waste produced at Christmas, whilst also making people aware of their nearest recycling facilities and encourage them to recycle.

Reusable Bag Campaign

- 6.58 In recent years, SWaMP Councils have undertaken campaigns aimed at raising awareness of plastic bags as a waste stream with promotions including initiatives such as asking partner stores to make a donation to charity for every carrier bag used, giveaways of reusable cotton bags and events attended by a local environmental campaigner, "Baglady". The aim of this is to raise public awareness of waste issues generally by campaigning for the reuse of plastic bags and to encourage members of the public to make use of their kerbside recycling schemes.

Cash for Clobber

- 6.59 This is an innovative textiles recycling campaign promoted by Cookstown Textile Recycling (CTR) in partnership with Councils in Northern Ireland. Schools register their intention to participate in the collection scheme and collection bags are issued. The bags are collected from each participating school by CTR and the school receives £1 for each bag of textiles collected. The aim of this process is to raise awareness of the benefits of reuse and recycling among school children and the objective is to engage 50% of the schools in the SWaMP Region.

Real Nappy Campaign

- 6.60 SWaMP is promoting "Real Nappy Week" (usually held in March) across the Region. At present, each authority within the Group promotes this aspect of waste minimisation differently with activities ranging from local press articles to offering financial incentives to parents choosing to use a real nappy laundry service. The aim of this initiative is to raise awareness of the health, financial and environmental benefits of using real nappies whilst reducing the amount of disposable nappies going to landfill and increase take up of real nappies/real nappy laundry service.

Environmental Youthspeak

- 6.61 This is a public oration competition open to all schools in Northern Ireland with finals staged in each local authority area, each sub-regional grouping and for Northern Ireland. The aim of this is encourage environmental awareness among young people by giving them the opportunity to research waste management issues. The objective is to raise the number of schools participating to 10% across the SWaMP Region in 2007. This is to be achieved through targeting all schools in the Region, arranging press coverage and co-ordinating and planning Council heats, regional and national finals.

Compost Awareness Week

- 6.62 Compost Awareness Week is a national campaign to raise the public awareness of the environmental benefits of composting. The group plan to develop a mobile composting exhibition kit for each Recycling Officer comprising composting information and home composting units. The aim of this is not only to raise public awareness but also to promote the availability of home composters throughout the Region. This is to be achieved through the delivery of 8 compost awareness roadshows across the Region.

Website

- 6.63 The SWaMP website will be updated to include information on all new promotional activities and services with the objective being to increase the number of visits to the recycling and waste pages of the SWaMP website by 50% by March 2007.

Staff and Crew Training

- 6.64 Operational staff and crew are key to ensuring services are delivered effectively and crews must be fully briefed about the purpose of their job and the benefits to the community and the environment in order to allow them to inform the public of new collection services and opportunities for recycling and waste reduction. The objectives are to provide training to at least 90% of operational staff by the end of March 2007.

Public Relations

- 6.65 The SWaMP Group should issue regular press releases on campaign activities to the local media to keep them well informed of progress with kerbside collection schemes and bring facilities. The objective therefore is to maximise press and radio coverage through targeted messages, photo opportunities, press briefings and press releases.

Materials Recovery – Recycling and Composting

- 6.66 The arrangements for the recovery of materials for recycling and composting are based on prioritising segregation at source and have, as summarised in Table 6.5, included:
- Provision of receptacles for segregated collection at households.
 - Expansion in the number of bring sites, within the region.
 - Enhancement of capacity at civic amenity sites for the segregation of waste for recovery.
- 6.67 For recycling, every household in the region is provided, or is scheduled to be provided during the 2006/7 year, with a receptacle for the collection of mixed dry recyclables. The councils have individual contracts with companies for the recycling services, with the recyclables processed through transfer stations or Materials Recovery facilities.
- 6.68 Given the high biodegradable content (71%) of municipal waste, and the high proportion of putrescible waste, the treatment of biodegradable wastes (biowastes) is a vital component of the Plan. To date, brown bins have been distributed in some council areas, as indicated in Table 6.5, with the primary focus being on providing households in urban areas with a receptacle (brown bin) for collection of garden wastes.
- 6.69 However, roll out has not been as rapid as envisaged in the original waste management Plan, primarily because of the impact of the Animal By-Products Regulation, which imposes a requirement to treat kitchen and catering wastes to certain standards. The Group is currently in a tendering process for the provision of a service to treat biowastes to meet the relevant standards.

Landfilling of Residual Wastes

- 6.70 The region has a number of landfills that currently accept municipal wastes for disposal. These are both Council-owned and operated, as well as private sector landfills, and include:
- Aughnagun – Newry & Mourne District Council
 - Ballyfodrin – Craigavon Borough Council (scheduled to close in the autumn of 2006)
 - Drummee – Fermanagh District Council
 - Lisbane – Quinn Group
 - Magheraglass – Cookstown District Council
 - Tullyvar – Dungannon and South Tyrone Borough Council and Omagh District Council
- 6.71 These landfills (with the exception of Drummee and Ballyfodrin) are scheduled to submit PPC Applications under the Landfill Regulations, so there is no certainty that the remaining capacity can be fully realised. It should also be noted that a number of these landfills also accept waste from outside the District which will have an impact on the capacity available to the District. Notwithstanding this, the currently consented capacity is approximately 2.0 – 2.5 M m³, which corresponds to about 5 – 7 years disposal capacity at current rates of disposal.
- 6.72 In addition to this, and subject to PPC permitting, Cookstown District Council intend to develop an extension, in the form of a fifth phase, to Magheraglass landfill site, with a capacity of 340,000 tonnes.

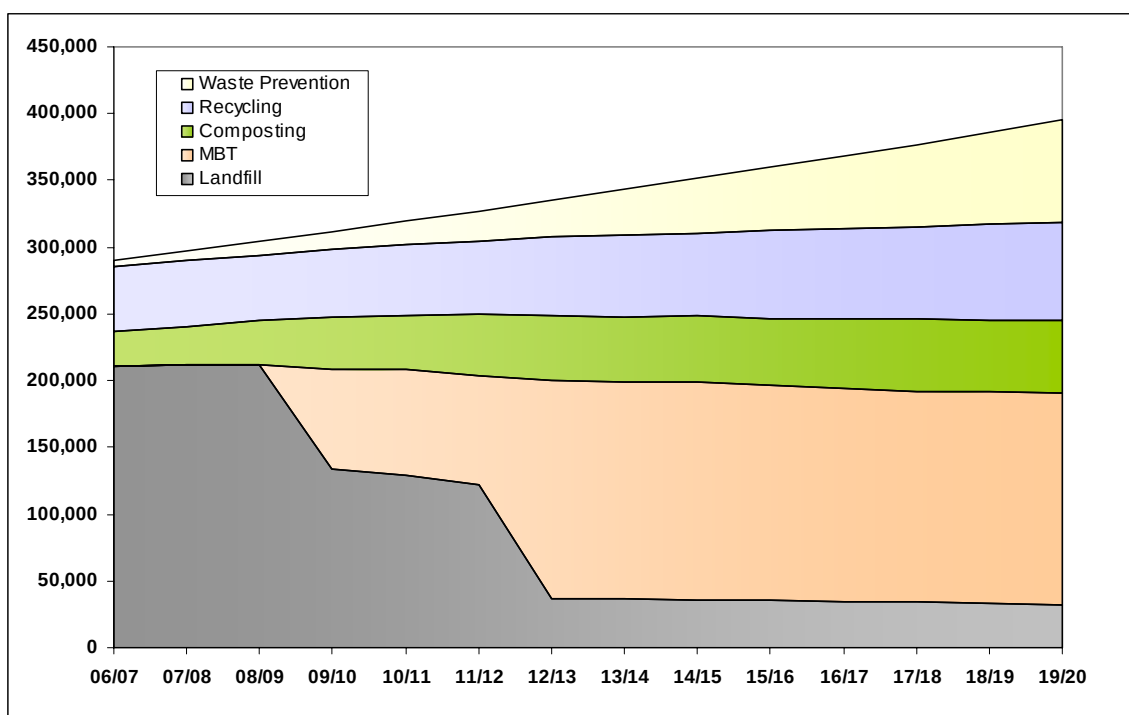
PROPOSED ARRANGEMENTS FOR THE MANAGEMENT OF MUNICIPAL WASTE

- 6.73 The assessment of the requirements for the future management of municipal waste within the region identified three main elements, as described previously. These are as follows:
- **Waste prevention** – to limit the growth in waste arisings.
 - **Materials Recovery** – segregated collection of dry recyclables, organic waste (garden and food wastes) and residual waste - where practicable and appropriate.
 - **Residual Waste Treatment and Energy Recovery** – To include Mechanical Biological Treatment (MBT) and landfill, with the objectives of providing:
 - *Additional materials recovery.*
 - *Reduction in biodegradability.*
 - *Energy Recovery* through the production of a Fuel for the use in generation of both electricity and heat.
 - *Secure disposal capacity.*
- 6.74 This approach to managing municipal wastes within the Region is illustrated in Figure 6.10. In summary, this shows:
- **Waste prevention** having an increasingly key role in limiting the growth of waste arisings, by capping waste growth rates.

- **Recycling** by source separated collection increasing, but with only a limited increase, given the current provision of separate collection receptacles, (separate bins at households, bring banks, and enhance recovery at civic amenity sites).
- **Composting** (in-vessel or anaerobic digestion) increasing as the coverage of brown bins is increased over time. (A tender is already underway for this service.) It is presumed that the collection of garden waste will continue as at present.
- **Mechanical Biological Treatment** is the primary tool in diverting biodegradable municipal waste from landfill.
- **Landfill** is set to become the option of last resort, with only limited quantities landfilled directly without prior treatment.

6.75 Each of these aspects are described further below.

Figure 6.10 Summary of Waste Quantities by Management Destination



Waste Prevention

6.76 Although waste prevention requires action by all stakeholders, the leading action is the commitment of resources by councils, including the appointment of officers to advise stakeholders on waste prevention initiatives, and to support awareness campaigns. This may vary from year to year, and within councils, but the costs are estimated to be of the order of £1M per annum for SWaMP. (The actual expenditure will be determined on a year to year basis through the Annual Implementation Action Plan, to ensure that activities are co-ordinated between councils and with the Department as appropriate, and in response to identified priorities).

- 6.77 The success of waste prevention measures can only be measured by the absence of municipal waste arising within the Region. The primary tool therefore is monitoring waste data to assess performance, and to identify areas of weakness. The councils will commit adequate resources to ensure that the data is collated and managed effectively, and in a timely manner to allow performance to be assessed and reported upon.
- 6.78 There are therefore no implications in terms of additional waste treatment capacity within the region, unless waste growth rates exceed those projected. This would require contingency measures to be implemented.

Materials Recovery

- 6.79 Although as a Group, the councils exceeded the 25% materials recovery target for 2005/06 as set by the Northern Ireland waste Management Strategy, there needs to be a further significant uplift in recycling and composting to meet the targets set for the region for materials recovery by source-separated collection, which are as follows:
- 30% by 2010
 - 35% by 2013
 - 40% by 2020
- 6.80 As previously indicated, additional materials recovery from the residual waste stream, coupled with the amounts to be collected through source segregated collection, will also be required in order to ensure SWaMP meets the Strategy targets of 35%, 40% and 45% by 2010, 2013 and 2020 respectively.
- 6.81 During 2005/06, approximately 70,000 tonnes of material were recovered, of which nearly 40,000 tonnes was achieved by recycling, and some 30,000 tonnes by composting. By 2020, a total materials recovery capacity of nearly 130,000 tonnes is required to meet the Strategy target. An additional capacity of 60,000 tonnes therefore is required by 2020.
- 6.82 The additional materials will be recovered through:
- Capture of additional mixed dry recyclables, by increased provision of bring facilities and household waste recycling centres, and collection of additional materials.
 - Expanding the coverage for segregated collection of biowastes through increased kerbside collection, with treatment to produce compost for use in agricultural/ horticultural applications.

- 6.83 Given the extent of source-separated collection services and facilities for recyclables already in place across the Region, it is estimated that only limited quantities will be recovered through recycling. Although detailed decisions will be taken to address local needs and priorities at the individual council level, and set out in the Implementation Action Plan, collection of additional types of materials, for example Tetrapaks, will be a priority. Additional bring facilities will also be provided, particularly in the context of new housing and retail developments, as well as shifting the focus at civic amenity sites from disposal to recycling. It is also anticipated that through the Integrated Product Policy, a greater proportion of materials in the waste stream will be recyclable. Therefore, an additional capacity for the treatment and transfer of mixed dry recyclables of the order of 20,000 tonnes is required over time. It is assumed that this can probably be accommodated by the existing infrastructure, capacity, although market conditions may create further opportunities for new re-processing and/or transfer facilities.
- 6.84 Each individual council has also identified the option/need for a transfer station, to service the district, which would be developed, depending on cost considerations and haulage requirements associated with service contracts, to ensure rate payers have a cost effective service available at a local level.
- 6.85 Such facilities will also include provision for the bulking and temporary storage of source-separated materials and other wastes, such as Waste Electrical and Electronic Equipment (WEEE) appropriate to the needs of the area.
- 6.86 It is in the collection and treatment of biowastes where the most significant step changes need to be made. This has already been recognised by the Group, and a tender process is currently underway for a service to treat biowastes.
- 6.87 However, it is also recognised that experience elsewhere indicates that the widespread provision of bins for collection of organic wastes will result in an increase in the total quantities collected. This is contrary to the waste prevention initiatives, and the Group's focus on limiting future increases in waste arisings.
- 6.88 The treatment of biowastes therefore will be provided for, where practical and appropriate, by the roll out of receptacles in stages across the region. The primary focus will be on urban areas, for the collection of food wastes, as well as garden wastes. The extent of service provision will be determined on an individual council basis, and will be set out, monitored and reviewed in the Annual Implementation Action Plan for Municipal Wastes (IAP).

- 6.89 The additional capacity required for the treatment of biowastes by 2019/20 is estimated to be of the order of 30-35,000 tonnes, over and above the quantities already composted. This capacity will be provided through service contracts, the first of which, as noted above, is currently the subject of a tender process, for the treatment of a minimum 15,000 tonnes per annum from the outset. This covers the period up to 2014, and has the flexibility to accommodate higher tonnages, as the amount of biowaste collected increases.
- 6.90 This additional capacity is to be provided through a treatment process to meet the requirements of the Animal By-Products Regulations and is likely to be in the form of in-vessel composting or anaerobic digestion so that it can treat waste that contains kitchen food wastes and catering wastes, as well as garden wastes.
- 6.91 The number and location of the biowaste treatment plants will be determined by the contracts into which the councils enter, but two to three treatment plants (or alternatively a centralised composting plant supported by transfer stations) servicing the region is considered appropriate.

Residual Waste Treatment and Energy Recovery

- 6.92 Treatment of the residual waste is required to ensure that the targets for the diversion of Biodegradable Municipal Waste (BMW) are met. Failure to comply could result in significant fines for councils.
- 6.93 Mechanical Biological Treatment is the preferred treatment method, with the process being designed, in principle, to:
- Recover additional materials, such as metals, glass, and other marketable resources.
 - Reduce the biodegradability of the wastes.
 - Produce a fuel from those materials that cannot be recovered, but which possess a suitable calorific value.
- 6.94 Non-useable residues will be landfilled. The landfill capacity requirements, which are currently in the region of 215,000 tonnes per annum, are anticipated to be 150,000 tonnes per annum at 2009/10. This assumes that MBT facilities are operational, if an outlet becomes available to use the fuel. In the interim period, all outputs, except for recycle therefore, are assumed to be landfilled, although it is possible that an outlet would be available at an earlier stage which would reduce landfill requirements accordingly. By 2012/13, the landfill requirement falls to about 70 -75,000 tonnes per annum on the assumption outlets for the fuel are available.

- 6.95 The capacity required for MBT is 160 – 180,000 tonnes per annum. It is anticipated that three MBT facilities within the region is considered appropriate, two with a capacity of about 75 – 80,000 tonnes per annum, and one with a capacity of 20 – 30,000 tonnes per annum, the latter already under development by Fermanagh District Council. It is recognised however, that the number and location of MBT plants will be determined by the contracts and commitments into which the councils enter, and flexibility is a key consideration. Therefore, an alternative to a number of MBT plants is a centralised facility supported by a number of transfer stations to service the region.
- 6.96 Potential sites for MBT facilities, under the ownership/control of councils, have been identified within the region. These include:
- Aughnagun
 - Coreagh
 - Terryhoogan
 - Tullyvar
 - Drummee
- 6.97 The MBT facilities will be provided through appropriate procurement and contractual arrangements. MBT is however not a single technology. As a concept it covers a family of processes, with a number of proprietary systems having been developed within the broad concept of MBT. For example, the biological treatment process may include anaerobic digestion, which allows energy to be recovered as part of the MBT process. The Group therefore will not be specific about the precise nature of the MBT process, where a service contract is sought. Rather the focus will be on performance-based specifications, setting out the objectives for the treatment process (such as minimum targets for reduction in biodegradability), and allowing contractors/service providers to respond accordingly. Specific contractual requirements are likely to include targets for example for:
- Biodegradability reduction.
 - Materials recovery.
 - Fuel specification and outlets – in support of energy recovery.

Infrastructure and Service Delivery

- 6.98 The delivery of the infrastructure and associated services is the key to ensuring that SWaMP, on behalf of the Councils, meets its targets and obligations with respect to:
- Materials recovery – through recycling of materials such as paper, glass, metals, cardboard, and plastics; and composting or anaerobic digestion of biowastes, including garden and kitchen or catering wastes, with the latter having to be treated to standards to meet the requirements of the Animal By Products Regulation.

- Diversion of Biodegradable Municipal Waste from landfill, a particular challenge in Northern Ireland, given the high biodegradable content of municipal waste, estimated to be 71%.
- Maximising as far as practicable the resource value of the residual waste through energy recovery, an objective set for this Plan by the Councils.

6.99 In accordance with the BPEO defined for the SWaMP Region, the three key strands in relation to infrastructure and service delivery, therefore relate to:

- Recycling;
- Biowaste Treatment; and
- Mechanical Biological Treatment.

These are considered further below, to identify key issues associated with each aspect.

Recycling

6.100 At present, the councils have contracts in place for recycling with a number of companies. These contracts have been procured by the councils acting individually, or in partnership, and have been in place for a time, pre-dating a joint SWaMP approach to procurement.

6.101 The key action for recycling therefore lies not in procurement, nor in the provision of new re-processing infrastructure. Rather, the focus needs to be on expanding the range of materials collected, with some increase in the micro-structure, albeit limited given the bins, bring banks and civic amenity sites put in place over the last five years by the councils. The decisions regarding such aspects are a local matter, down to individual councils taking into account local needs and priorities.

6.102 The collection of additional materials may have commercial implications, which is a matter for each council, and the contract which they have in place for handling mixed dry recyclables. Further actions regarding bins, bring banks and civic amenity sites will be set out in the Implementation Action Plan, which is updated annually, to ensure that the necessary flexibility and responsiveness is an integral component of the Plan going forward.

Biowaste Treatment

6.103 All councils have collected garden wastes at civic amenity sites for composting, and currently have a number of contracts or agreements in place with companies for the treatment of these wastes. About 20,000 tonnes are managed in this way each year.

6.104 There is a need however for an increase in the quantities of biowastes collected and treated within the SWaMP Region, if the Strategy targets for materials recovery and the NILAS landfill diversion targets are to be met. This has already been recognised by SWaMP, and the Group is engaged in a procurement exercise to secure treatment capacity for these biowastes.

6.105 This tender will, in the first instance, provide for the treatment of an additional 15,000 tonnes of biowaste, a tonnage estimated from the commitments by councils, as set out in the current Annual Implementation Action Plan, with respect to the number of brown bins that will be rolled out within the SWaMP Region. The tender, which is scheduled to commence in 2007, will, subject to performance, cover the period up to 2014, when it will be re-tendered. It also has the flexibility to accommodate increases in the tonnages handled, due to a banded pricing structure.

Mechanical Biological Treatment

6.106 The delivery of MBT treatment capacity is the primary objective of this Plan, driven by the need to divert significant quantities of Biodegradable Municipal Waste (BMW) from landfill, as required by the NI Landfill Allowance Scheme (NILAS), which implements the targets from the Landfill Directive.

6.107 SWaMP as a Group has already recognised the requirement for MBT, and two approaches for the delivery of the infrastructure are underway, as follows:

- A small MBT plant, built and operated by Fermanagh District Council at Drummee Landfill Site, with a view to reducing the biodegradability of the waste, and producing a fuel for energy recovery.
- A service contract for the provision of MBT capacity, to meet the needs of the wider Group.

6.108 A potential approach to the procurement of a suitable service contract, and in particular to mitigate planning risks, can be summarised as follows:

1. Identification of potentially suitable council owned or controlled sites.
2. Pre-planning enquiries with Planning Service regarding such sites.
3. Submission of early planning applications, if appropriate, to minimise planning risks.
4. Making such sites available to tenderers to ensure that competition is not constrained due to site availability.
5. The use of a Performance Specification, to set out critical requirements for the councils, to allow service providers the opportunity for flexibility and innovation, to maximise benefits to the councils.

6.109 Steps 1 and 2 above are underway, with the sites identified as being potentially suitable and under council ownership or control, as follows:

Site	Area
▪ Aughnagun ▪ Croreagh ▪ Terryhoogan ▪ Tullyvar ▪ Drummee	▪ Newry ▪ Newry ▪ Armagh/Craigavon ▪ Dungannon / Omagh ▪ Fermanagh

6.110 Recognising that the delivery of MBT is critical, the decision has been taken, in principle, by the SWaMP Voluntary Joint Committee to proceed with the procurement of a service for the provision of MBT capacity. In broad terms, the programme is dictated by when the plant needs to be operational. Key timescales therefore are as follows:

- Plant Operational: July 2009
- Construction commences: June 2008
- PPC Authorisation initiated: June 2007
- Identification of technology and service provider: June 2007
- Decision to proceed: June 2006

6.111 The timescales for the delivery of the MBT capacity, which needs to be on stream by the 2009/10 reporting year, are very tight. Land use planning is one of the key issues, and there will need to be close liaison between all key stakeholders on this and other matters to ensure that appropriate sites are identified at an early a stage as possible, and that the procurement process is taken forward in an effective and timely manner. The Programme Delivery Support Unit (PDSU) would be of significant benefit in this regard.

Funding and Affordability

6.112 The issue of funding and affordability is an important issue in the delivery of the additional infrastructure and services required. SWaMP believes that councils and the Department have a responsibility to work together effectively to ensure that adequate funding and support is available, without allowing an unreasonable or unsustainable burden to fall on any one party, a circumstance that could result in delivery being adversely affected.

Cross Border

6.113 With the development of future infrastructure capacity, there is significant potential for facilities to be used by parties from both sides of the Border. SWaMP believes that this is to be welcomed, where the movements of waste are legal, and contribute to a more resource efficient approach on the island of Ireland, bringing economic and environmental benefits.

MEASURES AND ACTIONS

6.114 Commitment, and the acceptance of their roles and responsibilities by all players, is critical to the delivery of the Plan's objectives. This is needed to make the shift to a more sustainable approach to the management of municipal wastes and hence comply with the requirements of the Northern Ireland Waste Management Strategy, and to ensure that statutory targets are met, minimising risks of significant fines for non-compliance. The identified measures and actions are set out below by stakeholder grouping, under the broad headings of:

- Waste Prevention
- Recycling and Composting
- Residual Waste Management and Energy Recovery

6.115 In all areas, the key players include:

- Householders and the public
- District councils
- Government Departments, agencies, boards and associated organisations

District Councils***Implementation Action Plans***

6.116 The Waste Plan is implemented through an Implementation Action Plan for municipal wastes, which sets out the details of the actions and measures required (such as number of receptacles to be distributed, or contracts to be prepared) on an annual basis, with a minimum forecasting period of 5 years ahead.

6.117 The IAP also reviews performance, and identifies any areas where greater emphasis or corrective action is required.

6.118 The Annual Implementation Action Plans, covers all aspects including:

- Waste Prevention
- Materials Recovery (Recycling and Composting)
- Residual Waste Treatment and Energy Recovery

Administrative Arrangements

6.119 The councils recognise that the delivery of future services and facilities for the management of municipal wastes present significant challenges. The councils will undertake an assessment of the options available to them, in terms of the administrative arrangements, and other formal agreements, between the councils to ensure that risks are identified and managed in an effective manner, and that the services are delivered in as cost effective a manner as possible.

- 6.120 The assessment will be completed by the end of 2006, and the ensuing recommendations implemented within the appropriate timescales.

Funding and Affordability

- 6.121 The infrastructure and services needed will increase the costs of waste management significantly within the SWaMP Region, compared to current levels of expenditure. Councils will work with Government on an ongoing basis, both directly and through NILGA, to ensure that adequate funding is available, and to avoid an unreasonable or unsustainable burden being placed on any one player.

Waste Characterisation Study

- 6.122 Councils will support a new survey to monitor the composition of municipal waste to, inter alia ascertain the biodegradable fraction of municipal waste and assess other changes in the waste stream, to allow targets to be met and priorities for the collection of materials or diversion from landfill to be identified.

Independent Auditing

- 6.123 Councils to instigate and facilitate an independent audit of recycling and recovery performance, to include a full audit trail of materials from collection through to their ultimate destination, to ensure that both the targets and commitments identified within this Plan are being achieved.

Waste Prevention

- 6.124 **Identify, prioritise and implement waste prevention initiatives** as set out in the Waste Prevention Framework, published in September 2005 by Environment and Heritage Service, through the IAP and endorsed in Strand 1 of the Northern Ireland Waste Management Strategy.
- 6.125 **Implement sustained education and awareness campaigns** - undertaken by Waste Education Officers to encourage a sense of community involvement and ownership of waste management at a District Council level, through highlighting the importance of effective and sustainable waste management and the ways in which waste can be prevented amongst all stakeholder groups. It is important that these are carried out at both a local level, but also at a level that complements national campaigns such as Wake Up to Waste.
- 6.126 **Promote and supply home composting units**, especially in areas with restricted access to brown bins, in order to decrease the amount of biodegradable waste entering the residual waste stream.

- 6.127 **Implement 'Green Procurement' policies**, based on the principles of supply chain management, to exert influence on suppliers to take back packaging, and performance specifications, to source and provide more environmentally sustainable products.
- 6.128 **Monitor and assess** the performance of waste prevention, measurable through the absence of waste being processed by the District Council. This will identify areas where performance is potentially lower than anticipated and will allow corrective actions to be put into place, or reprioritisation of resources, as appropriate.

Materials Recovery – Recycling and Composting

- 6.129 **Commit resources** to the effective and timely collection of collection and its management to monitor and assess performance. This includes the development of a systematic reporting mechanism that can be used by all councils in contracts.
- 6.130 **Enhance and develop civic amenity centres** for the collection of source separated waste to enable a shift away from waste disposal and towards recycling and reuse. Details of the provision of these facilities for each of the District Councils within the SWaMP Region will be set out in the IAP on an annual basis.
- 6.131 **Provide a facility to accept commercial and industrial waste from businesses** at a minimum of one civic amenity site per District Council Region, where practicable and appropriate, in accordance with the measures set out in Section 2.3 of the Northern Ireland Waste Management Strategy. This waste, which may be charged for, will be reported separately from municipal waste, as C&I waste, and therefore will not be included as contributing towards targets or allowances.
- 6.132 **Expand bring facilities.** Details of the provision of these facilities for each of the District Councils within the SWaMP Region will be set out in the IAP on an annual basis.
- 6.133 **Provide receptacles for the segregated kerbside collection of mixed dry recyclables for each new household within the region, in compliance with Section 2.2 of the Northern Ireland Waste Management Strategy and encourage the provision of such bring facilities at new retail and commercial developments.** Details of the roll out of these for each of the Councils within the SWaMP Region will be set out in the IAP on an annual basis, and will take into account new developments within the SWaMP Region.

- 6.134 **Maintain or procure suitable contracts for the bulking, sorting, transfer and re-processing of the mixed dry recyclables collected at bring sites, civic amenity sites/recycling centres, and from households.** SWaMP will as far as is practicable seek to streamline current contracts, and develop a future Group approach, to replace existing contracts as they finish. Any necessary actions in relation to contracts and procurement, including programmes and processes, will be set out in the IAP annually.
- 6.135 **Provide receptacles for the segregated kerbside collection of compostable materials in areas where this is considered practicable and appropriate, and maintain a collection service.** As a minimum, this is likely to include all major urban areas, but the decisions will be taken at the individual council level. Details of the roll out of these receptacles, for each of the Councils within the SWaMP Region, will be set out in the IAP on an annual basis, and will take into account increases in the numbers of households.
- 6.136 **Maintain or procure suitable contracts for the treatment of biowastes.** Any necessary actions in relation to contracts and procurement, including programmes and processes will be set out in the IAP annually.
- 6.137 **Help to stimulate markets through sustainable procurement** at a District Council level, exercised through the buying power of each Council.
- 6.138 **Work with groups such as WRAP and ROTATE and the Northern Ireland Recycled Market Development Forum,** in accordance with Section 2.9 of the Northern Ireland Waste Management Strategy and the Northern Ireland Market Development Forum Market Development Plan to encourage research and development of potential markets for recycled products. A copy of the Northern Ireland Market Development Forum, Recycled Materials Market Development Plan is included within Annex F.
- 6.139 **Monitor and assess** the performance of recycling and composting initiatives and continue to improve data and information on municipal waste arisings and through the continued development of WasteFlowData and compositional surveys.

Residual Waste Management and Energy Recovery

- 6.140 **Prepare and implement a contract for the procurement, delivery and operation of mechanical biological capacity** for the SWaMP Region. It is anticipated that this will be a two part performance-based contract, covering reduction in biodegradability and energy recovery. The councils will work with the Programme Delivery Support Unit to deliver these services/facilities, as identified in the Waste Management Strategy.

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- 6.141 **Undertake a study** to identify suitable and sustainable outlets in Northern Ireland for the use of the fuel produced by the MBT process. This may include for example, cement kilns, industry, major estates, such as hospitals or universities. This study will inform the procurement process for MBT and will include active liaison with InvestNI, relevant Government Departments, Agencies and Boards. It will also consider the economic benefits at the local level, the impact of displacing fossil fuels, and appropriate pricing mechanisms.
- 6.142 **Assess the suitability and confirm potential locations** for the siting of MBT facilities, in consultation with Planning Service, and submit planning applications for the preferred locations.
- 6.143 **Review landfill capacity within the region, and identify future needs**, taking into account the potential impact of the Landfill Directive requirements, as implemented through the Site Conditioning Plans, to ensure that there is a minimum of seven years capacity available within the Region. This should also consider potential locations for the siting of new landfill facilities, and arrangements to procure the facility/disposal.

Householders and the Public

Waste Prevention

- 6.144 **Exercise careful purchasing decisions** by preferentially purchasing more resource efficient products (for example choosing products with less packaging). Full stakeholder buy in to this will promote influence along the supply chain from the design stage of products to the final disposal.
- 6.145 **Engage in home composting** of biodegradable wastes from the household wherever possible, in order to decrease the amount of biodegradable waste entering the residual waste stream for further treatment and disposal.
- 6.146 **Make use of take back schemes where available**, for example plastic bag take bag schemes within supermarkets and home shopping delivery.
- 6.147 **Respond to education and awareness campaigns** and initiatives being run by District Councils, Central Government, businesses and Community Groups to increase knowledge of the importance and benefits of effective waste prevention, as well as the consequences of not preventing waste growth and hence encourage a change in attitude at the individual household level.

Recycling and Composting

- 6.148 **Participate in recycling and composting initiatives** including the careful segregation of waste at the household level and hence participation in kerbside collection schemes.
- 6.149 **Continue to promote the use of bring sites and civic amenity sites** for the recycling of those wastes not able to be collected at the kerbside.
- 6.150 **Exercise preferential purchasing of recovered materials** to help in the stimulation of markets for recycled materials and waste derived compost.

Government

- 6.151 **Funding and affordability** is a critical aspect in the implementation of this Plan. Experience elsewhere in the United Kingdom illustrates the key role that central government has in supporting local authorities through the provision of suitable funding. To date, Government has provided funding for the provision of the 'micro-infrastructure' that has been provided in all districts, based on the councils' Implementation Action Plans. Government needs to continue to provide support to councils in the implementation of this Plan, to ensure that the additional funding required is provided in an equitable and sustained manner, without placing an unreasonable or undeliverable burden on any particular player.
- 6.152 **Provide leadership by example** in the implementation of Departmental Waste Management Plans, to include waste prevention and recycling initiatives, as detailed in Section 1.1 of the Northern Ireland Waste Management Strategy.
- 6.153 **Education and Awareness campaigns Wake up to waste**, co-ordinated with the waste Planning Groups.
- 6.154 **Provide support and guidance to the Waste Planning Groups**, in negotiating the planning and other statutory processes to ensure the timely delivery of the necessary infrastructure.

MUNICIPAL WASTE - SUMMARY OF KEY FACTS AND ACTIONS**Targets*****Landfill Diversion Targets***

As per the requirements of the Landfill Directive (99/31/EC), the amount of BMW going to landfill is to be limited to:

- 75% of 1995 levels by 2010
- 50% of 1995 levels by 2013
- 35% of 1995 levels by 2020

Recycling and Composting

Non statutory/policy targets for recycling and composting of household waste:

- 35% recycling and composting by 2010
- 40% recycling and composting by 2015
- 45% recycling and composting by 2020

Waste Arisings***Waste Arisings (2004/05)***

- Municipal waste: 277,029 tonnes
- Household waste: 244,077 tonnes
- Biodegradable waste: 196,691 tonnes.

Waste Recovery

- 23% by household waste recovery by 2004/05
- 25% recovery of household waste by 2005 (resulting in meeting of the 2005 NIWMS target)

Measures and Actions***District Councils***

- *Mechanical Biological Treatment:* This is the cornerstone of the Plan. District Councils are to prepare and implement a contract for the procurement, delivery and operation of mechanical biological treatment capacity for the SWaMP Region.
- *Waste Prevention:* Education and awareness to support waste prevention initiatives.
- *Composting:* Progress tender for the treatment of biowastes.

7.0 COMMERCIAL AND INDUSTRIAL WASTE

INTRODUCTION

- 7.1 The commercial and industrial sectors produce a significant quantity of wastes, the cost effective management of which will present significant challenges in the future. The over-reliance on low cost disposal in past years cannot continue, and many businesses have already made a shift towards more resource efficient and less wasteful practices in order to remain competitive in today's increasingly challenging commercial environment. This trend needs to continue, and the significant drivers already in place to effect this change need to be recognised and responded to by businesses.
- 7.2 The commercial and industrial sector produces a range of wastes, of which several streams (or subsets) are subject to their own specific legislation, targets and/or planning requirements. These are considered in separate chapters in this Plan, and include:
- Packaging Waste
 - Construction, Demolition and Excavation Wastes
 - End of Life Vehicles
 - Batteries
 - Hazardous Waste
 - Waste Electronic and Electrical Equipment
 - Tyres
 - Sewage Sludge
- 7.3 Non-statutory targets, through the Northern Ireland Waste Strategy, *Towards Resource Management*, apply to the general Commercial and Industrial (C&I) waste stream. This seeks to place greater emphasis on limiting and reducing the quantity of C&I waste generated, and to increasing the levels of recycling and recovery.
- 7.4 This Chapter therefore sets out the measures for the future management of Commercial and Industrial wastes within the Region, to facilitate the change to greater resource efficiency and to work towards complying with the relevant policy targets.

DEFINITIONS

- 7.5 Commercial and Industrial waste is defined under the Waste and Contaminated Land (Northern Ireland) Order 1997. In summary, commercial and industrial wastes are defined as follows:
- **Commercial waste:** 'waste from premises used wholly or mainly for the purposes of a trade or business or for the purposes of sport, recreation or entertainment.....'
 - **Industrial waste:** 'waste from any factory and any premises used for the purposes of: transport services; gas, water, electricity and sewerage services; and postal or telecommunication services.'

MANAGEMENT AND CONTROL

- 7.6 Management and control of Commercial and Industrial wastes is provided by the legislative framework primarily under the Waste and Contaminated Land (Northern Ireland) Order 1997, and associated Regulations.
- 7.7 The main roles and responsibilities under the legislative provisions are summarised in Table 7.1.

Table 7.1 Summary of Key Roles and Responsibilities for C&I Wastes

Element	Responsibility
Waste Production: Compliance obligations include, inter alia: Duty of Care, Transfer to Authorized Persons; Use of licensed facilities for treatment and disposal	Businesses Public Sector
Waste Collection	Waste Management Contractors (District councils for Trade Waste)
Treatment and Disposal of Wastes	Waste Management Contractors Businesses (with on-site facilities) Councils (council operated facilities)

- 7.8 The Controlled Waste (Duty of Care) Regulations 2002 impose a Duty of Care on commercial and industrial organisations who produce, import, carry, keep, treat or dispose of controlled waste from their business or industry and ensure that any wastes they produce is handled safely.

TARGETS

- 7.9 There are no statutory targets that apply to C&I waste, other than those set through legislation for specific waste streams such as packaging waste, which are considered elsewhere in this Plan.
- 7.10 The Northern Ireland Waste Management Strategy, *Towards Resource Management*, has set a target for the recycling of C&I waste as follows:
- 60% of Commercial and Industrial waste to be recycled by 2020.

- 7.11 This target in the Strategy follows on from the Best Practicable Environmental Option (BPEO) Guidance that was published by EHS in 2005. This guidance set out BPEO for the management of C&I wastes, with a suggested mix of targets and technologies over the period up to 2020. The supporting Technical Report based the assessment around the three key Landfill Directive target years, but the Guidance itself sets out the predicted infrastructure requirements for 2020, based on the total quantity of predicted C&I waste arising by 2020. This is summarised in Table 7.2.

Table 7.2 Northern Ireland Target Capacity Requirements for C&I Wastes by 2020

Technology	Capacity (Tonnes)	%
Recycling and Composting	480,000	60
Anaerobic Digestion	40,000	5
Mechanical Biological Treatment	50,000	6
Thermal Treatment	130,000	16
Landfill	100,000	13

WASTE QUANTITIES AND COMPOSITION

Waste Quantities

- 7.12 The Commercial and Industrial waste arisings for Northern Ireland and SWaMP for the reporting year 2004/05 have been extracted from the recently completed EHS Commercial and Industrial Waste Arisings Survey 2004/05. This survey concluded that approximately 612,000 tonnes of Commercial and Industrial waste was produced in Northern Ireland in 2004/05. A summary of these waste arisings in Northern Ireland and the waste planning regions is shown in Table 7.3.

Table 7.3 Commercial and Industrial Waste Arisings in 2004/05

Waste/Region	Arisings (tpa)	Proportion (%)
SWaMP	189,000	31.0%
North West	81,000	13.0%
arc21	342,000	56.0%
Total for Northern Ireland	612,000	

- 7.13 The data indicate that businesses within the SWaMP Region were responsible for producing approximately 31% of Northern Ireland's Commercial and Industrial waste in the reporting year 2004/05. A breakdown by District Council within the SWaMP Region is shown in Table 7.4.

Table 7.4 C & I Waste produced by District Council in the SWaMP Region

District Council	C&I Waste Produced (tonnes)	Percentage of SWaMP Total (%)	Percentage of NI Total (%)
Armagh City & District Council	34,269	18.1%	5.6
Banbridge District Council	6,392	3.4%	1.0
Cookstown District Council	6,953	3.7%	1.1
Craigavon Borough Council	30,213	15.9%	4.9
Dungannon & South Tyrone Borough Council	55,572	29.3%	9.1
Fermanagh District Council	14,527	7.7%	2.4
Newry & Mourne District Council	20,526	10.8%	3.4
Omagh District Council	21,328	11.2%	3.5
Total	189,780	100%	31%

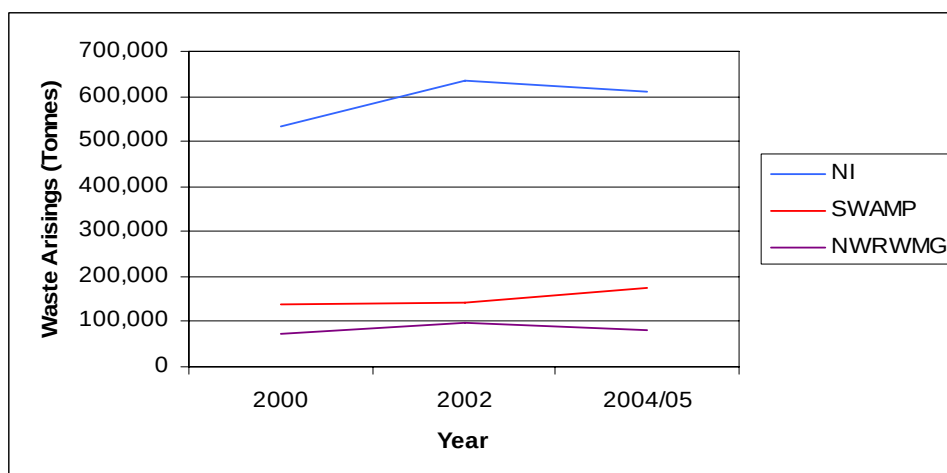
Notes:

1. Source: EHS Commercial and Industrial Waste Arisings Survey 2004/05
2. The breakdown by district has been calculated assuming that the number of small businesses (less than 10 staff) is in the same relative proportion as large businesses.

7.14 Commercial and Industrial waste arisings have grown since the first survey of this kind was carried out in 2000. Table 7.5 shows the Commercial and Industrial waste arisings for both Northern Ireland and the waste planning regions, with the data also illustrated graphically in Figure 7.1.

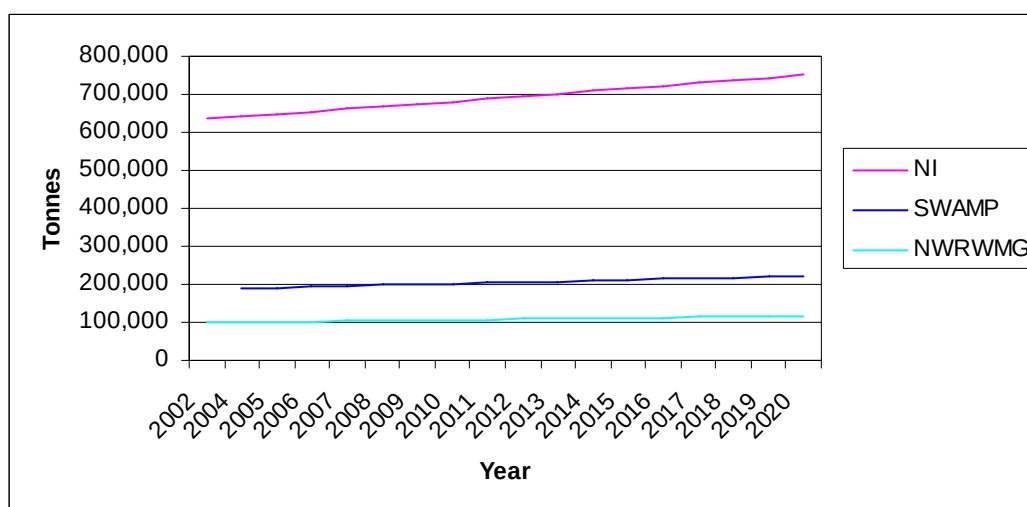
Table 7.5 Summary of Commercial and Industrial Waste Arisings by Waste Group

Waste/Region	Waste Arisings (tpa)		
	2000	2002	2004/05
SWaMP	137,100	144,400	189,780
% of NI Total	25%	22%	31%
N West	75,000	99,200	82,000
% of NI Total	14%	16%	13%
arc 21	322,400	391,300	342,000
% of NI Total	61%	62%	56%
Northern Ireland	532,000	635,000	612,000

Figure 7.1 Trend in Commercial and Industrial Waste Arisings

7.15 The data indicate that C&I waste has been growing at a rate of about 3% per annum over the period from 2000 to 2005 on a Northern Ireland wide basis. However, the data is not very robust, with the first two sets of data based on sample surveys, with relatively high confidence limits. The final dataset for 2004/05 was based on a survey of all businesses with 10 or more staff, and a sample of smaller businesses. The questionnaire return rate was 17.4%.

7.16 For the purposes of this Plan therefore, a growth rate of 1% has been assumed up to 2020, for consistency with the NI BPEO Guidance, as illustrated in Figure 7.2. This growth rate is intended to recognise the impact of waste prevention measures. The projection quantifies the amounts of waste that will require to be collected, treated and disposed of at waste management facilities. To be conservative, given the uncertainty associated with the data, the starting point is assumed to be the higher value of the 2002 or 2004/05 data sets.

Figure 7.2 Projected C&I Waste Arisings to 2020

Waste Composition

- 7.17 The composition of Commercial and Industrial waste in Northern Ireland, as indicated by the EHS Commercial and Industrial Waste Arisings Survey 2004/05, is summarised in Table 7.6.

Table 7.6 C&I Waste Composition by EWC Category

EWC Code	Description	Percentage	Comment
20 03 01	Mixed Waste	29%	
18	Healthcare	21%	
20 01 99	Other separately collected fractions	14%	
20 02 02	Soils & Stones	10%	
19	Waste Management Facility Wastes	8%	
15	Packaging	6%	
20 01 08	Biodegradable Kitchen & Canteen Waste	3%	
20 01 01	Paper & Cardboard	2%	
10	Wastes from Thermal Processes	1%	
13	Oils	1%	
	Others	5%	

Source: EHS Commercial and Industrial Waste Arisings Survey 2004/05

- 7.18 Key points to note from this composition include:
- Mixed waste is the highest fraction at 29%. This will include a range of wastes, such as paper, packaging, catering and plastics, and is probably broadly similar in composition to household/municipal waste.
 - There is a relatively high proportion (21%) of healthcare wastes.
- 7.19 Certain fractions of the C&I waste, such as healthcare and the hazardous waste elements of other fractions, require specialist handling and treatment and cannot practically be recycled or recovered. For the purposes of this Plan therefore, and to allow for this, it is assumed that 20% of the total C&I arisings would not be considered in the context of assessing future recycling and recovery capacity.

BEST PRACTICABLE ENVIRONMENTAL OPTION

- 7.20 Guidance on the Best Practicable Environmental Option for Waste Management in Northern Ireland was published in June 2005 by EHS. This can be found on the EHS website at: http://www.ehsni.gov.uk/pubs/publications/NI_BPEO_Guidance_652kb.pdf
- 7.21 The Guidance identified BPEO for C&I wastes in Northern Ireland by 2020. It identified the mix of technologies considered appropriate over the period up to 2020 for Northern Ireland. The supporting Technical Report provided a further breakdown of technology and capacity requirements at the three key Landfill Directive target years of 2010, 2013 and 2020, but the Guidance itself sets out the predicted infrastructure requirements for 2020, based on the total quantity of predicted C&I waste arising by 2020. This is summarised in Table 7.7.

Table 7.7 BPEO Infrastructure Capacity Requirements for C&I Wastes

Technology	2010	2013	2020%
Recycling and Composting	38%	50%	480,000 60%
Anaerobic Digestion	40,000 6%	40,000 5%	40,000 5%
Mechanical Biological Treatment	25,000 3%	50,000 7%	50,000 6%
Thermal Treatment	0 0%	130,000 17%	130,000 16%
Landfill/Disposal ¹	53%	21%	100,000 13%

Notes: 1. This includes the quantities that are included in the BPEO Guidance under the title 'Combustion', which it is assumed included hazardous wastes thermally treated, as well as those reportedly treated by 'backyard burning'.

- 7.22 The BPEO Guidance also provides indicative locations for C&I waste treatment facilities across Northern Ireland, as summarised in Table 7.8.

Table 7.8 Indicative Locations for C&I Waste Treatment Facilities

Facility Type	North West	SWaMP	arc21
In-vessel Composting	Londonderry	Craigavon	Ballymena Belfast
Anaerobic Digestion	None identified	None identified	Belfast
Recycling	Coleraine Londonderry Magherafelt	Craigavon Omagh	Antrim Newcastle Belfast Newtownards
Mechanical Biological Treatment	Londonderry	None identified	Belfast
Thermal Treatment	None identified	None identified	Belfast

7.23 The anaerobic digestion and in-vessel composting facilities, together with the Mechanical Biological Treatment plants are to be in place by 2010, with the Thermal Treatment plant on stream by 2012/13.

7.24 Under this BPEO assessment, the quantities of waste that arise within the Region, which would be assumed to go to thermal treatment, are relatively small, as indicated by the breakdown in Table 7.9. On that basis, a thermal treatment plant is not considered appropriate for the Region, although it is recognised that businesses would be able to use any such facility if it was delivered in the arc21 region, as suggested by the BPEO Guidance.

Table 7.9 SWaMP 'NI BPEO' Management Options (by Destination) for C&I Wastes

Technology	SWaMP Tonnage (Tpa)		
	2010	2013	2020
Recycling and Composting	60,000	80,000	105,000
Anaerobic Digestion	9,000	9,000	9,000
Mechanical Biological Treatment	5,000	11,000	11,000
Thermal Treatment	-	28,000	28,000
Landfill/Disposal ²	125,000	76,000	67,000

Note:

1. Figures presented to the nearest tonne.

2. Landfill disposal includes the quantities that cannot otherwise be recycled.

7.25 For the purposes of this Plan, whilst recognising that some wastes, such as healthcare and some hazardous wastes will require specialised treatment, BPEO for C&I wastes generally within the Region therefore is considered to be represented by:

- **Waste Prevention**, to limit the growth in the quantities of C&I waste produced to less than 1% per annum.

- **Materials Recovery/Recycling** - 60% by 2020 (excluding healthcare, hazardous and similar wastes that require specialised treatment).
- **Biological Treatment** in the form of Anaerobic Digestion (with Combined Heat and Power where appropriate) or In-Vessel Composting (as appropriate to the particular waste stream), and with synergies maximised as far as possible with the agricultural industry).
- **Mechanical Biological Treatment**, with energy recovery through anaerobic digestion and/or production of a fuel for energy recovery purposes.
- **Landfill Disposal**, reduced to 13% by 2020.

7.26 This is consistent with the needs of the Region, and the published BPEO Guidance, and offers strong synergies between the management of Commercial and Industrial and municipal wastes within the Region that should be mutually beneficial to the two sectors.

CURRENT ARRANGEMENTS

7.27 Wastes arising within the commercial and industrial sector, which was estimated to amount to 612,000 tonnes in 2004/05 reporting year, are primarily managed within the private waste management sector, or disposed of at Council operated landfill facilities. However, some 35,000 tonnes of C&I waste are collected by councils under their Trade Waste collection service within the Region. The latter is also accounted for within the municipal waste figures (as the non-household component of municipal waste) and therefore falls within the scope of the statutory landfill diversion targets for municipal waste.

7.28 The treatment and disposal routes reported for C&I wastes in the 2002 and 2004/05 surveys, is summarised in Table 7.10. Although there is some variation within the figures, this confirms landfill to be the dominant management route for C&I wastes (40-54%), with recycling the next largest ranging from 33-21%. A proportion of wastes are also reported as being 'incinerated'. This includes healthcare wastes treated at licensed clinical waste incinerators, as well as some hazardous wastes that are exported to Great Britain for thermal treatment. The figure is however also thought to include some quantities that have been disposed of by backyard burning, a practice that is not permitted, unless covered by an exemption issued by EHS.

Table 7.10 Summary of C&I Waste Management Practices in 2002 and 2004/05

Management Options	2002 Data (tonnes)	2004/05 Data (tonnes)
Reuse, recycling & composting		
Northern Ireland	208,000 (33%)	
SWaMP	48,000	
Landfill		
Northern Ireland	252,000 (40%)	330,500 (54%)
SWaMP	58,000	103,000
Other (combustion, landspreading)		
Northern Ireland	175,000 (27%)	
SWaMP	40,000	
NI C&I Waste Arising:	635,000	612,000
SWaMP:	145,000	189,000

- 7.29 Assuming that the C&I wastes arising within the SWaMP Region are managed in a similar manner as C&I wastes across Northern Ireland, the data confirms the current heavy reliance on landfill disposal. However, it also shows that there is somewhere in the region of 50 – 60,000 tonnes of C&I waste already being recycled or recovered by businesses within the region.

PROPOSED ARRANGEMENTS

- 7.30 In planning for the future capacity requirements for C&I wastes, it is recognised that there are no statutory targets that apply to general C&I wastes, or individual organisations, over and above the legal requirements/targets imposed by specific Producer Responsibility such as applies to Packaging Wastes. Businesses operate in a market environment, where the key driver for change in the commercial and industrial sector is the increasing costs for disposal. Government is using the Landfill Tax as an economic instrument to make disposal the least attractive option financially, with the Landfill Tax set to rise to about £35 per tonne in the medium term.
- 7.31 Assuming that this proves to be effective in changing the way in which organisations manage their waste, the predicted infrastructure/capacity requirements within the SWaMP Region for managing C&I wastes up to 2020 are summarised in Table 7.11. The landfill/disposal capacity requirement includes the healthcare, hazardous and other types of waste that require specialised treatment and disposal.

Table 7.11 Summary of Infrastructure Capacity Requirements for C&I Waste in the SWaMP Region

Infrastructure	Capacity Requirement
Recycling	60,000 by 2010 80,000 by 2013 105,000 by 2020
Anaerobic Digestion/IVC	9000 by 2010
Mechanical Biological Treatment	40,000 by 2010
Landfill/Disposal ¹	145,000 by 2010 85,000 by 2013 80,000 by 2020

Note: 1. Includes allowances for landfilling MBT outputs

- 7.32 At present, as noted above, it is estimated that somewhere in the region of 50,000 – 60,000 tonnes are recycled or recovered. Overall therefore, it is considered that the existing infrastructure has the capacity to accommodate the increased recycling requirement into the medium term at least.
- 7.33 The anaerobic digestion capacity is relatively small, and is best considered not as a stand alone facility, but in the context of the requirements for managing the agricultural and agri-food wastes, as set out in Chapter 11. This identifies the need for about 2 or 3 anaerobic digestion plants (with Combined Heat and Power, where appropriate) within the Region.
- 7.34 Mechanical Biological Treatment (MBT) is a key part of the technology mix. One of the attractions for treating municipal waste is the reduction in biodegradability, which assists councils meet their statutory landfill diversion targets. This is not a prime consideration for C&I wastes, and it is only likely to be used if the gate fees are lower than landfill disposal costs, in which cases, economies of scales will be an important factor. Notwithstanding this, MBT is as a treatment process that has a number of clear benefits which include:
- Recovery of additional materials for recycling, through the mechanical treatment component;
 - Generation of heat and/or power through anaerobic digestion, if this is used as the biological treatment component;
 - Production of a fuel for use in a third party application;
 - Reduction in the weight of the outputs, by reducing the moisture content of the material.

- 7.35 MBT is also a key element of the infrastructure requirements for the future management of municipal wastes within the Region, with a capacity requirement of the order of 160 – 180,000 tonnes per annum. It is anticipated that this would be delivered by 2 or 3 plants. In this context, it is anticipated that the synergies between the C&I and municipal waste sectors would be best realised by sizing plants to accommodate both C&I and municipal wastes, to deliver some economies of scale.
- 7.36 It is also recognised that there is no guarantee of supply of C&I wastes to any particular plant within the Region, given the very real commercial pressures that come to bear on businesses. Therefore, if a major facility, such as an energy-from-waste plant or other form of treatment, was developed within another region such as arc21, this may, depending on gate fees, pull a significant proportion of C&I wastes out of the region, in response to the market conditions.

MEASURES AND ACTIONS

- 7.37 The cost effective management of commercial and industrial wastes is an important element in maintaining a competitive economy in which businesses can operate, knowing that the necessary range of services and facilities are available to them. This does not happen by chance, and requires all sectors to work together effectively in the planning and delivery of the supporting infrastructure. Northern Ireland also has a very high proportion of SMEs in the economy, and many look to their local council as well as InvestNI for support and guidance. This section therefore sets out the responsibilities and key actions for stakeholders to deliver the infrastructure that is needed.

Central Government

- 7.38 A range of initiatives, current and proposed, have been identified in the Northern Ireland Waste Management Strategy, *Towards Resource Management*, for Government to take forward to assist the more sustainable management of wastes within the commercial and industrial sectors. These are fully endorsed by SWaMP and are summarised in Box 7.1.

Box 7.1 Summary of Initiatives for the Business Sector**CURRENT INITIATIVES**

- **Encouraging eco-design practice within each manufacturing sector:** This is a process which minimises environmental impact across the product life cycle, whilst producing a high quality, cost effective product.
- **Retail sector:** In conjunction with top retailers, WRAP has recently announced new targets to design out packaging waste growth by 2008, deliver absolute reductions in packaging waste by 2010 and identify ways to tackle issue relating to food waste.
- **Encouraging the use of Environmental Product Labelling:** Environmental labelling on products enables consumers to make informed choices about the products they buy.
- **Green Technology Initiative:** The Green Technology Initiative, sponsored by Invest NI, offers three years interest free loans of up to £50,000 towards the cost of capital equipment.
- **The implementation of the IPPC regime** is a vehicle for promoting change in industry performance in waste management, encouraging businesses to take action to prevent waste.
- **Fiscal drivers** through escalation of the landfill tax.

PROPOSED INITIATIVES

- **Setting waste prevention targets through voluntary agreements:** Government will assist industry in the development of sector specific targets where this will contribute to waste prevention.
- **The Department to develop partnerships with the professional institutions and associations:** The Department will support the professional bodies in the encouragement of their members to prevent waste, implement supply chain management and practice green procurement through the provision of guidance and training.
- **Targeted awareness campaigns, encouraging business to prevent waste:** The Department will deliver awareness campaigns specifically targeted at businesses, encouraging action in waste prevention, resource efficiency and legal compliance.
- **Encourage the implementation of Environmental Management Systems (EMS):** The Department, in conjunction with other organisations, will promote the implementation of EMS through the provision of guidance, advice and leading by example.

7.39 In addition to the above, Government has a key role to play through leadership, and the provision of support and guidance to the C&I sector. Associated actions therefore include:

- Implementation of Departmental Waste Management Action Plans, to demonstrate leadership and effect change through the principle of supply chain management.
- Purchasing policy to include 'quality' criteria that reflect environmental and waste management considerations, as appropriate.

District Councils

- 7.40 District Councils have a key role to play in delivering the infrastructure, given the synergies identified between the C&I and the municipal waste sectors. Indeed, experience in many areas indicates that it is the facilities developed to service municipal waste contracts that provide the foundation to the waste management system, giving service providers the confidence and security to invest for the medium and longer term.
- 7.41 Councils are to factor the potential C&I waste arisings into the planning and delivery of the Mechanical Biological Treatment plants proposed within the SWaMP Region for the treatment of municipal wastes.
- 7.42 Councils are to allow, where appropriate, a service for the collection or acceptance of C&I wastes at their facilities from SMEs, charged for accordingly, and provided always that the C&I waste is recorded and reported separately from the municipal waste stream, so that it does not add any additional burden or risk to councils. This includes the acceptance of C&I waste for recycling at a minimum of one civic amenity site per Council area.
- 7.43 Councils will, through their Waste Prevention and Recycling Officers, provide advice and guidance to businesses on the more sustainable management of their wastes.

Waste Producers

- 7.44 Producers of waste in the commercial sector include not only businesses, such as retail and the service sector, which are largely office-based, but also under the Controlled Waste Regulations 2002 include government and council offices and ancillary activities. Commercial and industrial wastes therefore originate not only within the private sector, but also includes wastes from the public sector, which at present are largely dealt with and accounted for within the municipal waste sector. However, the same actions and priorities apply in principle to any producer of C&I waste, as outlined below.

Waste Prevention

- 7.45 Limiting the growth in C&I waste arisings is the primary objective of the Waste Management Strategy, *Towards Resource Management*, and this Plan. Waste Producers therefore should consider their processes and activities to identify area where resource use can be reduced (eg double-sided printing and copying), and less wastes generated (eg through re-use). Waste producers therefore should consider:
- **Education and Awareness:** Provide training to staff to raise awareness of the issues and nominate a director or manager to have responsibility for waste management within the organisation to demonstrate commitment and leadership.

- **Waste Audits:** to quantify the nature and amount of waste arisings and identify opportunities for their prevention, or potential for re-use, recycling or as a fuel for energy recovery (eg waste wood). Further information of waste audits can be found on the Envirowise website at: <http://www.envirowise.gov.uk/page.aspx?o=119479>
- **Environmental Management Systems:** designed to create a cycle of continuous improvement, by identifying the significant environmental impacts of an organisation's activities, and working to reduce those impacts over time. Waste management and resource use are key aspects of any environmental management system. InvestNI has a target of increasing the number of companies with Environmental Management Systems in place, and further guidance can be found at their website at: <http://www.investni.com/index/develop/onlineinfocentre/niwasteworks.htm>
- **Guidance:** Advice and support is available from a number of sources, and organisations should draw on this to identify areas for potential improvements in waste prevention and management. These sources include for example:
 - Envirowise: <http://www.envirowise.gov.uk/page.aspx?o=119653>
 - WRAP: http://www.wrap.org.uk/waste_minimisation/retailer_initiative_innovation_fund/news_events/news/wrap_innovation.html

Recycling and Materials Recovery

7.46 Recycling of waste materials is a further key element in the management of C&I wastes. In the past there has been an expectation that recycling should generate an income to the organisation producing the waste material. Only in particular circumstances would this be the case, with a high value waste commodity, and this is generally not the case. Recycling costs, but with the increasing cost of waste disposal, the financial savings to an organisation come from the diverted savings. The key to successful recycling is the provision of high quality materials to the market. This generally means separating wastes at source into specific streams, such as:

- Paper
- Cardboard
- Plastics
- Metals (e.g. Aluminium beverage cans)

7.47 The waste materials that can be segregated will be dependent of the organisations activities, but in principle, recycling requires the provision of separate receptacles for. In addition to the actions identified under Waste Prevention, organisations should provide:

- Receptacles for the source-separated collection of recyclable waste materials.

Waste Data and Statistics

- 7.48 The data on waste arisings within the commercial and industrial sector is not that robust at this point in time, but it is improving. It has however been a consistent theme in consultation responses from the business sector that the quality of the data needs to be improved. This can only be achieved if businesses themselves and other organisations are prepared to provide the data and respond to survey questionnaires. This is important as well because the United Kingdom and hence Northern Ireland has a duty to report waste arisings to the European Commission under the EC Waste Statistics Regulation (No. 2150/2002) Organisations therefore need to:
- Provide accurate data on waste arisings when surveyed by EHS, who are carrying out the survey in fulfilment of the UK's statutory obligations to the EU.

Waste Management Industry

- 7.49 The Waste Management Industry has a critical role to play in improving the management of wastes in the commercial and industrial sectors, assisting in the shift from the traditional reliance on landfill disposal to a more resource efficient approach, to realise the value of the waste through materials and energy recovery. Key actions for this sector therefore include:
- Developing the supporting infrastructure for the recovery of materials and energy, including recycling, anaerobic digestion and Mechanical Biological Treatment capacity. In all cases, potential synergies with other sectors (such as the agricultural and municipal sectors) should be identified and realised as far as is practicable.
 - Expand the range of collection services available to organisations, to facilitate the source-separated collection of recyclable or recoverable materials.

COMMERCIAL AND INDUSTRIAL WASTE - SUMMARY OF KEY FACTS AND ACTIONS**Targets**

- 60% of Commercial and Industrial Wastes to be recycled by 2020

Waste Arisings***Waste Arisings (2004/05)***

- SWaMP: 189,00 tpa (31% of Northern Ireland total)
- Northern Ireland: 612,000 tpa

Waste Recovery

- 33% of waste recovered in 2002 (awaiting confirmation of 2004/05 percentages)

Measures and Actions***District Councils***

- *Delivery of infrastructure*, given the synergies between C&I and municipal wastes.
- *Provision of a service for collection or acceptance of C&I wastes* at civic amenity sites from SMEs, where appropriate and charged for accordingly.

Waste Producers

- *Waste prevention*: implemented through education and awareness initiatives, waste audits and environmental management systems.
- *Recycling and materials recovery*: Source separated segregation of recyclable waste materials.

Waste Management Industry

- *Infrastructural delivery*: development of the supporting infrastructure for the recovery of materials and energy, including recycling, anaerobic digestion and mechanical biological treatment capacity. Potential synergies with other sectors (such as agricultural and municipal waste) should be realised.
- *Collection services*: The expansion to organisations to facilitate the source separated collection of recyclable or recoverable materials.

8.0 PACKAGING WASTE

INTRODUCTION

- 8.1 Packaging is an integral component of today's consumer driven society, playing a well established and vital role in the protection, containment, preservation, and promotion or selling of goods. However, packaging is a highly visible waste, when it is discarded. As a result, packaging waste has attracted much attention, featuring highly in all consultations on waste policy and planning in Northern Ireland, in recent years, with a widespread perception that many products are 'over-packaged' when sold to the consumer.
- 8.2 Recognising the potential environmental impacts, the management of packaging and packaging waste has been a priority within the European Union, covered by the Council Directive on Packaging and Packaging Waste (94/62/EC). This seeks to harmonise national measures concerning the management of packaging and packaging waste to provide a high level of environmental protection, and ensure the functioning of the internal market.
- 8.3 The Directive covers all packaging placed on the market and all packaging waste, whether it is used at industrial, commercial, office, shop, service, household, or any other level, regardless of the material used.
- 8.4 The Directive, which sets out a number of measures and targets, requires Member States to take measures to prevent the formation of packaging waste, and to introduce systems for the return and/or collection of used packaging.
- 8.5 This Chapter has been prepared in fulfillment of Article 14 of the Directive on Packaging and Packaging Waste (94/62/EC), which requires a specific chapter on the management of packaging and packaging waste to be included in waste management plans.

DEFINITIONS

- 8.6 Packaging is defined in The Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 1999, as amended, as:

' ...all products made of any materials of any nature to be used for the containment, protection, handling, delivery and preservation of goods...from the producer to the user or consumer...'

- 8.7 Packaging can be further grouped under three main heading, as follows:

- "Primary" or "Sales" packaging - the packaging which forms a sales unit for the user or final consumer, for example, a box containing soap powder.
- "Secondary" or "Grouped" packaging - packaging which contains a number of sales units.
- "Tertiary" or "Transport" packaging - the packaging that is used to group secondary packaging together to aid handling and transportation and prevent damage to the products. For example, the pallet and shrink wrap used to transport a number of large boxes containing boxes of soap powder. (For the purposes of the Regulations, this does not include road, ship, rail or air containers).

PACKAGING MATERIALS

8.8 A range of materials, principally paper and cardboard, plastic, glass, metal and wood, are used in packaging applications. This diversity reflects their characteristics and qualities, with respect to different producer, product, transit and consumer requirements. These materials and their typical packaging applications are described briefly in Table 8.1.

Table 8.1 Summary of Packaging Materials and their Applications

Material	Application
Aluminium	Aluminium is used primarily for two main packaging products – drinks cans and foil packaging
Steel	Steel packaging falls into two broad categories; ▪ Household packaging. For example, paint tins, food and drink cans, and aerosol products. These are generally made from tinplated steel. ▪ Commercial and industrial packaging. For example, drums, steel strapping and baling wire. These are generally made from uncoated steel.
Paper and Cardboard	Paper and cardboard are widely used as packaging materials, principally cardboard because it is economic, lightweight, easy to use and store and can be easily compressed; ▪ Corrugated - primarily transit packaging, but reaches households as packaging around e.g. electrical goods and flat packed furniture. ▪ Solid carton board - primarily consumer packaging (frozen food, cereals, shoe boxes etc).
Glass	Glass has a long history of use as packaging, as containers and bottles. It appears to enjoy an image of quality, which companies use to brand their products.
Plastic	'Plastic' is a generic term, encompassing a wide range of plastics, including, for example: low-density polyethylene (LDPE), high-density polyethylene (HDPE), polypropylene (PP), polyvinylchloride (PVC), polystyrene (PS) and polyethylene terephthalate (PET). Each has specific packaging applications, reflecting their particular qualities, with around 60% of plastic packaging used for in food applications. For example, PET is widely used for soft/fizzy drink bottles. For frozen foods, PET, LDPE and HDPE are widely used, whereas refrigerated foods PP, PS or PVC are used. Extensive use is also made of plastics in medical applications.
Wood	Wood is used mainly for transporting packaged products. There are two distinct components: ▪ Pallets - representing two-thirds of the wood packaging sector ▪ Cases and crates - representing one-third

MANAGEMENT AND CONTROL***Producer Responsibility***

- 8.9 The United Kingdom has opted for a market-based approach in implementing a system for the return and/or collection of used packaging, to meet the requirements of the Packaging and Packaging Waste Directive. Under this system, the cost of recycling each material fluctuates in response to market conditions, and the recycling and recovery obligations are shared between all parts of the packaging chain.
- 8.10 The approach within the United Kingdom therefore applies only to businesses which produce or use packaging. As a result, local authorities and consumers have no formal obligations under this system.
- 8.11 The system is designed to operate seamlessly across the United Kingdom as a whole, with separate Regulations enacted in Great Britain and Northern Ireland. In Northern Ireland, the governing legislation is the Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 1999, as amended, hereafter referred to as the Packaging Regulations. The Packaging Regulations, on which further information and guidance can be found at: www.ehsni.gov.uk/environment/wasteManage/regulations_packaging.shtml, are intended to encourage the minimisation, incentivise the re-use, and increase the recovery and recycling of packaging waste.
- 8.12 The main aspects of the Packaging Regulations are outlined briefly below. This description is not definitive, and is provided for information purposes only in the context of the Waste Management Plan. It does not constitute legal guidance or advice, and appropriate advice should be sought with respect to any statutory obligations or queries.
- 8.13 In principle, the Packaging Regulations impose obligations on those businesses (producers) who satisfy certain threshold criteria to recover and recycle specified quantities of packaging waste each year. Under the Regulations, a 'producer' is defined as a legal entity who:
- Performs an 'activity'.
 - Supplies packaging to another stage in the packaging chain, or to the final user of the packaging.
- 8.14 The principal activities referred to are:
- Manufacturing packaging raw materials.
 - Converting materials into packaging.
 - Packing and filling packaging.
 - Selling packaging to the final consumer or user.

- 8.15 The Regulations provide that each item of packaging placed on the market should carry a 100% obligation, which is shared between the four main stages of the 'packaging chain', with a specific percentage obligation applied to each of the stages as summarised in Table 8.2.

Table 8.2 Obligation Activities by Class of Producer

Class of Producer	Activity Obligation
Manufacturers of raw materials for packaging ('raw material manufacturers')	6%
Businesses that convert raw materials into packaging ('converters')	9%
Fillers, who put goods into packaging, or use packaging to wrap goods ('packer/fillers')	37%
Sellers who sell packaging to the final user or consumer of the packaging ('sellers')	48%

- 8.16 In addition, businesses at any stage in the packaging chain can import packaging or packaging materials. Those that do are also included in the packaging chain, and therefore fall within the scope of the Regulations, and may have obligations. Importers of packaging are liable for the 'rolled-up' obligations performed on packaging before it was imported.
- 8.17 The Packaging Regulations currently impose obligations on a producer if the organisation:
- Has a turnover in excess of £2 million per annum;
 - Handles more than 50 tonnes of packaging a year; and
 - Operates in Northern Ireland.
- 8.18 Businesses have a choice in how they comply with their obligations. They can do everything themselves, but have to demonstrate compliance to show that they have met their obligations. Alternatively, they can join an industry-led collective scheme, known as a 'compliance scheme', a number of which have been established in Great Britain and Northern Ireland, which takes on the obligations on behalf of the business.
- 8.19 For producers discharging their responsibilities individually, there are three main obligations, with a further obligation on producers whose main activity is selling, as follows:
- **Registration Obligation.** Producers must register with the Environment and Heritage Service (EHS) by 7th April each year, pay a fee and provide data on the amount of packaging handled by the producer in the previous year. Producers with turnover in excess of £5 million must also provide a compliance plan outlining the steps they intend to take to meet their recovery and recycling obligations;

- **Recovery and Recycling Obligations.** Take reasonable steps for the specified quantities of packaging to be recovered or recycled and provide acceptable evidence to show this has been done;
- **Certifying obligation.** At the end of the year in question, provide the EHS with a certificate of compliance stating whether those recovery and recycling obligations have been met; and
- **Consumer information obligations.** Businesses whose main activity is “selling” must also carry out consumer information obligations.

8.20 All producers registering through a compliance scheme have two main obligations:

- Join a packaging compliance scheme which is registered with the Department of the Environment.
- Provide accurate and robust packaging data to the scheme.

8.21 Businesses reprocessing or exporting packaging wastes must register with the competent authority, which is Environment and Heritage Service in Northern Ireland, and submit the necessary packaging data. They should also increase recycling capacity by developing collection and reprocessing infrastructure. Packaging Waste Recovery Notes (PRNs) and Packaging Waste Export Recovery Notes (PERNs) must be purchased from such accredited reprocessors and accredited exporters respectively by obligated businesses and compliance schemes as evidence of the quantity of packaging waste recovered or recycled in fulfilment of their obligations. These Notes are the only legal forms of demonstrating compliance.

Calculating Recovery and Recycling Obligations

8.22 The Regulations are designed to ensure that packaging ‘producers’ or ‘obligated businesses’ take full responsibility for packaging wastes generated as a result of their commercial activities. Obligated businesses are required to recover and recycle specific tonnages of packaging waste based on calculations incorporating national targets.

8.23 If an organisation is an ‘obligated business’, it must calculate the amount of packaging it handles. The recovery and recycling obligations are calculated using three factors:

- The tonnage of ‘packaging handled’ by the business;
- The percentage activity obligation that is applied to the relevant activity performed by the producer on packaging; and
- The business recovery or recycling target for the UK that year.

- 8.24 The recovery and recycling obligations are established by the formulae:

$$\begin{array}{cccc} \text{Recovery obligation} & = & \text{obligated packaging handled} & \times \text{activity obligation} & \times \text{NI recovery target} \\ (\text{tonnes}) & & (\text{tonnes}) & (\%) & (\%) \end{array}$$

$$\begin{array}{cccc} \text{Recycling obligation} & = & \text{obligated packaging handled} & \times \text{activity obligation} & \times \text{NI recycling target} \\ (\text{tonnes}) & & (\text{tonnes}) & (\%) & (\%) \end{array}$$

- 8.25 It is the sum of the individual obligations of those companies registered with Environment and Heritage Service, either individually or through a compliance scheme, that defines Northern Ireland's component of the United Kingdom's national obligations.

Packaging Waste in the Municipal Waste Stream

- 8.26 The formal system for the recovery of packaging wastes which has been developed in the United Kingdom to meet the requirements of the Packaging and Packaging Waste Directive imposes 'producer responsibility' obligations on those businesses involved in the packaging chain, which exceed thresholds with respect to turnover and quantity of packaging handled. This system does not include local authorities, who have responsibility for managing municipal wastes, and consumers.
- 8.27 Packaging waste makes up a significant proportion of the municipal/household waste stream in Northern Ireland. Some 22% according to the waste composition survey carried out by NI2000 in 2000. Significant quantities of packaging waste, for example cardboard, glass and aluminium, are collected by councils, as they work to meet their own recycling and recovery targets.
- 8.28 The measures for the recycling and recovery of municipal wastes, as described in Chapter 6, therefore apply to the packaging waste fraction of that waste stream, and are included as part of the overall approach in the Region to the recycling and recovery of packaging wastes.

Packaging Waste Forum

- 8.29 A Packaging Waste Forum has been established since 2001 under the auspices of Environment and Heritage Service, as provided for in the recommendations for the management of packaging waste in the Waste Management Plans of the three groups. This is a working group to identify issues that would support the increased recovery and recycling of packaging waste, and encourage joint working between the public and private sectors, to enable greater quantities of packaging waste to be recovered from the municipal waste stream. Its membership is cross-sectoral, with representatives drawn from local authorities, commerce and industry, packaging waste producers and the waste management sector.

Summary of Key Roles and Responsibilities

- 8.30 Management and control of packaging waste falls to a number of key players under the Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 1999, as amended, and in the management of municipal wastes. The main roles and responsibilities are summarised in Table 8.3.

Table 8.3 Summary of Key Roles and Responsibilities for Packaging Waste

Element	Responsibility
Compilation and reporting of data relating to packaging handled. Recovery of packaging waste to meet recovery and recycling obligations.	Obligated Businesses Compliance Schemes
Reporting of packaging data to EHS. Development of recycling and recovery capacity.	Accredited Reprocessors and Exporters
Regulation of the Regulations. Compilation of Reported Data. Registration of obligated businesses, compliance schemes, re-processors and exporters.	Department of Environment, Environment and Heritage Service
Identification of issues to support the increased recovery and recycling of packaging waste, including from the municipal waste stream.	Packaging Waste Forum
Segregation of wastes into separate receptacles for collection, including for recycling.	Waste Producers, including: Householders Non-obligated businesses, and Other organisations
Collection and treatment of packaging waste in the municipal waste stream. (In many cases, this is affected through contractual arrangements with private companies.)	District Councils
Provision of facilities for the segregated collection of Commercial and Industrial Waste (including packaging waste) from SMEs at a minimum of one civic amenity site per district.	District Councils

TARGETS FOR THE RECOVERY OF PACKAGING WASTE

- 8.31 The Packaging and Packaging Waste Directive (94/62/EC 1994), as amended, has set targets for the recovery and recycling of used packaging. (In this context, recovery includes incineration with energy recovery.) The original targets were set for 'no later than 30 June 2001', with subsequent targets set for 'no later than 31 December 2008'. These targets are summarised in Table 8.4.

Table 8.4 Packaging Waste Recovery and Recycling Targets

	2001	2008
Overall Recovery	50 – 65%	60% Min
Overall Recycling	25 – 45%	55% - 80%
Material Specific Recycling		
Glass	15%	60%
Paper/board	15%	60%
Metals	15%	50%
Plastic	15%	22.5%
Wood	15%	15%

- 8.32 In Northern Ireland, the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland) 2004 sets out recovery and packaging targets, as summarised in Table 8.5.

Table 8.5 Percentage Recovery Targets under the Northern Ireland Regulations

Packaging Material	2004	2005	2006	2007	2008 onwards
Paper/Board	65	66	68	69	70
Glass	49	55	61	66	71
Aluminium	26	28	30.5	33	35.5
Steel	52.5	55	58	60	61.5
Plastic	21.5	22	22.5	23	23.5
Wood	18	19	20	20.5	21
Overall Recovery	63	65	67	69	70
Min % by Recycling¹	94	94	94	95	95

Note: 1. Minimum amount of recovery to be achieved through recycling

- 8.33 These targets for recovery and recycling are likely to be reviewed and potentially increased again in the future. The scope of the Packaging Regulations is also likely to be expanded to include 'leased packaging'. The management of packaging wastes therefore presents a real challenge for those responsible for the management of the household, and the commercial and industrial waste streams.

WASTE QUANTITIES AND COMPOSITION**Waste Quantities**

- 8.34 Packaging waste in Northern Ireland arises from two principal sources; the household waste stream and from the commercial and industrial waste stream. The total packaging waste generated from these two sources can be estimated from available data, assuming that the proportion of packaging waste is 22% in the household waste stream (as indicated by the NI2000 Waste Characterisation Study, 2001), and that the quantity and proportion of commercial and industrial waste is as reported in the Commercial and Industrial Waste Survey in 2000. (Note: This is to be updated once the most recent C&I survey results are available).
- 8.35 The data, summarised in Table 8.6 shows that the total packaging waste arising in Northern Ireland is approximately 430,000 tonnes in 2004/05, with approximately half arising from the commercial and industrial sector, and half from households.

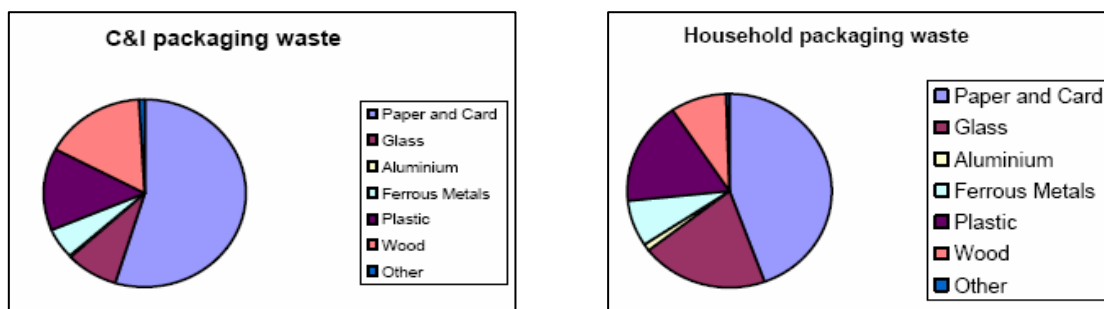
Table 8.6 Summary of Packaging Waste Generated in Northern Ireland in 2004/05

Region	Total Packaging Waste (tonnes)		
	Commercial and Industrial	Household	Total
SWaMP	58,000	54,000	112,000
North West	32,000	37,000	69,000
arc21	139,000	112,000	251,000
Total	229,000	202,000	430,000

Note: Columns and rows may not total due to rounding errors

Waste Composition

- 8.36 The relative percentage of packaging materials in the packaging waste from the household, and the commercial and industrial sectors, is indicated in Figure 8.1.

Figure 8.1 C&I and Household Packaging Waste Composition

- 8.37 Using this data, packaging waste arisings can be further broken down by material (Table 8.7). This table shows that paper and cardboard represents the largest fraction at approximately 187,000 tonnes (43%), followed by glass at 92,000 tonnes (21%), plastics at 75,000 tonnes (17%) and ferrous metals at 33,000 tonnes (8%). Aluminium is estimated at about 5,000 tonnes, which is about 1% of the total packaging waste stream.

Table 8.7 Breakdown of Packaging Waste by Material for 2004/05

Material	Commercial and Industrial (Tonnes)	Household (Tonnes)	Total Tonnage Estimated
Paper and cardboard	124,000	63,000	187,000
Glass	19,000	73,00	92,000
Aluminium	1,000	4,000	5,000
Ferrous metals	12,000	21,000	33,000
Plastic	34,000	41,000	75,000
Wood	37,000	0	37,000
Other	2,000	0	2,000
Total	229,000	202,000	430,000

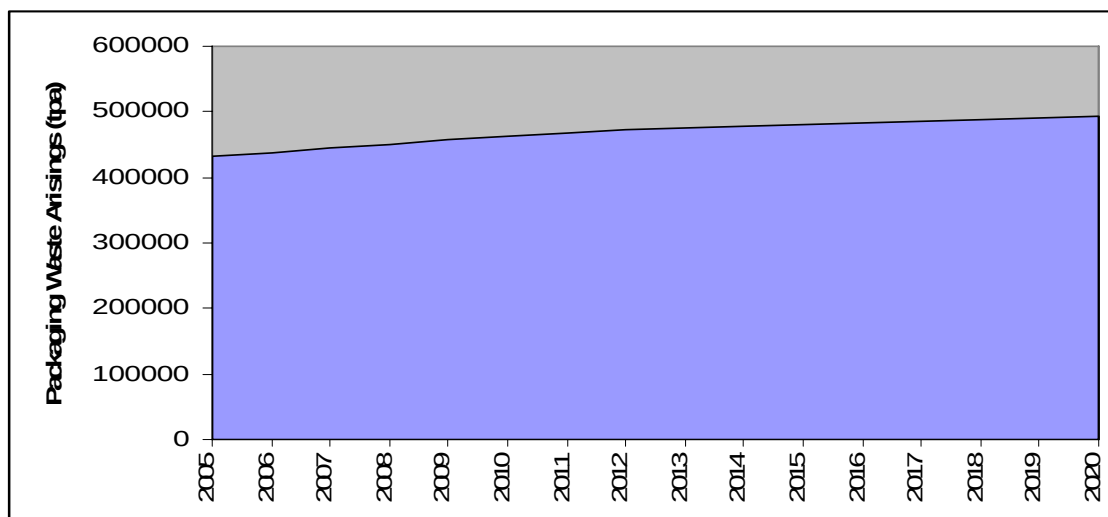
Note: Columns and rows may not total due to rounding errors

FUTURE TRENDS IN PACKAGING WASTE ARISING

- 8.38 It is important to assess future trends in packaging waste arisings, but estimates of growth rates vary. The Report of the Task Force of the Advisory Committee on Packaging (in Appendix 3 to Chapter One) entitled Estimated Packaging Flows 2002 – 2006, suggested that total packaging quantities would increase over that period at a rate of 0.26% per annum. Predicted material specific growth rates varied from -2.8% for wood, to +3.0% for plastics. According to PackFlow, it is predicted that the United Kingdom will see a slow but steady increase from 10 million tonnes of packaging waste generated in 2003 to 11 million tonnes by 2010, which is equivalent to nearly 1.5% per annum.
- 8.39 For the purposes of this Plan, it is therefore assumed that total packaging waste will grow at similar rates to municipal waste, as follows:
- 1.5% per annum to 2010;
 - 1.0% per annum between 2010 and 2013; and
 - 0.5% per annum between 2013 and 2020.

- 8.40 The data is not robust enough to allow for separate assessment of the municipal and the commercial and industrial waste streams, nor does it allow for differentiation between packaging materials. The growth in packaging waste over the Plan period up to 2020 therefore is illustrated in Figure 8.2.

Figure 8.2 Projected Packaging Waste Arisings in Northern Ireland to 2020



RECYCLING AND RECOVERY OBLIGATIONS IN NORTHERN IRELAND

- 8.41 Data on the obligated quantities of packaging wastes for Northern Ireland as a whole is determined by Environment and Heritage Service (EHS), on the basis of statutory returns from those companies obligated under the Packaging Regulations as described above. Accredited re-processors and exporters also report their packaging data to EHS. Information on registered and accredited businesses is held on Registers, which are maintained and updated by EHS, and are available on their website: www.ehsni.gov.uk www.ehsni.gov.uk/environment/wasteManage/regulations_packaging.shtml.
- 8.42 A total of 380 companies were registered with the EHS in the 2005 registration year, of which 78 companies were Directly Registered, and 302 were registered through compliance schemes.
- 8.43 There were 11 compliance schemes operating in Northern Ireland in 2005, as summarised in Table 8.8. See the EHS website for information on those schemes registered with the EHS at <http://www.ehsni.gov.uk/pubs/publications/ComplianceSchemes.pdf>.

Table 8.8 Compliance Schemes Registered in Northern Ireland & Member Numbers

Compliance Scheme	No. of Registered Companies
Biffpack	19
Cleanapack	6
Compliance Link	8
Complypak Ltd	4
Materials Recovery Ltd	30
Nipak Ltd	55
Paperpak Ltd	5
Recycle Pak	17
Valpak Ltd	105
Veolia Environmental Services	14
Wastepack Ltd	39
Total:	302

Note: Data from EHS website as on May 06

- 8.44 The obligations under the Packaging Regulations for Northern Ireland are summarized in Table 8.9, which shows that in 2004, some 373 businesses were obligated, with a total obligated recovery of more than 100,000 tonnes. This is less than 25% of the total packaging waste estimated to arise in Northern Ireland. Given that the target for the United Kingdom, as an EU Member State, is to recover more than 60% of packaging wastes generated, it illustrates the proportionately low number of obligated business located in Northern Ireland, as compared to the rest of the UK.

Table 8.9 Northern Ireland Packaging Recovery Data for 2004

Obligation	Tonnes
Number of obligated businesses	373
Recovery obligation	103,641
Recycling obligation	97,423
Paper & Card obligation	41,431
Glass obligation	20,489
Aluminium obligation	787
Steel obligation	3,456
Plastic obligation	7,224
Wood obligation	2,772

Source: Towards Resource Management A Consultation on Proposals for a New Waste Management Strategy (October 2005)

- 8.45 It is anticipated that, as the economy grows, more businesses will be obligated under the Packaging Regulations, as the specified thresholds are exceeded. This in turn should ensure that greater quantities of packaging waste are recovered and recycled.

REPROCESSING AND EXPORTING OF PACKAGING WASTE

- 8.46 In July 2005, there were nine accredited reprocessors and seven accredited exporters registered with Environment and Heritage Service. These are summarised in Table 8.10 below. Of particular note is the absence of any accredited reprocessor for paper or cardboard packaging waste. Further details on accredited reprocessors and exporters can be found at: <http://www.ehsni.gov.uk/pubs/publications/Rep&ExpWebPage.xls>.

Table 8.10 Accredited Reprocessors and Exporters registered with EHS – July 2005

Packaging Waste Stream	Reprocessors	Exporters
Paper and Cardboard	-	-
Plastic	Cirrus Ltd James W Corry & Sons (Campsie) Ltd	Irish Polymers James W Corry & Sons (Campsie) Ltd Allclear Environmental
Glass	Quinn Glass Ltd Kosmos Glass Recycling Ltd	-
Aluminium	-	Clearway Ltd
Steel	-	T - Met Ltd Clearway Ltd
Wood	Allclear Environmental Spanboard Products Ltd Eglinton (Timber Products) Ltd	Allclear Environmental

- 8.47 The quantities of packaging wastes reported by the accredited reprocessors and exporters for the year 2000 are summarised in Table 8.11. This demonstrates that in 2000, approximately 51,000 tonnes were accounted for within Northern Ireland. This equates to nearly two thirds of the total packaging obligation for that year generated by obligated companies under the Packaging Regulations.

Table 8.11 Packaging Wastes Reprocessed/Recovered by Registered Reprocessors and Exporters in 2000

Packaging Waste Stream	Quantity Reported Reprocessed (Tonnes)	Quantity Reported Exported (Tonnes)	Total Accounted for (Tonnes)
Paper/Card	676	1,843	2,519
Plastic	4,790	0	4,790
Glass	30,843	0	30,843
Wood	4,256	0	4,256
Aluminium	0	5	5
Steel	0	7,216	7,216
Energy Recovery	1,378	0	1,378
Total	41,943	9,064	51,007

Source: Environment and Heritage Service

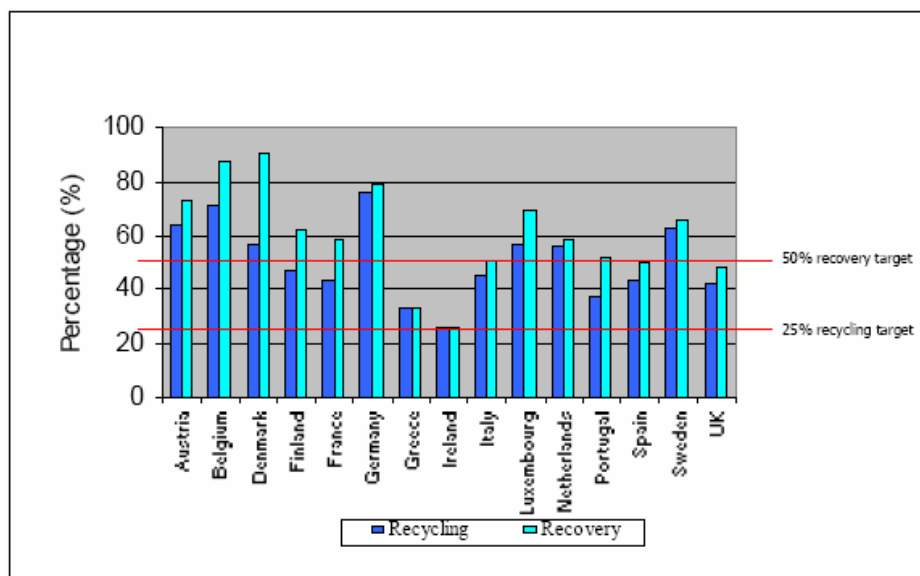
- 8.48 However, on a material specific basis it is clear that in terms of the proportion of packaging waste arising (See Table 8.12), that the actual proportion recovered varies widely between materials. For example, in 2000, more than one third and one fifth of glass and steel packaging are accounted, but about only 1% and 0.1% of paper /cardboard and aluminium are accounted for. This highlights the importance of material specific initiative to increase the levels of recycling and recovery of packaging wastes in Northern Ireland.

Table 8.12 Summary of Packaging Waste Accounted for by Material in 2000

	Total Available	Accounted For	
		Tonnes	Percentage
Paper & Board	181,000	2,519	1.4%
Plastic	71,000	4,790	6.7%
Glass	85,000	30,843	36.3%
Wood	37,000	4,256	11.5%
Aluminium	5,000	5	0.1%
Steel	31,000	7,216	23.3%

- 8.49 The data on the quantities of packaging waste reprocessed and exported, and the accredited reprocessors and exporters, suggest that significant quantities of packaging waste appear to go unrecorded. For example, there were no accredited reprocessors or exporters of paper/fibreboard registered with EHS in July 2005. It is believed that in many cases, the materials are delivered to reprocessors in GB, as a result of which are not recorded in the Northern Ireland data sets. Similarly packaging waste collected by councils, and processed through their arrangements are unreported in the figures. The quantities recycled and recovered therefore contribute to the overall recovery and recycling figures for packaging waste in the UK, but the Northern Ireland contribution cannot be isolated.
- 8.50 The performance of the system is illustrated by the figures for the recycling and recovery of packaging waste in the United Kingdom in 2001, the first Directive target year. This is illustrated in Figure 8.3, compared against the performance of other EU Member States. This shows that the UK just missed the minimum 50% recovery target, but exceeded the recycling target.

Figure 8.3 Recycling and Recovery Rates within the EU in 2001



Source: Study on the Implementation of Directive 94/62/EC on packaging and packaging waste and options to strengthen prevention and reuse of packaging.

- 8.51 The data on the quantities recovered and recycled, together with the future targets, highlights the need for greater quantities of packaging waste to be recovered from the household waste stream. This has important implications for those stakeholders involved in the management of household wastes, as well as commercial and industrial wastes, and highlights the need for an integrated approach to the recovery and recycling of packaging wastes, cross-cutting the roles and responsibilities defined by producer responsibility under the Packaging Regulations.

KEY ISSUES TO INCREASE LEVELS OF RECOVERY AND RECYCLING

- 8.52 Key issues associated with the future management of packaging waste in Northern Ireland include five fundamental priorities which are as follows;
- The prevention of packaging waste, and encouragement for the wider use of re-usable packaging.
 - The extraction of high quality material, particularly from the household waste stream, as well as additional materials from the commercial and industrial waste stream;
 - The development of a network of facilities to facilitate both the recycling and recovery of packaging wastes;
 - The establishment of a presence in the market to secure suitable contracts for the supply of captured packaging waste materials to reprocessors;
 - The development of a partnership approach between consumers, industry (including businesses and packaging waste producers), compliance schemes, reprocessors and waste management sector, and local authorities to the management of packaging waste.
- 8.53 The following provides a brief overview of issues affecting each of these priority areas, identifying progress to date, and other issues, factors and opportunities. The specific actions that follow are set out in the section entitled *Measures and Actions*, at the end of this Chapter.

Waste Prevention

- 8.54 Waste prevention is a priority in the Northern Ireland Waste Management Strategy, *Towards Resource Management*, published in 2006, and a Waste Prevention Framework has also been published by EHS. It is also a priority in the Waste Management Plan, and needs to be an area of greater focus for businesses and councils to minimise the quantities of packaging waste generated.
- 8.55 A key driver for change will also be the changes in the economics of waste management, as landfill tax increases from its current rate by £3 per year, to about £35 per tonne, by 2010/11., making disposal an unattractive option and incentivising waste minimisation.
- 8.56 There is a need to apply research and technology that would result in avoidance or reduction in packaging waste. One such example is WRAP's Retailer Initiative & Innovation Fund which has been created to provide assistance to companies working to reduce the amount of packaging in their products. This is in partnership with major retailers and supermarket chains, and should bring benefits to Northern Ireland.

Recycling and Recovery

- 8.57 The councils within the Region have rolled out kerbside collection services, e.g. coloured bin schemes, which enables householders to recycle greater amounts of packaging waste at the doorstep. Increased facilities for the segregated collection of recyclables has also been provided for at civic amenity sites, and the increased availability of bring sites.
- 8.58 The implementation of segregated collection of mixed dry recyclables and the increased availability of bring banks by Councils in NI is likely to have a positive impact on the public's perception of recycling. There is now visible evidence of progress, with a greater sense of buy-in into the process, which should in turn encourage residents to separate out more of their wastes.
- 8.59 Northern Ireland has an existing network of Material Recycling Facilities (MRFs) and Transfer Stations to handle packaging materials from both municipal and commercial and industrial waste streams which provides adequate capacity. The increased targets mean that further capacity will be required, which can be provided by either expansion of current facilities, or a limited number of new facilities.
- 8.60 At present there is very limited capacity for the recovery of energy from packaging wastes in Northern Ireland. There will need to be greater energy recovery capacity developed, for those packaging wastes that cannot economically be recycled or otherwise recovered. Within the region, a mass burn incinerator will not be developed, although it is recognised that one may be developed in a neighbouring Region. The councils therefore will seek to encourage businesses to ensure that all wastes are subject to appropriate mechanical treatment to maximise as far as practicable the recovery of materials, before energy recovery is considered and applied in the context of life cycle thinking, and at plants designated as recovery operations, rather than disposal.

Market Presence

- 8.61 The recovery and recycling of packaging wastes takes place in the context of a commodity market, and materials are moved in response to the law of supply and demand. The councils therefore will consider appropriate arrangements to maximise the presence of the waste planning group in this market, to provide economic benefits through the economies of scale, and to limit market risks.

Partnership Approach

- 8.62 A partnership approach is continuing to develop, with the private sector working closely with councils in the provision of services and facilities, particularly for the recovery and recycling of wastes. This need to continue to develop, and as a further strand, councils will seek to increase the availability of recycling services to SMEs within their district by the provision of at least one civic amenity site that accepts waste from businesses for recycling.

MATERIAL SPECIFIC ISSUES

- 8.63 Packaging waste is made up of a number of specific materials. This section outlines some of the issues relating to waste packaging materials in the Northern Ireland context.

Glass

- 8.64 The Commercial and Industrial Sector generates relatively little glass packaging, with the exception of the hospitality sector (hotels, pubs and restaurants). PackFlow estimates that 75% of glass packaging is found in the household waste stream in the UK. Therefore, a substantial proportion of the increase of glass recovery needed to achieve the future targets in NI needs to be achieved through initiatives in the household sector, as well as greater recovery from the hospitality sector.
- 8.65 Traditionally, household glass in NI has been collected through the bottle bank system. Councils have sought to increase the amount of glass they collect through increased availability of glass bottle banks at existing Civic Amenity and Bring Sites and the opening of new bring sites.
- 8.66 Limited quantities of glass are collected at the doorstep by source separated collection. The use of a black box collection system, which allows for separation of the glass at the collection vehicle, accommodates this, but the collection of glass in a bin of mixed dry recyclables is not undertaken, primarily because of Health and Safety considerations at the sorting stage.
- 8.67 Northern Ireland has adequate capacity for the reprocessing of glass to handle the amount of glass packaging waste produced and so, recycling capacity is not currently considered to be an issue for this material. This is reflected in the relatively high proportion of glass accounted for in the Northern Ireland figures for reprocessing.

Summary

Source Separation	Reprocessing Capacity	Markets
Health and safety issues associated with handling and collection of glass in commingled dry recyclables collections. “Bring” schemes are generally more appropriate, and the availability of these facilities has been increased to accommodate collection.	Local reprocessing capacity is available in NI.	There is currently concern about an over-supply of green glass in the market. Alternative uses for glass are developing, e.g. use in the aggregates and construction industries.

Steel

- 8.68 The majority of steel packaging waste arises from the commercial and industrial sector, but the majority of this is already recycled or reused.
- 8.69 There is no indigenous steel reprocessing capacity in Northern Ireland. Steel waste is collected for handling at steel scrap yards in the Province and exported to the UK, Europe or further afield for reprocessing. The end markets for steel packaging are not constrained.
- 8.70 Compared with cardboard, glass or plastics the proportion of steel packaging waste is relatively low, and quantities of steel packaging is predicted to decrease by 0.75% per annum. Steel recovery levels from the household sector need to be improved to assist in meeting the recovery targets. This can be achieved through the source separated household waste collection system (doorstep collection of recyclables and civic amenity sites) and the use of magnetic extraction at Materials Recovery Facilities or Transfer Stations. In addition, the introduction of take back schemes and/or the separate collection of Waste Electronic and Electrical Equipment (WEEE) will reduce the amount of steel in the household waste stream that is collected by councils.

Summary

Source Separation	Reprocessing Capacity	Markets
The widespread introduction of segregated collection of mixed dry recyclables and bring banks has increased the recovery of steel from the household waste stream. Magnetic extraction at transfer stations would increase the quantity further.	There is no local reprocessing capacity, but steel is exported to the UK market where there is available reprocessing capacity.	Markets for extracted steel are available in the UK. Recycling leads to no loss of quality.

Aluminium

- 8.71 The majority of aluminium packaging waste arisings relate to beverage cans, with foil and aerosols accounting for additional tonnages. This waste is prevalent in both the municipal and commercial and industrial sectors. Aluminium has a positive financial value, which should support its collection and recovery in both sectors. Although it forms a small part of the waste stream by weight, high recovery levels should, in principle, be achievable.
- 8.72 Over 99% of aluminium packaging is primary consumer packaging, which includes drinks cans. Increased quantities of aluminium need to be recovered from the municipal waste stream, either in the form of cans or aluminium foil. Councils in NI have responded to this by including aluminium cans and foil in the dry recyclables collections and increasing the provision of can banks at bring sites and CA sites.
- 8.73 There is no indigenous aluminium reprocessing capacity in Northern Ireland. As with steel, the market for aluminium is not constrained, and it is collected and exported to the UK, Europe or further afield for reprocessing.

Summary

Source Separation	Reprocessing Capacity	Markets
High potential to increase rate of recovery; particularly from the household waste stream, and from public places (e.g. streets and shopping centres). Collected by councils through kerbside collections for mixed dry recyclables and Bring schemes.	There is no local reprocessing capacity, but aluminium is exported to the UK where there is a high reprocessing capacity.	Aluminium is a high value commodity. Recycling does not lead to a loss of product quality. Markets for recycled products are not constrained.

Plastics

- 8.74 The flows of plastic packaging waste suggest that, at a national level, the commercial and industrial sector has sufficient capacity to recover the tonnages required to meet the requirements of the proposed targets. Current and future targets should in principle be attainable within the existing infrastructure of collection, processing and reprocessing both within the UK and overseas.
- 8.75 There are several barriers to the effective recovery and recycling of plastics, which include:
- **Collection Costs.** These tend to be relatively high due to the low density of waste streams made up by waste plastics, such as bottles. In relative terms, volumes are large, but tonnages are low, which drivers up the costs of collection and transportation on a per tonne basis.

- **Variety of Plastics.** Plastic is a generic term, encompassing a wide range of plastics, including, for example: low-density polyethylene (LDPE), high-density polyethylene (HDPE), polypropylene (PP), polyvinylchloride (PVC), polystyrene (PS) and polyethylene terephthalate (PET), each is used in specific packaging applications, reflecting their particular qualities. For recycling/materials recovery, these plastics need to be separated out.
 - **Contamination.** Because plastics are widely used as food packaging, they are often contaminated with food wastes. As a result, plastics need to be cleaned, as part of the recovery and recycling process.
- 8.76 WRAP has, in addition, identified the key barriers to plastic bottle recycling as: (i) lack of collection/sorting infrastructure, (ii) adverse collection scheme economics, (iii) low efficiency of existing collection infrastructure and (iv) lack of market stability for collected material.
- 8.77 Councils across NI have increased the provision of plastic banks at both bring and CA sites to encourage a greater level of plastic recycling. Councils generally also include plastic bottles in their kerbside collection of dry recyclables. However, the recovery of plastic packaging from the household sector is not straightforward. This is due to the broad range of plastic types that need to be individually classified. It also tends to be costly on a per tonne basis (often in excess of £200), due to the high volume and low density of the materials.

Summary

Source Separation	Reprocessing Capacity	Markets
Wide diversity of different material types. High costs per tonne for collection. Councils have implemented kerbside collections of mixed dry recyclables that include plastic bottles and expanded the collection of plastics at Bring and CA sites for recovery from the household waste stream.	There is some but limited local reprocessing capacity.	There is a loss of quality in reprocessing, therefore consumer acceptability is a constraint. Large amount of work is needed to develop sustainable markets for recycled products made from plastic waste. Quantity of plastic beverage containers likely to increase as suppliers move from multi-trip glass bottles to single trip plastic containers in response to customer demand.

Paper/Cardboard

- 8.78 The majority of paper packaging recycling comes from the commercial and industrial waste sector because of the quality and volume available from businesses. In the UK, there is a well established infrastructure of paper merchants with effective packaging collection systems which currently recover the majority of cost effective material from the commercial and industrial waste sector.
- 8.79 It is notable however, that as of July 2005, there were no accredited reprocessors or exporters of paper or cardboard packaging registered with EHS. This suggests a gap, if not in the current infrastructure provision, at least in the provision of such services to the commercial and industrial sectors.
- 8.80 It is also recognised that to achieve further recovery of this material from the C&I sector, paper and cardboard packaging wastes will need to be captured from SMEs, who typically generate smaller quantities than the businesses currently obligated under the Packaging Regulations. Such businesses tend to be a good source of high quality paper and cardboard materials.
- 8.81 As a contribution in this area, councils are seeking to provide suitable segregated collection facilities for such materials at a minimum of one Civic Amenity site within their district. There is also the potential for the private sector to provide services for the source-separated collection of waste materials from SMEs, an option that is likely to become increasingly attractive as the cost of disposal continues to increase.
- 8.82 There has already been significant development in the source-separated collection of paper and card from the household waste stream through the introduction of district wide dry recyclable collection services by councils. Household paper packaging tends however to be of low quality, and arises in relatively small volumes from widespread locations, which has implications for the overall market for these materials.
- 8.83 Reprocessing capacity for paper and cardboard packaging material now operates in a global context, with a generally mixed market view. This is an area where there is a need for market development to open up alternative markets to those already in place.

Summary

Source Separation	Reprocessing Capacity	Markets
Good existing recovery rates from commercial sector. Improved capacity to collect good quality paper/card materials from the household waste stream, with the widespread kerbside collection systems. Extraction of large quantities of paper/card from SMEs has strong potential, partially addressed by the provision of suitable facilities at CA sites.	Local reprocessing capacity is limited, but improving. Extracted paper and card needs to be sorted into clean, consistent quality fractions. High quality paper and card has strong potential for establishment of long term contracts with materials traders and reprocessors.	There is some loss of quality in reprocessing, therefore consumer acceptability is a constraint. Work is needed to develop sustainable markets and alternative uses.

Wood

- 8.84 The data on wood waste and wood packaging has improved, and it is now estimated that each year in the UK there are significant quantities generated by the household and construction sectors, as well as by wood packaging from commerce and industry. Wood packaging is generally used in transit applications (pallets and crates) producing approximately 670,000 tonnes per year.
- 8.85 Currently, the main issue for wood is one of collection and processing. Councils generally now are providing for the collection of wood at their civic amenity sites. Waste wood is also being used increasingly as a fuel, as life cycle thinking is increasingly applied.

Summary

Source Separation	Reprocessing Capacity	Markets
Majority of potential for extraction of wood is in the commercial and industrial sector. Councils are collecting wood from the household waste stream at some civic amenity sites.	Reprocessing capacity has developed and includes energy recovery of wood waste.	Potential for wood to be used as a fuel. Other specialised applications include mulch and animal bedding.

MEASURES AND ACTIONS

- 8.86 Although with the Packaging Regulations imposes specific obligations on certain businesses, reprocessors and exporters, as part of the system that has been implemented across the UK to meet the requirements of the Packaging and Packaging Waste Directive, it is clear that all sectors have a role to play, if the quantities of packaging waste recycled and recovered is to increase significantly. The identified actions are set out below on a sectoral basis.

The Business Sector***Waste Prevention***

- 8.87 **All Businesses:** All businesses, large and small should seek to reduce the quantities of packaging waste produced through waste prevention initiatives, and the increased re-use of packaging where possible. Guidance can be obtained from the Waste Prevention Framework published by EHS, and from InvestNI, but examples to consider might include, as appropriate to the organisation:
- The elimination of unnecessary packaging.
 - The use of supply chain management principles to encourage 'producer responsibility' in suppliers.
 - The application of packaging waste take-back terms in contractual agreements.
 - Specification or use of refillable or reusable multi-trip packaging.
 - Awareness raising of and training in waste prevention for staff.

Recycling and Recovery

- 8.88 **Obligated Businesses:** All businesses that exceed the specified threshold values for turnover and quantity of packaging handled specified in the Packaging Regulations to:
- Register with EHS, either directly or through membership of a compliance scheme.
 - Submit data on packaging waste as required.
 - Recover specified tonnages of packaging waste, either directly or through compliance schemes.
 - Demonstrate that obligations have been met through PRNs or PERNs.
 - Plan for the higher targets that are in place to 2008, and the further targets that are likely to emerge in the longer term.
- 8.89 Obligated businesses should also seek to maximise the recycling and recovery of all wastes, including packaging wastes, as outlined below for non-obligated businesses.

- 8.90 **Non-obligated Businesses:** Smaller businesses have a role to play in increasing the recycling and recovery of packaging wastes, though there is not a statutory requirement. However, the changing economics of waste management mean that disposal will become the least cost effective waste management option, and SMEs will place greater emphasis on recycling and recovery. SMEs therefore should seek to maximise their recycling and recovery of packaging and other waste through segregation of the wastes at source, and the use of all available facilities and services, including those provided by councils, such as the use of nominated civic amenity sites, and those provided by the waste management sector.
- 8.91 **All Businesses:** There is a responsibility on all businesses to identify and implement, where economically feasible, opportunities to encourage the use of recycled materials in their activities and products, to assist with the development of sustainable local markets and end-uses for recycled materials.

Accredited Reprocessors and Exporters

- 8.92 Accredited reprocessors and exporters should:
- Register with EHS.
 - Submit data on packaging waste as required.
 - Reprocess/export packaging waste, and issue PRNs/PERNs as confirmation to obligated businesses and compliance schemes.
 - Continue to develop the necessary infrastructure and services to provide adequate capacity for the management of packaging wastes, to ensure that obligated businesses can meet their statutory responsibilities.

Central Government

Environment and Heritage Service

- 8.93 Responsibility for the implementation, monitoring and enforcement of the Packaging Regulations lies with Environment and Heritage Service. Key responsibilities include:
- Publishing Guidance for Businesses, in this legally complex and challenging area with increasing targets. (See Box 8.1).
 - Monitoring performance, including the auditing of businesses and compliance schemes, and inspection of accredited reprocessors and exporters.
 - Maintaining registers of obligated businesses, registered compliance schemes, and accredited reprocessors and exporters.
 - Taking enforcement action where required under the Packaging Regulations, as amended
 - Facilitating and supporting the Packaging Waste Forum, on an ongoing basis.

Box 8.1 Summary of Guidance available on EHS Website on Packaging Regulations

Full guidance on the Producer Responsibility Regulations is available on the EHS website: <http://www.ehsni.gov.uk/>

This website provides links to the following topics:

- Definition of packaging
- Which businesses are obligated?
- Current obligations
- PRNs & PERNs
- Compliance schemes
- Compliance Monitoring Strategy 2005-2006
- Registered companies
- Accredited reprocessors and exporters
- Guidance & Forms (link to packaging section of guidance & forms)
- Waste Exchanges

Leadership by Example

- 8.94 There is a responsibility, recognized in the Waste Management Strategy, *Towards Resource Management*, on all government departments to provide leadership in the more sustainable management of wastes, including packaging wastes. Specific initiatives, potentially implemented through Departmental Waste Management Plans, might include for example:

- Provision of receptacles for the segregation of wastes at source, including packaging wastes.
- With their significant buying power, government departments should implement 'green' procurement policies, including the use of the supply chain to encourage 'producer responsibility' in their suppliers.
- The application of packaging waste take-back terms in contractual agreements.
- Specification or use of refillable or reusable multi-trip packaging.
- Awareness raising of and training in waste prevention, and recycling for staff.

Education and Awareness Campaigns

- 8.95 In Northern Ireland, EHS has established the "**Wake up to Waste**" programme, which aims to raise the profile of waste management and engage the public and businesses in managing wastes more sustainably. Schools and businesses are targeted specifically under this campaign, and it has a future role in supporting the recovery and recycling of packaging wastes in both the household and business sectors.

Data Collation and Publication

- 8.96 There is a lack of reliable data on packaging wastes, and all packaging waste that is recycled or recovered, is not recorded in the Northern Ireland data sets. This is an area that needs to be improved, with all parties led by EHS, but including the Packaging Waste Forum, businesses, compliance schemes, councils, and others as appropriate, working together to ensure that all packaging wastes recycled and recovered are recorded. Further, the information should be collated in a non-commercially sensitive format and published, to allow Northern Ireland performance to be identified and reported on an ongoing basis. This information would allow performance to be benchmarked against other areas.

District Councils***Services and Facilities***

- 8.97 Maximise collection of waste packaging materials from the household waste stream. **This is to be delivered through the source separated collection of waste packaging materials, either through the bins/boxes provided at households or through bring banks and civic amenity sites. The Councils within the Region have rolled out collection services for mixed dry recyclables households within their districts, and increased the number of bring facilities, which allows householders to separate a greater quantity and range of packaging waste.**
- 8.98 **Increased collection of packaging materials from bring sites and Civic Amenity sites.** The availability of bring banks and CA sites has increased significantly through the actions of councils in recent years. These provide separate bins for the collection of bottles and cans, and in some CA sites, cardboard is also collected. The range of materials collected and the availability of these facilities will continue to be expanded by councils.
- 8.99 **Provide access for businesses to civic amenity sites for recycling of packaging wastes.** In accordance with the recommendation in the Waste Strategy, councils will make a facility available to businesses for the segregated collection of selected waste materials for recycling at a minimum of one civic amenity site within their district. Councils will levy an appropriate charge for this service, and ensure that the quantities are recorded separately so that they do not contribute to municipal waste targets and obligations.
- 8.100 **Provide a separate collection service for packaging waste from local business and industry,** This measure was recommended in the consultation paper on the Waste Strategy, and has previously been implemented, or is under consideration by some councils, particularly for the collection of cardboard from businesses, and glass from pubs and clubs. Decisions will be taken at the district council level as to whether to implement such a service or not and its extent, in response to local needs.

Guidance and Advice

- 8.101 District councils will work with local businesses, through their Recycling and Waste Prevention Officers, to provide advice and guidance to encourage the prevention, and the recycling and recovery of packaging wastes. The advice will draw on local experience and knowledge, as well as published guidance, such as that provided by WRAP and Envirowise. Box 8.2 illustrates the range of advice available from Envirowise on managing packaging waste.

Box 8.2 Summary of Guidance on Packaging Waste by Envirowise

Envirowise produces a wide range of guidance on reducing packaging waste, which is available through their website: <http://www.envirowise.gov.uk/>

- Cutting Costs and Waste by Reducing Packaging Use;
- Reducing the Cost of Packaging in the Food and Drink Industry;
- Packing Line Savings in the Food and Drink Industry;
- 120 Tips on Reducing Packaging Use and Costs;
- Packaging Rethink Boosts Profits – Harman Pro Audio Ltd;
- Packaging in the furniture sector; and
- Plastics and rubber sector: Packaging Regulations.

Data Collection and Reporting

- 8.102 Councils will introduce a system to ensure that the quantities of packaging waste recycled and recovered from the municipal waste stream are quantified and reported in their Annual Reports. The system will also record the packaging waste collected from the commercial and industrial sectors as C&I waste data, separate from municipal waste data. This may require the introduction of reporting clauses in contracts with reprocessors/exporters.

Procurement

- 8.103 Councils will use introduce 'green' procurement policies, including the use of the supply chain to encourage 'producer responsibility' in their suppliers. Other measures may include for example:
- The application of packaging waste take-back terms in contractual agreements.
 - Specification or use of refillable or reusable multi-trip packaging, where appropriate.

The Public

Waste Prevention

- 8.104 **Consumer Influence:** Experience shows that commercial interests are sensitive to the perception that the public has of their products and activities. There is no doubt that the actions of consumers, in exercising careful and responsible purchasing decisions, such as buying 'loose' food rather than pre-packaged products, and leaving packaging at the point of sale eg shoe boxes, can influence the quantities and recyclables of product packaging. Consumer choice in buying unpackaged or lightly packaged goods therefore is essential to promoting more sustainable practices in the medium to long term, and consumers should exercise their purchasing decisions accordingly.

Recycling

- 8.105 Householders should continue to support the services provided by the councils, (separate receptacles for recyclables at the house, and bring banks) for the segregation of waste, including packaging waste, at source.

PACKAGING WASTE - SUMMARY OF KEY FACTS AND ACTIONS**Targets**

In Northern Ireland, the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland) 2004, sets out a number of recovery and packaging targets which relate to the recovery and recycling of used packaging. These are summarised as follows:

Packaging Material	2004	2005	2006	2007	2008 onwards
Overall Recovery	63	65	67	69	70
Min % by Recycling	94	94	94	95	95

Waste Arisings

The total packaging waste in Northern Ireland is approximately 430,000 tonnes in 2004/05, with approximately half of this arising from the commercial and industrial sector and half from households. The proportion of this waste arising within the SWaMP Region is as follows:

- Packaging waste from the commercial and industrial sector: 58,000 tonnes per annum
- Packaging waste from the household waste sector: 54,000 tonnes per annum.
- Total Packaging waste in the SWaMP Region: 112,000 tonnes per annum.

In 2004, 373 businesses were obligated, with a total obligated recovery of 103,641 tonnes, of which 97,423 tonnes was recycled.

Measures and Actions***Business Sector*****Waste Prevention**

- Reduce the quantities of packaging waste produced through waste prevention initiatives and the increased reuse of packaging where possible.

Recycling and Recovery

- **Obligated businesses** to register with EHS and fulfil requirements for data collection and recycling and recovery as specified under the obligations as well as seeking to maximise the recycling and recovery of all wastes, including packaging.
- **Non-obligated businesses** to seek to maximise the recycling and recovery of packaging and other waste through segregation at source and the use of all available facilities and services.

Accredited Reprocessors and Exporters

- Register with EHS, submit data and issue PERNs/PRNs to obligated businesses as well as continuing to develop the necessary infrastructure and services for the management of packaging waste.

Central Government

- Publish guidance, enforce the regulations, monitor performance, maintain registers of obligated businesses and compliance schemes as well as facilitate and support the Packaging Waste Forum.
- Show leadership by example in the more sustainable management of wastes.
- Engagement in education and awareness campaigns to raise the profile of waste management.
- Work with other parties to ensure that all packaging wastes recycled and recovered are recorded.

PACKAGING WASTE - SUMMARY OF KEY FACTS AND ACTIONS (Continued)***District Councils***

- Maximise collection of waste packaging materials from the household waste stream.
- Increased collection of packaging materials from bring sites and civic amenity sites.
- Provision of access for businesses to civic amenity sites for recycling of packaging wastes.
- Provision of a separate collection service for packaging waste from local business and industry
- Provide guidance and advice to local business.
- Introduction of a system to ensure quantities of packaging waste recycled and recovered.
- Introduction of green procurement policies, including the use of supply chain management.

Members of the Public

- Exercise careful purchasing decisions with regard to buying unpackaged or lightly packaged goods.
- Continue to support the recycling services provided by Councils for the segregation of waste at source.

9.0 HAZARDOUS WASTE MANAGEMENT

INTRODUCTION

- 9.1 This chapter, due to the unique nature of hazardous waste, summarises the management of hazardous waste in Northern Ireland.
- 9.2 The management of hazardous wastes has changed significantly in recent years as a result of more stringent legislation governing its treatment and disposal. This legislation, discussed in further detail within this Chapter, has extended the definition of hazardous waste as well as banning the co-disposal of hazardous and non-hazardous waste. The resulting effect of this has been an increase in the potential hazardous waste arisings as well as more stringent controls on disposal.
- 9.3 This Chapter addresses the current arrangements for managing hazardous waste as well as the anticipated future management and facilities required to ensure that Northern Ireland is compliant with the requirements of recent legislative changes concerning the classification, treatment and disposal of hazardous wastes.
- 9.4 The chapter is written in fulfilment of the District Councils statutory responsibilities under the Hazardous Waste Directive (91/689/EC).

DEFINITIONS

- 9.5 Article 1(4) of the Hazardous Waste Directive (91/689/EC) defines hazardous waste as wastes featuring on a list drawn up by the European Commission, because they possess one or more of the hazardous properties set out in the Hazardous Waste Directive. There are 14 hazardous properties set out in Annex II of the Directive and they are detailed in Table 9.1.

Table 9.1 Hazardous Properties (Hazardous Waste Directive Annex II)

H1	"Explosive" : substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene.
H2	"Oxidising" : substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.
H3A	"Highly flammable" : - liquid substances having a flashpoint of below 21⁰C or - substances and preparations which may readily catch fire in contact with air at ambient temperatures without any application of energy or - solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or be consumed after removal of that source or - gaseous substances and preparations which are flammable in air at normal pressure, or - substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.
H3B	"Flammable" : liquid substances and preparations having a flashpoint equal to or greater than 21 ⁰ C and less than or equal to 55 ⁰ C.
H4	"Irritant" : non-corrosive substances and preparations which, through immediate prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.
H5	"Harmful" : substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.
H6	" Toxic" : substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks or even death.
H7	"Carcinogenic" : substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.
H8	"Corrosive" : substances and preparations which may destroy living tissue on contact.
H9	"Infectious" : substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.
H10	"Toxic for reproduction" : substances or preparations which, if they are inhaled or ingested, or if they penetrate the skin, may produce or increase the incidence of non-heritable adverse effects in the progeny and/or of male or female reproductive functions or capacity.
H11	"Mutagenic" : substances or preparations which, if they are inhaled or ingested, or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.
H12	Substances and preparations which release toxic or very toxic gases in contact with water, air or an acid.
H13	Substances and preparations capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.
H14	"Ecotoxic" : substances and preparations which present or may present immediate or delayed risks for one or more sectors of the environment.

MANAGEMENT AND CONTROL

- 9.6 The Hazardous Waste Regulations (Northern Ireland) came into operation in 2005 and replace the Special Waste Regulations (Northern Ireland) 1998. The Hazardous Waste Regulations introduced the revised European Waste Catalogue Hazardous Waste List (2000/532/EC) (EWC HWL) and a change in the definition of special waste to bring it into line with the European definition of hazardous waste. The implication of this is that a number of additional wastes, that were previously non hazardous, have been classified as hazardous and this will therefore have the effect of an increase in hazardous waste arisings within Northern Ireland.
- 9.7 These aim of these Regulations is to:
- Implement a definition of Hazardous Waste into domestic legislation and consequently remove the use of the term special waste.
 - Keep the requirement to pre-notify waste movements to EHS.
 - Ensure safe management of hazardous waste.
 - Provide cradle to grave documentation for the movements of hazardous waste.
 - Require consignees to keep thorough records of hazardous waste and provide returns to the producers.
- 9.8 The new regulations introduce the new EWC, which has extended the definition of hazardous wastes. There are 3 main groups of wastes which will significantly increase the quantities from those shown above:
- An extension of the application of 'ecotoxic' as a hazardous property will significantly increase the amount of metal containing wastes classified as hazardous, particularly those arising from the redevelopment of contaminated sites. The amount of contaminated soil in 2002 was abnormally low, and an annual generation of around 10,000 tonnes is estimated with the revised definitions.
 - Much waste electrical and electronic equipment (WEEE) will now be classified as hazardous waste. A recent pilot collection scheme has estimated likely arisings in Northern Ireland as in the range 6,500- 20,000 tonnes per annum (see the separate waste summary sheet for WEEE).
 - Similarly, end of life vehicles (ELVs) will now be classified as hazardous wastes until they have been de-polluted (see the separate waste summary sheet for ELVs).
- 9.9 In terms of management of hazardous wastes, the Hazardous Waste Forum, consisting of key stakeholders, was established to advise on a way forward for hazardous waste reduction, recovery and management. The Forum has published its first Action Plan in June 2004, with objectives and Actions focussing on four areas namely:
- Regulatory System

- Communications and awareness raising
- Reduction, Reuse and Recycling
- Provision of facilities.

9.10 Further information on these objectives can be found at:

www.ehsni.gov.uk/environment/wasteManage/regulations_NI_HWF.shtml

9.11 The main roles and responsibilities for the management and control of Hazardous Waste, under the provisions of the legislation and the Hazardous Waste Forum, are summarised in Table 9.2.

Table 9.2 Summary of Roles and Responsibilities for Hazardous Waste

Element	Responsibility
Overall planning for management of Hazardous Wastes	Hazardous Waste Forum, facilitated by Environment and Heritage Service Hazardous Waste Producers
Review process to eliminate or reduce the hazardous nature of wastes	Waste Producers
Segregation of hazardous wastes for collection	Members of the Public (to separate out household hazardous waste) Hazardous Waste Producers within the commercial, industrial and commercial sectors
Collection of Hazardous Wastes	Registered Hazardous Waste Contractors at licensed facilities. District Councils (to provide collection points for household hazardous wastes)
Treatment and Disposal of hazardous wastes. Ensure waste is treated and disposed in accordance with legislation at appropriately licensed facilities	Registered Waste Management Contractors at licensed facilities. District Councils (for household hazardous wastes)

TARGETS

9.12 There are no targets specified within the Northern Ireland Waste Management Strategy for hazardous wastes.

- 9.13 The NI Hazardous Waste Forum has, under Action 3.3 specifically stated that: "Consideration of the use of targets for hazardous waste reduction is an important means of driving and monitoring progress. However, the information required to set realistic and achievable targets is not currently available. Once the information is available, the Forum will recommend where and how specific targets might be introduced".
- 9.14 Specific targets for the hazardous components of other waste streams such as Waste Electrical and Electronic Equipment, End of Life Vehicles and Batteries are incorporated into the individual chapter concerning these waste streams (Chapter 12).

WASTE QUANTITIES AND COMPOSITION

Waste Quantities

- 9.15 Due to the fact that the Hazardous Waste Regulations (Northern Ireland) did not come into effect until 2005, the current data relates to "Special Wastes" under the 1998 Regulations. Data on special waste arisings for this chapter has therefore been collated from datasets provided by EHS for 1999/00 and The Hazardous Waste Forum Action Plan (June 2004) for 2002. The total special waste arising for NI in 1999/00 was approximately 44,350 tonnes while the quantity arising in 2002 was 47,432 tonnes. In addition to this, a further 775 tonnes in 1999/00 and 10,797 tonnes in 2002 was consigned from transfer stations within the region.
- 9.16 A breakdown of the arisings and their generic type (EWC Chapter Headings), excluding the waste consigned from transfer stations, is summarised in Table 9.3.

Table 9.3 Breakdown of 1999/00 and 2002 Special Waste Arisings on a Northern Ireland Scale (excluding waste consigned from transfer stations)

Waste Description	1999/00 ¹	2002 ²
Mining and minerals (01)	0	6
Agriculture, food production (02)	19	156
Wood and paper production (03)	35	69
Leather and textile production (04)	0	0
Petrol, gas and coal refining/treatment (05)	0	0
Inorganic chemical processes (06)	8,326	9,099
Organic chemical processes (07)	4,845	3,594
Paints, varnish, adhesive & inks (08)	1,586	1,939
Photographic industry (09)	146	495
Thermal processes waste (inorganic) (10)	974	129
Metal treatment & coating processes (11)	3,432	2,438
Shaping/treatment of metals & plastics (12)	416	5,368
Oil and oil/water mixtures (13)	15,621	15,139
Solvents (organic) (14)	443	388
Packaging, cloths, filter materials (15)	5	303
Not otherwise specified (16)	2,508	1,914
C&D waste & asbestos (17)	1,485	2,566
Healthcare (18)	363	1,059
Waste/water treatment & water industry (19)	2,959	2,645
Municipal & similar commercial (20)	587	17
Unspecified (99)	604	107
Totals	44,354	47,431

Source:

1. EHS Hazardous Waste Arisings 1999/00
2. Hazardous Waste Forum Action Plan, 2004

9.17 These special waste arisings were consigned to a range of waste management facilities for treatment, recovery, disposal and onward transfer. The quantities of waste exported to Great Britain by generic type (EWC Chapter Headings) are summarised in Table 9.4.

Table 9.4 Summary of Special Waste Exported by Generic Type

Waste Description	Special Waste Arisings 1999/00 (tonnes) ¹		Special Waste Arisings 2002 (tonnes) ²	
	Total	Exported to GB	Total	Exported to GB
Mining and Minerals (01)	-	-	6	6
Agriculture, Food Production (02)	19	1	156	1
Wood and paper production (03)	35	12	69	5
Leather and Textile Production (04)	-	-	-	-
Petrol, gas and coal refining/treatment (05)	-	-	-	-
Inorganic chemical processes (06)	8,326	2,410	9,099	6,553
Organic Chemical processes (07)	4,845	2,885	3,594	3,229
Paints, varnish, adhesives and inks (08)	1,586	317	1,939	1,463
Photographic industry (09)	146	-	495	485
Thermal processes wastes (inorganic) (10)	974	930	129	77
Metal treatment and coating processes (11)	3,432	1,903	2,438	994
Shaping/treatment of metals and plastics (12)	416	66	5,368	4,148
Oil and oil/water mixtures (13)	15,621	239	15,139	321
Solvents (organics) (14)	443	328	388	383
Packaging, cloths, filter materials (15)	5	-	303	108
Not otherwise specified (16)	2,508	1,425	1,914	1,169
C&D waste and asbestos (17)	1,485	7	2,566	102
Healthcare (18)	363	84	1,059	299
Waste/water treatment and water industry (19)	2,959	-	2,645	2,619
Municipal and similar commercial (20)	587	367	17	4
Unspecified (99)	604	8	107	12
Totals	44,353	10,982	47,432	22,049

Source:

1. EHS Hazardous Waste Arisings 1999/00
2. Hazardous Waste Forum Action Plan, 2004

9.18 The special wastes were consigned to a range of waste management facilities for treatment, recovery, disposal and onward transfer. Table 9.5 summarises the total amounts of waste being treated by each type of facility.

Table 9.5 Summary of Special Waste Arisings by Treatment/Disposal Route in 2002

Route	Quantity in 1999/00 ¹ (tonnes)	Quantity in 2002 ² (tonnes)
Export to GB	10,982	22,049
Incineration	7	1
Landfill	7,949	5,283
Sewage Treatment	5,250	2,072
Physico-Chemical Treatment	19,410	18,027
Total	43,598	47,432

Note:

1. EHS Hazardous Waste Arisings 1999/00

2. Hazardous Waste Forum Action Plan 2004

Source: Hazardous Waste Forum Action Plan, 2004

9.19 As can be seen from Table 9.5, approximately 46% of the waste is exported to GB for treatment and disposal whilst within Northern Ireland. physico-chemical treatment and landfilling remained the most popular treatment and disposal routes. It should be noted that this table does not include 755 tonnes of waste consigned to transfer stations in 1999 and 10,797 tonnes consigned to transfer stations in 2002.

9.20 Table 9.6 shows the amount of waste recovered, treated and disposed in Northern Ireland, compared to that managed in Great Britain in 2002. The 1999/00 data has not been included for comparison within this table as, at this time, there were no formal mechanisms for identifying the destination of waste exported to GB.

Table 9.6 Estimated Waste Management Routes for All Northern Ireland Special Waste Arisings

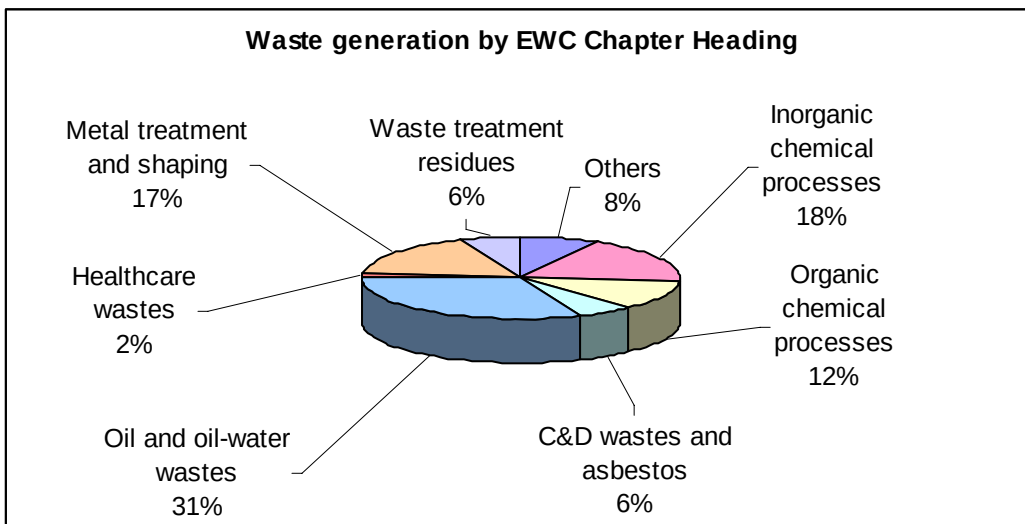
Route	Managed in NI	Managed in GB	Total
	Quantity in 2002 (Tonnes) ¹		
Incineration	1	1,190	1,190
Landfill	5,280	8,380	13,660
Sewage Treatment	2,070	-	2,070
Recovery	-	4,290	4,290
Physico-chemical treatment	18,030	7,890	25,920
Transfer/Long Term Storage in GB	N/a	300	300
Total	25,380	22,050	47,430

Note: 1. Figures noted to nearest 10 tonnes.

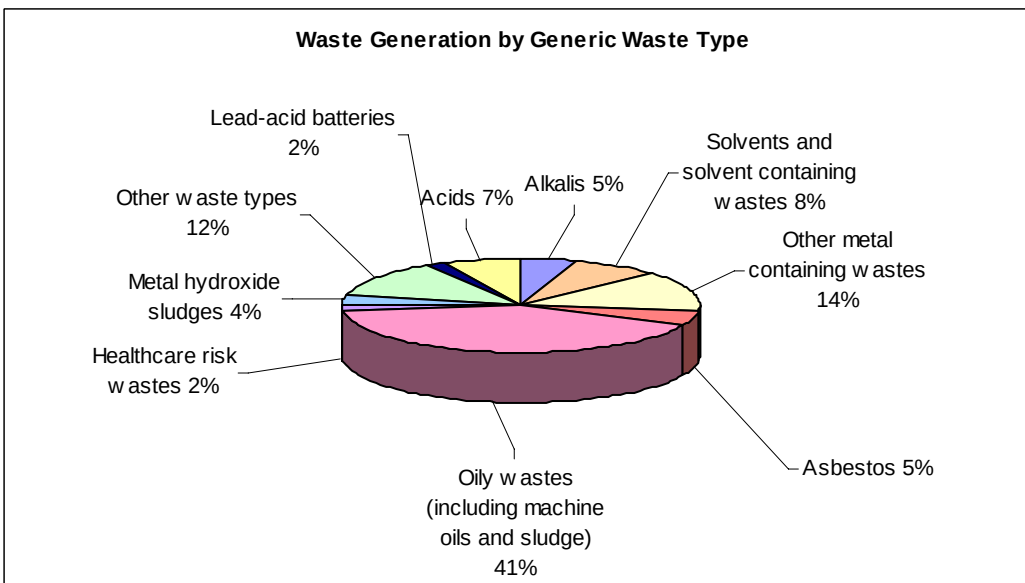
Source: Hazardous Waste Forum Action Plan, 2004

Waste Composition

- 9.21 The composition of the 47,430 tonnes of special waste, as reported in 2002, is presented in Figures 9.1 and 9.2. Figure 9.1 identifies the waste according to the European Waste Catalogue (EWC) chapter headings while Figure 9.2 identifies the generic types of waste which relate to its composition.

Figure 9.1 Waste Generation by EWC Chapter Heading

Source: Northern Ireland Waste Management Strategy: Towards Resource Management, 2006

Figure 9.2 Waste Streams by Generic Waste Type

Source: Northern Ireland Waste Management Strategy: Towards Resource Management, 2006

CURRENT ARRANGEMENTS FOR THE MANAGEMENT OF HAZARDOUS WASTE

- 9.22 Following the introduction of the Hazardous Waste Regulations (Northern Ireland) 2005, and the subsequent change in definition from special to hazardous waste, there has been a significant change in both the quantities of waste being classified as hazardous and also the way in which hazardous waste is managed in Northern Ireland. There are a number of new hazardous waste entries on the EWC not previously categorised as special waste. These include:
- **End-of-life vehicles (16 01 04).**
 - **Waste containing Cathode Ray Tubes (CRTs) and activated glass (16 02 13)** This covers televisions and computer monitors.
- 9.23 There are also a number of wastes that are now covered as “absolute entries” which are hazardous regardless of the concentration of “dangerous substances” within the waste, when previously they would have been assessed against the threshold concentrations. These include:
- All oils (excluding edible oils)
 - The majority of wood preservatives (03 02)
 - Many acids and alkalis and
 - All photographic chemicals
- 9.24 In addition to the changes implemented through the Hazardous Waste (Northern Ireland) Regulations, 2005, there have also been changes required as a result of the implementation of the Landfill Directive (1999/31/EC). The overall aim of the Landfill Directive is to minimise the effects of landfill on the environment and human health. The most significant change in terms of hazardous waste is the separation of landfills into hazardous, non-hazardous and inert, thus ending the practice of co-disposal. In addition to this, there have also been a number of requirements which impact further on the management of hazardous wastes. These have included the banning of liquid disposal to landfill and also the requirement for hazardous wastes to be pre-treated prior to being landfilled.
- 9.25 There are also a number of other articles of legislation and policy which impact on the management of hazardous wastes. These are discussed in further detail within Chapter 3 and 4 but include:
- Pollution, Prevention and Control Regulations (Northern Ireland), 2003
 - Waste Electrical and Electronic Equipment Directive (2002/96/EC)
 - Restriction of Hazardous Substances Directive (RoHS) (2002/95/EC)
 - End of Life Vehicles Directive (2000/53/EC)
 - Batteries Directive
 - Waste Incineration Directive (2000/76/EC)

- Waste Oil Directive (75/439/EC)
- Solvent Emissions Directive (1999/13/EC)

9.26 The resulting impact of the introduction of this legislation and policy within Northern Ireland is a reduction in the options available for the treatment and disposal of hazardous wastes, coupled with a potential increase in hazardous waste arisings. With regard to landfilling, the resulting impact of the introduction of the Landfill Directive banning co-disposal of hazardous and non-hazardous wastes is that there are currently no hazardous waste landfill sites in Northern Ireland. Lisbane Landfill Site has however recently (2005) been granted a license to operate a single cell for the disposal of asbestos waste. A recent BPEO Assessment Undertaken for the management of Asbestos Waste (BPEO Assessment for the Management of Hazardous Wastes, EHS, 2004) has indicated that double bagging the waste and then landfilling it into a dedicated cell is the preferred option.

9.27 The facilities licensed for the treatment and/or disposal of hazardous waste in May 2005 are shown in Table 9.7.

Table 9.7 Facilities licensed for hazardous waste in Northern Ireland

Type of Facility	Number
Treatment and Transfer	
▪ Range of hazardous wastes, for acid-alkali neutralisation, oil water separation and transfer	1
▪ Metal bearing wastes	1
▪ Car batteries (licensed for separation, but now mainly operating as transfer stations)	7
Treatment	
▪ Oil recycling/treatment	3
▪ Steam sterilisation of clinical wastes (including prescription only medicines and sharps)	1
▪ Encapsulation of leaded petroleum sludge (now little waste)	1
Transfer Stations	
▪ Covering a range of hazardous wastes	4
▪ Prescription only medicines and sharps	11
▪ Paints and thinners (take back of used materials from customers)	4
▪ Batteries	1
▪ In-house waste only	1
Landfill	
▪ Single cell for asbestos waste only	1
Total	36

Source: Statement of Facility Needs for Hazardous Wastes in Northern Ireland- Supporting Report, 2005

Movements of Hazardous Wastes

- 9.28 Hazardous wastes may be dispatched directly to their point of disposal/recovery or may pass through one or more transfer stations en route. A consignment note accompanies each movement and the information from these is entered into the EHS Hazardous Waste Arisings Database. The commencement of each movement is classified as an arising and the arrival at a consignee's premises is recorded as a deposit. For this reason the recorded tonnage of arisings and deposits within the database will be greater than the actual amount of hazardous waste produced due to movements via transfer stations.
- 9.29 The purpose of the Hazardous Waste Regulations (Northern Ireland) 2005 (see also Chapter 4 of this Plan) was to introduce one consignment note for hazardous waste exported to GB, covering the waste movement up to the final destination in GB. There is also a requirement within the consignment note to enter the Standard Industrial Classification (SIC) code for the waste proves. Further to this, there is also a requirement for those transferring the waste to notify producers on the receipt of waste.

PROPOSED ARRANGEMENTS FOR THE MANAGEMENT OF HAZARDOUS WASTE

- 9.30 As has been said previously, recent legislative changes are driving the future management of hazardous wastes in Northern Ireland. It is therefore necessary to consider the options available in light of the changes to the treatment options available and the anticipated future waste arisings.
- 9.31 There are a number of options for the future management of hazardous wastes within Northern Ireland as outlined below. As with the management of municipal wastes, these have fallen into the three broad categories of:
- Waste Prevention - to limit the growth in hazardous waste arisings.
 - Materials recovery - to reuse recover and recycle as much of the waste stream as practicable.
 - Residual treatment and energy recovery- to render the wastes safe for disposal and recover energy as a resource, as far as possible.
- 9.32 Each of these options is discussed in more detail below:

Prevention/Reduction

- 9.33 Hazardous waste prevention and reduction is a priority and supported by all the sub-regional groups. The ability to prevent or reduce hazardous waste is dependant on the individual hazardous waste. Therefore the sub-regional groups will aim, where possible, to raise awareness of reductions options, such as cleaner technologies, with hazardous waste producers.

Re-use, Recovery and Recycling

- 9.34 Certain hazardous waste can be re-used, recovered or recycled, with options being dependent on the nature of the hazardous component of the waste. Table 9.8 provides examples of potential re-use, recovery and recycling options along with some of the suitable hazardous waste streams.

Table 9.8 Examples of Hazardous Waste Re-use, Recovery and Recycling Options

Option	Suitable Waste Streams
Recovery for use as fuel	Organic solvents (blended to produce secondary liquid fuel) Fine chemicals and biocides
Solvent reclamation/ regeneration	Organic solvents including halogenated solvents, phenols, ethers, organohalons can be regenerated
Recycling/reclamation of metals and metal compounds	Photographic chemicals and materials - recovery of silver Spent catalysts - recovery of precious metals Car batteries - recovery of lead NiCd batteries - recovery of nickel and cadmium Fluorescent light tubes - recovery of mercury Oil filters - recovery of steel
Regeneration of acids and bases	Acids and bases
Recovery/re-refining of used oil	Mineral oils, oil/water and hydrocarbon mixtures

Treatment

- 9.35 Most physical and chemical treatment methods aim to produce a less hazardous form of the waste involved. This often involves a chemical reaction to change the hazardous components into non-hazardous compounds. Residues of hazardous components may also be immobilised chemically or physically.
- 9.36 Chemical processes primarily change inorganic compounds into a less harmful or hazardous form. They are usually applied to waste with one main chemical constituent and take place in a liquid state. Oxidation, reduction and neutralisation are the main types of treatment. The most common types of physical and chemical treatment technologies are summarised in Table 9.9.

Table 9.9 Summary of Common Treatment Technologies

Typical Treatment Methods	Summary
Oxidation/ reduction	The processes of oxidation and reduction are considered together, one cannot occur without the other. Commonly used to oxidise waste such as chromic acid or reduce wastes such as those containing cyanide. Oxidising agents include hypochlorite, peroxides and persulphates. Chromic acid wastes must be reduced before neutralisation.
Neutralisation	Neutralisation is the adjustment of the pH of a liquid or sludge waste. It involves the mixing of acid or alkaline wastes with a buffering agent to produce a solution (pH=7.0). Acid wastes often contain metals so during neutralisation metals are converted to metal hydroxides. So neutralisation and precipitation often go together. Examples include the treatment of spent acid catalysts, tanning wastes and acid pickle liquor from metal cleaning.
Precipitation	Precipitation involves the removal of dissolved components in solution by changing pH, chemical reaction, or changing temperature to solidify dissolved components. Precipitation can be combined with processes that remove solids, such as sedimentation, filtration and centrifugation. This method is often used to remove metals from waste water which can use a variety of reagents to cause the metals to precipitate and leave an effluent to be discharged and a concentrate that can be recycled or disposed to landfill. Reagents can include calcium hydroxide, sodium carbonate or sodium sulphide.
Ion exchange	This involves the removal of dissolved inorganic materials from an aqueous liquid with the use of resin column to which inorganic material will become attached.
Solidification	In this process wastes are combined with additives to convert them into a solid product which bonds toxic ions and elements, e.g. mixing fly ash or slurry with cement.
Adsorption	Activated carbon or synthetic resins are used to trap contaminants (by adhesion) from hazardous wastes. Adsorption is suitable for gaseous and aqueous waste streams, e.g. the removal of PCB's and organics from waste industrial water.

Landfill

- 9.37 The implementation of the Landfill Directive has had an impact on the type and quantity of hazardous waste landfilled. The co-disposal of hazardous with non-hazardous wastes is now banned, thus reducing the potential landfill capacity available. However, for certain hazardous waste landfill is currently, and will remain, the most appropriate disposal route. These wastes included asbestos, certain treated timber, some contaminated soils and inorganic wastes containing metal compounds. As previously mentioned however, Lisbane Landfill Site has however recently (2005) been granted a license to operate a single cell for the disposal of asbestos waste. A recent BPEO Assessment Undertaken for the management of Asbestos Waste (BPEO Assessment for the Management of Hazardous Wastes, EHS, 2004) has indicated that double bagging the waste and then landfilling it into a dedicated cell is the preferred option.

Transfer Stations

- 9.38 The number of transfer stations licensed to accept hazardous wastes have risen from 9 in 1999/00 to 21 in 2005 with most of these being fairly small or specialised. A large number of these (11) have been developed to service the collection of healthcare waste destined for the steam sterilisation unit in Antrim Area Hospital.

Thermal Treatment and Energy Recovery

- 9.39 For certain hazardous wastes, high temperature incineration is considered the most appropriate disposal route for environmental and safety reasons. Such wastes include agrochemical residues, wastes containing PCBs, solvents and halogenated waste, laboratory chemicals and acid tars.
- 9.40 There were three types of thermal treatment for hazardous waste identified in the Statement of Facility Needs for Hazardous Waste in Northern Ireland- Supporting Report, 2005. These were:
- Export of hazardous wastes to specialised high temperature incineration facilities.
 - Blending with organic wastes to produce a secondary liquid fuel (SLF) for co-incineration in a cement kiln.
 - Steam sterilisation of health care wastes (currently undertaken for all of Northern Ireland at Antrim Area Hospital).

Future Hazardous Waste Arisings

- 9.41 As previously mentioned, the resulting impact of the change in the definition of hazardous wastes has resulted in an increase in hazardous waste arisings. These increases have been identified within the Hazardous Waste Forum Action Plan, 2004 and are further detailed in Table 9.10.

Table 9.10 Changes in Hazardous Waste Arisings due to Change in Waste Definition

EWC Code	Description	Comments	Potential Change	Estimated Additional Arisings ¹
02	Wastes from agriculture etc.	Agricultural wastes are due to be included in the definition of controlled waste. This will result in an increase in hazardous waste, mainly in relation to agrichemical, asbestos and oils	Not considered	
0604	Metal containing waste	Some metal containing wastes could be included because of the lower thresholds for H10/H14	Assume a 5% increase in metal containing wastes	300 tpa
07	Organic Chemical processes waste	Some wastes could be included because of the introduction of absolute entries or lower thresholds for ecotoxic.	Assume 10% increase in the hazardous waste currently landfilled. There may also be a need for additional physico-chemical treatment capacity	30 tpa
1101	Liquid waste and sludges from metal treatment and coating of metals	Some metal containing wastes could be included because of the lower thresholds from H10/H14	Assume a 5% increase	100 tpa
1104	Other inorganic wastes with metals not otherwise specified			
1201	Wastes from shaping	Some metal containing wastes could be included because of the lower thresholds from H10/H14	Assume a 5% increase	300 tpa
1202	Wastes from mechanical surface treatment processes			
1601	End of Life Vehicles	All un-depolluted ELVs will be hazardous, although new and existing facilities will be developed as a result of a requirement of the ELV Directive	Will be dependant on when an ELV is deemed as waste. However they are likely to be managed through existing routes, although there may be greater permit controls	N/A
1602	Discarded equipment and shredder residues	Capacity for refrigeration equipment being developed as a result of ODS Regulations. Extent of other hazardous WEEE unclear, although potential for 50K to 100K tpa of CRT containing equipment across the UK. Capacity likely to develop as a result of the requirements of the WEEE Directive.	Assume 5,000 tpa for hazardous WEEE	5,000 tpa
17	C&D waste and asbestos	The requirement to assess certain wastes against exotoxic could significantly increase the quantities classified as hazardous.	Expect increase in the quantity of contaminated soils. Very little consigned in 2002 therefore difficult to apply % increase.	10,000 tpa

Note: 1. Arisings estimated to the nearest 100 tonnes

Future Capacity Needs

- 9.42 As previously said, the waste arisings data has indicated that, in 2002, there was 13,660 tonnes of Special Waste landfilled (5,280 tonnes within Northern Ireland and 8,380 within Great Britain). Due to the limited amount of hazardous waste capacity available within Great Britain, and the anticipated increase in costs of using these facilities, alternative means of disposal for this waste stream are likely to be sought.
- 9.43 A qualitative estimate of the future capacity needs, taking into account both the end of co-disposal and the additional hazardous waste arisings, has been made in the Facility Needs for Northern Ireland- Supporting Report, 2005. This has been summarised in Table 9.11.

Table 9.11 Summary of Generic Treatment/Disposal Route Capacity Needs (tonnes per annum)¹

Generic Treatment Route	Estimated Treatment Capacity Need for			Resultant Hazardous Waste Landfill Capacity Required for Residues/Outputs from Treatment Processes		
	Special Waste Currently Landfilled	Additional Wastes	Total	Special Waste Currently Landfilled	Additional Wastes	Total
Stabilisation/Solidification	9,310	9,230	18,540	18,620	18,450	37,070
Physico-Chemical	1,760	1,620	3,380	1,320	1,220	2,540
Waste Water Treatment	340	40	380	N/a	N/a	N/a
HTI/Co-incineration	1,650	1,480	3,130	N/a	N/a	N/a
Total	13,060	12,370	25,430	19,940	19,670	36,510

Note: 1. This table should be read in conjunction with the Assumptions set out within the Statement of Facility Needs

Source: Statement of Facility Needs for Hazardous Wastes in Northern Ireland, October 2005

- 9.44 A summary of the facility needs for hazardous waste management in Northern Ireland is shown in Table 9.12.

Table 9.12 Summary of Facility Needs for Hazardous Waste Management in Northern Ireland

Facility	Existing Provision	Need		Synergy with Republic of Ireland
		Priority	Potential	
Treatment / Recovery				
Physico-chemical	1 acid neutralisation plant, considerable export to GB		Expansion of existing facilities	1 acid neutralisation plant
Oil separation and treatment	4 facilities, adequate capacity but market in flux.	Ensure adequate market outlets for recovered fuel	May require modification to existing facilities, or new facilities to adapt to new market outlets.	Demand for recovered fuel oil in RoI. Potential to serve all island market for recovered fuel oil.
Thermal treatment	None for high temperature incineration	-	Unlikely due to low quantities	Facility in Co.Cork awaiting decision on licensing.
	None for organic waste pre-processing to form a secondary liquid fuel for co-incineration	-	Small quantities. Opportunity if NI cement kilns adapt to use secondary liquid fuel.	3 organic waste pre-processing facilities exist/under development in RoI
	2 cement kilns could potentially use secondary liquid fuel or other waste derived fuels (e.g. recovered fuel oil) to replace fossil fuels	Storage facilities at cement plant to accept secondary liquid fuel and/or recovered fuel oil would become a priority need.		Potential for an all island market for secondary liquid fuel
	One steam sterilisation plant for healthcare risk wastes	-	Adequate capacity	2 plants- 1 NI and 1 RoI
Recovery	None in NI	-	Some potential for specialised facilities	Small facilities for solvent recovery, photochemical wastes and fluorescent lamps, but all exported.
WEEE	One specialised plant for refrigeration equipment containing chlorinated fluorocarbons.	Priority need for one or more WEEE dismantling and recovery plants.	May be opportunities for more specialised facilities e.g. for fluorescent lamps- economics could favour serving a wider area than NI	Priority needed both North and South- obvious potential for collaboration.
End of Life Vehicles	Well established network of vehicle dismantlers	Priority need to establish a network of authorised treatment facilities.		Likely to be adequate demand to support facilities North and South. Co-operation in border areas could be explored.
Contaminated Soils	None	Facilities to treat wastes from specific redevelopment sites, or “mobile” plants to serve several sites in turn	A central facility to serve a number of sites.	One pre-treatment plant for oil-contaminated soils: Otherwise exported.

Table 9.12 Summary of Facility Needs for Hazardous Waste Management in Northern Ireland (continued)

Facility	Existing Provision	Need		Synergy with Republic of Ireland
		Priority	Potential	
Disposal				
Hazardous waste landfill	None	-	Unlikely to be justified simply to serve NI	See below
Cell for stabilised non-reactive hazardous wastes at a non-hazardous waste landfill site (general)	None	Priority need for a cell for non-reactive waste, accepting a range of waste types. Would require a solidification/stabilisation plant, most likely on the same site.		National priority in RoI to establish 2 cells for stabilised non-reactive hazardous waste. Government has stated funding may be available.
Cell for asbestos only	One cell operational			One cell operational, for bonded asbestos only. Potential for co-operation.
Collection and Transfer stations	22 transfer stations, 6 accepting a range of hazardous wastes	Additional general transfer stations, and better geographical spread. Urgent need for further asbestos transfer stations. Network of sites for household hazardous wastes, WEEE, batteries etc.	Will be a continuing need for further, more specialised, transfer stations	Co-operation in border areas could be explored.
Integrated hazardous waste management facility	None	-	Development of an integrated facility, offering some combination of: physico-chemical treatment, oil separation, organic waste pre-processing for secondary liquid fuel, solidification/ stabilisation, landfill and transfer (for export) could help to improve economics	Several partially integrated facilities already exist (but without solidification or landfill). Potential for co-operation.

MEASURES AND ACTIONS

- 9.45 The introduction of legislation and policy governing the management of hazardous wastes over recent years has driven a significant change in the way in which the waste stream is managed. Under these legislative changes the definition of hazardous waste has changed, leading to an increase in the amounts of waste now classified as hazardous. In addition to this, there have been significant changes to the treatment and disposal requirements for hazardous waste, in particular the banning of co-disposal of hazardous and non-hazardous wastes by landfill.
- 9.46 In light of these changes therefore, it is imperative that all stakeholders involved in the management of hazardous wastes realise the roles and responsibility that they play in ensuring that this waste stream is managed in a safe, sustainable and compliant manner in the future.
- 9.47 This section sets out the key actions required, by stakeholder group, as follows:
- The Hazardous Waste Forum (representing key stakeholders)
 - Industrial and commercial producers of hazardous waste
 - Waste Management Sector
 - District Councils
 - Members of the Public

Hazardous Waste Forum

- 9.48 The Hazardous Waste Forum, facilitated by Environment and Heritage Service, to advise on the means by which Northern Ireland can achieve hazardous waste reduction and environmentally sound management of this waste stream, in the short to medium term. The aim of the advice, which should include information on the key decisions to be made and the timing of these decisions, is to identify the actions required to be undertaken by stakeholders to ensure that hazardous waste legislation is incorporated into management practices and hence the waste stream is managed in a sustainable manner.
- 9.49 The Hazardous Waste Forum to consider the impacts of existing and forthcoming legislation governing hazardous wastes and provide advice to stakeholders on the content and dissemination of Government advice and guidance.
- 9.50 The Hazardous Waste Forum, in association with hazardous waste producers, to identify potential opportunities for reducing the generation of hazardous waste and promote potential recovery of this waste stream. This could be achieved using the recommendations of the DEFRA forum and adapting this to meet the needs of Northern Ireland.

- 9.51 The Hazardous Waste Forum, Hazardous Waste Industry and the District Councils to identify the facilities to be used in the short term, and to recommend and support the development of an adequate network of future facilities, for the short to medium term management of hazardous wastes. These recommendations to distinguish between those facilities that can practically be provided within Northern Ireland, those which need to be planned/provided on an all island basis, and those which need to be provided on a Great Britain/Ireland basis.
- 9.52 The Hazardous Waste Forum to provide a better basis for forward planning through the provision of up to date and reliable data on hazardous waste generation and management.

Industrial and Commercial Producers

- 9.53 Given the recent changes to the definition from special to hazardous waste, industrial and commercial generators of hazardous waste need to become familiar with the requirements of the Hazardous Waste Regulations (Northern Ireland) 2005. This will require identification of those waste streams which now fall within the category of hazardous waste and will thus require a potential change in management practices.
- 9.54 Industrial and commercial waste producers, using the guidance produced by the Hazardous Waste Forum, to identify and prioritise ways in which the quantity of hazardous waste arisings can be reduced and the hazardous nature of the waste minimised.
- 9.55 The hazardous waste industry, in association with the waste management sector/technology providers, to bring forward proposals for the expansion of facilities for the recovery and treatment of hazardous wastes. These include the expansion of facilities for the physico-chemical treatment, one or more WEEE dismantling plants on a Northern Ireland basis, the establishment of a network of authorised treatment facilities for ELVs and a facility (either a centralised site or a series of licensed mobile plant) to treat contaminated soils from redevelopment sites. In terms of disposal, there is a need for the development of a landfill cell for stabilised non-reactive hazardous wastes. In addition, there is also a need for additional general transfer stations, covering the geographical spread of Northern Ireland, as well as transfer stations specifically for the collection of asbestos, household hazardous waste and WEEE.

Waste Management Sector

- 9.56 The Waste Management Sector, in association with the Hazardous Waste Forum, to develop and expand the range of services and facilities available to the hazardous waste sector for the collection, storage and treatment of hazardous wastes.

- 9.57 The waste management sector/technology providers, in association with hazardous waste producers, to bring forward proposals for the expansion of facilities for the recovery and treatment of hazardous wastes. These include the expansion of facilities for the physico-chemical treatment, one or more WEEE dismantling plants on a Northern Ireland basis, the establishment of a network of authorised treatment facilities for ELVs and a facility (either a centralised site or a series of licensed mobile plant) to treat contaminated soils from redevelopment sites. In terms of disposal, there is a need for the development of a landfill cell for stabilised non-reactive hazardous wastes.

District Councils

- 9.58 District Councils to provide facilities for the collection of household hazardous waste such as WEEE, paints and batteries at appropriate civic amenity sites within their district, following the implementation of the WEEE Directive, in anticipation that appropriate funding and infrastructure will be made available through Producer Responsibility arrangements.

Members of the Public

- 9.59 Members of the public to separate out household hazardous waste (for wastes including batteries, paints, WEEE) and take to a local civic amenity site for safe disposal.
- 9.60 Any clinical waste within the household (in particular hypodermic needles and syringes) should be disposed of in the receptacles (sharps bins) provided by the healthcare profession and disposed of in accordance with their requirements.
- 9.61 Any unused medicines should be taken back to the pharmacy from which they came, for safe disposal.

HAZARDOUS WASTE - SUMMARY OF KEY FACTS AND ACTIONS**Targets**

There are no targets specified within the Northern Ireland Waste Management Strategy for Hazardous Waste.

Specific targets for the hazardous components of other waste streams such as Waste Electrical and Electronic Equipment, End of Life Vehicles and Batteries are incorporated into the individual chapter concerning these waste streams.

Waste Arisings

The total hazardous waste arisings for 2002 were 47,432 tonnes. In addition to this, a further 10,797 tonnes was consigned from transfer stations within the Region.

Measures and Actions***Hazardous Waste Forum***

- Advise on hazardous waste reduction and environmentally sound management.
- Consideration of the impacts of existing and forthcoming legislation.
- Provide advice to stakeholders on the content and dissemination of Government advice and guidance
- Identify potential opportunities for reducing the generation of hazardous waste and promote potential recovery.
- Work alongside the Hazardous Waste Industry and District Councils to identify the facilities to be used in the short term and recommend and support the development of an adequate network of future facilities for the short and medium term management.
- Provide a better basis for forward planning through the provision of hazardous waste generation and management

Industrial and Commercial Producers

- Become familiar with the requirements of the Hazardous Waste Regulations (NI) 2005
- Identify and prioritise ways in which the quantity of waste arisings can be reduced and the hazardous nature minimised.
- Work in association with the waste management sector for proposals for the extension of facilities for the recovery and treatment of hazardous wastes.

Waste Management Sector

- Develop and expand the range of services and facilities available for the collection, storage, transfer and treatment of hazardous wastes.
- Bring forward proposals for the expansion of facilities for the recovery and treatment of hazardous wastes.

District Councils

- Provide facilities for the collection of household hazardous waste (for wastes including batteries, paints, WEEE) and take to a local civic amenity site for safe disposal.

Members of the Public

- Separate out household hazardous waste (for wastes including batteries, paints, WEEE) and take to a local civic amenity site for safe disposal.
- Dispose of clinical waste in receptacles provided by the healthcare profession, in accordance with their requirements.
- Return unused medicines to a local pharmacy for safe disposal.

10.0 CONSTRUCTION, DEMOLITION AND EXCAVATION WASTE

INTRODUCTION

- 10.1 This chapter outlines the measures for the future management and control of Construction, Demolition & Excavation (C, D & E) wastes within the SWaMP Region to facilitate greater resource efficiency and to comply with the relevant policy targets.
- 10.2 C, D & E waste arises from the construction, repair, maintenance and demolition of infrastructure, buildings and structures. The waste stream mainly consists of:
- **Construction wastes:** wastes arising from site management practices e.g. excess materials and packaging, over-ordering materials, off-cuts and damaged materials. Typically, it is "cleaner" than demolition waste. Packaging waste makes up a significant part of this waste stream.
 - **Demolition wastes:** wastes generated by the demolition of existing structures/buildings rather than opting to refurbish them. This is made up of several sub-waste streams, which are often mixed, depending on the amount of selective demolition and separate collection that has taken place. Demolition waste can also contain hazardous substances such as asbestos, that was present in buildings when demolished or renovated.
 - **Excavation wastes:** typically consisting of materials e.g. soil, made ground and existing foundations removed as a function of design or from excavations for new construction. Depending upon the previous use of the site, this may, or may not be contaminated.
- 10.3 The construction industry makes a substantial contribution to our quality of life, through the provision and maintenance of essential infrastructure, such as the sewage systems, roads and telecommunications, and the provision of buildings for home, leisure, education and work. Construction, building materials and associated professional services together account for about 10% of our Gross Domestic Product and is an important source of employment in Northern Ireland.
- 10.4 The significant contribution of the construction and building sectors is set to continue with the major anticipated infrastructure spend in the coming years coupled with a healthy housing and commercial development sector,. As a result, the amount of C, D & E waste generated is expected to increase if measures are not put in place to limit waste growth and promote resource efficiency.
- 10.5 In effecting change, it is worth recognising that the construction and building industry can be considered, in broad terms, as two main categories:

- **Medium to large scale development projects:** Typically such projects involve a level of control and planning through the involvement of informed clients, construction professionals, the larger contractors and builders. Often the sites are large enough to allow materials and wastes, which are generated in larger quantities on such projects, to be segregated and stored, facilitating the more efficient use of materials and resources.
- **Small build projects:** Typically concerned with the building, repair, maintenance and renovation of individual houses and other small buildings. Often these types of projects involve small builders and contractors, with the sites constrained for space, and the relatively small quantities of waste generated making it uneconomic to sort materials, hence the use of single skips to accept all the types of waste produced on the project.

10.6 Whilst recognising that the distinction between these two categories is to a large degree arbitrary, and that there is a wide variety in the nature and scale of projects undertaken by the construction and building industries, it does emphasise the need for targeted strategies in order to reach the different players, if real change is to be effected.

10.7 Historically, C, D & E wastes have been managed at low cost, with a very heavy reliance on landfill disposal, often at unlicensed and unregulated sites. Often, different waste materials, such as plasterboard, cardboard, soils and brick, tiles and ceramics, copper wiring and scrap metal for example, as well as unused materials, are discarded together in mixed waste skips. However, the true costs of this practice is being increasingly recognised, and have been placed as high as £1000 - £1500 per skip, when the cost of the materials, plant and time are properly factored in.

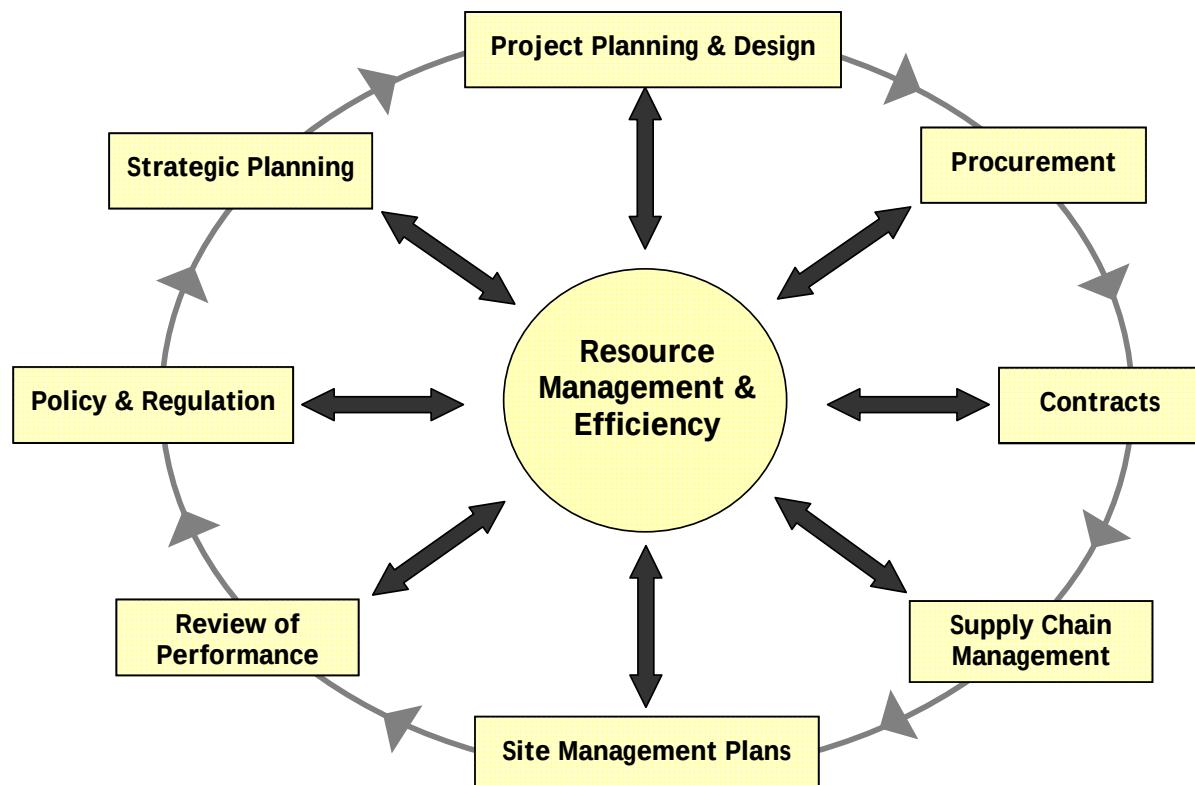
10.8 Costs therefore will be a key driver for change in the future. This is reinforced by the implementation of the Landfill Directive, with its classification of landfill sites as:

- Inert
- Non-hazardous
- Hazardous

10.9 Strict Waste Acceptance Criteria will apply, which will see the traditional type of C, D & E landfill phased out. In addition, Landfill Tax of £2 per tonne applies to inert wastes, but a higher rate of £18 per tonne (set to rise to more than £35 per tonne) applies to the non-hazardous and hazardous fractions. The costs of landfill disposal therefore are set to increase significantly, which will create a strong incentive to separate wastes, particularly inert wastes, such as soils and rock, out at source, and manage each material accordingly.

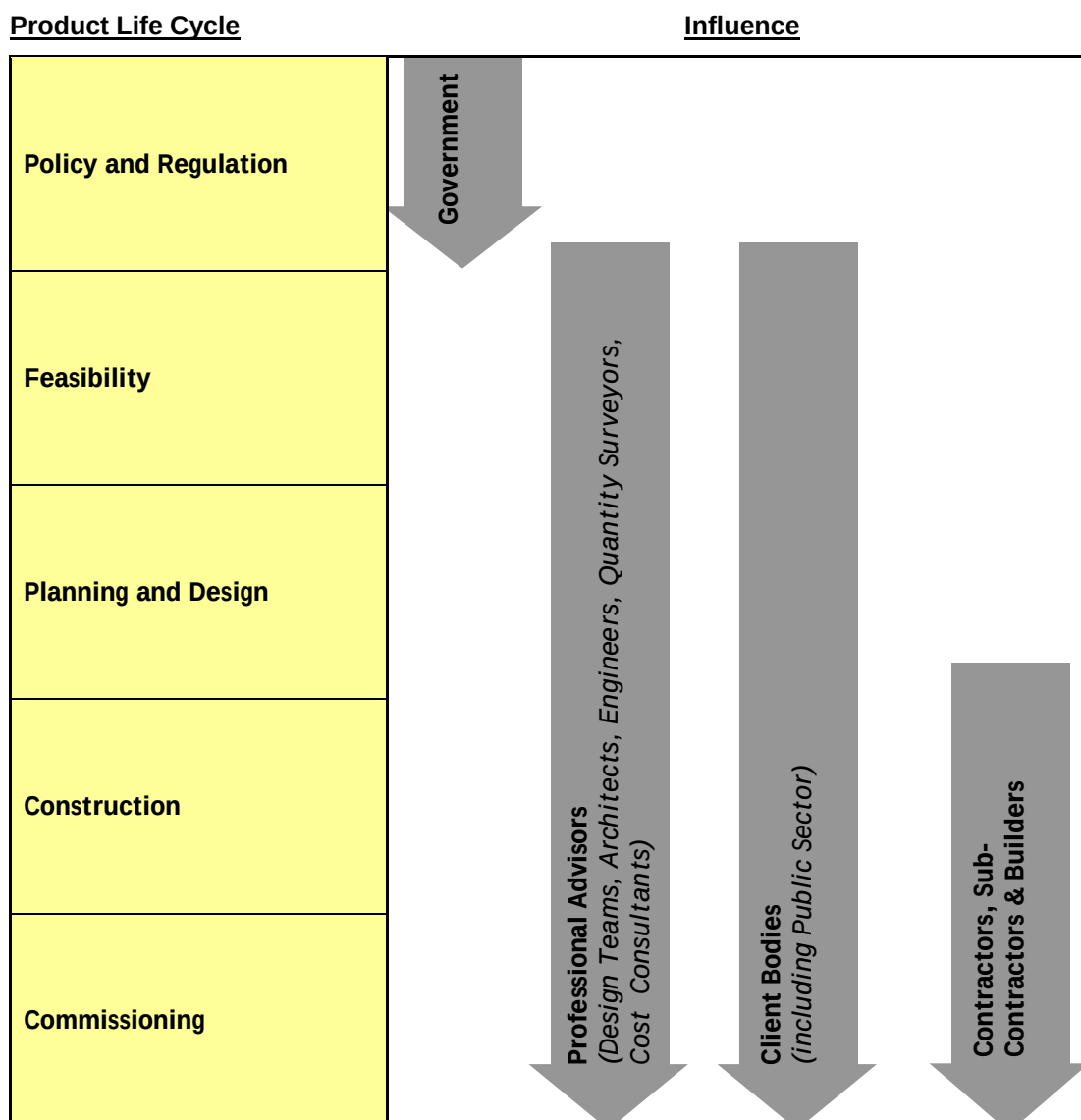
- 10.10 There is therefore a key challenge in effecting a more sustainable approach to the management of C, D & E waste during the construction process. This requires a change in attitudes and practices on site, so that C, D & E waste becomes viewed as a valuable resource, used efficiently and with the quantities disposed of minimised. Cost considerations will be a primary factor in driving this change, but all players, from clients, designers and specifiers to contractors, builders and sub-contractors have their role to play.
- 10.11 The construction and building sectors however have to be considered within a broader context. Their activities take place within a policy and regulatory framework, so that, as illustrated in principle in Figure 10.1, there are a range of opportunities to intervene influence resource planning, management and efficiency within the wider construction cycle.

Figure 10.1 Potential Intervention Points to influence Resource Management in the Construction Cycle



- 10.12 How waste is managed, and ultimately the quantities of waste generated, is influenced throughout the construction cycle, as illustrated in Figure 10.2. In principle, the greatest influence can be exerted at the early stages of the project life cycle with influence decreasing and limited if it is left only to the construction stages on site.

Figure 10.2 Influence on C, D & E Waste Generation in a Project Life Cycle



10.13 All players, from government to clients, designers, specifiers and procurement managers, to contractors, builders, contractors, materials suppliers, waste contractors and re-processors have a role to play. However, the primary responsibility rests with clients, designers and specifiers, to reduce the quantities of waste produced, and improve the management of resources on construction projects generally. Contractors and builders can really only influence the quantities of waste produced by improving site practices.

DEFINITIONS

10.14 C, D & E wastes are defined as: *'Those waste materials which arise from the construction or demolition of buildings and/or civil engineering infrastructure, including hard Construction and Demolition (C & D) waste and excavation waste, whether segregated or mixed.'*

- 10.15 The wastes produced by C, D & E activities are 'controlled wastes', as defined by the Waste and Contaminated Land Order (NI) 1997. C, D & E waste can vary significantly from natural sub-soils to hazardous asbestos containing materials and therefore is classified as inert waste, non-hazardous waste or hazardous waste depending on the nature of the particular waste.
- 10.16 Common C, D & E wastes classified under the European Waste Catalogue include:
- Concrete, bricks, tiles and ceramics e.g. demolition of existing structures, removal of concrete surrounds
 - Wood, glass and plastic e.g. door frames, roof trusses, abandoned pipework, fascia boards, window frames
 - Bituminous mixtures, coal tar and tarred products e.g. road wearing and base courses
 - Metals (including their alloys) e.g. redundant plant and panels, structural framework, bar and mesh reinforcement, scrapper bridges, storage tanks
 - Soil, stone and dredging spoil e.g. road sub-base, laneway and land excavations
 - Insulation materials and asbestos containing construction materials
 - Gypsum based construction materials
 - Other construction and demolition wastes e.g. rock from roads and lands excavations

MANAGEMENT AND CONTROL

- 10.17 The management and control of C, D & E waste is provided by the legislative framework under the following main pieces of legislation:
- The Waste and Contaminated Land (Northern Ireland) Order 1997
 - The Controlled Waste (Duty of Care) Regulations (Northern Ireland) 2002
 - The Hazardous Waste Regulations (Northern Ireland) 2005
 - The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland) 1999.
 - The Landfill Regulations (Northern Ireland) 2003
 - Waste Management Licensing Regulations (Northern Ireland), 2003
 - The Pollution, Prevention and Control Regulations (Northern Ireland), 2003
- 10.18 C, D & E waste is subject to a Duty of Care on how it is transported, managed, licensed and disposed as other waste streams. The disposal of wastes by landfilling is governed by the Landfill Directive, a technology specific measure. It sets standards for landfill design, operation and closure, and requires operators to make appropriate financial provisions. It also sets strict criteria for the acceptance of wastes and the licensing of sites, requiring landfills to be classified, depending on the nature of the wastes they receive, as either; inert, non-hazardous or hazardous.

- 10.19 Given that C, D & E wastes are largely comprised of soils and rock they are likely to be managed at sites classified as 'inert' under the provisions of the Directive. However, the standards set by the Directive mean that, over the next few years, there will be a step change in development, operational and management practices at landfill sites, which are expected to drive up the costs of disposal significantly.
- 10.20 The Waste Management Strategy, *Towards Resource Management*, also sets out a commitment for the introduction of Site Waste Management Plans, to be prepared on a project specific basis. The Department of Finance and Personnel, Central procurement Directorate, Sustainable Construction Group, have published a Code of Practice/Guidance, which is available on their website at:
<http://www.cpdni.gov.uk/index/guidance-for-purchasers/sustainable-construction.htm>
- 10.21 The main roles and responsibilities for the management of C, D & E waste are summarised in Table 10.1.

Table 10.1 Summary of Key Roles and Responsibilities for C, D & E Waste

Element	Responsibility
Project planning and design to minimise the amount of waste generated and maximise as far as possible the amount of materials recycled and recovered through design and specification.	Clients (public and private sector), Designers and Specifiers
Source segregation of wastes for collection for downstream reuse and recycling.	Specifiers (in contractual requirements) Contractors, Builders and Sub-Contractors
Treatment and disposal of C, D & E wastes.	Contractors and Sub Contractors and the Waste Management Industry
Site Waste Management Plans	Contractors

TARGETS

- 10.22 The recycling and waste prevention targets that apply to C, D & E waste come from a number of sources and include the Northern Ireland Waste Management Strategy and the Aggregates Credit Levy Scheme.
- 10.23 The Northern Ireland Waste Management Strategy sets the following targets for C, D & E waste:
- 75% of C, D & E wastes to be recycled or reused by 2020.
 - A minimum of 10% of the materials value of public sector construction projects should derive from recycled or reused content.

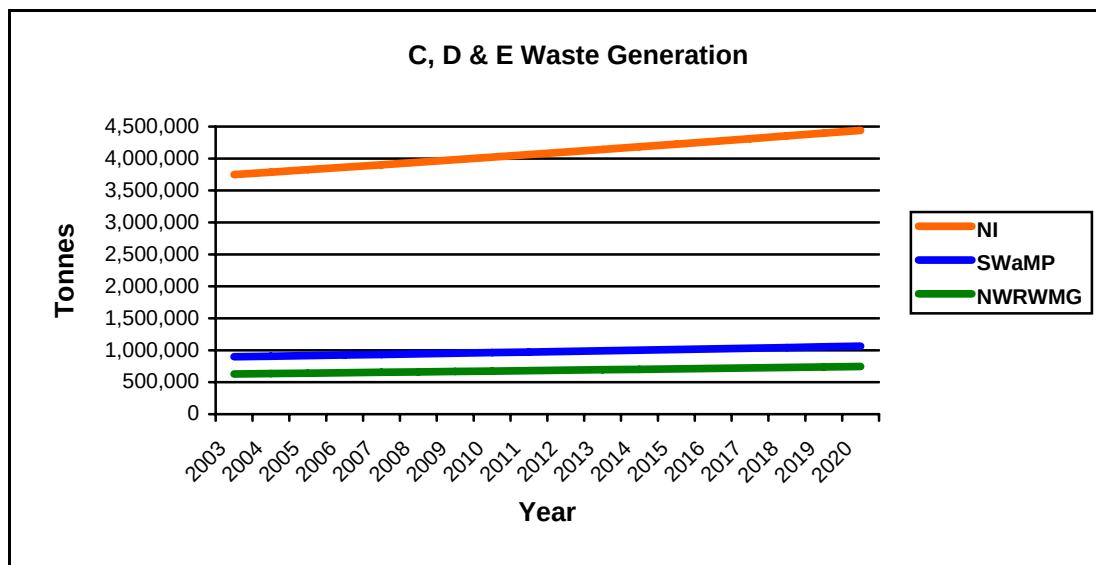
10.24 The Aggregates Credit Levy Scheme sets the following target:

- 5% of aggregates produced from recycled C, D & E waste rather than using virgin materials by 2011 (Total aggregates market – 20 million per year, therefore equivalent to about 1 million tonnes).

WASTE QUANTITIES AND COMPOSITION

Waste Quantities

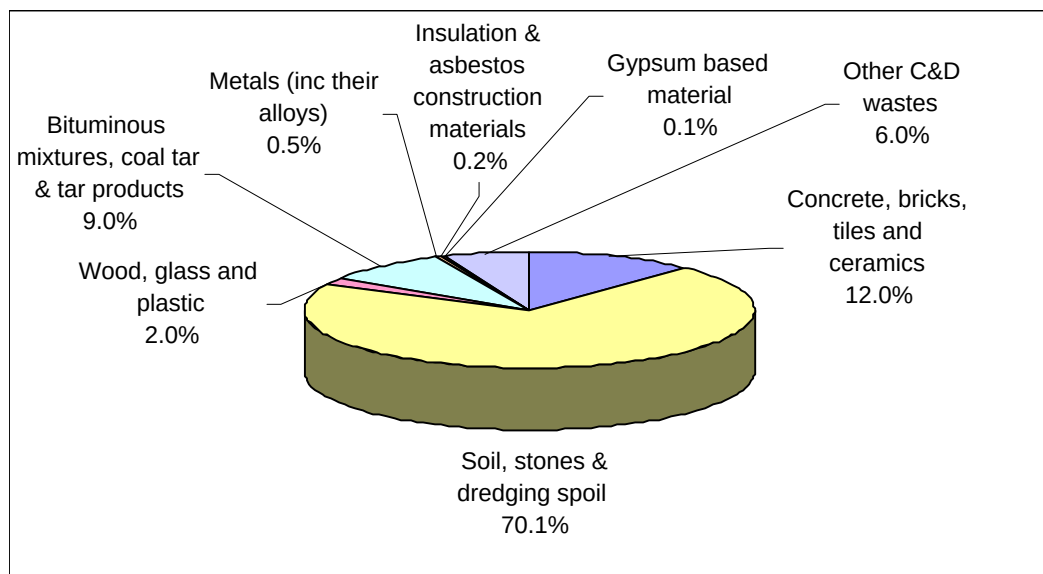
- 10.25 Up to date C, D & E waste arisings data is limited. However, based on a study carried out by the Symonds Group in October 2003 it is estimated that C, D & E waste arisings was in the range of 2.5 to 3.75 million tonnes per year in Northern Ireland. Given the uncertainties with the data the upper value has been taken as a conservative best estimate for C, D & E waste arisings in 2003. Whilst recognising that there is no direct relationship between population and C, D & E waste arisings, this yields a C, D & E waste generation figure of approximately 2 tonnes per person per annum, which is similar to data reported for elsewhere.
- 10.26 It is estimated that the SWaMP Region generated approximately 900,000 tonnes of C, D & E waste in 2003. Much of this C, D & E waste is recyclable, with the potential to replace virgin raw materials or part-supply material to the construction industry.
- 10.27 As stated previously, C,D & E waste generation is directly linked with the economic growth and the activity of the construction and building sectors which, coupled with the programme of infrastructure development anticipated in the SWaMP area, suggests that the quantities of C, D & E waste generated will continue to increase.
- 10.28 For consistency with the BPEO Guidance a waste growth figure of 1% per year has been used to estimate that the projected waste arisings will be approximately 4.5 million tonnes per year in 2020 in Northern Ireland. Figure 10.3 illustrates projected C, D & E waste arisings in Northern Ireland, the SWaMP Region and in the North West Region over the period of this plan.

Figure 10.3 Predicted C, D & E Waste Generation

- 10.29 In addition to general C, D & E wastes, Northern Ireland landfills currently approximately 2,500 tonnes of asbestos containing materials per year. This quantity is anticipated to peak at or around this level for a period and then decrease as the remaining asbestos is removed from buildings.

Waste Composition

- 10.30 Based on an EHS Construction and Demolition Waste Arisings Study carried out in 2001 it is estimated that approximately 34% of the C, D & E wastes are reused or recycled in some form, whilst the remaining 66% is primarily sent to landfill.
- 10.31 The compositional analysis of the C, D & E waste from this Study is illustrated in Figure 10.4. The data indicates that over 80% of the C, D & E waste comprises excavated soil, stones, concrete, and bricks with only 2.4% of the waste reported to be wood, metal, glass and plastic. It was estimated that 1.28 million tonnes of this C, D & E waste was “hard” construction waste suitable for crushing and recycling as aggregate.

Figure 10.4 C, D & E Waste Composition, 2001

- 10.32 With respect to the composition of construction C, D & E wastes in future, it is anticipated that there will be an increase in contaminated soil due to the introduction of contaminated land legislation and the increased development on Brownfield sites.

BEST PRACTICABLE ENVIRONMENTAL OPTION

- 10.33 Guidance on the Best Practicable Environmental Option (BPEO) for Waste Management in Northern Ireland was published in June 2005 by the Environment and Heritage Service (EHS) and can be found on their website at:

http://www.ehsni.gov.uk/pubs/publications/Ni_BPEO_Guidance_652kb.pdf

- 10.34 This Guidance identified BPEO for C, D & E wastes as

- Reuse and recycling – to increase to 75% by 2020
- Landfilling – to decrease to 25% by 2020

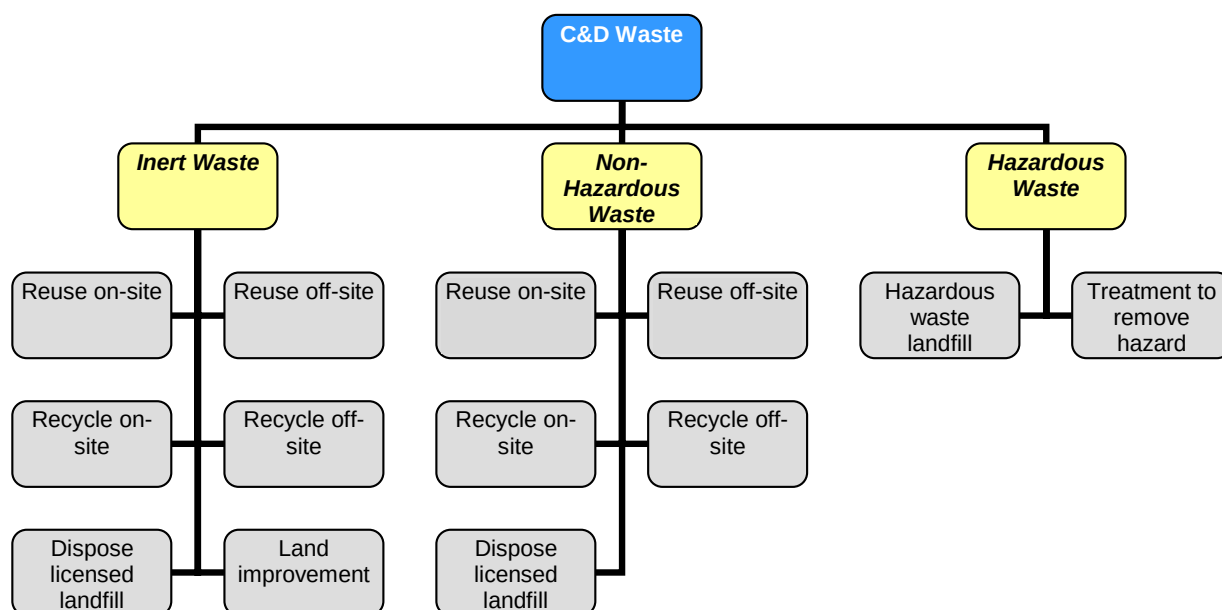
- 10.35 By using this data, the future capacity requirements for re-use/recycling/reprocessing and landfill can be estimated for Northern Ireland and the SWaMP Region for the years 2010, 2013 and 2020, the three Landfill Directive target years, based on a progressive increase over time in re-use and recycling from the reported level of 34%. This is summarised in Table 10.2.

Table 10.2 Summary of Capacity requirements for C, D & E Waste

	2010	2013	2020
Projected Waste Arisings			
<i>Northern Ireland</i>	4,020,000	4,150,000	4,500,000
<i>SWaMP</i>	960,000	990,000	1,064,000
Reuse and Recycling <i>Targets:</i>	53%	62%	75%
Capacity Requirements	(tpa)	(tpa)	(tpa)
<i>Northern Ireland</i>	2,130,000	2,573,000	3,375,000
<i>SWaMP</i>	508,800	613,800	798,000
Landfill Disposal			
Capacity Requirements	(tpa)	(tpa)	(tpa)
<i>Northern Ireland</i>	1,890,000	1,577,000	1,125,000
<i>SWaMP</i>	451,200	376,200	266,000

10.36 Building upon the BPEO Guidance, recent work by Full Circle, set out the possible management routes for C, D & E waste as illustrated in Figure 10.5. In particular the re-use and recycling 'on-site' is a key management tool to assist in achieving the reuse/recycling targets, depending on the classification (inert, non-hazardous or hazardous) and hence suitability of any waste material for any particular application.

Figure 10.5 Possible Management Routes for C, D & E Waste



Source: C, D & E Wastes Time For Change by the Construction Industry Group for Northern Ireland and Full Circle.

- 10.37 The BPEO Guidance recommends the development of a network of C, D & E reprocessing and recycling facilities around the main urban centres. Existing or disused quarry sites were suggested as suitable locations for such facilities, considered to be cost-effective and yielding environmental benefits as vehicles could deliver waste for recycling and leave with aggregates, reducing overall transport impacts. It further stated that developing infrastructure at such sites is in line with the Regional Development Strategy and Planning Policy PPS 11. Such an approach would also clearly assist the quarrying sector meet the Aggregates Levy Credit Scheme Target.
- 10.38 Taking into account the above factors, for the purpose of this Plan, the BPEO for C, D & E waste is defined, in summary as:
- **Waste prevention** to limit quantities of C, D & E waste produced, through the designing out of waste, and the specification of re-usable or recyclable materials, as far as is practicable.
 - **Site waste management planning** – using the published Guidance and checklists to identify opportunities for the re-use and recycling of waste, on and off-site, and improve site management practices.
 - **On-site reuse and recycling** through the use of mobile plant to produce materials that are used on the project (e.g. crushing cement for reuse as fill).
 - Reuse and recycling at **centralised C, D & E reprocessing facilities**.
 - **Disposal** – the least preferred option, but unavoidable for some waste types, including some hazardous wastes.
- 10.39 A BPEO assessment has also been published for asbestos waste management (BPEO for the Management of Waste Asbestos, EHS, 2004) which can be found at <http://www.ehsni.gov.uk/pubs/publications/BPEOAsbestos.pdf>). This assessment identified that double bagging waste asbestos and then landfilling was the preferred option. Furthermore, the assessment identified that the need two or more landfill cells, spatially well separated within Northern Ireland and supported by a network of transfer/storage stations, to be developed to provide the necessary capacity.

CURRENT ARRANGEMENTS FOR C, D & E WASTE

- 10.40 The management of C, D & E wastes is currently going through a period of change, driven by increased regulation and cost considerations. Historically, there has been a heavy reliance on low cost disposal by landfilling, often at unlicensed and unregulated sites under the guise of land improvement. At present the relative proportion of the management approaches to C, D & E waste, as identified by the Construction and Demolition Waste Arisings Study carried out by EHS in 2001 is as follows:

- Re-use and Recycling: 34%
- Landfilling: 66%

- 10.41 The re-use and recycling has generally carried out as or when the opportunity arose on projects, as there are no licensed 'centralised' C, D & E waste recycling/reprocessing centres in the Region. Small quantities, usually of architectural interest, are salvaged for re-use.
- 10.42 Landfilling has taken place at a large number of sites spread out across the Region, many of which traditionally have been unlicensed and unregulated, receiving limited quantities. Exemptions, under the licensing regime, have been used for the deposit of inert wastes for agricultural land improvement purposes. There are a number of landfills licensed to accept C, D & E wastes, one of which is Lisbane Landfill Site, which has recently (2005) been granted a license to operate a single cell for the disposal of asbestos waste.

PROPOSED ARRANGEMENTS FOR THE MANAGEMENT OF C, D & E WASTE

- 10.43 As identified in the BPEO for C, D & E wastes within the SWaMP Region, the priority is waste prevention, followed by materials re-use and recovery. However, there will remain a need for landfill capacity for those wastes that are not recovered or recycled, as summarised in Table 10.3.

Table 10.3 Summary of Capacity requirements for C, D & E waste within the SWaMP Region

	2010	2013	2020
Reuse and Recycling Targets:	53%	62%	75%
Capacity Requirements	508,800 (tpa)	613,800 (tpa)	798,000 (tpa)
Landfill Disposal			
Capacity Requirements	451,200 (tpa)	376,200 (tpa)	266,000 (tpa)

- 10.44 The primary responsibility rests with Clients, and their professional advisers, including designers, specifiers and cost consultants, to eliminate waste through design, and to maximise the re-use and recycling of materials on site. Examples include designing to balance cut and fill, and the crushing of concrete for re-use as a fill material. Such an approach limits the total recycling and reprocessing capacity required, either on site or at a centralised facility.

- 10.45 Another key focus for the future is the creation of markets, particularly for inert soils (including subsoil and topsoil) and rock, where suitable uses may be found in the restoration of mineral workings, landfills and brownfield sites. This requires a strategic and co-ordinated planning approach by stakeholders within the industry.
- 10.46 At the project level, Site Waste Management Plans are a crucial tool in planning for the management of wastes. The Government's Central Procurement Directorate has recommended that Site Waste Management Plans (SWMP) should be required for all contracts over £200K. SWMPs will be introduced in accordance with the principles established in the Code of Practice entitled '*Site Waste Management Plans; Guidance for Construction Contractors and Clients*', February 2006, (or any subsequent revision).
- 10.47 Through these approaches it is anticipated that the majority of reuse and recycling capacity of C, D & E waste will take place at the point of origin, with increased segregation and sorting, making use of appropriate mobile plant. Therefore, although the projected re-use and recycling capacity is approximately 500,000 tonnes per annum by 2010 increasing to some 800,000 tonnes per annum by 2020, only a proportion of this capacity will need to be provided at 'centralised' C, D & E waste recycling plants.
- 10.48 These centralised facilities will need to be licensed for the storage, sorting, crushing and reprocessing of C, D & E waste materials. The scale of the facilities will vary, being determined by the requirements of the market, but it is estimated that three to four such facilities, spread across the Region, but located to service the main urban centres would be appropriate.
- 10.49 The requirements for landfill capacity are projected to decrease, from 450,000 tonnes per annum in 2010, to 265,000 tonnes per annum by 2020. It is anticipated that with the increased segregation of materials on site, a proportion of these wastes will be inert materials, including topsoil and subsoils, which are potentially suitable for alternative uses rather than disposing of to landfill. Notwithstanding the above, the need for both inert and non-hazardous landfill remains, with sites located appropriately to service the main urban centres, in and around which the majority of C, D & E wastes arise.
- 10.50 Additional landfill capacity for particular hazardous waste streams, where disposal represents the preferred solution, should be considered on a Northern Ireland wide basis. For further information on this see Chapter 9 on Hazardous Wastes.

MEASURES AND ACTIONS

- 10.51 The management of C, D & E wastes is set for major change as the construction and building industries respond to the changes brought about by:
- the increasingly stringent regulatory environment;
 - the higher costs of landfill disposal, with restriction on waste acceptance, and higher standards of operation; and
 - greater client awareness and expectation, demonstrated through 'Green Procurement' policies, particularly in the public sector
- 10.52 It is important therefore that all players, from government and clients, through designers, specifiers and procurement managers, to contractors, builders, materials suppliers, waste contractors and re-processors recognise their roles and responsibilities and respond accordingly. This section sets out below, the actions by main stakeholder grouping, who are as follows:
- Government (including planning authorities responsible for development control).
 - Client Bodies (including both public and private sector clients).
 - Industry Professionals (including the full range of professionals who advise clients on all-related matters including inter alia, site selection and layout, project design and specification, contractual arrangements and responsibilities).
 - Contractors, Sub-Contractors and Builders (including the waste management sector).

Government

- 10.53 Government's key role is in setting the framework to encourage and facilitate a more resource efficient management of C, D & E wastes. This can be achieved by working with stakeholders in the industry, including professional institutions, trade organisations and sectoral bodies, on areas of interest/concern to the industry, which at present include:
- **Disposal of wastes at unregulated and unlicensed sites:** A practice which has been widespread under the guise of 'an improvement'.
 - **Waste –v- Resource:** Clarification on when a material is a waste, and when it is a resource, for which a market exists and where it is used beneficially, displacing other materials.
 - **Development of Markets:** Explore the potential for a voluntary agreement with the sector to cover specific areas or activities that provide for a resource efficient approach, and which can operate without an undue administrative burden on the industry or Government.
 - **Raising Awareness and providing Guidance:** Work with the industry, particularly reaching out to small builders and tradesmen, to ensure that all are aware of the legislation, and their duties and responsibilities under it.

- 10.54 Effective regulation and enforcement is a key area, and there is much concern within the industry at the 'cutting of corners' by unscrupulous operators that undermine and undercut those organisations that adhere to the law. Concern has also been voiced at the apparent uncontrolled dumping of C, D & E wastes in some areas, including border areas (and in the Belfast Hills within the arc21 region). EHS have the responsibility to take appropriate enforcement action, as and when required, to ensure that there is a clear disincentive, with proper sanction.
- 10.55 Determination of planning applications provides a unique opportunity to influence projects at an early planning and design stage, to ensure that resource efficiency and waste management considerations are taken into account from the outset. Planning Service have already implemented a voluntary questionnaire in this respect, but working with District Councils, in their role of scrutinising planning applications, there is a role in encouraging the wider take up of this approach on more projects.
- 10.56 There is a need for better data in this sector. EHS should continue with its programme of waste surveys, publishing and 'promoting' the data to facilitate better planning within the sector.

Clients and Project Sponsors

- 10.57 The client, as the controller of the purse strings, is in the most influential position in promoting the re-use and recycling of C, D & E wastes in preference to disposal. The client also generally will have a Duty of Care under the legislation, with a responsibility to ensure that C, D & E wastes from his project are managed in accordance with all relevant statutory obligations, including for example, description of the wastes, transfer to authorised persons, registered carriers, and treatment and disposal at licensed facilities, unless an exemption has been issued by EHS for the specific application.
- 10.58 Specific initiatives that clients can consider, appropriate to the scale and nature of the project, include:
- Promotion of sustainable design initiatives, including low carbon design, and the use of recyclable materials and recycled products, through design and specification.
 - Introduction of control procedures to ensure the traceability of wastes removed from the site, including for example, contractual clauses requiring proof of evidence for treatment/disposal at licensed waste facilities before payment.
 - Consider 'quality/environmental' criteria in the appointment of contractors, taking into account performance and practice.
 - Ensure that the costs of waste management are properly reflected in project budgets and tender submissions, so that there is no hidden 'incentive' for perverse behaviour in the disposal or treatment of wastes.

Industry Professionals

- 10.59 A wide range of professional disciplines are involved in the construction industry. These include, for example, architects, engineers, landscape architects, quantity surveyors, cost consultants, project managers, procurement specialists, site supervisors and clerks of work. All bring their perspective, experience and expertise, and many, through their membership of professional institutions have a responsibility to promote Sustainable Development.
- 10.60 The advice given may not only influence the quantity, nature and management of C, D & E wastes, but through the design may also extend to the management of wastes post construction during the life of the building. One such example is the role of architects, kitchen designers and interior designers in providing the facilities for the segregation of wastes in the household or kitchen.
- 10.61 Industry professionals have a responsibility to advise clients on all aspects of the project within their area of competence, including on the management of wastes, through the incorporation of appropriate provisions in the design, specification and contractual arrangements. The priority from the design perspective is to minimise the creation of wastes in the first place, and then to maximise its re-use and recycling on-site and off-site.
- 10.62 Specific initiatives to be encouraged include, but are not limited to:
- The prevention of wastes through appropriate design and site layout, including balancing cut and fill as far as possible, and the use of standard sizes and components to minimise on-site wastage and offcuts.
 - Specification of recyclable and recycled materials. Further information can be found at:
 - <http://www.investmentbelfast.com/downloads/Good%20Practice%20Guide.pdf> and GreenSpec® <http://www.buildinggreen.com/menus/>
 - Working with clients and contractors in developing Site Waste Management Plans.
 - Promotion of 'Green Procurement' including the inclusion of appropriate quality and environmental criteria in assessing tenders.

Contractors /Sub-Contractors and Builders

- 10.63 Contractors have a limited opportunity to influence the quantities of waste that arise on a building or construction project. They can improve site practices, but many of the key decisions regarding site levels, demolition and choice of materials and layout have been taken at an earlier stage, often before a contractor is appointed. However, contractors have the critical influence on how those wastes are managed and their consequential environmental impact. The construction and building industries for example are perceived as having a poor track record in this regard, with the historical dumping of C, D & E wastes in many low lying bogland and wetland sites impacting on biodiversity.

- 10.64 This period of change that the industry is experiencing however also provides opportunities for those builders and contractors prepared to be innovative, and consider alternative materials, techniques and practices.
- 10.65 The introduction of Site Waste Management Plans (SWMPs) represents both a challenge and an opportunity in improving site waste management practices. Further guidance and datasheets can be found on this aspect from a number of sources, including:
- Department of Finance and Personnel SWMP
<http://www.cpdni.gov.uk/index/guidance-for-purchasers/sustainable-construction.htm>
 - The Small Environmental Guide for Construction Workers
http://www.sepa.org.uk/pdf/publications/leaflets/wastemin/env_guide_cons_workers.pdf
 - Carillion – Waste Management Tool Box Talk
<http://www.carillionplc.com/sustain-2001/>
- 10.66 Specific actions or initiatives to be considered, as appropriate, include:
- Adopt a proactive approach to Site Waste Management Plans (SWMPs), working with clients and professional advisors, to quantify the waste to be produced, and identify measures for its reduction and proposals for its management, storage, treatment and recycling during construction and after the development is operational.
 - Introduce 'chain of custody' documentation to ensure traceability of wastes, from site through to treatment or disposal at licensed sites, and make reasonable checks on its accuracy.
 - Introduction of an Environmental Management System (EMS), based on a cycle of continuous improvement, to ensure that all significant environmental aspects of the organisation's activities, including waste management, are identified, documented, improved upon over time.
 - Consideration of alternative materials and/or techniques to those specified where environmental benefits or resource efficiencies can be identified, and which may provide a competitive advantage, in terms of either quality or cost.
 - Work with other players in the sector, to develop sustainable markets for the re-use or the application of recycled C, D & E wastes.
 - Initiate a management programme to monitor waste generation characteristics on an ongoing basis and across projects. To include data on the number of skips used, and timing, over the project's duration, for comparison against pre-tender estimates, to identify areas of weakness and opportunities for tighter control and improvement, contributing to profitability.

- 10.67 Data on C, D & E wastes is sparse, and needs to be improved. Organisations have a responsibility to take part in surveys, returning questionnaires and providing accurate and reliable data, as the information is of benefit to the industry, allowing its performance to be benchmarked against other areas, identifying areas or issues to be addressed, and informing future policy development.

CONSTRUCTION AND DEMOLITION WASTE - SUMMARY OF KEY FACTS AND ACTIONS**Targets**

The Northern Ireland Waste Management Strategy sets the following targets for C, D & E waste:

- 75% of C, D & E wastes to be recycled or reused by 2020.
- A minimum of 10% of the materials value of public sector construction projects should derive from recycled or reused content.

The Aggregates Credit Levy Scheme sets the following targets:

- 5% of aggregates produced from recycled C, D & E waste rather than using virgin materials by 2011

Waste Arisings

Up to date C, D & E waste arisings is limited. It is estimated that C, D & E waste arisings were in the range of 2.5 to 3.75 million tonnes per year in Northern Ireland (equating to approximately 900,000 tonnes in the SWaMP Region).

Measures and Actions***Government***

- Set the framework to encourage and facilitate a more resource efficient management of C, D & E wastes
- EHS to ensure effective regulation and enforcement.
- Planning Service to work with District Councils in scrutinising planning applications and encourage uptake of a voluntary questionnaire which seeks to ensure waste efficiency and influence projects at an early planning stage.
- EHS to continue with waste surveys to ensure accurate data for the facilitation of better planning.

Clients and Project Sponsors

- Fulfil obligations under Duty of Care
- Promotion of sustainable design initiatives
- Introduction of control procedures to ensure the traceability of wastes removed from sites.
- Consideration of quality/environmental criteria in the appointment of contractors
- Ensure costs are properly reflected in project budget and tender submissions.

Industry Professionals

- Responsibility to advise clients on all aspects of the project within their area of competence, through appropriate provisions in the design, specifications and contractual arrangements.

Contractors and Sub-Contractors

- Adopt a proactive approach to Site Waste Management Plans.
- Introduce "chain of custody" documentation to ensure traceability of wastes
- Introduce Environmental Management Systems based on a cycle of continuous improvement
- Consider alternative materials and/or techniques where environmental or resource efficiencies can be identified.
- Work with other sectors to develop sustainable markets for the reuse or application of recycled wastes
- Integrate a management programme to monitor waste generation characteristics on an on-going basis.
- Take part in waste surveys, returning questionnaires and providing accurate and reliable data.

11.0 AGRICULTURAL WASTE

INTRODUCTION

- 11.1 Traditionally agricultural waste has been excluded from the waste management controls which apply to "controlled wastes", as defined under the Waste and Contaminated Land (Northern Ireland) Order 1997. Recognising that this approach is inconsistent with the requirements of the Waste Framework Directive, Regulations will be introduced by the Department of the Environment, the effect of which will be to extend to the farming industry the waste management controls which currently apply to other sectors of industry.
- 11.2 Historically, most agricultural waste has been disposed of on-farm by open burning, by burial or by disposal in "farm dumps", practices which have the potential to cause pollution and harm. Such practices are set to change under the forthcoming regulatory regime, requiring the agricultural industry to change many traditional approaches to its management of wastes.
- 11.3 The purpose of this Chapter is to outline the anticipated regulatory framework, quantify the volumes of waste that will fall within the scope of the Regulations, and to identify measures for the management of these wastes within the Region.
- 11.4 The information provided in this Chapter does not constitute legal advice, and has been prepared solely for the purposes of the Waste Management Plan. It is also subject to change as Regulations are introduced and Guidance published. Appropriate legal advice should be sought therefore in relation to any statutory duties or responsibilities.

DEFINITIONS

- 11.5 For the purposes of this Waste Management Plan, the assumed definition of agricultural waste is:
- "waste from premises used for agriculture within the meaning of the Agriculture Act (NI) 1949."*
- 11.6 The Agriculture Act (NI) 1947 defines "agriculture" as including:
- "...horticulture, fruit growing, seed growing, dairy farming and livestock breeding and keeping, the use of land as grazing land, meadow land, osier land, market gardens and nursery grounds, and the use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes..."*

- 11.7 Under the Waste and Contaminated Land (NI) Order 1997, waste is '*any substance or object...which the holder discards or intends or is required to discard*'. There is not a definitive list of what is a waste in the agricultural context, but it will include a range of wastes such as, for example, silage wrap, packaging (fertiliser bags and pesticide containers) net wrap, veterinary waste, tyres, waste oils and redundant machinery, which are discarded after use.
- 11.8 In this context, farmyard manure, slurry and effluent is not classified as a controlled waste under certain circumstances when:
- it is used as a soil fertiliser and:
 - (i) that use is part of a lawful practice of spreading; and
 - (ii) the spreading takes place on clearly identified parcels of land; and
 - Its storage is limited to the needs of those spreading operations.
- 11.9 For the purposes of this Waste Management Plan therefore, it is assumed that farmyard manures and slurries fall outside the controlled waste framework. However, the management practices associated with these materials will be subject to other controls under the Water Framework Directive, Groundwater Directive, Nitrates Directive, and the associated regulations and programmes in Northern Ireland, including the joint DARD/DOE Nitrates and Phosphate Action.
- 11.10 It should be noted that the application to land of these organic materials must follow good agricultural practice, otherwise the material will be classified as waste where:
- The amount application to land is excessive (ie Beyond good agricultural practice and the requirements of the Nitrates Action Programme);
 - The material is mixed with other controlled waste before spreading.

MANAGEMENT AND CONTROL

- 11.11 Currently, the management of agricultural waste in Northern Ireland is not covered by legislation. However, the Waste Management (NI) Regulations 2006 are due to be implemented during 2006, which will bring agricultural waste within the controlled waste framework, and it into line with the legal controls on other sectors.
- 11.12 Key features of these Regulations will include:
- A legal duty on producers of agricultural waste to ensure that they do not treat, keep, or dispose of agricultural waste in a manner likely to cause pollution to the environment or harm to human health.
 - A ban on the unregulated burning or burial or deposit of waste.
 - Controls on farm dumps, to comply with the Landfill Directive.

- Introduction of the Duty of Care” and Waste Transfer Notes.

11.13 The main roles and responsibilities for the management of agricultural waste are summarised in Table 11.1.

Table 11.1 Summary of Main Roles and Responsibilities

Element	Responsibility
Implementation and enforcement of the Regulations	Environment and Heritage Service
Publication of Guidance on the Regulations, including exemptions	Department of Agriculture and Rural Development Environment and Heritage Service
Development of Waste Collection Systems for Agricultural Wastes as appropriate	Waste Management Sector
Plan for the management of agricultural wastes within the controlled waste framework – changing historical practices, as appropriate	Agricultural Industry

WASTE QUANTITIES AND COMPOSITION

- 11.14 Data on agricultural wastes in Northern Ireland is sparse, but based on a UK wide survey conducted by Environment Agency in 2003, non-organic agricultural wastes in Northern Ireland were estimated to be in the region of 41,000 tonnes in 1998. (In conjunction with the Department of Agriculture & Rural Development, EHS are currently carrying out a survey to provide improved information on agricultural waste arisings and management in order to provide better data for future management of these wastes).
- 11.15 The quantities of waste broken down into categories are summarised in Table 11.2. These quantities exclude the farmyard manures and slurries that are not within the scope of the controlled waste framework. The quantities of these manures and slurries have been estimated to be of the order of 15 million tonnes per annum from housed livestock. This figure does not include any allowance for un-housed animals, whose excreta are deposited directly onto land while at pasture. This is estimated to be of the order of a further 7 -10 million tonnes per annum applied directly to land.

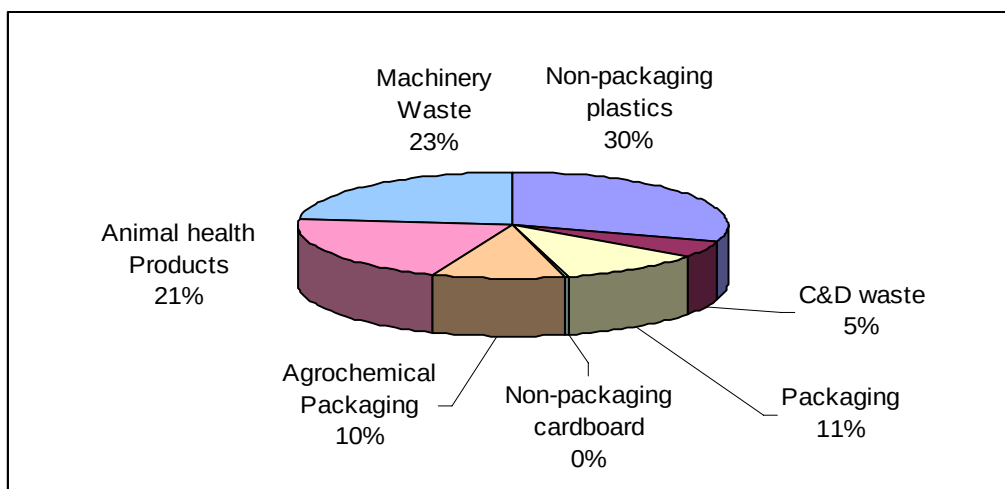
Table 11.2 Agricultural Waste Quantities by Category

Waste	Quantity (tonnes)
Packaging	4,592
Non-Packaging plastics	11,199
Non-packaging cardboard	118
Agrochemical packaging	4,189
Animal health products	8,365
Machinery waste	9,427
C&D waste	2,122
Total:	41,000

Note: Data refers to the year 1998

Waste Composition

11.16 The composition of agricultural waste by category in Northern Ireland is shown in Figure 11.1.

Figure 11.1 Agricultural Waste Composition by Category

11.17 This graph excludes farmyard manures and slurries, but highlights the wide variety of waste materials produced by this sector, from veterinary products to redundant machinery, and from construction and demolition type waste to packaging waste.

CURRENT ARRANGEMENTS FOR THE MANAGEMENT OF AGRICULTURAL WASTE

11.18 Historically, research shows that most agricultural wastes have been disposed off on-farm by open burning, by burial, or by disposal in 'farm dumps'. DEFRA describes a farm dump as:

'.....any location on a farm that has been used to dispose or get rid of wastes or unwanted materials. It can be a hole in the ground - old quarries, sink holes, borrow pits, embankments, depressions in fields or ponds – or, on the surface – in woodlands, along river banks or in the corner of a field. A single deposit of waste can constitute a dump or tip.'

- 11.19 These traditional practices are set to change with the introduction of the pending Waste Management Regulations (NI) 2006, which will make agricultural waste a controlled waste. These are described further below.

PROPOSED ARRANGEMENTS FOR THE MANAGEMENT OF AGRICULTURAL WASTE

- 11.20 As noted above, the Waste Management (NI) Regulations 2006 are due to be implemented during 2006 which will bring waste arising from the agricultural sector in line with the legal controls on the management of households, commercial & industrial and construction waste (collectively classified as Controlled waste).
- 11.21 From the point in time that the Regulations apply it appears that the following controls will come into force with immediate effect:
- Controls necessary to comply with the Landfill Directive, which will apply to farm dumps.
 - Duty of care and waste transfer notes.
 - Disposal of waste in a manner likely to cause pollution of the environment or harm to human health – i.e. unregulated burning or burial or deposit of waste will not be permitted.
- 11.22 The result of these Regulations will be that the operation of farm dumps without a licence will be illegal. Consequently, as obtaining a waste licence is likely to be very expensive and impractical for most farmers, alternative disposal routes will be required.
- 11.23 The Duty of Care requires farmers to take reasonable steps to ensure that their waste is not illegally managed. This means transferring the waste only to an authorised person/registered carrier, and that the waste is adequately described to enable its proper handling and treatment.
- 11.24 In summary, farmers will be able to store their waste on site for up to 12 months; take their waste to an appropriately licensed waste management site; transfer their waste to someone else who is legally authorised to carry waste as a registered carrier, for recovery or disposal off farm; register a licence exemption with EHS to undertake some waste management activities on the farm. In practice, agricultural waste will be managed using a combination of these options.

- 11.25 The quantities of agricultural waste are relatively small, estimated to be of the order of 41,000 tonnes per annum. This has to be seen in the context of municipal waste arisings of approximately 1 million tonnes per annum, and commercial and industrial waste arisings of nearly .75 million tonnes per annum. The waste are also varied, with some being categorised for example, as Construction and Demolition wastes, some as veterinary wastes, which will have a hazardous component, and some as packaging wastes. A quantity will also be managed on-farm under a registered exemption.
- 11.26 Given this diversity in character, and the relatively small quantities involved, it is not anticipated that there will be any additional infrastructure requirements, that cannot be accommodated within the proposed arrangements for other waste streams, including commercial and industrial, municipal, hazardous and packaging wastes.
- 11.27 A key issue however, will be the need to ensure that all areas, particularly remote rural areas are sufficiently catered for, in terms of adequate waste collection and transfer services.
- 11.28 Storage areas may also be required on farms, with protection for the surrounding environment from contamination by the wastes, including pollution from run off.
- 11.29 Although farmyard manures and slurries are not controlled wastes, there is the potential for these materials, given the significant quantities and increasingly stringent restrictions on landspreading and storage, to be used for energy recovery.
- 11.30 Recommendations in this regard have been made by the Expert Group for Alternative Uses of Manures (EGAUM), chaired by the Department for Agriculture and Rural Development. EGAUM have examined alternative uses for animal manures, in parallel with the discussions between Environment and Agriculture officials and the European Commission in relation to the Nitrates Directive Action Programme.
- 11.31 EGAUM have recognised that the agricultural sector has undergone a period of significant change over recent years. The predicted quantities of agricultural waste have decreased and this will therefore impact on the capacity requirements for treating this waste stream. EGAUM have examined proven technologies currently being used in other countries and has concluded that there is an important role for anaerobic digestion/combined heat and power (AD/CHP) plants for the intensive dairy and pig industries, and a litter fired generator for the poultry sector. There are also potential synergies with the agri-food processing sector.

- 11.32 The size of AD/CHP plants vary and are determined by commercial considerations. Typical scales are of the order of 60,000 to 150,000 tonnes per annum, but large plants process up to 500,000 tonnes per annum. It is estimated that 4 or 5 AD/CHP plants situated throughout Northern Ireland, would address the needs of the dairy and pig industries. On that basis 2 – 3 such plants within the SWaMP Region is considered appropriate, with potential indicative locations including the areas around Cookstown, Dungannon, Armagh and Craigavon or Newry, with actual locations to be determined by market demand and resource availability.
- 11.33 The AD/CHP plants would be used in conjunction with on-farm separators which would de-water animal slurry and, therefore reduce transport costs to an AD/CHP plant.
- 11.34 In respect of the poultry industry, a single poultry-litter fired generator, capable of handling 300,000 tonnes of input per annum and producing up to 25MW of power, has been identified as appropriate to meet the needs of the industry, with Cookstown indicated as a potentially suitable location.

MEASURES AND ACTIONS

- 11.35 The agricultural sector is set for a significant change in its traditional approach to the management of agricultural wastes, with the introduction of the Waste Management (NI) Regulations 2006. Under these Regulations, agricultural waste will become a controlled waste, subject to the same control as other in the commercial and industrial sectors. In this period of transition and change, it is important that key stakeholders recognise their roles and responsibilities. This section sets out the key actions required, by stakeholder group, as follows:
- Government - Department of Agriculture and Rural Development (DARD), and Department of the Environment (DoE)
 - The Agricultural Industry
 - Waste Management Sector

Government – DARD and DoE

- 11.36 DARD and DoE have particular responsibilities in working with the agricultural sector in implementing the Regulations, and providing support and guidance through the transition period, as the sector copes with the impact on its traditional practices. It is in this context that the specific actions outlined below have been identified in the Waste Management Plan.
- 11.37 DoE and Environment and Heritage Service to implement and enforce the Regulations in a timely and appropriate manner, giving advance information and publicising their introduction.

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- 11.38 EHS, in association with DARD, to develop and publish Guidance Notes on the Regulations during a 12 month transitional period, highlighting requirements for agricultural waste streams.
- 11.39 DARD to work with DoE and the agricultural sector in the introduction of the Regulations, providing support and advice to the agricultural sector, as appropriate.
- 11.40 DARD to work, on a Northern Ireland basis, with the agricultural sector, and other stakeholders, in:
- developing capacity for energy recovery through anaerobic digestion plants, with combined heat and power (CHP) of manures and slurries, and a poultry-litter fired generator; and
 - identifying synergies with the agri-food sector to maximise the resource value of the waste materials.
- 11.41 DARD and DoE to investigate, with other stakeholders, the introduction of a farm plastics recovery scheme, appropriate to the requirements of the agricultural industry in Northern Ireland.

Agricultural Industry

- 11.42 Given the implications of agricultural wastes becoming a controlled waste, become familiar with the requirements of and comply with the Waste Management (NI) Regulations, 2006 following their implementation.
- 11.43 Implement best practice measures, as outlined in the published Guidance. This should include an emphasis on waste reduction, and increased recycling and recovery of agricultural wastes, in line with measures for other waste streams, including commercial and industrial, and packaging wastes.
- 11.44 Consider the potential development of capacity within the sector to store and transport waste, as registered carriers, perhaps on a 'catchment' or hub type basis, given the unique characteristics of the sector, with the wide geographic distribution, the diversity of agricultural waste materials, and the relatively small quantities involved.
- 11.45 The agricultural sector, in association with the waste management sector/technology providers, to bring forward proposals for anaerobic digestion plants, with combined heat and power (CHP) for the treatment of manures and slurries, and agri-food processing wastes as appropriate; within the Region, and a poultry-litter fired generator.

Waste Management Sector

- 11.46 Develop and expand the range of services and facilities available to the agricultural sector for the collection, storage and treatment of agricultural wastes.
- 11.47 The waste management sector/technology providers to work with the agriculture sector to bring forward proposals for anaerobic digestion plants, with combined heat and power (CHP) for the treatment of manures and slurries, and agri-food processing wastes as appropriate; within the Region, and a poultry-litter fired generator.

AGRICULTURAL WASTE - SUMMARY OF KEY FACTS AND ACTIONS

Currently, the management of agricultural waste in Northern Ireland is not covered by legislation. However, the Waste Management (Northern Ireland) Regulations 2006 are due to be implemented during 2006, which will bring agricultural waste within the controlled waste framework.

Waste Arisings

Non organic agricultural wastes in Northern Ireland were estimated to be in the region of 41,000 tonnes in 1998. This quantity excludes farmyard manures and slurries which were estimated to be of the order of 15 million tonnes per annum for housed livestock. This figure does not include any allowance for un-housed animals, whose excreta are deposited directly onto land while at pasture. This is estimated to be in the order of a further 7 – 10 million tonnes per annum.

Measures and Actions***Government- DARD and DOE***

- DOE and EHS to implement and enforce the Regulations in a timely and appropriate manner, giving advance information and publicising their introduction.
- EHS, in association with DARD, to develop and publish Guidance Notes on the Regulations
- DARD to work with DOE and the introduction of the Regulations and provide guidance and support.
- DARD to work with the agricultural industry and other stakeholders in: developing capacity for energy recovery through combined heat and power of manures and slurries and identify synergies with the agri-food sector to maximise the resource value of the waste materials.
- DARD and DOE to investigate the introduction of a farm plastics recovery scheme.

Agricultural Industry

- Become familiar with the requirements of and comply with the Waste Management (NI) Regulations, 2006 following implementation.
- Implement Best Practice measures to include an emphasis on waste reduction and increased recycling and recovery in line with other wastes such as commercial and industrial and packaging wastes.
- Consider the potential development of capacity within the sector to store and transport waste
- In association with the waste management sector/technology providers, bring forward proposals for AD plants, with combined heat and power for the treatment of manures and slurries and agri-food processing waste as appropriate.

Waste Management Sector

- Develop and expand the range of services and facilities available to the agricultural sector for the collection, storage and treatment of agricultural wastes.
- Work with the agriculture sector to bring forward proposals for anaerobic digestion plants with combined heat and power for the treatment of manures and slurries and agri-food processing waste as appropriate.

12.0 PRIORITY AND OTHER WASTE STREAMS

INTRODUCTION

- 12.1 Several EC Directives were identified as 'Priority Waste Streams' in the European Union's Fifth Environment Action Programme because of growing concerns about their impact on the environment.
- 12.2 Priority Waste Streams have been identified on account of one more of the following: their volume, hazardous nature, potential for recycling, potential to create an economic benefit or the fact that legislation is changing the way in which these materials have traditionally been managed. The Priority Waste Streams include:
- Waste Electronic and Electrical Equipment (WEEE)
 - End of Life Vehicles (ELVs)
 - Tyres
 - Batteries
- 12.3 The Producer Responsibility policy underlies the approach to the implementation of these Directives. The aim of the Producer Responsibility approach is to achieve a more sustainable approach to resource use and a reduction in the overall quantity of waste disposed of to landfill, by diverting materials for reuse, recycling and other forms of recovery. Producer responsibility places the responsibility for the costs of collection, sorting and treatment and recycling and recovery on the producers and promotes the concept of supply chain management.
- 12.4 This Chapter therefore sets out the measures for the management of each of these waste streams within the Region in order to ensure compliance with legislation and policy and ensure that each of these waste streams are managed in a compliant and sustainable manner.
- 12.5 In addition to the priority waste streams, the chapter considers the measures for the management of a number of other waste streams namely:
- Sewage sludge
 - Healthcare wastes

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

- 12.6 Waste Electrical and Electronic Equipment (WEEE) is cited in EC Directive 75/442/EEC as including 'all components, sub-assemblies and consumables which are part of the product at the time of discarding'. The WEEE Directive segregates WEEE into ten categories namely: large household appliances, small household appliances, IT and telecommunications equipment, consumer equipment, lighting equipment, electrical and electronic tools, toys, leisure and sports equipment, medical devices, monitoring and control instruments and automatic dispensers.
- 12.7 The waste stream is managed through the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC, which aims to implement the producer responsibility for WEEE through the reduction of waste from Electrical and Electronic Equipment (EEE), increasing the recycling and recovery of EEE through segregated collections and improving the environmental performance of all operators involved in the lifecycle of EEE. In addition to the WEEE Directive, the Restriction of Hazardous Substances (RoHS) Directive (2002/95/EC) aims to regulate the environmental impact of EEE when it reaches its end life through the minimisation of the use of hazardous substances in these appliances.
- 12.8 The WEEE Directive has introduced a number of targets for this waste stream:
- Producers to introduce separate collection systems for household WEEE to meet a minimum collection target of 4Kg of WEEE per person per year by 31 December 2006.
 - The recovery targets for 2006 for separately collected WEEE are set between 50% and 80%, although this is dependant on the product category.
 - Future targets for the recovery of WEEE are expected to be set by 31 December 2006.
- 12.9 In terms of arisings, the total WEEE arisings for 2001 in Northern Ireland were estimated to be in the range of 25,000 to 30,000 tonnes per annum, equivalent to 14.4 to 17.7 kg per person (Waste Electrical and Electronic Equipment (WEEE) Survey, EHS, 2001. Of these arisings, it is estimated that approximately 9,500 tonnes of WEEE was in the municipal waste stream collected by District Councils.

- 12.10 An EHS Pilot Study (Waste Electrical and Electronic Equipment Pilot Scheme Report, EHS, May 2005) was initiated in June 2004 to determine and analyse household WEEE arisings at both an urban and a rural recycling centre. WEEE was separated into four categories white goods, fridges and freezers, WEEE containing cathode ray tubes and small WEEE. Based on this study, the annual collection rate has been estimated to be in the range of 3.8Kg to 11.9Kg per person. On that basis, the estimated annual household WEEE arisings in Northern Ireland is estimated to be in the range of 6,500 tonnes to 20,000 tonnes. The WEEE hazardous waste component of this (in the form of fridge/freezers and cathode ray tubes) are estimated to represent around 40% of the WEEE arisings (excluding Commercial and Industrial WEEE arisings).
- 12.11 Within the SWaMP Region, based on population statistics, these arisings would equate to between 1,700 tonnes and 5,300 tonnes.
- 12.12 It has been estimated that the volumes of WEEE are increasing at a rate of between 3% and 5% per year (Industry Council for Electronic Equipment Recycling Interim Report, 2005). On this basis, the estimated quantities of this waste stream for 2020 are between 44,000-75,000 tonnes. Based on current available data, the infrastructure capacity requirements to deal with household and commercial WEEE is currently estimated to be in the region of 30,000 tonnes per annum.
- 12.13 There are currently a number of management routes for components of WEEE that are separately collected by District Councils at civic amenity sites and also, in the case of business and industry, by registered waste contractors. These include:
- The collection of white goods for recycling and shredding locally.
 - Fluorescent tubes are collected for recycled locally.
 - Small WEEE is collected, bulked up and shipped to GB for recycling.
 - Cathode Ray Tubes (television and computer monitors) are collected, bulked up and shipped to GB for recycling.
 - Domestic fridges and freezers are collected by District Councils and shipped to GB for treatment through a central contract operated by DOE. Commercial units are also exported to GB.
- 12.14 The roles and responsibilities for the management of WEEE are presented in Table 12.1.

Table 12.1 Roles and Responsibilities for the Management of WEEE

Sector	Roles and Responsibilities
Producers and Importers	- Register as a producer/importer with EHS. - Provide data on WEEE as required. - Provide collection points and treatment/recycling facilities. - Ensure the costs of collection, treatment, recovery and disposal are met. - Provide evidence that WEEE is treated at an authorised site and target recovery rates have been met.
Retailers/Distributors	- Provide free in-store collection of WEEE on sale of new “like for like” equipment or provide alternative arrangements via compliance schemes or local waste service providers. - Ensure customers are informed of the WEEE take back facilities available to them. Encourage consumer participation in the separate collection of WEEE.
Compliance Schemes	- Register with EHS. - Provide data returns as required.
Central Government	- Register all obligated producers, importers and compliance schemes. - Carry out regulation and enforcement activities. - Provide NI data returns as input to UK figures as required. - Stakeholder education and awareness initiatives.
District Councils	- The British Retail Consortium is consulting with District Councils on the registration of household recycling centres as Designated Collection Facilities for WEEE. These would form part of the adequate collection network that retailers must provide. - Follow WEEE Producer Responsibility requirements.
Waste Management Sector	Develop and operate WEEE collection and recycling schemes.
EEE Users	- Do not deposit WEEE items in household bins for disposal. - Participate in WEEE collection schemes. - Exercise purchasing decisions by choosing resource efficient products. - Commercial users should endeavour, where possible, to include take back as part of their contracts with electrical and electronic equipment suppliers.

Source: Northern Ireland Waste Management Strategy: Towards Resource Management, 2006

END OF LIFE VEHICLES (ELVs)

- 12.15 There are two broad categories of End of Life Vehicles (ELVs): relatively new cars which result from accident write-offs, known as premature ELVs and cars which have reached the end of their life naturally or natural ELVs.
- 12.16 Management and control of ELVs is provided through the End of Life Vehicles Directive (2000/53/EC) and implemented in Northern Ireland through the End of Life Vehicles (Producer Responsibility) Regulations, 2005. The Directive aims to reduce the amount of waste arising and increase the recovery and recycling of materials from ELVs. The Directive also introduces measures to further protect the environment by restricting the use of hazardous substances in vehicles and setting minimum standards for facilities that store, treat or dismantle ELVs.
- 12.17 The End of Life Vehicles Directive has introduced a number of key dates and targets for this waste stream:
- By 2006, vehicle producers must plan and establish an adequate network of Authorised Treatment Facilities (ATFs) and collection points to take back their own brand of vehicles.
 - From 1st January 2007, vehicle producers must provide free take back of their own brand ELVs when the last owner presents a vehicle at one of their designated collection points.
 - From 2006 up to 2014, each producer must achieve 85% reuse and recovery of ELVs (80% to be achieved by reuse and recycling).
 - From 2015 onwards, each producer must achieve 95% reuse and recovery of ELVs (85% to be achieved by reuse and recycling).
 - For vehicles that were marked before 1 January 1980, the targets are 75% reuse and recovery (70% to be achieved by reuse and recycling).
- 12.18 The estimated total number of ELVs arising in Northern Ireland for 2000 was 69,800 vehicles, equating to 56,900 tonnes of ELV material (EHS End of Life Vehicles Survey, 2000). Of these, 69,800 vehicles, 11.3% were premature, 4.1% were abandoned natural old ELVs and 84% were non-abandoned natural ELVs.
- 12.19 Within the SWaMP Region therefore, based on population statistics, there are approximately 18,500 vehicles equating to approximately 15,100 tonnes of ELV material.
- 12.20 The main management routes for ELVs are as follows:
- Dismantling- dismantling companies remove valuable parts and components and depollute vehicles (e.g. remove oils and fluids). Some dismantlers may also crush ELVs prior to transfer to shredding facilities.

- Shredding- shredding facilities tend to be large, capital intensive operations and produce 70% shredded steel for onward recycling in the steel industry. Some non-metallic materials (e.g. rubber, plastics) may also be segregated for recycling. About 25% is lightweight shredder fluff which is usually landfilled.
- Disposal- ELVs may be stockpiled or illegally burned or deposited on land.

12.21 The EHS ELV survey for Northern Ireland, 2000, reported the following data on the fate of the ELV materials in Northern Ireland:

- 31,200 tonnes of metal was recovered at the main ELV shredder facility in Belfast
- 8,800 tonnes of non-metallic shredder waste was landfilled and
- 2,664 tonnes of material was recovered at dismantlers and scrap yards.

12.22 Future management of this waste stream will require the provision of an adequate network of ATFs and collection points. The following has been decided with regard to accessibility to these facilities:

A Producers Plan must indicate the number and geographical location of ATFs and other collection points in their network, and the plan must meet the criterion that 75% of last owners or holders of the ELVs for which that producer has responsibility are within 10 miles, on average, of the point of delivery of ELVs into the producers network. The 75% requirement applies separately to England, Scotland, Wales and Northern Ireland.

Source: Northern Ireland Waste Management Strategy: Towards Resource Management, 2006.

12.23 The roles and responsibilities for the management of ELVs are presented in Table 12.2.

Table 12.2 Roles and Responsibilities for the Management of ELVs

Sector	Roles and Responsibilities
Vehicle Producers – Manufacturers and Importers	- Comply with ELV Regulations and provide data returns as required. - Provide an adequate network of ATFs and collection points. - Design new vehicles to take account of the dismantling, reuse, recovery and recycling of end of use vehicles, their components and materials. - Use more recycled materials in vehicle manufacture to develop and stimulate markets for recycled material. - Promote education and awareness among stakeholders.
Dismantlers / Treatment Facilities	- Comply with ELV and other relevant environmental regulations. - Issue certificate of destruction to last owner/holder of the vehicle. - Treat ELVs to reduce adverse environmental impacts, remove hazardous materials and treating polluting substances.
Central Government	- Carry out regulation and enforcement activities. - Collect data on ELV arisings and management routes. - Stakeholder education and awareness activities.
District Councils	- Waste management arrangements for abandoned vehicles. - Take account of producer networks for ELV collection and treatment in Waste Management Plans which cover all controlled waste streams.
General Public	Ensure ELVs are sent to authorised collection and/or treatment facilities.

Source: Northern Ireland Waste Management Strategy: Towards Resource Management, 2006-05-31

TYRES

12.24 Waste tyres can be divided into two different categories:

- Those which can be used for their original purpose as part worn or re-treaded tyres.
- Tyres which fail the technical examination to determine their suitability for re-use or retreading. Such tyres may have been rejected due to age or damage to the tyre carcass. While this tyre type is not suitable for re-use or re-treading there is potential for them to be recovered and used for alternative purposes.

- 12.25 Management of tyre wastes is primarily regulated by the Landfill Directive (99/31/EC), which prohibits the landfilling of whole and shredded tyres. In addition to the Landfill Directive, the following legislation also affects the management of the used tyre waste stream:
- EC Waste Incineration Directive 2000/76/EC, which implements emission controls
 - End of Life Vehicles Directive 2000/76/EC, which has proven to be a significant driver in the recovery and recycling of vehicle tyres
 - The Controlled Waste (Duty of Care) Regulations (Northern Ireland), 2002
 - Consumer Protection Act by The Motor Vehicle Tyres (Safety) Regulations, 1994
- 12.26 There are a number of targets and key management dates applicable to tyres. The Landfill Directive (99/31/EC) prohibited the landfilling of whole tyres from 2003 and shredded tyres from 2006 (excluding the use of used tyres for landfill engineering purposes).
- 12.27 The End of Life Vehicles Directive requires 85% recovery of an average vehicles weight of which 80% was to have been recycled by January 2006. As around 5% of the weight of an ELV is rubber, of which 3.5% comes from tyres, their recovery can play an important role in achieving the ELV targets. These targets are to increase to 95% recovery and 85% recycling in 2015.
- 12.28 The Northern Ireland Used Tyre Survey, 2000, carried out by EHS, estimated the total quantity of waste tyres produced annually in Northern Ireland to be 16,100 tonnes or 1,738,100 tyres. This survey estimated that used tyres arisings were predicted to increase at a rate of 1% to year. The resulting effect of this is that Northern Ireland is anticipated to have a tyres arising of approximately 19,600 tonnes.
- 12.29 Within the SWaMP Region, the Used Tyres Working Group in their Fifth Annual Report in 2001, stated that the amount of tyres being produced can be estimated based on arisings per capita for the SWaMP Region at 3,215 tonnes per year in 2001, although there are concerns that the methods of disposal outlined in this report may not be suitable for Northern Ireland. Using this figure as a basis therefore, the current tyre arisings in the SWaMP Region are estimated to be approximately 3,400 tonnes:
- 12.30 In terms of management, there are several different management routes available for used tyres:

Re-Use

- 12.31 The term re-use covers all tyres which are ultimately returned to their originally intended use on the road and applies to both part-worn tyres, where tyres with useful life can be refitted to vehicles, and retreaded tyres. The retreading market in Northern Ireland has been steady for some years, but is not used to its full potential, partially due to a lack of consumer confidence in the quality of the product.

Recycling

- 12.32 Used tyres can be processed into rubber shred and crumb. There are a variety of uses for this secondary material, including carpet under lay and surfacing for children's play areas. Tyres can also be used whole for other purposes than that for which they were originally intended, for example whole tyres can be used on farms and as sea defences.

Recovery

- 12.33 In the UK energy recovery from tyres via co-incineration have been used in the cement making industry.

Disposal

- 12.34 Landfill disposal has been the traditional practice for tyre disposal but has been banned for tyres under the Landfill Directive (99/31/EC). Some tyres are stockpiled, illegally dumped and burned.
- 12.35 In terms of future management, the Waste Management Industry are encouraged to further develop local collection and reprocessing infrastructure within Northern Ireland, utilising relevant business support and funding available (e.g. Invest NI, WRAP, EU Structural Funds).
- 12.36 The roles and responsibilities for the management of tyres are presented in Table 12.3.

Table 12.3 Roles and Responsibilities for Management of Tyres

Sector	Roles and Responsibilities
Motor Industry	- Comply with legislation - Implement initiatives for waste prevention - Implement initiatives for reuse and recycling of materials - Develop more resource efficient and competitive products and processes - Provide accurate data on waste management - Promote education and awareness among stakeholders
Central Government	- Carry out regulation and enforcement activities - Collect data on waste arisings and management routes - Stakeholder education and awareness activities
Waste Management Sector	- Develop and operate used tyre collection and recycling services - Respond to recycling and recovery market opportunities - Provide data on used tyre arisings and management routes as required - Support stakeholder education and awareness activities

Source: Northern Ireland Waste Management Strategy: Towards Resource Management

BATTERIES

12.37 Batteries are varied and complex, come in different shapes and types and are consequently very difficult to sort and recycle. They can be classified under three different types:

- Industrial batteries are those used for standby power (e.g. emergency lighting, computer backup) or traction (e.g. electrical vehicles) and many are lead acid or NiCad.
- Automotive industrial batteries are almost exclusively lead acid type batteries.
- Consumer batteries are mainly small alkaline batteries of the type commonly used in mobile phones and personal stereos. These may be rechargeable, non-rechargeable or button cell.

12.38 Management and control of spent batteries is covered by various legislation but is primarily controlled by the EU Directive on Batteries and Accumulators (91/157/EEC). The initial Directive was amended in 1998 in order to adapt the original to technical progress (98/101/EC). A further EU Directive (93/86/EEC) requires the marking of button cells or batteries made of button cells. Other Regulations which effect the management and control of this waste stream are:

- The Hazardous Waste Regulations (Northern Ireland), 2005

- The Landfill Directive Waste Acceptance Criteria (WAC), banning co-disposal of hazardous waste. All hazardous waste now requires treatment before disposal to landfill.
- The EC Directive of End of Life Vehicles
- The Waste Electrical and Electronic Equipment (WEEE) Directive, 2002.

12.39 The targets that apply to spent batteries come from the EU Batteries Directive, due to be implemented in mid 2006. EU member states will have two years to implement the Directive following adoption. The proposed targets are:

- Collection targets for spent portable batteries of 25% of average annual sales 4 years after the Directive is implemented, increasing to 45% after 8 years.
- 50-75% of collected batteries to be recycled depending on battery types.
- Ban on the disposal of untreated automotive or industrial batteries in landfill or incineration.
- A partial ban on portable NiCd batteries with some limited exceptions e.g. medical equipment.

12.40 In terms of arisings, there have not been any surveys directly estimating waste battery arisings within Northern Ireland. However, in the UK in 2001, it is known that approximately 680 million batteries were bought, most of which (89%) were general purpose batteries (Battery Waste Arisings and Recycling Rates, Department of Trade and Industry Factsheet, 2001). UK data estimates that the annual rate of consumer battery arisings is 0.3Kg per person, which would translate into a Northern Ireland figure of 550 tonnes per year.

12.41 For SWaMP therefore, based on an approximate population of 449,179 this would equate to approximately 135 tonnes of batteries per year.

12.42 In terms of management, there are a number of potential collection and recycling routes for batteries. The collection and recovery depends on the type of battery:

- **Consumer/Household Batteries:** These batteries can also be collected through civic amenity sites, bring banks and some retailers and manufacturers, where they are brought by the public or businesses. Collections are also carried out from schools and businesses. Kerbside collection of certain spent battery types is presently been trialed in two District Councils (Armagh and Banbridge) in Northern Ireland through the Waste and Resource Action Programme (WRAP). The toxic materials have now been removed from most ordinary (non-rechargeable) consumer/household batteries and they are safe to dispose of with normal household waste. Rechargeable batteries, or nickel cadmium batteries, do still contain hazardous metals and should be returned to the manufacturer or participating bring and civic amenity sites where possible.

- **Automotive Batteries**, Spent automotive lead acid batteries and most industrial battery types are deemed as hazardous waste, as are a small proportion of portable batteries. This can lead to problems in terms of collection and disposal as these batteries are not allowed to be disposed of within the main waste stream and must be treated, transported, recovered or disposed of inline with the hazardous waste regulations. These batteries are collected at garages, scrap metal facilities and many civic amenity and recycling centres.
- **Industrial Batteries**, Due to their hazardous nature the batteries are collected by specialist hazardous waste contractors.

12.43 In terms of future management, there is a need for all stakeholders to work together to assess the implications of the forthcoming Batteries Directive. As a result of this, the key infrastructural requirements include systems for the source segregated collection of batteries from households, schools and commercial premises as well as facilities for the bulking, sorting, storage, treatment and reprocessing of battery waste arisings. The required management systems are further discussed in Chapter 9: Hazardous Waste.

12.44 The roles and responsibilities for the management of waste batteries are presented in Table 12.4.

Table 12.4 Roles and Responsibilities for the Management of Batteries

Sector	Roles and Responsibilities
Business and Industry	▪ Comply with legislation ▪ Implement initiatives for waste prevention and reuse e.g. use rechargeable batteries ▪ Implement initiatives for recycling of materials e.g. source segregate batteries for separate collection. ▪ Develop more resource efficient and competitive products and processes
General Public	▪ Minimise waste, e.g. use rechargeable batteries, purchase more resource efficient products ▪ Use facilities provided by District Councils and other service providers for separate collection of batteries
Waste Management Sector	▪ Develop and operate used battery collection and recycling services ▪ Respond to recycling and recovery market opportunities ▪ Provide data on used battery arisings and management routes as required ▪ Promote education and awareness among stakeholders

Source: Northern Ireland Waste Management Strategy: Towards Resource Management

SEWAGE SLUDGE

- 12.45 Sewage sludge is the residual sludge from wastewater treatment plants, produced from the treatment of domestic or urban wastewaters and from other sewage plants treating wastewaters of a composition similar to domestic and urban wastewaters. This waste stream also encompasses the residual sludge from septic tanks and other similar installations for the treatment of sewage.
- 12.46 Responsibility for the management and control of sewage sludge falls with Department for Regional Development (DRD) Water Service. Water Service has overall responsibility for the operation and maintenance of Northern Ireland's sewage systems and wastewater treatment works, including the management of the sewage sludge produced.
- 12.47 Management and control of sewage sludge is provided by the legislative framework, primarily under the EU Urban Waste Water Treatment Directive, implemented in Northern Ireland under the Urban Waste Water Treatment Regulations (Northern Ireland), 1995 and subsequent amendment. The aim of this legislation is to impose requirements for collection systems for treated urban wastewater and to make provisions with regard to discharges of industrial wastewater and the dumping of sludge from ships. Other legislation relating to the management of sewage sludge are the Sludge (Use in Agriculture) Regulations (Northern Ireland), 1990. These Regulations are responsible for regulating the spread of sewage sludge on land with the aim being to protect human and animal health and the environment.
- 12.48 Quantities of sewage sludge produced have been increasing incrementally between 1997 and 2005. This is largely due to the additional wastewater treatment capacity coming on stream to comply with the Urban Waste Water Directive. It is estimated that Northern Ireland currently produces around 35,000 tonnes of sewage sludge per year.
- 12.49 Of this tonnage, approximately 20,000 tonnes is treated by the existing incinerator in Belfast. The balance is dewatered to make a sludge cake, at typically 20% dry solids and disposed of to landfill. Inorganic ash from the incinerator is also disposed to landfill. This practice will continue until Water Service make new options available.
- 12.50 A new sludge treatment plant has been proposed with the capacity to process 32,000 tds/a of sewage sludge. The second facility, for which an environmental statement has been released in January 2003, is currently planned to be on stream by 2008, subject to completion of statutory procedures and the availability of funding. When built, Water Service will have the capacity to process all sewage sludge produced within Northern Ireland.

- 12.51 The roles and responsibilities for the management of sewage sludge are presented in Table 12.5.

Table 12.5 Roles and Responsibilities for the Management of Sewage Sludge

Sector	Roles and Responsibilities
DRD Water Service	- Operation and maintenance of sewage systems and wastewater treatment plants. - Collection, treatment and disposal of sewage sludge produced in a safe, sustainable and compliant manner.
Department of the Environment	- Ensure collection systems are provided for every agglomeration with a population equivalent of more than 15,000. - Monitor the discharges from urban wastewater treatment plants. - Monitor the amount and composition of the sludge disposed of in surface waters. - Monitor waters subject to discharges from treatment plants, where the receiving environment could be affected. - Monitor any other discharges. - Monitor disposal of sludge to surface waters. - Review sensitive areas or high natural dispersion areas and keep this information up to date via their website.

CLINICAL WASTES

- 12.52 Clinical waste is any controlled waste that arises from the treatment of humans and animals and is capable of causing infection or other harm. It includes all human and animal tissue, blood, surgical dressings, syringes, surgery implements, microbiological cultures, bodily waste as well as some pharmaceutical waste and chemical waste.
- 12.53 The two main sources of these wastes are hospitals and community healthcare, including nursing homes, health centres, veterinary surgeries, dental surgeries, GP surgeries, blood transfusion centres, health laboratories and teaching and research establishments.
- 12.54 Hospital waste in 2004/05 is based on the hospital bed capacity in the SWaMP Region of 1,842 beds. This is broken down to District Council level in Table 12.6.

Table 12.6 Average Beds Available by Healthcare Trust (2004/05)

SWaMP	
Healthcare Trust	Number of Beds
Armagh and Dungannon HSS Trust	360
Craigavon and Banbridge Community HSS Trust	80
Craigavon Area Hospital HSS Trust	632
Sperrin Lakeland HSS Trust	507
Newry and Mourne HSS Trust	263
SWaMP Total	1,842

Taken from: <http://www.publications.parliament.uk/pa/cm200506/cmhansrd/cm051020/text/51020w29.htm>

- 12.55 It is estimated by the Audit Commission (1997) that each bed produces approximately 500Kg of clinical waste per annum. However, not all of the beds are occupied all of the time. The hospitals in Northern Ireland had an average occupancy rate of 84% for 2004/05. In the SWaMP Region therefore, this equates to approximately 900 tonnes per annum.
- 12.56 It is estimated that the volume of community clinical waste produced in relation to hospital waste is 50% to 100% (IWM, 2000). This would result in a clinical waste production of between 450 and 900 tonnes per annum.
- 12.57 Therefore, clinical waste arisings in the Region from hospital and community healthcare facilities are estimated to be in the region of 1,350 to 1,800 tonnes per annum.
- 12.58 The management of clinical wastes is primarily controlled by the Hazardous Waste (Northern Ireland) Regulations, 2005.
- 12.59 Currently all clinical waste for the healthcare trusts within Northern Ireland are collected through Sterile Technologies International (STI).
- 12.60 There is presently only one treatment and incineration facility in Northern Ireland at Antrim Area Hospital. This facility processes around 78-80 tonnes of clinical waste (including sharps) per week. The facility also acts as a waste transfer facility for other pharmaceutical, anatomical and pathological wastes which are transferred to an incinerator in England.
- 12.61 The roles and responsibilities for the management of clinical waste are presented in Table 12.7.

Table 12.7 Roles and Responsibilities for the Management of Clinical Wastes

Sector	Roles and Responsibilities
Health Professionals	▪ Ensure clinical waste is kept separate from other waste streams. ▪ Store waste in appropriate containers in a safe place. ▪ Transfer waste to licensed hazardous waste contractors.
Waste Management Sector	▪ Ensure waste is treated and disposed in appropriately licensed facilities in accordance with legislative requirements.

PRIORITY AND OTHER WASTE STREAMS - SUMMARY OF KEY FACTS AND ACTIONS**WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT****Targets**

- Producers to introduce separate collection systems for household WEEE to meet a minimum collection target of 4kg of WEEE per person per year by 31st December 2006.
- The recovery targets for 2006 for separately collected WEEE are set between 50% and 80%, although this is dependant on the product category.
- Future targets for the recovery of WEEE are expected to be set by 31st December 2006.

Waste Arisings

The total WEEE arisings in Northern Ireland were estimated to be in the range of 25,000 – 30,000 (EHS Survey, 2001). A pilot study initiated in 2004 estimated the annual household arisings to be lower, between 6,500 and 20,000 tonnes.

Within the SWaMP Region, these arisings equate to between 1,700 tonnes and 5,300 tonnes.

Measures and Actions***Producers and Importers***

- Register with EHS and provide data as required.
- Provide collection points and treatment/recycling facilities and ensure costs are met.
- Provide evidence that WEEE is treated at an authorised site and target recovery rates are met.

Retailers/Distributors

- Provide free “in-store” collection of WEEE or alternative arrangements via compliance schemes or local waste service providers.
- Ensure customers are informed of WEEE take back facilities and encourage customer participation in the separate collection of WEEE.

Compliance Schemes

- Register with EHS and provide data returns as required.

Central Government

- Register all obligated producers, importers and compliance schemes
- Carry out regulation and enforcement activities
- Provide NI data returns as input to UK figures as required.
- Stakeholder education and awareness initiatives.

District Councils

- Work with British Retail Consortium on registration of household recycling centres as Designated Collection Facilities for WEEE.
- Follow WEEE Producer Responsibility requirements.

Waste Management Sector

- Develop and operate WEEE collection and recycling schemes

EEE Users

- Participate in WEEE collection schemes and refrain from placing WEEE in household bins
- Exercise careful purchasing decisions by choosing resource efficient products.
- Commercial users should endeavour where possible to include take back as part of their contracts with electrical and electronic equipment suppliers.

PRIORITY AND OTHER WASTE STREAMS - SUMMARY OF KEY FACTS AND ACTIONS**END OF LIFE VEHICLES****Targets**

- By 2006, vehicle producers must plan and establish an adequate network of authorised treatment facilities (ATFs) and collection points to take back their own brand of vehicles.
- From 1st January 2007, vehicle producers must provide free take back of their own ELVs at designated collection points.
- From 2006 to 2014, each producer must achieve 85% reuse and recovery.
- From 2015, each producer must achieve 95% reuse and recovery.
- For vehicles marked before 1st January 1980, the targets are 75% reuse and recovery.

Waste Arisings

The estimated amount of ELVs arising in Northern Ireland for 2000 was 69,800 vehicles equating to 56,900 tonnes of ELV material. Of these 69,800 vehicles, 11.3% were premature, 4.1% were abandoned natural old ELVs and 84% were non-abandoned natural ELVs.

Within the SWaMP Region, there are approximately 18,500 vehicles equating to approximately 15,100 tonnes of material.

Measures and Actions***Vehicle Producers- Manufacturers and Importers***

- Comply with ELV Regulations and provide data returns as required.
- Provide an adequate network of ATFs and collection points.
- Design new vehicles to take account of the dismantling, reuse, recovery and recycling of ELVs.
- Use more recycled materials in vehicle manufacture to develop and stimulate markets.
- Promote education and awareness among stakeholders.

Dismantlers/Treatment Facilities

- Comply with ELV and other Environmental Regulations
- Issue Certificate of Destruction to last keeper/owner of the vehicle.
- Treat ELVs to reduce adverse environmental impacts, remove hazardous materials and treat polluting substances.

Central Government

- Carry out regulation and enforcement activities.
- Collect data on ELV arisings and management routes.
- Stakeholder education and awareness activities.

District Councils

- Waste management arrangements for abandoned vehicles.
- Take account of producer networks for ELV collection and treatment in Waste Management Plans, which cover all controlled waste streams.

General Public

- Ensure ELVs are sent to authorised collection and/or treatment facilities.

PRIORITY AND OTHER WASTE STREAMS - SUMMARY OF KEY FACTS AND ACTIONS**TYRES****Targets**

The Landfill Directive (99/31/EC) prohibited the landfilling of whole tyres from 2003 and shredded tyres from 2006.

The End of Life Vehicles Directive requires 85% recovery of an average vehicles weight of which 80% was to have been recycled by January 2006. As around 5% of the weight of an ELV is rubber, of which 3.5% comes from tyres, their recovery can play an important role in achieving the ELV targets. These targets are to increase to 95% recovery and 85% recycling in 2015.

Waste Arisings

The Northern Ireland Used Tyre Survey, 2000, estimated the total quantity of wastes produced annually in Northern Ireland to be 16,100 tonnes or 1,738,100 tyres.

Within the SWaMP Region, the Used Tyres Working Group in 2001 stated that the amount of tyres being produced can be estimated based on arisings per capita of 3,215 tonnes per year in 2001, therefore the current arisings are estimated to be approximately 3,400 tonnes.

Measures and Actions***Motor Industry***

- Comply with legislation
- Implement initiatives for waste prevention, reuse and recycling of materials.
- Develop more resource efficient and competitive products and processes.
- Provide accurate data on waste management.
- Promote education and awareness among stakeholders.

Central Government

- Carry out regulation and enforcement activities
- Collect data on waste arisings and management routes.
- Stakeholder education and awareness activities

Waste Management Sector

- Develop and operate used tyre collection and recycling services
- Respond to recycling and recovery market opportunities
- Provide data on used tyre arisings and management routes as required.
- Support stakeholder education and awareness activities.

PRIORITY AND OTHER WASTE STREAMS - SUMMARY OF KEY FACTS AND ACTIONS**BATTERIES****Targets**

- Collection targets for spent portable batteries of 25% of average annual sales 4 years after the directive is implemented, increasing to 45% after 8 years.
- 50-75% of collected batteries to be recycled depending on battery types.
- Ban on the disposal of untreated automotive or industrial batteries in landfill or incineration.
- A partial ban on portable NiCd batteries with some limited exceptions e.g. medical equipment.

Waste Arisings

There have been no surveys directly estimating waste battery arisings within Northern Ireland. However, in the UK in 2001, it is known that approximately 680 million batteries were bought, most of which (89%) were general purpose batteries. UK data estimates the annual rate of consumer battery arisings of 0.3Kg per person, which would translate into a Northern Ireland figure of 550 tonnes per year.

For SWaMP therefore, this equates to approximately 135 tonnes of batteries per year.

Measures and Actions***Business and Industry***

- Comply with legislation.
- Implement initiatives for waste prevention, reuse and recycling of batteries.
- Develop more resource efficient and competitive products and processes.

General Public

- Minimise waste e.g. use rechargeable batteries and purchase more resource efficient products.
- Use facilities provided by District Councils and other service providers for separate collection of batteries.

Waste Management Sector

- Develop and operate used battery collection and recycling services.
- Respond to recycling and recovery market opportunities.
- Provide data on used battery arisings and management routes as required.
- Promote education and awareness among stakeholders.

PRIORITY AND OTHER WASTE STREAMS - SUMMARY OF KEY FACTS AND ACTIONS**SEWAGE SLUDGE****Waste Arisings**

Quantities of sewage sludge have been increasing incrementally between 1997 and 2005. This is largely due to the additional wastewater treatment capacity coming on stream to comply with the Urban Waste Water Directive. It is estimated that Northern Ireland currently produces around 35,000 tonnes of sewage sludge per year.

Measures and Actions***DRD Water Service***

- Operation and maintenance of sewage systems and wastewater treatment plants.
- Collection, treatment and disposal of sewage sludge produced in a safe, sustainable and compliant manner.

Department of the Environment

- Ensure collection systems are provided for every agglomeration with a population equivalent of more than 15,000.
- Monitor the discharges from urban wastewater treatment plants.
- Monitor the amount and composition of the sludge disposed of in surface waters.
- Monitor waters subject to discharges from treatment plants, where the receiving environment could be affected.
- Monitor any other discharges.
- Monitor disposal of sludge to surface waters.
- Review sensitive areas of high natural dispersion areas and keep this information up to date via their website.

PRIORITY AND OTHER WASTE STREAMS - SUMMARY OF KEY FACTS AND ACTIONS**CLINICAL WASTE****Waste Arisings**

Hospital waste arisings are estimated at approximately 900 tonnes per annum for the SWaMP Region while community clinical waste is estimated to be between 450 and 900 tonnes per annum. Therefore, clinical waste arisings for the SWaMP Region are estimated to be between 1,350 and 1,800 tonnes per annum.

Measures and Actions***General Public***

- Dispose of clinical waste in receptacles provided by the healthcare profession, in accordance with their requirements.
- Return unused medicines to a local pharmacy for safe disposal.

Health Professionals

- Ensure clinical waste is kept separate from other waste streams
- Store waste in appropriate containers in a safe place
- Transfer waste to a licensed hazardous waste contractor.

Waste Management Sector

- Ensure waste is treated and disposed in appropriately licensed facilities in accordance with legislative requirements.

13.0 WASTE INFRASTRUCTURE AND THE PLANNING PROCESS

INTRODUCTION

- 13.1 The objective of the Plan is to provide for a network of waste management facilities across the Region. A number of facilities have been developed since 2002, and these are summarised in the Site Digest in Annex G.
- 13.2 However, the securing of Planning Permission for the range of additional waste management infrastructure that is required across the region is critical to the implementation of the Plan. Such facilities, which in principle range from In-vessel composting facilities to Mechanical Biological Treatment facilities, are required to treat municipal waste, as well as waste generated by the commercial and industrial, construction, demolition and excavation and agricultural sectors. Such facilities may be developed and/or operated by either the public sector, by the private sector, in response to identified commercial opportunities, or procurement exercises undertaken by the Councils, either individually or in the Group context.
- 13.3 It is also recognised that all waste facilities have the potential to have adverse environmental impacts, and the siting of any waste facility needs to take into account a range of criteria, consistent with land-use planning policy and other relevant guidance. This includes:
- Best Practicable Environmental Option
 - Planning Policy Statement 11
 - Shaping Our Future- Regional Development Strategy for Northern Ireland, 2025
 - Development Plans.

Best Practicable Environmental Option (BPEO)

- 13.4 Best Practicable Environmental Option (BPEO) entails a systematic and balanced assessment of a range of different development options, in order to maximise environmental, economic and social benefits. A proposal for a waste management facility should represent BPEO, or contribute to BPEO for the selected waste stream, and should not cause demonstrable harm to human health or result in an unacceptable adverse impact on the environment.
- 13.5 A full introduction to the process of determining BPEO can be found in the Department of the Environment's Decision Makers Guide. This guide outlines the BPEO process in ten steps. In summary, the BPEO process involves identifying a number of viable scenarios for waste management in Northern Ireland, followed by assessing their performance against a number of decision criteria (such as environment, feasibility and cost), in order to determine which scenario is the BPEO.

- 13.6 BPEO is a core principle of the Northern Ireland Waste Management Strategy. To this effect, a BPEO for Northern Ireland was developed by the Department of the Environment and published in 2004, with the aim being to underpin the Northern Ireland Waste Management Strategy in providing a “generic waste management plan” that the three waste management groups could adapt in drawing up their individual Waste Management Plans. This is to ensure that an integrated network of appropriate facilities is developed in time to meet landfill diversion targets for the key dates of 2010, 2013 and 2020.
- 13.7 The outcomes of the Northern Ireland BPEO process for municipal waste, commercial and industrial wastes and the construction, demolition and excavation wastes is presented in Sections 6, 7 and 10 of this Plan respectively.
- 13.8 The Northern Ireland BPEO has established indicative locations for the siting of waste facilities for municipal wastes, commercial and industrial wastes and construction, demolition and excavation wastes. These are outlined further in Table 13.1.

Table 13.1 Indicative Locations for Waste Treatment Facilities

Facility Type	North West	SWaMP	arc21
In-vessel Composting	Londonderry Coleraine	Cookstown Craigavon Enniskillen Banbridge	Ballymena Belfast Newcastle
Windrow Composting	Londonderry Coleraine	Cookstown Enniskillen Banbridge	Ballymena Belfast Newcastle
Anaerobic Digestion	Coleraine	Armagh Omagh	Belfast
Recycling	Londonderry Coleraine Magherafelt	Banbridge Craigavon Dungannon Omagh	Antrim Ballymena Belfast Newcastle Newtownards
Mechanical Biological Treatment	Londonderry Coleraine	Craigavon Omagh	Ballymena Belfast
Thermal Treatment	None Identified	None Identified	Belfast

Source: Best Practicable Environmental Option for Waste Management in Northern Ireland- Guidance Document.

- 13.9 With regard to the locations of Construction, Demolition and Excavation Wastes, the BPEO recommended the development of a network of C, D & E reprocessing and recycling facilities around the main urban centres.

- 13.10 Existing or disused quarries have been identified as being suitable locations for such facilities. This would be cost effective and yield environmental benefits as vehicles could deliver waste for recycling and leave with aggregate reducing overall transport impacts. Such developments would assist the quarrying sector in meeting the Aggregates Levy Credit Scheme target of 5% aggregate production by recycling C, D & E waste by 2011 (equivalent to about 1 million tonnes).
- 13.11 Increased provision of mobile facilities for on-site recycling of aggregates on suitable large scale projects is also supported.
- 13.12 It should be noted that there is the potential for synergy between the municipal, commercial and industrial and construction, demolition and excavation waste sectors and also the agricultural sector to deliver economies of scale. This is discussed further within the municipal, commercial and industrial and construction, demolition and excavation waste stream sections within the Plan.
- 13.13 Further information on Best Practicable Environmental Option can be found on EHS website.
http://www.ehsni.gov.uk/pubs/publications/NI_BPEO_Guidance_652kb.pdf

Planning Policy Statement 11

- 13.14 The Department of the Environment (DOE) has a statutory duty under Article 3 of the Planning Order (NI) 1991 to “formulate and coordinate policy for securing the orderly and consistent development of land and the planning of that development.” The policy is set out in Planning Policy Statements (PPS) which apply to the whole of Northern Ireland. The contents are taken into account in decisions involving planning applications and appeals, as well as in the formulation of Development Plans.
- 13.15 Planning Policy Statement (PPS) 11: Planning and Waste Management was published in December 2002 and sets out the Department’s Planning Policies for the development of waste management facilities. The main objectives of PPS 11 are to:
- Promote the development, in appropriate locations, of waste management facilities that offer the BPEO in meeting need as identified by the relevant Waste Management Plan;
 - Ensure that detrimental effects on people, the environment, and local amenity associated with waste management facilities are avoided or minimised; and
 - Secure appropriate restoration of proposed waste management sites for agreed after-uses.
- 13.16 The statement contains a number of policies in order to meet these objectives, which include:
- WM1: Environmental Impact of a Waste Management Facility;
 - WM2: Waste Collection and Treatment Facilities;
 - WM3: Waste Disposal;

- WM4: Land Improvement; and
- WM5: Development in the vicinity of Waste Management Facilities.

13.17 PPS 11 provides an indication of siting criteria for waste management facilities, as summarised in Box 13.1.

Box 13.1 Summary of PPS 11 Siting Criteria for Waste Management Facilities

WM2 WASTE COLLECTION AND TREATMENT FACILITIES

Proposals for the development of a waste collection or treatment facility will be permitted where:

- There is a need for the facility as established through the WMS and the relevant WMP;
- The proposed facility represents the BPEO;
- The proposed facility complies with at least one of the following locational criteria:
 - *Located within an industrial or port area;*
 - *Located with an active or worked out hard rock quarry or on the site of an existing or former waste management facility;*
 - *It brings previously developed, derelict or contaminated land back into productive use or makes use of existing or redundant buildings;*
 - *A civic amenity and similar neighbourhood facility is conveniently located in terms of access to service a neighbourhood or settlement; and*
 - *It is suitably located in the countryside and involves the reuse of existing buildings or is on land within or adjacent to existing building groups.*
- The following criteria are also met:
 - *The location of a regional scale waste management facility benefits from access to key transport corridors and where practicable alternative modes of transport;*
 - *Sorting and processing of waste to be carried out within a purpose built or appropriately modified building;*
 - *The built development associated with the proposed methods of handling, storage, treatment and processing of waste is appropriate to the nature and hazards of the waste concerned;*
 - *Proposals for the incineration or thermal treatment of waste shall incorporate measures to maximize energy recovery in terms of heat and electricity; and*
 - *The proposal will not result in unacceptable adverse environmental impact that cannot be prevented or appropriately controlled by mitigating measures.*

WM3 WASTE DISPOSAL

Proposals for the development of landfill or land raising facilities for the disposal of waste will only be permitted where:

- There is a need for the facility as established through the WMS and the relevant WMP;
- The proposed facility represents the BPEO;
- The proposed facility complies with all of the following criteria:
 - *The proposal will not result in unacceptable adverse environmental impact that cannot be prevented or appropriately controlled by mitigating measures;*
 - *Significant mineral reserves are not sterilised;*
 - *It is suitably located with an active or worked out hard rock quarry or brings land that is despoiled, derelict or contaminated back into productive use;*
 - *The location of a regional scale landfill benefits from access to key transport corridors and where practicable alternative modes of transport;*
 - *Detailed measures are included for the appropriate restoration and aftercare of sites that will help to enhance biodiversity.*

Source: Planning Policy Statement 11 (PPS 11) Planning and Waste Management

- 13.18 Further information on PPS 11 can be found at the Planning Service Website:

http://www.planningni.gov.uk/AreaPlans_Policy/PPS/PPS.htm

Shaping Our Future- Regional Development Strategy for Northern Ireland, 2025

- 13.19 The Regional Development Strategy for Northern Ireland, entitled *Shaping Our Future*, provides an overarching strategic framework for tackling the '*deficiencies in our infrastructure and helping the overall development of our economy and society*' as acknowledged in the Programme for Government, 2001.
- 13.20 The Group supports the objectives set out in the Regional Development Strategy, including the recognition that it provides the spatial planning context for strengthening the competitiveness of the regional economy, and for tackling social and economic disadvantage. Competitiveness and Best Value are key issues for the economy, and it is important to ensure that there are adequate facilities available to provide competition in a market context within the sub-region. The Group therefore welcomes the recognition of the need for '*an **extensive network** of recycling, recovery and secondary materials manufacturing facilities*' as set out in Strategic Planning Guidance SPG-ENV 5 from the section on Caring for the Environment.

Development Plans

- 13.21 The purpose of a Development Plan, which may be in the form of Area Plans, Local Plans or Subject Plans, is to apply the regional policies of the Department and inform the relevant agencies (including the general public, statutory authorities and developers) of the policy framework and landuse proposals used to guide planning decisions within their local area. Particular sites for the development of waste management facilities may be identified within these Plans, together with the need for appropriate waste management facilities associated with new development. Consideration will also be afforded to the potential impact of existing or approved waste management facilities when zoning adjoining lands for other forms of development.
- 13.22 The following Development Plans apply to the SWaMP Region:

Table 13.2 Development Plans Applicable to the SWaMP Region

District Council	Name of Development Plan	Stage in Planning Process
Armagh City and District Council	Armagh Area Plan 2018	Pre Draft Planning Stage
	Armagh Area Plan 2018 Issues Paper	Issues Paper Published March 2004
Banbridge District Council	Banbridge and Newry and Mourne Area Plan 2015	Pre Draft Planning Stage
	Banbridge and Newry and Mourne Area Plan 2015 Issues Paper	Issues Paper Published March 2001
Cookstown District Council	Cookstown Area Plan 2010	Adopted June 2004
Craigavon Borough Council	Craigavon Area Plan 2010	Adopted August 2004
	Craigavon Town Centre Boundaries and Retail Destinations Plan 2010 Draft Plan	Draft Plan Published December 2005
	Craigavon Town Centre Boundaries and Retail Destinations Plan 2010 Issues Paper	Issues Paper Published March 2005
Dungannon and South Tyrone Borough Council	Dungannon and South Tyrone Area Plan 2010	Adopted March 2005
Fermanagh District Council	Fermanagh Area Plan 2007	Adopted March 1997
Newry and Mourne District Council	Banbridge and Newry and Mourne Area Plan 2015	Pre Draft Planning Stage
	Banbridge and Newry and Mourne Area Plan 2015 Issues Paper	Issues Paper Published March 2001
Omagh District Council	West Tyrone Area Plan 2019	Pre Issues Stage

Source: http://www.planningni.gov.uk/AreaPlans_Policy/Plans/Plans_lgd.htm

13.23 In order to comply with the planning policy and guidance discussed within this section, all planning applications for waste facilities should be accompanied by pre-determined detailed supporting environmental information to enable the associated environmental impacts to be assessed. The compliance with land-use planning policy and other relevant guidance should be demonstrated, and where significant tensions between competing policies exist, these should be assessed.

13.24 The identification of suitable locations for waste management facilities is an important factor, and indicative locations that are considered suitable for certain types of waste management facilities are set out in Table 13.3 to aid in this process.

Table 13.3 Potential Settings for Waste Management Facilities

Type of Facility	Indicative Location
Transfer Stations	A network of transfer stations is required across SWaMP to support Materials Recovery and Composting Facilities. They should be located close to the main sources of waste arisings, on land suitable for industrial use, or on derelict land, including former landfill sites or quarries.
Materials Recovery Facilities	MRF's should be located on land suitable for industrial use, or on derelict land, having regard, amongst other factors, to transportation and access issues.
Civic Amenity Sites	Civic amenity sites should be located within, or in close proximity to the main settlements that they serve, with good accessibility. Commercial / industrial type settings are considered appropriate so as not to impact on residential amenity. In areas with a dispersed settlement pattern, a transport node, a point where major roads meet, is considered an appropriate location.
Windrow Composting	Windrow composting is carried out in the open. Due to the potential for impacts on the local amenity, such as noise, dust, odour and bio-aerosols, such facilities therefore should be located on suitable industrial land, within or adjacent to a waste management facility, or in a rural area.
In-Vessel Composting and Anaerobic Digestion	In-vessel/enclosed composting facilities should be located on land suitable for industrial use, or on derelict land, including former landfill sites, or quarries, having regard to transportation and access issues.
Mechanical Biological Treatment	Mechanical Biological Treatment facilities should be located on land suitable for industrial use, or on derelict land, including former landfill sites, or quarries, having regard to transportation and access issues.
Landfill	Quarries – for the restoration of mineral workings

INDICATIVE INFRASTRUCTURE AND CAPACITY REQUIREMENTS

13.25 This Section of the Plan seeks to draw together the previous analyses that have considered the types of infrastructure required, the anticipated capacity requirements associated with it, and to identify potential locations for facilities, taking into account the siting criteria identified, as well as local needs. It should be noted that these are indicative only, illustrating the potential range and geographical spread of facilities across the SWaMP area.

13.26 The actual number of facilities developed to service municipal wastes will be determined by the Councils, as they embark on a series of procurement exercises over the coming years. Resulting from these activities, some of the facilities may be developed and operated directly by the Councils, some may be developed and operated by the private sector, in response to securing tenders issued by the Councils, and some may be developed and operated in partnership with community groups, businesses and NGO's for particular initiatives or schemes.

- 13.27 Where the private sector is involved, two potential approaches are envisaged, namely the facilities are developed and operated by the private sector, on privately owned land, or alternatively, a facility may be developed and/or operated by the private sector, on Council owned land.
- 13.28 The integrity of any tendering exercise undertaken by the Councils is fundamental to ensuring fair competition at all stages, consistent with the Councils' policy and guidelines on procurement. For that reason, the capacities and potential locations set out in Tables 13.4 to 13.6 are indicative only, and are not intended to indicate a preference for any specific sites or facilities.
- 13.29 Similarly, it is recognised that for particular services, a facility may be located outside the geographical area of SWaMP, but may still represent the most economically advantageous service to the region.
- 13.30 Table 13.4 below provides a summary of the indicative capacity required for municipal wastes in order to ensure that SWaMP meets the targets set for materials recovery and especially the NILAS targets for the diversion of biodegradable municipal wastes from landfill. The capacities indicated are additional to present capacity, and reflect the new initiatives set out in the Plan. They are not intended to limit the capacity at any particular facility, as there is the potential for consented facilities to service areas outside the geographical area represented by SWaMP.

Table 13.4 Indicative Additional Municipal Waste Infrastructure Requirements by 2020

Supporting Infrastructure	Additional Capacity Requirements	Indicative Number of Additional Facilities	Comments
Recycling/ Recovery	20-25,000 tpa	Existing capacity	Existing infrastructure has the capacity to accommodate the increased recycling requirement into the medium term for MDR.
Anaerobic Digestion/In-vessel Composting	30-35,000 tpa	1-2 facilities for Biowastes	Tender process will determine number of facilities for biowaste
Mechanical Biological Treatment	160-180,000 tpa	2 with capacity 75-80,000 tpa 1 with capacity 20-30,000 tpa	Anticipated synergies between Municipal and C&I sectors. This would be best realised by sizing plants to accommodate both C&I and Municipal wastes, to deliver economies of scale.
Landfill	150,000 tpa by 2009/10 70,000 tpa by 2012/13	Existing capacity	District Councils to review landfill capacity within the Region and identify future needs

13.31 It is recognised that the scale of waste management facilities can vary widely, ranging from small community schemes to large multi-stream facilities. The 'Typical Scale of Facilities' presented in Table 13.4 therefore is an indication of the scale of economic unit that appears to be appropriate to the needs of SWaMP.

13.32 Table 13.5 shows the indicative capacity for the treatment of commercial and industrial waste required to ensure that SWaMP meets the recycling and recovery targets specified within the Northern Ireland Waste Management Strategy.

Table 13.5 SWaMP – Infrastructure Capacity Requirements for C&I Wastes

Supporting Infrastructure	Additional Capacity Requirements	Indicative Number of Facilities	Comments
Recycling/ Recovery	60,000 tpa by 2010 80,000 tpa by 2013 105,000 tpa by 2020	Existing capacity	Existing infrastructure has the capacity to accommodate the increased recycling requirement into the medium term.
Anaerobic Digestion/ In-vessel Composting	9,000 tpa by 2010	2-3 AD plants with CHP	
Mechanical Biological Treatment	40,000 tpa by 2010	2-3 plants	Anticipated synergies between C&I and Municipal waste sectors. This would be best realised by sizing plants to accommodate both C&I and Municipal wastes, to deliver economies of scale.
Landfill	145,000 tpa by 2010 85,000 tpa by 2013 80,000 tpa by 2010	Existing capacity	Existing infrastructure has the capacity to accommodate the reduced landfill requirement.

13.33 Table 13.6 shows the indicative capacity for the treatment of construction, demolition and excavation waste required to ensure that SWaMP meets the recycling and recovery targets specified within the Northern Ireland Waste Management Strategy.

Table 13.6 Indicative Capacities for C, D & E Wastes

Supporting Infrastructure	Future Capacity Requirements	Indicative Number of Facilities	Comments
Recycling/ Recovery	508,800 tpa by 2010 613,800 tpa by 2013 798,000 tpa by 2020	Mobile plant or 1-2 centralised facilities	The scale of centralised facilities will vary, depending on the requirements of the market.
Landfill	451,200 tpa by 2010 376,200 tpa by 2013 266,000 tpa by 2020	TBC	The need for both inert and non-hazardous landfill remains, with sites located appropriately to serve the main urban centres. Landfill capacity for particular hazardous wastes should be considered on a Northern Ireland wide basis.

- 13.34 Due to the fact that agricultural waste will become a controlled waste stream within 2006, it is considered necessary that the infrastructural requirements for agricultural wastes are considered. Given the small quantities of this waste stream (approximately 41,000 tpa) it is not anticipated that there will be the need for any additional infrastructural requirements, that cannot be accommodated within the proposed arrangements for other waste streams, including commercial and industrial, municipal, hazardous and packaging wastes.
- 13.35 In addition to this, although not controlled wastes, there is the potential for farmyard manures and slurries to be used for energy recovery. The Expert Group for Alternative Uses of Manures (EGAUM) have examined alternative uses for animal manures and have concluded that there is an important role for anaerobic digestion with combined heat and power (AD/CHP) plants for the intensive dairy and pig industries, and a litter fired generator for the poultry sector. It is estimated that 2-3 AD/CHP plants, with a capacity in the order of 60,000 to 150,000 tpa is considered appropriate.
- 13.36 With respect the poultry industry, a single poultry-fired generator, capable of handling 300,000 tpa of input per annum has been identified as being appropriate to meet the needs of the industry.
- 13.37 For all of these waste streams, is evident that larger facilities could be developed, serving larger catchments both within the region, and in neighbouring regions. It is proposed therefore that there will be ongoing discussions with the other regional groups, namely the North West Region, arc21 and neighbouring Councils in the Republic of Ireland, over the period of implementation of the Plan, to ensure that the facilities developed are compatible and consistent with the needs of SWaMP.

Potential Locations for Waste Management Facilities

- 13.38 Table 13.7 and Figure 13.1 provides a summary of indicative locations for the waste management facilities identified for municipal wastes. These facilities range from recycling points to mechanical biological treatment facilities. The potential locations indicated for facilities is designed to ensure an equitable distribution across the Region and to ensure that the proposed facilities are accessible to the communities they serve.
- 13.39 Potential locations are identified to ensure that the desired distribution of facilities is achieved. The purpose of this is to ensure that the implementation of the Plan and any associated procurement exercises are not compromised, be they tenders for the provision of facilities or the acquisition of sites. This is important to ensure that best value can be achieved and demonstrated by Councils, consistent with their policies and obligations.

Figure 13.1 Location of Future Waste Management Facilities Within The SWaMP Region

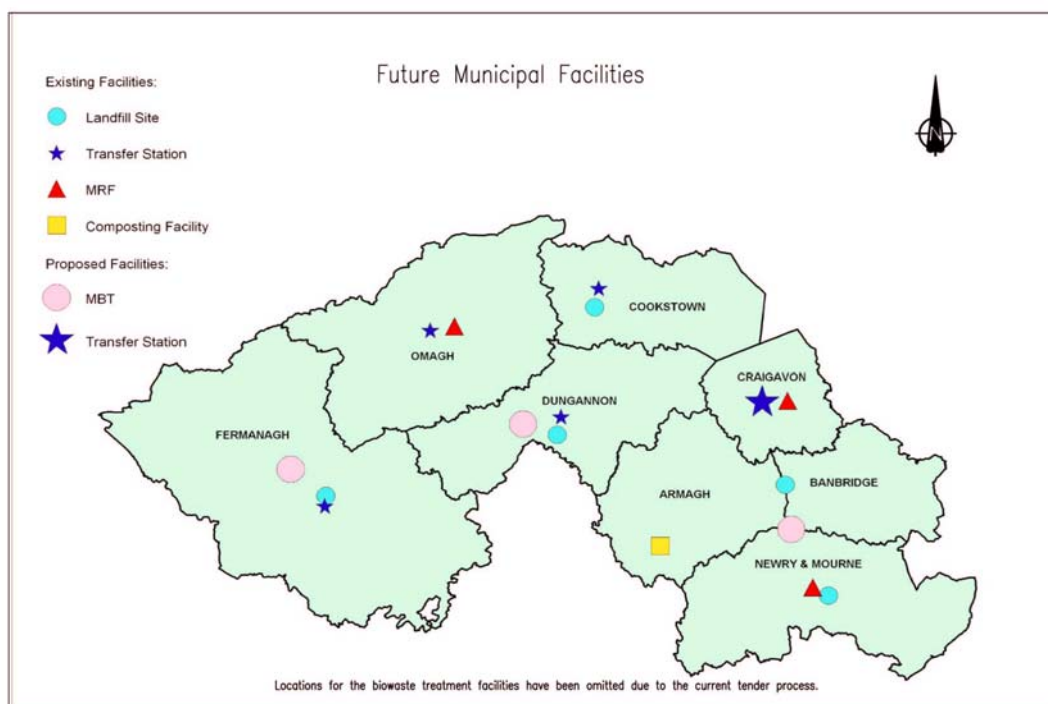


Table 13.7 Potential Locations for Municipal Waste Management Facilities

Facility	Activity	Potential Locations for Facilities
Materials Recovery Facilities	Materials Sorting for Recycling	▪ MRF's should be located on land suitable for industrial use, or on derelict land, having regard, amongst other factors, to transportation and access issues. ▪ Any additional Materials Recovery Facilities required to meet local needs will be identified within the Annual Implementation Action Plan (IAP)
Civic Amenity Sites	Materials Collection for Recycling and Green Waste Composting	▪ Civic amenity sites should be located within, or in close proximity to, the main settlements that they serve, with good accessibility. Commercial/Industrial type settings are considered appropriate so as not to impact on residential amenity. In areas with a dispersed settlement pattern, a transport node, a point where major roads meet, is considered an appropriate location. ▪ The number of civic amenity sites within the SWaMP Region has increased from 26 in 2002 to 29 in 2005/06. ▪ Any further requirement for civic amenity sites required to meet local needs will be identified within the annual Implementation Action Plan (IAP)
Recycling Points	Source Separated Materials	▪ Recycling points include bottle and can banks, and should be readily accessible to the local communities they serve. They will therefore be located in town and village centres, retail outlets and other similarly accessible areas for use by the public. ▪ The number of recycling points within the SWaMP Region has increased from 80 in 2002 to 172 in 2005/06. ▪ Any further requirement for recycling points required to meet local needs will be identified within the annual Implementation Action Plan (IAP)
Open Windrow Facilities	Green Waste Composting	▪ Windrow composting is carried out in the open. Due to the potential for impacts on the local amenity, such as noise, dust, odour and bio-aerosols, such facilities therefore should be located on suitable industrial land, within or adjacent to a waste management facility, or in a rural area. ▪ Any further requirement for open windrow composting facilities to meet local needs will be identified within the annual Implementation Action Plan (IAP).

Table 13.7 Potential Locations for Municipal Waste Management Facilities (continued)

Facility	Activity	Potential Locations for Facilities
In vessel / enclosed facilities¹	Composting of Household Organic Wastes	In-vessel/enclosed composting facilities should be located on land suitable for industrial use, or on derelict land, including former landfill sites, or quarries, having regard to transportation and access issues.
Waste Transfer Stations	Bulking and Transfer of Wastes	- Transfer stations should be located close to the main sources of waste arisings, on land suitable for industrial use, or on derelict land, including former landfill sites or quarries. - Any further requirement for recycling points required to meet local needs will be identified within the annual Implementation Action Plan (IAP).
Mechanical Biological Treatment Facilities	Removal of additional recyclates and biological treatment	- Mechanical Biological Treatment (MBT) facilities should be located close to the main sources of waste arisings, on land suitable for industrial use, or on derelict land, including former landfill sites, or quarries, having regard to transportation and access issues. - There is a need for three MBT facilities within the Region to service the east and west of the Region and Fermanagh. A number of potential locations have been identified as being potentially suitable and under Council ownership and control. These are: Aughnagun (Newry), Croreagh (Newry), Terryhoogan (Armagh/Craigavon), Tullyvar (Dungannon/Omagh) and Drummee (Fermanagh).

Note: 1. Locations for biowaste treatment facilities have been omitted due to the current tender process

13.40 It should be noted that the indicative locations identified in Table 13.7 for municipal waste facilities within the SWaMP Region, are, in a number of cases, at variance with the locations identified within the Northern Ireland BPEO. The locations considered in Table 13.7 are however considered to be most appropriate to meeting the needs of the SWaMP Region.

13.41 Notwithstanding the potential locations for particular types of facilities identified above, it is also recognised that some of the facilities may be integrated and developed jointly on a single site, for example an MBT facility adjacent to a landfill site. This is considered appropriate where the siting criteria and potential environmental impacts are similar.

13.42 In conclusion therefore, this section provides a summary of infrastructural requirements and potential locations that should allow the Councils to implement the Plan by developing sites at appropriate locations, after securing the necessary consents and permissions, consistent with their policies and obligations to achieve best value on behalf of the communities they serve.

14.0 IMPLEMENTATION – MONITORING AND REVIEW

INTRODUCTION

- 14.1 This Plan provides the framework for the management of controlled wastes arising within the SWaMP Region, setting out the arrangements required, and defining the actions needed to encourage the shift from an 'end of pipeline' waste management approach to a focus on resource efficiency and management. Implementation therefore is key, and the Plan will be subject to a process of ongoing monitoring and review, particularly with respect to Municipal Wastes, for which the councils have statutory responsibility.
- 14.2 The individual District Councils within the Group, in undertaking this monitoring and review, are committed to:
- Monitoring a number of Key Performance Indicators (KPI's);
 - Completing the WasteDataFlow returns online on a quarterly basis;
 - Validating the data used;
 - Checking overall performance against planned levels; and
 - Identifying issues of concern, and implement corrective actions, where required, should performance fall significantly behind planned levels.
- 14.3 The purpose of the Review process is to ensure that statutory and policy targets and obligations are met by:
- Assessing the performance of the measures and actions set out in the Plan;
 - Monitoring the delivery of the infrastructure identified in the Plan;
 - Reviewing the effectiveness of the arrangements;
 - Assessing the impact of policy and legislative developments; and
 - Reviewing and updating the arrangements and actions where necessary.
- 14.4 This process provides the basis for two levels of formal review, as follows:
- Annual Review, with the publication of an Annual Report, to inform stakeholders on performance, both at the Group and individual Council level.
 - Plan Review, at not more than five yearly intervals, involving a full Review of the Plan, culminating in the publication of a modified Plan.
- 14.5 In addition to this, SWaMP will consider management information, collated from the individual Councils, on a quarterly basis, to ensure that progress and performance against projections is monitored regularly, and to pick up as early as possible, any areas of under-performance.

- 14.6 The Plan is supported by an Implementation Action Plan (IAP) for municipal wastes, which details the actions at the individual council level, to ensure that the measures and arrangements set out for the management of municipal waste, are implemented in a manner appropriate to local needs and priorities.
- 14.7 The approach of the councils to monitoring and reviewing the implementation of the Plan is described further below.

KEY PERFORMANCE INDICATORS

- 14.8 Reliable data, and the use of Key Performance Indicators (KPIs) are essential elements in the ongoing process of monitoring and review. For municipal waste, WasteDataFlow, a structured online reporting facility, has been developed for use by councils for data reporting purposes across the United Kingdom, and is used by all councils within the Group, with data returns completed quarterly. One of its functions is to ensure that data collection and management conform to EU reporting requirements.
- 14.9 WasteDataFlow, which went live in April 2004, allows direct entry of municipal waste data. It also generates performance reports, based on a number of Key Performance Indicators on a regular and ongoing basis. Examples of the KPIs reported are summarised in Table 14.1.

Table 14.1 Key Performance Indicators for Municipal Waste

Examples of KPIs Include	
Household Waste	
- Recycling - Composting - Treating by other means Household waste per household Cost of waste collection per household	- Energy Recovery - Landfill Cost of waste treatment and disposal per tonne
Municipal Waste	
- Recycling - Composting - Treating by other means	- Energy Recovery - Landfill
Biodegradable Municipal Waste (BMW) landfilled Commercial & Industrial waste (collected by district councils)	
- Recycling - Composting - Treating by other means	- Energy Recovery - Landfill

- 14.10 From a council perspective, WasteDataFlow is designed to:
- Allow regular and efficient data collection of municipal waste statistics;
 - Enhance local data management for reporting and waste planning purposes;
 - Provide consistent reporting standards;
 - Offer access to performance benchmarking with other authorities.
- 14.11 From Government's perspective, WasteDataFlow allows:
- Monitoring of progress towards national and local targets;
 - Councils to meet the requirement to report data quarterly under the Northern Ireland Landfill Allowance Scheme (NILAS);
 - The UK to meet reporting obligations to the EU;
 - Monitoring of trends and performance to inform government policy.
- 14.12 In summary, the WasteDataFlow system is comprehensive, reporting municipal and household data for each council, broken down into arisings, recovery (recycling, composting and energy recovery), and disposal. The system also covers the destination of materials sent for recovery or disposal, and the tonnages accepted at each sites. It is the data and reporting generated by WasteDataFlow for municipal waste therefore that provides the basis for the evidential approach to performance review and monitoring by the councils.
- 14.13 Data on a range of waste streams will be collated and reviewed for the purposes of reviewing the Waste Plan, when and as appropriate. These will be obtained from available sources, including for example, Waste Surveys by EHS, and sectoral or industry reports. These waste streams will include:
- | | |
|---|----------------------|
| ▪ Commercial and Industrial Waste | ▪ Agricultural Waste |
| ▪ Packaging Waste | ▪ Hazardous Waste |
| ▪ Waste Electrical and Electronic Equipment | ▪ Clinical Waste |
| ▪ End of Life Vehicles | ▪ Tyres |
| ▪ Batteries | ▪ Waste Oils |

ANNUAL REVIEW

- 14.14 An Annual Review will be undertaken by the Group with the specific objectives of:
- Reviewing data on the quantities and nature of waste arisings;
 - Monitoring the implementation of the measures set out in the Plan and the IAP;
 - Reviewing performance and progress against targets;
 - Benchmarking performance;
 - Reviewing progress on procurement processes, including the delivery of the Recycling, Biowaste and Mechanical Biological Treatment contracts;
 - Assessing the impacts of changes to legislation and policy;

- Identifying any corrective actions and/or plan modifications, if required; and
- Producing an Annual Report.

14.15 Two key aspects of the Annual Review are:

- To monitor progress and therefore the effectiveness of the measures in the Plan; and
- To communicate with and inform stakeholders on the performance of the councils and the Region, by publishing an Annual Report.

14.16 The Annual Review will be completed by the end of June with respect to the preceding data reporting year, and will be presented in the Annual Report. The Report will be published on the Group's website at: www.swampni.org.uk

IMPLEMENTATION ACTION PLAN

14.17 The Waste Management Plan is supported by an Implementation Action Plan (IAP) for municipal wastes, which is updated annually. The IAP details the actions at the individual council level, to ensure that any measures or actions identified either in the Plan or the Annual Review are implemented in a manner consistent with local needs and priorities. Examples might include details on the local waste prevention initiatives, the roll out of brown bins, the provision of additional recycling centres, or the upgrading of civic amenity sites.

14.18 This approach maximises flexibility for the Group, with the Plan providing a range of tools necessary to meet targets and objectives, but with the IAP enabling the tools to be selected on the basis of suitability for a particular council. This effectively devolves the decision-making process for those issues that affect the quality of local service provision to the local level, increasing ownership and accountability.

14.19 The IAP therefore sets out the actions on a council by council basis for implementing the Plan, and includes the costs for a minimum five year forward planning horizon, and is updated annually on the basis of the Annual Review, incorporating any additional measures, corrective actions or adjustments identified by the preceding Annual Review.

PLAN REVIEW

14.20 The Plan sets the context for managing within the SWaMP Region up to 2020. As such the plan has assessed the targets set out in the NI Waste Management Strategy, *Towards Resource Management*, and the Landfill Directive to determine the arrangements and actions necessary to meet these requirements. Key measures provide for:

- **Waste Prevention** - prioritised to limit the growth in waste arisings within the region.
- **Materials Recovery** – increased provision for the recycling and composting of materials.

- **Residual Waste Treatment** – the provision of Mechanical Biological Treatment capacity, to ensure that the Landfill Directive targets are met, and value is recovered from the residual waste materials. This is the key action for the Group up 2009/10, and the next review of the Plan.
- 14.21 SWaMP also recognises that resource and waste management policy and legislation is continuing to evolve, with major developments anticipated through amendments to the Waste Framework Directive. These are expected to include:
- Waste Prevention - a strengthening of Waste Prevention, with requirements for a plan and supporting targets.
 - Efficiency Threshold - the introduction of an efficiency threshold to distinguish between disposal and recovery by thermal treatment methods.
- 14.22 There is a need therefore to review the Plan on a regular basis to take such developments into account, and make modifications as appropriate to ensure that the Plan continues to identify and support the arrangements and provisions necessary to meet future challenges, whilst remaining effective and responsive to local needs and priorities.
- 14.23 Formal reviews therefore will take place at not more than five yearly intervals. SWaMP recognises that the next Review will be undertaken in the context of the re-structuring of local government under the Review of Public Administration, This may change roles and responsibilities, and perhaps council boundaries, but recognising that irrespective of local government arrangements, municipal waste arising within the region needs to be managed effectively, SWaMP is committed to ensuring that the planning and the provision of waste management services is effective and continues to meet the needs of the region, into the future.

GLOSSARY

GLOSSARY OF TERMS

Agricultural Waste	Waste from premises used for agriculture within the meaning of the Agriculture Act (Northern Ireland) 1949. Under this definition agriculture includes 'horticulture, fruit growing, seed growing, dairy farming and livestock breeding and keeping, the use of land as grazing land, meadow land, market gardens and nursery grounds, and the use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes, and 'agriculture' shall be construed accordingly'.
Anaerobic Digestion	Anaerobic digestion is the biological decomposition and stabilisation of organic material in the absence of oxygen and under controlled conditions which produces biogas and a digestate. It results, either directly or after subsequent aerobic treatment, in a final product that has been sanitised and stabilised, is high in humic substances and can be used as a soil improver, as an ingredient in growing media, or blended to produce a top soil that will meet British Standard BS 3882, incorporating amendment No 1.
Best Practical Environmental Option (BPEO)	The option that provides the most benefits or the least damage for the environment, as a whole, at acceptable cost, in the long term as well as the short term.
Biodegradable Content	The percentage content of waste which is biodegradable. For municipal waste this usually fluctuates between 65%-75%.
Biodegradable Waste	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food, garden waste, paper and cardboard.
Biowaste	Source segregated household or commercial waste of an organic or putrescible character, such as food or garden waste.
Biodegradable Municipal Waste	Municipal waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard.
Biological Treatment	Involves composting, anaerobic digestion, mechanical-biological treatment or any other process for stabilising and sanitising biodegradable waste.
Bring Banks/Recycling Schemes	These are conveniently situated facilities in which members of the public deposit dry recyclable waste materials (for example paper, glass, cans, textiles, shoes etc) in material specific receptacles for subsequent collection and delivery to material recovery facilities. These facilities can be at supermarkets, offices and parks, for example.

Capture Rate	The percentage of the available material in the waste that people participating in a recycling scheme separate for kerbside collection. For example, if there is 10kg of paper in the waste stream and 5kg is separated for recycling, this represents a 50% capture rate.
Central Composting Facility	A facility at which the biowaste is delivered to be processed by composting into a compost product – can be for garden waste, selected food waste or a combination of both materials.
Civic Amenity Sites (CA Sites) (also called Recycling Centres)	A reception facility that enables householders to deposit a wide range of household waste categories including recyclable and non-recyclable materials, bulky household waste and certain categories of household hazardous waste. Sites are provided by local authorities for the disposal of excess household and garden waste free of charge, as required by Section 51(1)(b) of the Environmental Protection Act 1990/ Refuse Disposal (Amenity) Act 1978 / Pollution Control and Local Government (Northern Ireland) Order 1978.
Clinical Waste	(a) Any waste which consists wholly or partly of human or animal tissue, blood or other body fluids, excretions, drugs or other pharmaceutical products, swabs or dressings, or syringes, needles or other sharp instruments, being waste which unless rendered safe, may prove hazardous to any person coming into contact with it; and (b) Any other waste arising from medical, nursing, dental, veterinary, pharmaceutical or similar practice, investigation, treatment, care, teaching or research, or the collection of blood for transfusion, being waste which may cause infection to any person coming into contact with it.
Co-Incineration	Is the term used for incineration plants, where waste is used as a regular or additional fuel, or is disposed of at a plant along with other substances, where energy generation or production of material products may take place.
Co-mingled materials	Wastes collected in a mixed form (for example a kerbside recycling box in which householders put glass, cans, plastics, paper and batteries) that are destined for recycling after further sorting.
Collection System	A system of gathering, sorting or mixing of waste for the purpose of it being transported to a waste recovery or disposal facility.
Combined heat and Power (CHP)	Facilities in which waste is combusted to produce heat for domestic or industrial purposes in addition to the generation of electricity.
Commercial Waste	Waste from premises used wholly or mainly for the purposes of trade or business, recreation or entertainment, excluding household waste, mines, quarries and agricultural waste.

Community Composting Facilities	Facilities set up for the composting of biowaste by a group of people in a locality with the aim of composting their own and other people's biowaste in order to manage the supplied biowaste as close as possible to the point at which it was produced.
Compost	The stable, sanitised and humus-like material, rich in organic matter and free from malodours, resulting from the composting process of separately collected biowaste.
Composting	The controlled biological decomposition and stabilisation of organic materials (such as garden and kitchen wastes), under conditions that are predominantly aerobic (oxygen present) and that allow the development of thermophilic temperatures as a result of biologically produced heat. It results in a final product that has been sanitised and stabilised, is high in humic substances and can be used as a soil improver, as an ingredient in growing media, or blended to produce topsoil that will meet British Standard BS 3882, incorporating amendment No 1.
Compost Quality Standards	A set of industry technical standards, which may be statutory in nature, and which are designed to safeguard against potentially harmful aspects of compost production and use, thereby resulting in high quality compost and protecting the environment and human health.
Construction, Demolition & Excavation Waste	All waste from the construction, repair, maintenance, demolition and excavation of buildings or preparatory works thereto. Those waste materials which arise from the construction or demolition of buildings and/or civil engineering infrastructure, including hard construction and demolition waste and excavation waste, whether segregated or mixed.
Digestate	The material resulting from the anaerobic digestion of separately collected biowaste.
Domestic Waste	Waste which comes from homes – also known as household waste .
Eco-labelling	The provision of environmental and/or financial information on products, detailing for example whole life costs and emissions/wastes created during manufacture.
End of Life Vehicles (ELVs)	Vehicles which have reached the end of their useful lives, either because of old age or due to accident. This waste is a priority EC waste stream and principally regulated by The End-of-life Vehicles Directive (2000/53/EC) came into force in the UK in November 2003.
Energy from Waste (EfW)	The controlled combustion of waste in which heat, power and other energy are recovered, while reducing the amount of waste. Examples are incineration used to provide heat to nearby buildings and methane gas from landfill sites used to generate electricity – also known as energy recovery .

Fly-tipping	The illegal dumping of rubbish in unauthorised places.
Gasification Plant	Facility for the production of combustible gas from waste.
Greenhouse Gas	This is a gas that absorbs heat and therefore contributes to the warming of the Earth's atmosphere (the ' greenhouse effect '). Examples of greenhouse gases include water vapour, carbon dioxide and methane.
Green/Organic Waste	Biodegradable material such as garden and kitchen waste. This may also include other compostables such as cardboard if collected as part of a composting collection scheme.
Green Purchasing	Exercising environmental awareness in the choice of products and the buying of environmentally sustainable products.
Government Contracts Committee	This committee assists the Department of Finance in formulating overall policy on public procurement. It is made up of senior officials in the higher spending Departments and is chaired by a Department of Finance representative. The committee also adjudicates on contracts being awarded by Central Government Departments in certain cases.
Hazardous Waste	Hazardous waste refers to the categories of waste to be controlled according to the Basel Convention on the control of transboundary movements of hazardous waste and their disposal (Article 1 and Annex 1).
Healthcare Waste	The term "healthcare waste" is used to describe all waste resulting from healthcare activity. It includes waste which falls within the statutory definition of clinical waste and other non-clinical waste.
Home Composting	A process whereby biowaste is composted and used in gardens belonging to private households. The aerobic degradation of biodegradable components of the household waste stream (usually garden waste such as grass cuttings, prunings etc and some kitchen wastes) at the site where it is produced using a purpose designed container (either a composter, digester, combination of both, or a wormery) or a traditional compost heap.
Household Clinical Waste	Waste arising within the household waste stream that falls within the definition of clinical waste under The Controlled Waste Regulations 1992/The Controlled Waste Regulations (Northern Ireland) 2002 para.2.
Household Hazardous Waste	Waste arising within the household waste stream that is classified as Hazardous under EC Directive 91/689/EEC (7). Examples of Household Hazardous Wastes include: asbestos waste, batteries, fluorescent light tubes, garden and household chemicals, medicines, oils, paints, glues and varnishes, paint thinners and removers, refrigeration equipment and smoke detectors.

Household Waste	Waste arising from a domestic property or waste of similar composition from other properties such as residential homes or hospitals.
Humic	Substances which are highly-abundant organic compounds formed in soils and sediments by the decay of dead plants, microbes and animals.
Incineration	The process of burning solid waste under controlled conditions to reduce its weight and volume, and often to produce energy. Thermal treatment of waste in an incineration plant as defined in Article 3 (4) of Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste.
Industrial Waste	Waste from a factory, produced or arising from manufacturing of industrial activities or processes.
Inert Landfill	Use definitions set out in Schedule 1 (Waste Acceptance Criteria) of the Landfill (England and Wales) Regulations 2002 and Amendment Regulations 2004 and the Landfill Regulations (Northern Ireland) 2003 and the Landfill (Amendment) Regulations (Northern Ireland) 2004.
In-Vessel Composting	The composting of biowaste in a closed reactor where the composting process is accelerated by controlled and optimised air exchange, water content and temperature control.
IPPC Licence	Legal process, by which large industrial processes are licensed and regulated, refers specifically to the requirements of the European Commission's IPPC (integrated pollution prevention and control) Directive (96/61/EC) to provide protection of the environment and the protection of human, animal and plant life from harm or nuisance from certain industrial activities.
Joint Venture	A partnership, involving a local authority (or authorities) and a private or community sector organisation.
Kerbside Collections	The collection of biodegradable waste or mixed dry recyclables separately from other kinds of waste from outside private households in such a way as to avoid the different waste fractions or waste components from being mixed, combined or contaminated with other potentially polluting wastes, products or materials, usually employing separate bins for dry recyclables and organic waste.
Kerbside Scheme	Any regular collections of reusables/recyclables/compostables/residuals from premises, including collections from commercial or industrial premises as well as from households. Excludes services delivered on demand.

Landfill/Landfilled	A waste disposal site for the deposit of waste onto or into land in accordance with the definitions contained within the relevant national legislation and guidance implementing the Landfill of Waste Directive (1999/31/EC).
Landfill Directive	A Directive which aims to, by means of stringent operational and technical requirements on the landfilling of waste, implement measures, procedures and guidance to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, ground water, soil and air, and on the global environment, including the greenhouse effect, as well as any resulting risk to human health, during the whole life cycle of the landfill.
Landfill Levy	This is an additional environmental levy that is paid on top of normal gate fees by any private contractor or local authority that wishes to dispose of waste through a landfill site. The landfill levy is collected through landfill operators and remitted to the Environment Fund for disbursement on approved environmental activities, thereby forming part of a policy aimed at providing more incentives for re-use and recycling of waste.
Landfill Tax	A tax on every tonne of waste sent to landfill sites. The tax is designed to reduce the amount of rubbish sent to landfill by increasing the amount of waste being reduced, reused and recycled.
Leachate	Liquid consisting of a mixture of rainwater and rotten organic materials which drains from a landfill site.
Life Cycle Analysis	A tool that can be used to assess the true costs over the whole life of a product, including the initial capital outlay, operational costs, maintenance and ultimately disposal costs.
Materials Recycling Facility (MRF)	A facility used to sort municipal waste and separate out recyclable fractions for subsequent reprocessing. Recyclables are segregated by means of manual sorting on conveyor belts and mechanical processes.
Mechanical-Biological Treatment (MBT)	The treatment of residual municipal waste, in order to stabilise and reduce the volume of waste which requires disposal. A combination of mechanical processing and biological stabilisation are employed.

Municipal Solid Waste (MSW)	Municipal waste is defined, for the purposes of this Plan, as 'household waste and any other waste that is under the control of (i.e. collected by) District Councils or agents acting on their behalf.' In general, it includes waste arising from: waste collection rounds (including separate rounds for collection for recyclables); street cleansing and litter collection; beach cleansing; bulky waste collections; hazardous household waste collections; household clinical waste collections; garden waste collections; drop-off/bring systems; weekend skip services; any other household waste collected by the authority; rubble; clearance of fly-tipped waste; and commercial waste from shops and trading estates where local authority waste collection agreements are in place. In Northern Ireland, private waste (e.g. commercial waste) brought to a landfill site under the control of the local authority is not classified as MSW. Municipal waste includes wastes collected by third parties for which recycling payments are made, or wastes collected by third parties for which there are other formal arrangements with the local authority. It also includes wastes collected by local authorities, where they are acting as subcontractors. Items collected from households or commercial premises by local authorities or their agents (where there is a formal agreement between them) for re-use, may be reported as being municipal waste.
Natural Resources	Substances of use to humans that are derived either from the Earth e.g. coal, oil or metal ores or from living things.
Non Clinical Waste	Non clinical waste is deemed to be all non toxic and non-hazardous waste.
Non Hazardous Landfill	Use definitions set out in Schedule 1 (Waste Acceptance Criteria) of the Landfill (England and Wales) Regulations 2002 and Amendment Regulations 2004 and the Landfill Regulations (Northern Ireland) 2003 and the Landfill (Amendment) Regulations (Northern Ireland) 2004.
Non Household Waste	Includes wastes collected by a local authority from non-household sources (i.e. not covered by Schedules 1 and 2 of the Controlled Waste Regulations 1992/ Controlled Waste Regulations Northern Ireland 2002).
NILAS	Northern Ireland Landfill Allowance Scheme.
Organic Waste	Also known as putrescible waste or biowaste, organic waste means "any waste that is capable of undergoing anaerobic or aerobic Biodegradable Waste decomposition through a biological treatment process, such as food and garden waste".

Participation Rate	The participation rate measures which households are making material available for collection. However, not all households that are participating are likely to do so every week, it is therefore necessary to measure which households are using the service over at least four weeks or at least two collection cycles.
Percentage Weighed	$\frac{\text{Measured Tonnage}}{\text{Estimated Total Tonnage}} \times 100$
Pay-By-Use (PBU) Schemes	Schemes whereby residents pay in direct proportion to the amount of waste collected from individual households. This scheme is devised to offer financial incentives for residents to reduce the amount of waste which is presented for collection and subsequent management by public or private waste collectors.
Polluter Pays Principle	The principle set out in Council Recommendation 75/436/Euratom, ECSC, EEC of 3rd March 1975 1(20) regarding cost allocation and action by public authorities on environmental matters.
Producer Responsibility Initiatives	A series of initiatives undertaken by industry with the agreement of the Government and generally having a requirement to take steps for the purpose of the prevention, minimisation, limitation or recovery of waste as respects the class or classes of product to which the requirement relates and may include a requirement to achieve specified targets in relation to those matters, in line with the 'Polluter Pays Principle'.
Proximity Principle	The principle that waste should be treated or disposed of as close as practicable to its place of origin.
Putrescibles	Solid wastes which are biodegradable.
Pyrolysis	Decomposition of organic waste by heating in an enclosed vessel either in the absence of air to produce gas for combustion or with a limited supply of oxygen.
Quality Assurance Schemes	Are usually non-statutory in nature, and designed to ensure that producers maintain a large degree of control over process management and produce a compost product of high quality, which will be easily marketed and profitable in nature.
Mixed Dry Recyclables	Recyclates (glass bottles and containers, plastic bottles and containers and metal tins and cans) not including putrescible wastes.
Recovery	Any activity carried out for the purpose of reclaiming, recycling or re-using waste in whole or in part.
Recyclables	Waste materials that may be subjected to any process or treatment to make it re-useable in whole or in part.

Recycling/Recycled	"Recycled" means materials which have been collected and separated with subsequent reprocessing to produce marketable products. Recycling differs from product re-use because of the need to reprocess the material and it is often subsequently manufactured into a different product, for example Polyethylene plastic bottles can be reprocessed into fleeces.
Refuse Derived Fuel (RDF) Combustion	The combustible fraction of municipal waste can be mechanically and or thermally separated into a product called Refuse Derived Fuel (RDF). This may be pelletised or utilised as a loose flock product in a controlled combustion process (either a dedicated incineration / gasification process or co-combusted in an industrial type application, for example a cement kiln or power station).
Residual Municipal Waste	The fraction of municipal waste remaining after the source separation of municipal waste fractions, such as food and garden waste, packaging, paper and paperboard, metals, glass and is usually unsuitable for high quality recovery or recycling.
Reduction of Waste	A reduction of waste at source involving minimisation of the use of environmentally harmful substances and/or minimising material or energy consumption.
Reuse/Reused	Re-use means the use of household waste for its original or a different purpose without processing or treatment in a waste recovery operation other than one which has the purpose of repairing or refurbishing the household waste.
Reduction of Hazardous Substance (RoHS)	These European Union regulations set maximum concentration limits on hazardous materials used in electrical and electronic equipment (See WEEE). The substances are lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).
Separate Collection	The separate collection of certain categories of biodegradable municipal waste, such as paper/ cardboard and organic waste, in such a way as to avoid the different waste fractions or waste components from being mixed, combined or contaminated with other potentially polluting wastes, products or materials.
Sewage Sludge	Sewage sludge is the residual sludge from wastewater treatment plants, produced from the treatments of domestic or urban waste waters and from other sewage plants treating waste waters of a composition similar to domestic and urban waste waters.
Stabilised Biowaste	Waste resulting from the mechanical biological treatment of biowaste, unsorted waste or residual municipal waste which does not comply with specified minimum standards of environmental quality.

Street Cleaning Waste	Includes waste collected by litter pickers, street sweeper & mechanical sweepers, but excludes gully emptying waste and poop-scoop wastes.
Street Recycling Bins	Litter bins for recycling located on streets; but not at CA Sites or Bring Sites.
Supply Chain Management	The management of the entire sequence of processes and activities within manufacturing and retailing operations. With respect to waste management, the purpose is to encourage the introduction of measures further up the supply chain in order to reduce the quantities of waste produced at all stages in the production and distribution process.
Sustainable Development	Finding ways to meet the needs of the present generation without damaging the environment or preventing future generations from being able to meet their own needs.
Thermal Treatment	A process by which heat is applied to waste under strictly controlled conditions in order to recover energy through the generation of heat or electricity or to produce a synthesis gas which is suitable for combustion and to reduce the bulk of the waste, prior to final disposal. Thermal treatment can involve a number of processes such as incineration, pyrolysis and gasification.
Trade Waste	Waste collected from commercial premises by district councils, as part of their service provided under the provisions of the Waste and Contaminated Land (NI) Order 1997.
Tradable Landfill Permits	Are a flexible economic instrument and have been applied in the UK, devised to minimise the cost of meeting the Landfill Directive targets whilst giving local authorities the greatest amount of flexibility. An allowance to landfill a certain amount of waste is issued to the landfill operator – exceeding this amount requires the purchase of ‘surplus’ allowances from other operators who have not used their full allowance.
Treatment Facilities	Facilities where waste undergoes thermal, physical, chemical or biological processes that change the characteristics of waste in order to reduce its volume or hazardous nature or facilitate its handling, disposal or recovery.
Variable Charging (or Differentiated Charging)	A method where a local authority or private sector operators determine waste charges for various waste management services undertaken within a particular administrative Biodegradable Waste area, designed to promote best practice in prevention, recycling and biological treatment among producers. Pay-by-Use is a form of variable charging.
Vermicomposting	Composting system using worms.

Waste	Any substance or object which the holder discards, or intends, or is required to discard, and anything which is discarded as if it were a waste, as per the Waste Management Act 1996.
Waste Collection Permit System	A system whereby persons with a view to profit or otherwise in the course of business, collect waste are issued a permit which allows operation within a local authority functional area for the collection of waste.
Waste Electrical and Electronic Equipment (WEEE)	A waste stream defined by the European Community directive on waste electrical and electronic equipment (WEEE Directive) which, together with the RoHS Directive, became European Law in February 2003, setting collection, recycling and recovery targets for all types of electrical goods.
Waste Hierarchy	Describes the way in which some ways of dealing with waste are better for the environment than others. Reduction is the best option followed by reuse then if neither is possible recycle . Disposal through landfill or incineration should only be a last resort.
Waste Management Facility	A site or premises used for the recovery or disposal of waste.
Waste Management Plans	Statutory waste management plans adopted by local authorities which have generally been implemented on a regional basis in Ireland since 2001.
Waste Minimisation	Any technique, process or activity that either avoids, reduces or eliminates waste at its source, or results in re-use or recycling.
Waste Prevention	The reduction of the quantity (weight and volume) and hazardousness of waste generated for collection and treatment for disposal by a third party.
Waste Producer	A person whose activities produce waste or who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of waste.
Waste Transfer Station	A site to which waste is delivered for sorting or compacting/bulking prior to transfer to another place for recycling, treatment or disposal.
Waste to Energy Plant	A plant where waste undergoes thermal treatment with a recovery of energy due to the fact that the waste itself contains large amounts of thermal energy ready to be liberated either by combustion or by synthesis gas production followed by combustion. The energy that is recovered is often used to supply electricity or combined heat and power through integration with district heating systems.

White Goods	Household appliances including fridges, freezers, washing machines, tumble driers and dishwashers.
Windrow/Other Composting	The composting of biowaste placed in elongated rows which are periodically turned by mechanical means in order to increase the porosity of the heap and increase the homogeneity of the waste. Means the composting of biodegradable wastes placed in long heaps, often triangular in cross section and turned or aerated in order to increase decomposition of the heap and increase the uniformity of the waste.

ANNEX A

LEGISLATION AND POLICY

A.0 LEGISLATION AND POLICY

A.1 This Annex provides a list of the key legislation and policy documents relevant to waste management practices in Northern Ireland. Key European Union Waste Directives, Regulations and recent EU Communications in Northern Ireland as key primary and subordinate waste legislation in Northern Ireland are listed. It is intended for guidance only and the list is not exhaustive. Further information on waste policy and legislation is available from the following sources:

- European Union: www.europa.eu.int/eur-lex
- Department of the Environment: www.doeni.gov.uk/epg
- NetRegs: www.netregs.gov.uk

European Union Waste Directives and Communications
▪ 75/442/EEC Waste Framework Directive on Waste (as amended in 91/156/EEC) ▪ 1999/31/EC Directive on the Landfill of Waste ▪ 1996/61/EC The Integrated Pollution Prevention and Control (IPPC) Directive ▪ 91/689/EEC Directive on Hazardous Waste ▪ 94/62/EC Directive on Packaging and Packaging Waste ▪ 2000/76/EC Directive on the Incineration of Waste ▪ 2000/53/EC Directive on the End-of-Life Vehicles (ELVs) ▪ 2002/96/EC Directive on Waste Electrical and Electronic Equipment ▪ 75/439/EEC Directive on Waste Oils ▪ 91/157/EEC Directive on Batteries and Accumulators ▪ 86/278/EEC Directive on Sewage Sludge used in agriculture
European Union Waste Regulations
▪ 2150/2002 Regulation on Waste Statistics
European Union Waste Communication
▪ Towards a Thematic Strategy on the Prevention and Recycling of Waste, COM (2003) 301 – Official Journal C76 of 25 March 2004 ▪ Integrated Product Policy, COM (2001) 68 final ▪ Sixth Environmental Action Programme of the European Community. Environment 2010: Our Future, Our Choice, COM (2001) 31 final

National Legislation and Regulations

Primary Legislation

- SI 1978/1049 Pollution Control and Local Government (Northern Ireland) Order
- SI 1985/1208 Local Government (Miscellaneous Provisions) (Northern Ireland) Order
- SI 1997/2778 Waste and Contaminated Land (Northern Ireland) Order 1997
- SI 1998/1762 Producer Responsibility Obligations (Northern Ireland) Order
- SI 2002/3153 Environment (Northern Ireland) Order
- Waste and Emissions Trading Act 2003

Subordinate Legislation

- SI 1994/1137 Transfrontier Shipment of Waste Regulations
- SI 1996/1527 Landfill Tax Regulations (and subsequent amendments)
- SR 1999/115 Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland)
- SR 1999/362 Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland)
- SR 2002/271 The Controlled Waste (Duty of Care) Regulations (Northern Ireland) 2002
- SR 2003/46 Pollution Prevention and Control Regulations (Northern Ireland)
- SR 2003/404 Controlled Waste (Amendment) Regulations (Northern Ireland)
- SR 2003/493 Waste Management Licensing Regulations (Northern Ireland)
- SR 2003/495 Animal By-Products Regulations
- SR 2003/496 Landfill Regulations (Northern Ireland)
- SI 2003/1941 Packaging (Essential Requirements) Regulations
- SI 2003 2635 End-of-Life Vehicles Regulations
- SR 2004/73 Litter (Fixed Penalty) Order (Northern Ireland)
- SR 2004/416 Landfill Allowances Scheme (Northern Ireland) Regulations
- SI 2004/459 The Planning (General Development) (Northern Ireland) Order
- SI 2004/1936 Landfill (Scheme Year Maximum Landfill Amount) Regulations
- SR 2005/90 Transfrontier Shipment of Waste (Fees) Regulations (Northern Ireland)
- SI 2005/263 End-of-Life Vehicles (Producer Responsibility) Regulations

National Legislation and Regulations**Subordinate Legislation**

- SR 2005/300 Hazardous Waste Regulations (Northern Ireland)
- SR 2005/329 Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland)
- SR 2005/588 Landfill Allowances Scheme (Amendment) Regulations (Northern Ireland)
- SI 2005/759 Landfill Tax (Amendment) Regulations

ANNEX B

CONSULTATION REPORT

SOUTHERN WASTE MANAGEMENT PARTNERSHIP

www.swampni.org.uk



Armagh



Banbridge



Cookstown



Craigavon



Dungannon



Fermanagh



Newry & Mourne



Omagh

DRAFT MODIFICATIONS TO THE WASTE MANAGEMENT PLAN

MEASURES TO MANAGE MUNICIPAL WASTE

CONSULTATION ANALYSIS

MAY 2006

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1.0 INTRODUCTION

This report provides a summary and analysis of the responses received to the consultation process outlining the proposed modifications to the Southern Waste Management Partnership (SWaMP) Draft Waste Management Plan (2006). The report is structured as follows:

- An introduction to the consultation process
- The Structure of the Consultation paper
- Overview of Responses
- Analysis of responses
- Conclusions

Following this public consultation, the draft plan for the SWaMP Region will be finalised. The main purpose of the plan is to set out the main requirements necessary for SWaMP to provide the necessary framework required in order to meet their statutory obligations.

2.0 THE CONSULTATION PROCESS

The consultation process commenced on 20th March 2006 and closed on 30th April 2006. During this period, consultees were invited to submit comments, either by letter or by email, on a paper detailing the proposed modifications to the management of municipal waste within the SWaMP Region.

The Consultation was advertised throughout the SWaMP Region using press advertisements within each District Council catchment area and the document was posted on the SWaMP website as well as being made available in local Council offices and in libraries. In addition to this, one public meeting regarding the Consultation was held in Omagh District Council.

3.0 THE STRUCTURE OF THE CONSULTATION PAPER

The consultation paper was set out in three parts, as summarised in Box 1 below.

PART 1: BACKGROUND AND CONTEXT

This section provides an introduction to the Waste Management Plan and the need for its subsequent review, including the objectives of the review

PART 2 : KEY MEASURES FOR THE MANAGEMENT OF MUNICIPAL WASTE

WASTE PREVENTION emphasises the need to take actions to limit and then reduce the future growth in waste that has to be collected and treated with the aim being to encourage householders to increase resource efficiency.

RECYCLING AND COMPOSTING emphasises the need for all waste producers to improve the recovery of materials from the municipal waste stream.

ENERGY RECOVERY AND TREATMENT OF RESIDUAL WASTES introduces a number of options for sustainable management of residual wastes to meet the NILAS targets and hence avoid fines under the Regulations.

PART 3 : SYNERGIES BETWEEN MUNICIPAL AND COMMERCIAL AND INDUSTRIAL WASTE

This section provides a brief overview of the potential for commercial and industrial waste to be managed in synergy with municipal waste.

The consultees were invited to submit their views on the questions posed within Part 2 of the Consultation Document along with any general views on the review of the Waste Management Plan.

4.0 OVERVIEW OF RESPONSES

A total of 18 responses were received during the consultation period. These responses were made up of the following stakeholder groups:

- Members of the Public: 11 responses (4 web based and 7 letter based)
- Non-Governmental Organisations: 2 responses
 - Friends of the Earth
 - Cross Border Environmental Alliance
- Business: 5 responses
 - Northland Capital Limited
 - Asset Management Limited
 - Renewable Energy Equity Limited
 - ENERGOS
 - Environmental Management Services

Eight of these respondents supplied comments directly relating to the questions posed within the consultation document whereas the remaining ten supplied more general comments on the consultation document, the consultation process and waste management in general within the SWaMP Region.

5.0 ANALYSIS OF THE CONSULTATION RESPONSES

The following section provides an analysis of the responses received during the consultation process. The section has been divided into the following sections:

1. Waste Prevention
2. Recycling and Composting
3. Treatment of Residual Waste and Energy Recovery
4. Synergies between Municipal Waste and Commercial and Industrial Waste
5. Concluding Comments.

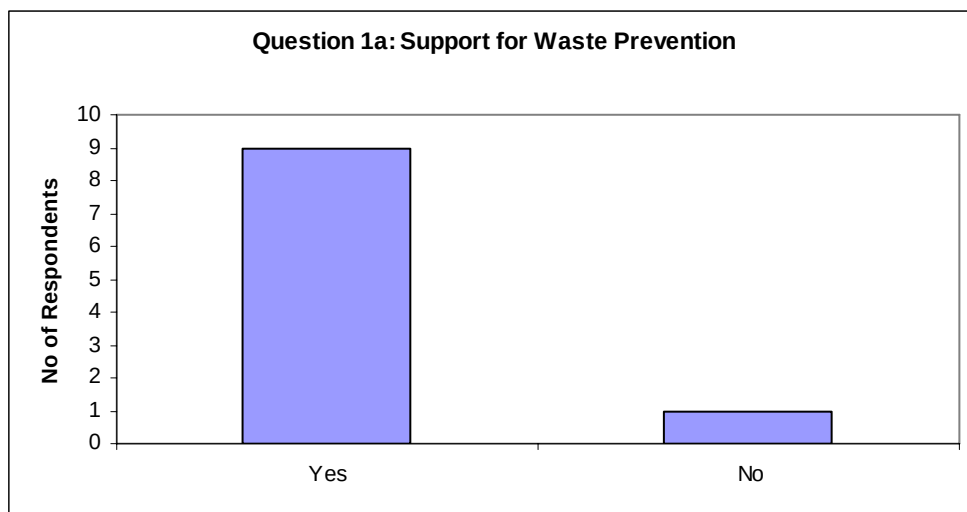
Each of the sections documents the answers provided for the questions posed within the consultation document as well as including general comments relevant to the section. The questions posed within the consultation document have been included within each of the sections. It should be noted that this analysis document has been designed to give an overall view of the responses received as part of the consultation process and does not seek to exactly replicate each of the eighteen responses received.

5.1 WASTE PREVENTION

Question 1a

Do you support waste prevention as a priority area for action in the review of the Plan?

Ten consultees responded directly to this question and the results are shown in the graph below:



It should be noted that the one consultee who did not agree with waste prevention being viewed as a priority area, was a member of the public from outside the SWaMP Region. The disagreement was on the basis that the respondent did not consider that waste prevention would serve any useful purpose within the SWaMP Region.

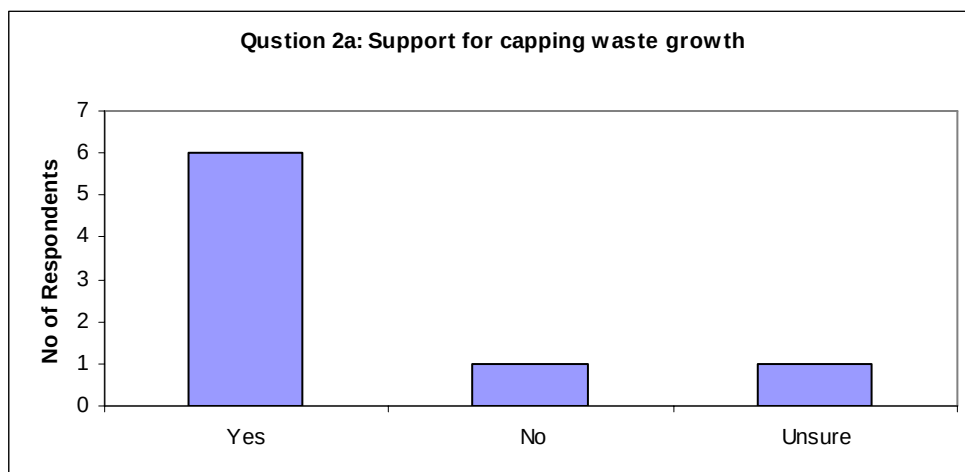
The additional following comments were also given in response to question 1a:

Comment
▪ Waste Prevention should be undertaken on a series of levels including schools, business and the general public through education and awareness initiatives. This is required to ensure that treatment plants have sufficient treatment capacity to manage the amount of waste produced.
▪ Simple measures such as a plastic bag charge can be highly effective. This would also generate additional revenue that could be used in other environmental projects.

Question 2a

Do you support the concept of “capping” the waste growth within the SWaMP Region?

Eight consultees responded to this question and the results are shown in the graph below:



The majority of the respondents were in support of capping waste growth, with only one in disagreement. This was on the grounds that capping targets should be scrapped in favour of real waste reduction. One respondent was unsure as this will require a significant change in attitude across stakeholder groups and there is no evidence at present of what can be achieved.

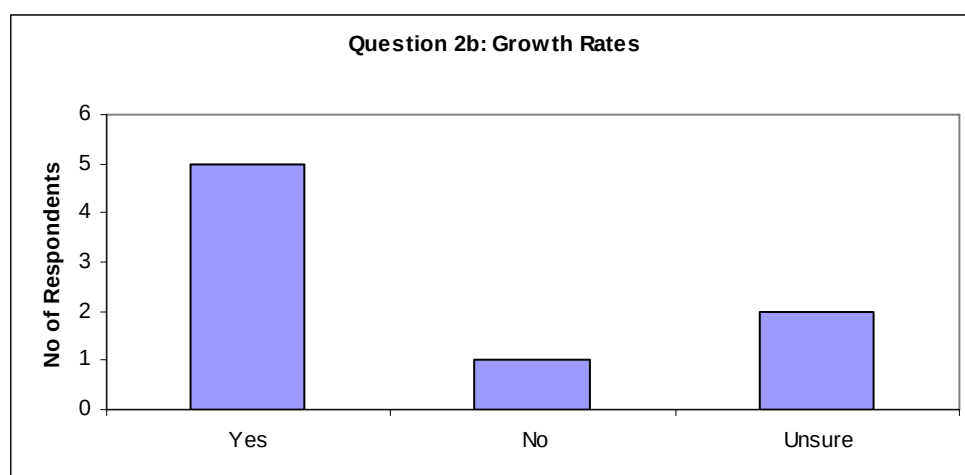
The following additional comments were received for this section:

Comment
Resources must be allocated to prevent fly tipping if waste growth is to be capped.
The reductions in growth rate will depend on the success of the Strategy.
If waste prevention is comprehensively and honestly addressed, then the idea of capping growth rates becomes a non issue.
There is support in principle for capping. It will be possible to monitor and control the waste arising from larger businesses, however it will be more difficult to monitor the waste in the small business sector and private households.

Question 2b

Do you agree that these growth rates are reasonable?

Eight consultees responded to this question with their responses being presented below:



As with the previous question, the majority of the respondents agreed with the growth rates suggested within the consultation document. One respondent disagreed on the basis that the Northern Ireland Waste Management Strategy has abandoned targets for reducing the waste growth and therefore the SWaMP Waste Management Plan should follow suit. One respondent was unsure on the basis that the achievement of these rates will be dependant on a significant change in attitude of householders and business. One further respondent considered that they had insufficient knowledge to allow them to answer this question.

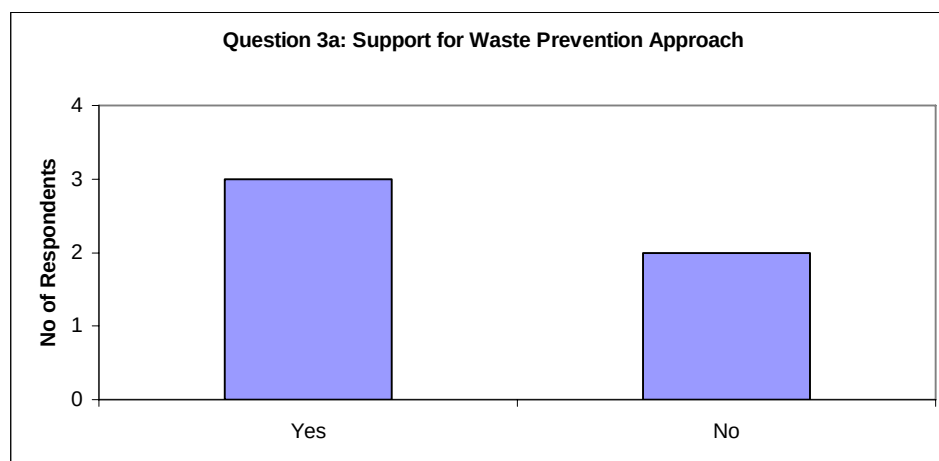
The following additional comments were received for this question:

Comment	
▪	This would be easier to judge if growth rates were expressed against the projected population increase in the area.
▪	The growth rates are reasonable as long as the general population growth rate stays as it is. However, measures to address issues such as a more affluent society, population expansion through less migration and increased numbers of migrant workers coming into the local community need to be set.
▪	The critical issue is the level of flexibility within the Plan to keep below the landfill limits if the capped waste growth rates are exceeded.

Question 3a

Do you support this approach for waste prevention?

Five consultees responded directly to this question and the results are outlined in the graph below:



There was mixed support for the approach for waste prevention, although the two consultees who did not support the concept, failed to provide reasons as to why. One of these respondents was outside the SWaMP Region.

Question 3b

Are there any other specific actions which could be undertaken by Councils to encourage waste prevention at the household level?

Respondents

A number of specific actions were suggested by the consultees and these are outlined further below. There was however a degree of confusion in this section as to the differences between waste prevention and recycling.

- A carrot and stick regime is required whereby Councils supply the means to allow the household to separate and compost their waste whilst at the same time introducing a programme of education and awareness to change our attitude to waste.
- Fines should be introduced for households not complying with the regime of separating waste.
- A tax should be introduced on plastic bags and other high volume waste producing products therefore encouraging all sectors to be more environmentally friendly.
- Families should be encouraged to use reusable nappies. At present £20 is offered as an incentive, however, this amount is considered inadequate and should be increased to £50.
- Supermarkets should be encouraged to cut down on the amount of packaging around products.
- SWaMP should adopt a zero waste approach to sustainable waste management. The setting of this ambitious target will encourage new levels of innovation and efficiency.
- The waste prevention approach should include incentives and targets.
- SWaMP should look at how waste is managed throughout the rest of Ireland, using the concept of paying for waste at source. This should encourage waste prevention as costs increase for as the amount of waste presented for disposal increases.

5.2 RECYCLING AND COMPOSTING

Question 4a

Which Council area do you live in ?

The consultees were from the following Council regions:

Armagh:	2
Cookstown:	1
Craigavon:	2
Dungannon:	2
Newry:	1
Omagh:	2
Not Specified:	6
Other:	4

- Belfast (Friends of the Earth, Asset Management, Northland Capital Limited)
- Millisle

Question 4b

Would you describe your location as urban or rural?

Urban: 2
Rural: 2
Both: 1

Question 4c

In terms of using facilities do you currently have access to:

1. ***Recyclables bin*** Yes/No
2. ***Compostables bin*** Yes/No
3. ***A local bring bank*** Yes/No

9 consultees responded to this question, as outlined in the table below:

Access to Receptacles	Yes	No
Recyclables bin	4	2
Compostables bin	1	4
Local bring bank	4	1

Question 4d

Are there any additional measures which you would like the Councils to implement to increase the amount of materials you recover?

A number of additional measures were suggested. These included:

- The addition of more recycling containers for items such as glass. This could include household containers in which to store glass.
- Bring facilities should have receptacles for recycling paper.
- Civic Amenity sites should be enhanced for the collection and separation of additional bulky household and hazardous waste e.g. rubble, wood, electrical goods, batteries, paint, anti-freeze and chemicals. In areas where this is not possible, a “mobile” bring site should be provided on a regular basis. This would allow householders to bring such materials to a specific location on publicised days for collection.

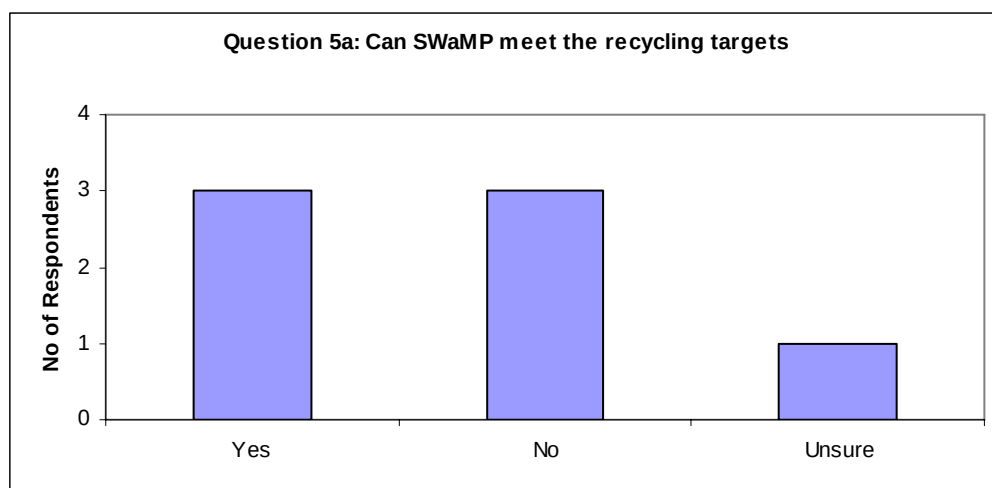
- There are currently no facilities available to recover used batteries, other than lead acid at local amenity sites. Shops selling batteries should be required to take back “dead” batteries.
- Recycling amenities should be covered to allow people to avail of them in all weathers.
- Brown bins and Blue Bins should be extended to all householders
- Food waste should be incorporated into the brown bin at the earliest opportunity
- Segregation at source should be encouraged to increase the recovery of useable materials.
- A wide range of composting facilities, from home based to town sized, should be encouraged.
- Strict criteria dictating the type of materials to be accepted at landfills should be imposed, so as to encourage diversion.
- Practical assistance should be afforded to local initiatives for recycling and composting.
- Assistance should be provided for businesses providing a local market for recycled materials.
- Resource Recovery Parks should be established as the community replacement for landfills.
- Public awareness should be raised.
- District Councils should reconsider the present Strategy of “privatising” waste collection and disposal.
- Councils should supply each household with a reusable shopping bag
- The large bag for garden waste, provided by Craigavon District Council, is useful.
- Initiatives such as London REMADE should be considered.
- A WEEE Take Back Service is already available in Northern Ireland for public sector and commercial organisations.
- All Councils should adopt the same policies with regard to recycling and recovery.
- Recycling facilities and landfills should tidy, organised and have adequate signage to show commitment from the Councils on recycling and recovery. There are also benefits of having staff on site to answer queries. Recyclable materials could also be made available for sale at these sites.
- Councils have a duty to set high standards and provide intensive source separation systems throughout the SWaMP Region.
- The poorer performing Councils should identify where they are failing to provide the necessary infrastructure.
- Appropriate taxation and social incentives are the key to the necessary structural and behavioural changes required and should be introduced without delay.
- Central Government should be lobbied to introduce a competitive financial rewards system for those Councils that declare zero waste as an achievable and realistic goal and which are taking practical steps to implement the zero waste approach.

- Local communities should be encouraged to take responsibility for their own wastes. Significant funding will be required to develop autonomous and de-centralised community based approaches to waste management, but this expenditure can be offset against savings from reduced future landfill costs. This will also require guidance and leadership from local authorities and Government, financial assistance for suitable small-scale and local enterprises and recognition by Central and Local Government that community based schemes have an important role to play.
- District Councils should move from fixed to volume or weight related charges for waste collection systems.
- District Councils should consider changing their role from “waste disposal” agencies to “resource management” or “materials management and utilisation organisations.
- SWaMP should set up and participate in networks for exchanging information, technical advice, materials, recyclables, objects for reuse and repair etc. throughout Northern Ireland and linked with similar networks in RoI.
- Sustainable waste management advisors should be employed to advise on recycling schemes and projects.

Question 5a

Do you believe that SWaMP can meet the recycling targets outlined above through separated collection?

Seven consultees responded directly to this question and the results are shown in the graph below:



As can be seen from the graph, there are a number of respondents who believe that SWaMP cannot meet the recycling targets. The reasons given for this were as follows:

- A waste treatment plant is required in order to meet the required targets.
- More outlets are required, including mobile collections.

One respondent was unsure as to whether these targets could be met as there is at present insufficient evidence to support this. It is recognised that the targets will be challenging and that given current performance, there is a risk that the targets will not be met.

In addition to this, three respondents believe that more ambitious targets for waste reduction and recycling are required and the SWaMP region should aim to exceed Northern Ireland totals. One respondent has suggested targets of 60% recycling and composting by 2010, rising to 75% by 2015, while another has suggested doubling the recycling targets, provided the appropriate policies, financial incentives and the necessary infrastructure is in place.

One respondent believes that the introduction of charges to householders would help to ensure that the recycling rates are achieved.

Question 6a

Do you already purchase any products which contain recycled products such as:

<i>Paper</i>	<i>Yes/No</i>
<i>Glass</i>	<i>Yes/No</i>
<i>Waste derived compost</i>	<i>Yes/No</i>
<i>Other</i>	<i>(Please specify)</i>

Respondents are purchasing products containing the following recycled materials:

Product	Yes	No
Paper	4	2
Glass	2	4
Waste derived compost	2	3
Other	Storage Boxes	

Question 6b

If not, do have concerns over:

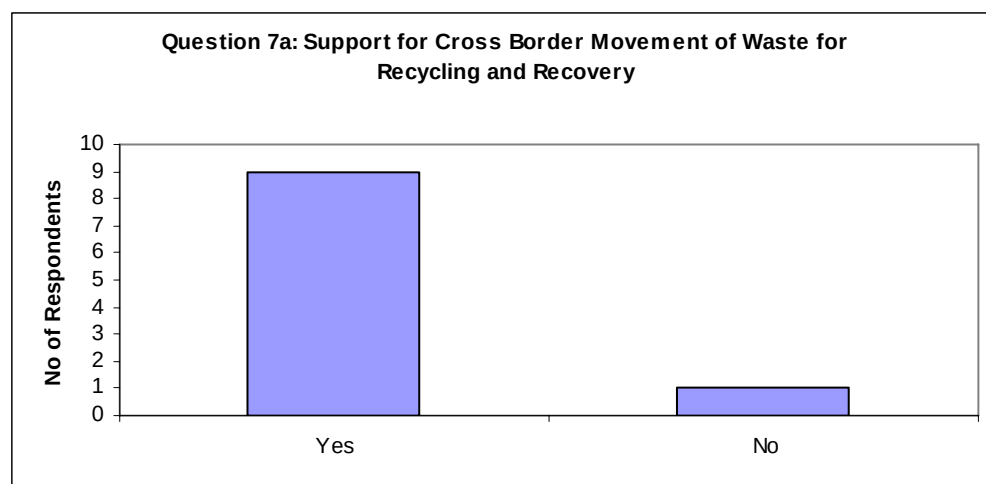
<i>Cost</i>	<i>Yes/No</i>
<i>Quality</i>	<i>Yes/No</i>
<i>Availability</i>	<i>Yes/No</i>
<i>Other</i>	<i>(Please specify)</i>

The following concerns were documented by the respondents:

Concern	Yes	No
Cost		2
Quality	1	1
Availability	3	
Other	There are very few recycled products available.	

Question 7a

Do you agree with the free movement for recycling and recovery and the establishment of sustainable markets on an all island basis?



As can be seen from the graph, the majority of respondents do support the cross border movement of waste for recycling and recovery. The respondent who did not support the concept, did not supply reasons for this disagreement.

In addition, the following comments were also given in response to question 7a:

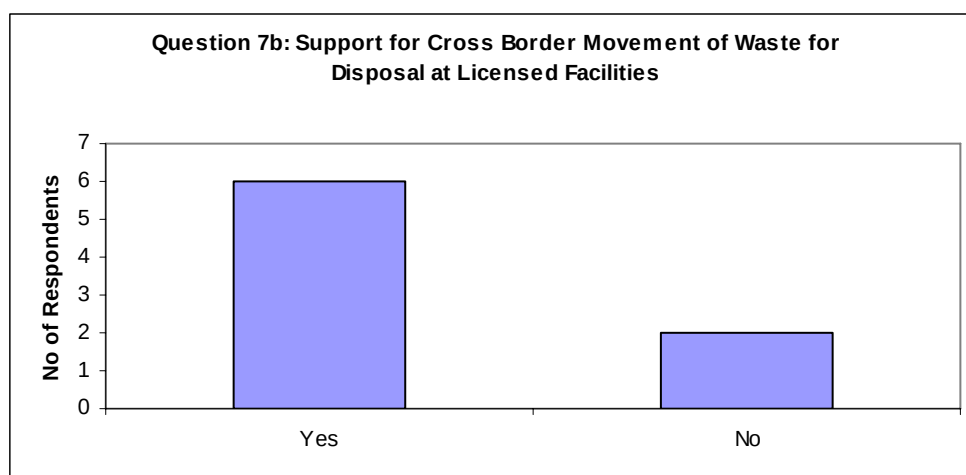
Comment
There should be a free market as far as it is environmentally safe to do so.
The benefits from the end product should be beneficial to the local community.
A series of small commercial plants spread along the geographical area, would be more beneficial and would provide a sense of ownership.
Transportation of residual waste after recycling and recovery should be kept to a minimum and instead responsibility for this waste should be at a local level.

Comment	
▪	Market forces should be left to determine the cost effectiveness of selling recycled and recovered materials.
▪	The economies of the operation must be carefully managed so as to make it uneconomic to ship waste from other areas.
▪	Financial input from Central Government is required to stimulate markets for recycled materials. Local Councils have a role to play in this.
▪	There are concerns over the illegal cross border movement of wastes.

Question 7b

Do you support the cross border movement of waste for disposal at appropriate licensed facilities where the provision is provided for within the plan?

Seven consultees responded to this question, as outlined in the graph below:



As can be seen from the graph, the majority of those consultees who responded to this question supported this initiative, with only two respondents in disagreement. Both of these respondents held the view that each region should address waste disposal at a local level.

There were also a number of additional comments provided.

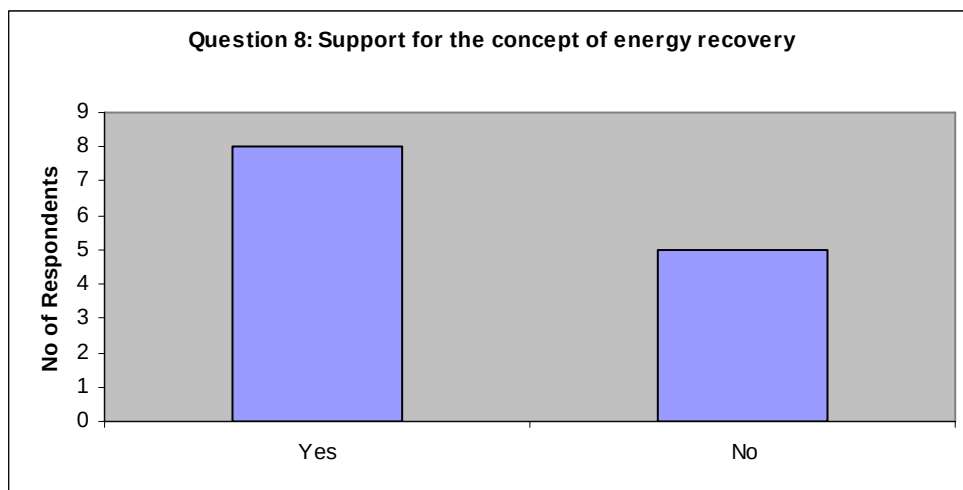
Comment
Supervision must be rigorous if disposal of waste from R.O.I. into N.I. landfills is to be prevented.
There needs to be provision within the Waste Management Plans of both jurisdictions for co-operation at the community level. This co-operative process should be overseen and designed by a group of committed people drawn from the community including people in local Government, businesses and members of the public.
The “free movement” of wastes requires careful control in order to prevent illegal waste movements.

5.3 TREATMENT OF RESIDUAL WASTE AND ENERGY RECOVERY

Question 8

Do you support the principle of using waste as a resource to recover energy?

There were 13 consultees who responded directly to this section of the consultation. Of these, eight signalled support for the principle of using waste as a resource to recover energy, while five disagreed.



The majority of those who disagreed, did so on the basis that they considered that energy would be produced from a mass burn incineration process, and were concerned over potential environmental and health impacts of mass burn incineration. It should however be noted that the process of mass burn incineration is not proposed as part of the plan for the SWaMP Region.

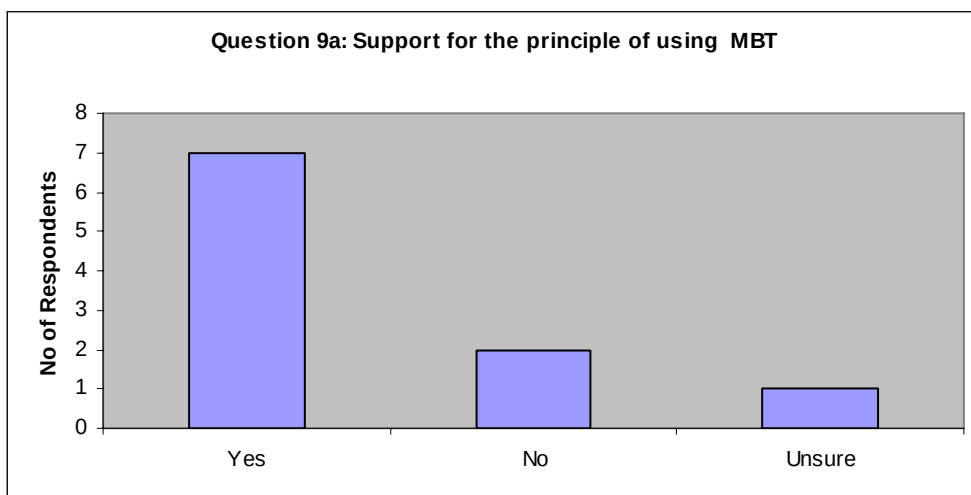
The additional following comments were also given in response to question 8:

Comment	
▪	It is vital that an effective and independent monitoring agency is set up to allay the public's fears about air/soil/water pollution from any effluent from the facility. Also, an awareness programme should be set in train to convince the public of the safety of such facilities.
▪	If any waste is to be burned to produce energy, it should be as a Fuel.
▪	It is estimated that between 5% and 10% of NI's total electricity demand could be met by energy from waste. There is also scope to provide heat in the vicinity of the plant.
▪	Waste, if properly treated, can be a safe alternative fuel and can be used in a variety of different ways to produce both heat and power.
▪	The energy and heat produced should feed directly into the communities and business section surrounding the plants thereby giving the communities a sense of ownership into both the waste and energy process.
▪	Energy recovery should not be use to disguise "incineration".

Question 9a

Do you support the principle of using Mechanical Biological Treatment (MBT) for treating waste in order to reduce the biodegradability of the materials?

Nine consultees responded directly to this question, as outlined in the graph below:



As can be seen from the graph, the majority of the respondents supported the principle of using MBT. There were two respondents who disagreed with the principle whilst one was unsure. The unsurity was on the basis that MBT achieves little volume reduction and its outputs will require further processing, some at considerable cost.

One respondent is opposed to the introduction of MBT on the grounds that alternative technologies supporting re-use, repair and recycling and the zero waste approach should be considered, whilst the other did not provide a reason for this disagreement but is from outside the SWaMP Region.

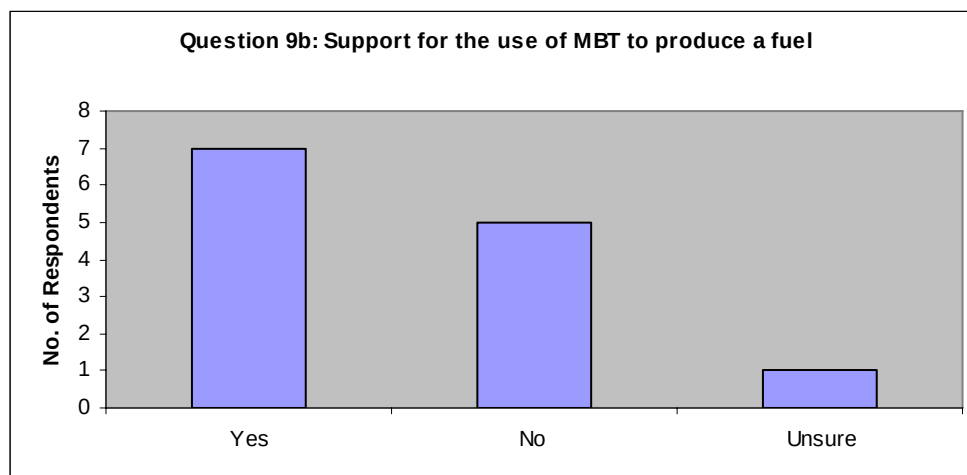
The additional following comments were also given in response to question 9a:

Comment	
▪	MBT is encouraged to produce a valuable resource which if treated correctly within the correct type of MBT plant, will produce a useable fuel for the generation of heat and power but may also produce a useable compost.
▪	The principle of MBT is supported but the output should be landfilled.

Question 9b

Do you support the use of MBT to produce fuel?

There were 13 consultees who responded directly to this question, as shown in the graph below:



As can be seen from the graph, the majority of respondents supported the concept of using MBT to produce a fuel, although one respondent wished to see more research into this. Of those who did not support the concept, the majority rejected it on the basis that the process would involve mass burn incineration and this produced concerns over dioxins and subsequent health effects. One respondent also disagreed on the basis that incineration is an unsustainable solution for the future.

The following additional comments were recorded for this question:

Comment
Fuel produced by MBT should be subsidised to be 5% cheaper than the equivalent traditional fuel.

Question 10a

Do you believe that the proposed mix of facilities, in the form of Mechanical Biological Treatment (MBT) and Energy Recovery, will be sufficient to deliver sustainable waste management of residual wastes and enable SWaMP to meet their statutory requirements?

There were a limited number of consultees who responded to this question, as outlined in the graph below:



As can be seen from the graph there is mixed opinion as to whether the proposed mix of facilities will be sufficient. It should be noted that, for those respondents who disagreed with the mix of facilities, none provided reasons as to why.

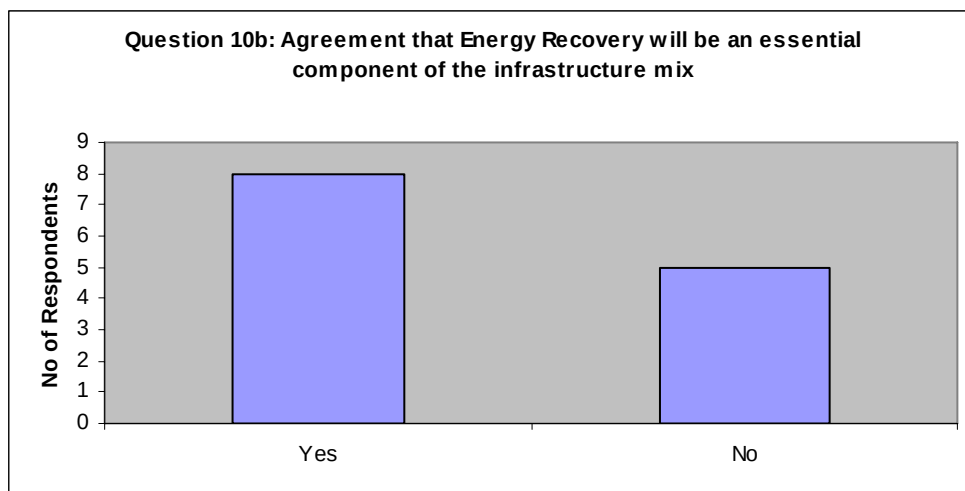
The additional following comments were also given in response to question 10a:

Comment
Irrespective of the model chosen, the regulatory requirements will only be met by prompt decision making and considerable political will to make the necessary planning and procurement decisions.
The outputs from the MBT process should be landfilled and not used in any incineration process.

Question 10b

Do you agree that Energy Recovery from Waste will be an essential component of the infrastructure mix?

There were 13 consultees who responded to this question, as outlined in the graph below:



As can be seen from the graph, the majority of respondents agreed that energy recovery will be an essential component of the infrastructure mix. Those who disagreed did so on the basis that they considered energy recovery would involve mass burn incineration and therefore were concerned over the dioxin release and subsequent health and environmental impacts.

The following additional comments were documented for this question:

Comment	
▪	Thermal treatment is the only option that takes out all the biodegradability of the final waste stream, therefore it has to form a major part of any plan for managing waste within the landfill limits
▪	The treatment of MSW within MBT and the production of a fuel is the best practical, most efficient and environmentally friendly manner in which to produce a waste.
▪	The use of energy recovery to describe incineration is erroneous.
▪	There is not an acceptance that energy recovery represents a secure market with low associated risks.

Question 10c

Are there any other technologies which you consider should be incorporated into the review of the Plan?

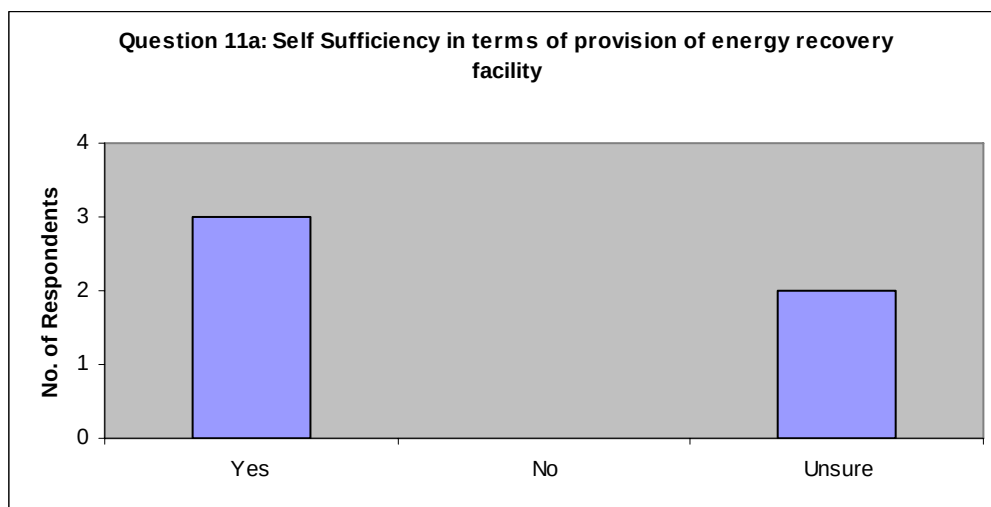
There were a number of additional technologies suggested as part of the consultation process including:

- MBT but with the residual to landfill only
- Materials Recovery Facilities
- Anaerobic Digestion and greater use of microbial solutions
- Production of bio-diesel from waste cooking oil

Question 11a

Would you prefer the SWaMP region to be more self sufficient in terms of provision of energy recovery facilities within the Region or would you have preference for these being developed as a single facility on a Northern Ireland scale?

There were only a limited number of responses to this question as outlined in the graph below:



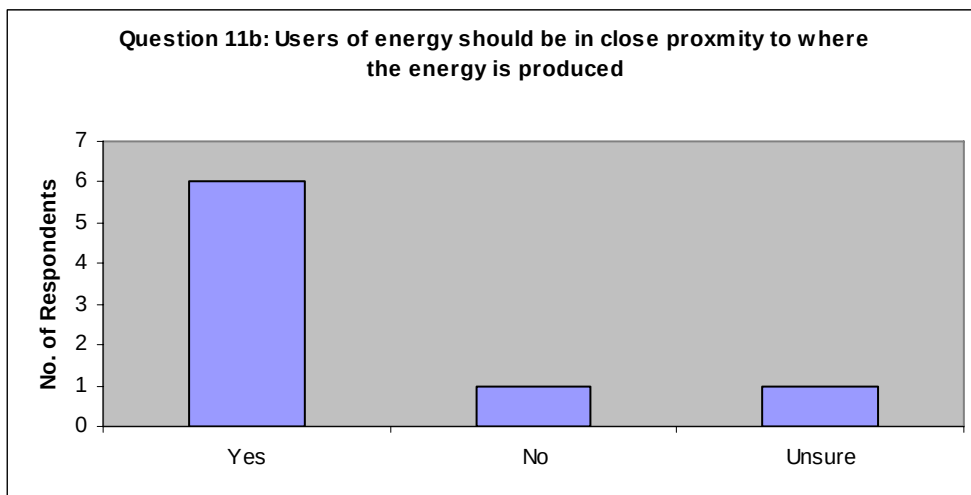
The following additional comments were recorded for this question:

Comment
▪ The electricity grid is weak in parts of the SWaMP area and requiring considerable investment for upgrade. This cost could be avoided if new embedded generation was introduced in problem areas. This could be done if the waste is harnessed as a fuel. The alternative is all waste in the SWaMP Region is transported to a central facility, probably outside the SWaMP Region. Detailed analysis would be required to establish the most cost effective solution. ▪ It is wholly unjust for one area to impose its waste on another and the proximity principle should apply.

Question 11b

The process of energy recovery will be most efficient if the user of that energy is in close proximity to the site where it is produced. Do you believe that this facility should be situated close to the end user of the heat and power, for example in proximity of facilities such as industrial users, universities or hospitals?

There were a limited number of consultees who responded directly to this question, as outlined in the graph below:



As can be seen from the graph, the majority of the respondents agreed that any energy recovery facility should be located close to the end users. One respondent disagreed on the grounds that this was a mass burn incinerator while another considered that more information was required before an informed choice could be made.

There were a number of additional comments provided for this question:

Comment
A balance must be struck between local and regional facilities, so as to minimise "waste miles".
The heat and power generated could be used by the MBT facility and beyond if it is sited close to a business park or near a residential area.
The energy value of residual waste will be greatly enhanced if the heat can be used as well and may attract the significant advantage of renewable obligation certificates for at least part of its output. However, this can only be achieved efficiently and economically if the energy from waste plant is located close to the heat user(s), and has a long term heat supply contract.
Energy from waste plants are most effective and accepted by the wider public when they are situated close to where power and heat is required. It is also more efficient to place the plants close to the areas of requirement due to:

Comment
▪ The environmental impact of large shipments by road ▪ Smaller plants constructed and operated locally will be more accepted by the local population and offer job opportunities where none exist at present ▪ Smaller plants are more efficient and direct the heat and power to where it is directly needed- the efficiency is therefore greater due to a smaller loss in power and heat transfer, which occurs when transmitting power across power lines and piping.

Question 12a

How important do you rate cost as a factor in assessing options for the development of these facilities?

Respondents were asked to rate costs on a scale of 1 to 5 where 1 is considered most important and 5 least important.

Responses

There were a limited number of responses to this question and the following ratings were established:

Rating 1: 2 respondents

Rating 2: 1 respondent

Rating 3: 1 respondent

Rating 4: 1 respondent

Rating 5: 0 respondents

Question 12b

How important do you rate self sufficiency as a factor in assessing options for the development of these facilities?

Respondents were asked to rate self sufficiency on a scale of 1 to 5 where 1 is considered most important and 5 least important.

Rating 1: 1 respondent

Rating 2: 2 respondents

Rating 3: 1 respondents

Rating 4: 0 respondents

Rating 5: 1 respondent

In addition to the ratings, one respondent replied to say that these factors were impossible to quantify as the potential costs are environmental and not financial.

Question 13

With regard to the management of municipal waste, are there any other aspects that you believe that SWaMP should consider in the Review of their Waste Management Plan?

The following responses were received directly for this question:

Comment
Any system that makes waste expensive to dispose of will encourage “fly-tipping”. Consequently, SWaMP should press councils to employ personnel to guard against “fly-tipping” and also should press for severe penalties for those caught.
There should be a possible joint venture between the Commercial Sector and the SWaMP Councils in the investment, structure and running of the MBT and EfW Plants.
The Consultation process should consider novel ideas for future waste management

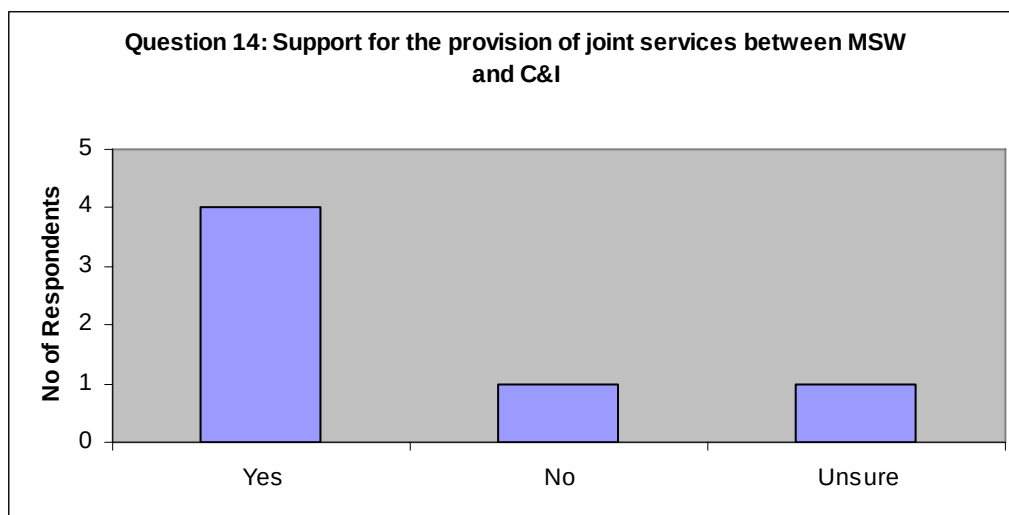
Any other general comments received in the form of letters, but not directly referring to this question, have been included within the responses to Question 15.

5.4 SYNERGIES BETWEEN MUNICIPAL AND COMMERCIAL AND INDUSTRIAL WASTE

Question 14

Would you support the provision of joint services between the municipal waste sector and the commercial and industrial sector?

There were only a limited number of responses to this question, as outlined in the graph below:



As can be seen from the graph, the limited number of consultees who responded to this question were in support of the provision of joint services between the municipal and commercial and industrial waste sectors. One respondent was unsure on the grounds that, in contractual terms, the level and composition of C&I waste is much less certain than that of MSW and so would expose any joint facilities to greater risk than one built purely for MSW. The one respondent who did not support any potential joint services did not provide a reason.

The following additional comments were received with respect to Question 14:

Comment
More effort needs to be made to encourage the building and agricultural industries to take part in the joint services. In particular, disposal of fallen stock by incineration should be available to farmers at no cost.
If a biodegradable output of a joint facility were sent to landfill, it is not clear how this would be treated with regard to the landfill limits.
This project should be a joint venture between the Private and Public Sectors.

5.5 ADDITIONAL COMMENTS

Question 15

Are there any other additional comments you consider should be taken into consideration in the review of the SWaMP Waste Management Plan?

There were a number of general comments made with respect to the review of the SWaMP Waste Management Plan and the future management of waste within the SWaMP Region.

These were received both in direct response to Question 15 within the Consultation Document but also within a number of letters sent in response to the consultation process. The comments received have been detailed below:

Consultation Document

- The draft modifications to the Plan are too heavily biased towards “waste management” (end of pipe solutions) as opposed to waste prevention and reduction.
- There is an absence of a policy on how the recycling and recovery targets are to be achieved.
- The Consultation process should involve agricultural and food processing wastes.

General Waste Management in the SWaMP Region

- It is critical that action is taken to avoid fines under the Landfill Directive.
- Appropriate taxation and social incentives are key to the necessary structural and behavioural changes required and should be introduced without delay.
- Recycling plants and composting facilities must not be allowed to become sources of pollution.
- There is a need for more consistent reporting of waste data in the Region and there should be comparisons with other sub-regions within Northern Ireland.
- The diversion of waste from landfill should be a primary objective within the review of the Plan.
- The full cost of waste management and disposal should be included within the revised plan, alongside predictions of future costs.
- Wastes should be seen as a resource and treated accordingly.

Zero Waste Approach

- SWaMP should strive towards the target of “zero” waste in order to encourage new levels of innovation and efficiency.
- Zero waste should combine community practices such as reuse, repair recycling, toxic removal and composting with industrial practices such as eliminating toxins and redesigning packaging and products for environmental and ecological demands.

Markets for Recycled Products

- It is recognised that the markets for recycled materials are not favourable and the value of any recycled products are low. There may be opportunities for the Councils to adapt their significant purchasing power to encourage the use of recycled materials and hence help the development of markets.

- A workable solution for market development could be to introduce a system of differentiated taxation according to the environmental performance of products. A first step may be to apply reduced VAT rates on products carrying the European Eco-Label supplemented by the development and use of other environmental taxes and charges.

Cross Border Waste Movements and Illegal Dumping

- SWaMP should participate in an All-Island Enforcement Network, extended to include the involvement of DOE and PSNI.
- More should be done to prosecute those involved in illegal dumping within the SWaMP Region.
- Those who suspect members of the public of illegal dumping should receive rewards for reporting them.
- The system to track waste between NI and RoI should be fully operational and agreed on an all island basis.

Landfill Facilities

- Any new landfills planned within the SWaMP Region should incorporate the establishment of a Resource Recovery Park.
- Existing landfills should be used for the residue left after recycling and recovery and new facilities should not be opened unless their need can be proven without a doubt and their location is acceptable to the host community.
- Smaller landfills, properly engineered and free from organic materials and used to deposit the relatively inert residue of MBT only, are much more acceptable alternatives to existing landfills.

Residual Waste Treatment and Energy Recovery

- The proposed Strategy includes a large scale thermal treatment plant outside the region. It is unclear whether this is intended to be the physical transportation of waste across the province or through the trading of landfill allowances. If it is the former, this needs to be taken into consideration in the plan assessment. Trading landfill allowances will avoid this issue and still allow the province and the Region to achieve their landfill targets.
- Energy from waste (in the form of gasification) can compliment various Waste Management Strategies while facilitating efforts to meet landfill diversion targets and increase the proportion of recycling undertaken year on year.
- There is opposition for the use of RDF in cement kilns as plants have poor pollution abatement technologies and burning waste within these goes against the proximity principle.
- There are concerns that an energy from waste facility would displace a new build generation of fuel, such as renewable energy, making it a poor choice environmentally.
- Using the residual fraction from the MBT process as RDF is only acceptable in the short term until such times as recycling and composting facilities are fully operational.

- Long term waste management should include MBT with the small remaining fraction being landfilled.

In addition to the above comments, there are a number of concerns that energy recovery will involve incineration. In a number of the consultation responses this is perceived as being a form of mass burn incineration and hence has generated a number of concerns relating to mass burn incineration. A summary of these responses has been recorded below:

- There are concerns over the quantity and health impacts of emissions from facilities as these cannot be independently monitored on a continual basis and may include carcinogens, dioxins, heavy metals, furans, sulphur and nitrous oxides which may be spread over large areas.
- There are concerns that dioxins could enter the foodstream through milk and meat.
- There are concerns over the toxicity of ash produced from the process and where this ash will be disposed, given the absence of hazardous waste landfill facilities in Northern Ireland.
- There are concerns that incineration would discourage the development of an efficient recycling system.

6.0 CONCLUSIONS

Although the responses were limited to eighteen for this consultation process, respondents provided comprehensive and useful comments and suggestions regarding the future management of municipal waste within the SWaMP Region.

In terms of waste prevention, there was broad support for the principles of waste prevention, including the capping of waste growth, with respondents recognising that all stakeholders have a role to play in this. Respondents believe that education and awareness initiatives should be undertaken throughout the region to ensure that all stakeholders, from individual households to businesses, adopt a change in attitude and strive to reduce the amount of waste they produce. It is however recognised that the Plan needs to maintain a level of flexibility in order to ensure that the amount of waste being landfilled within the SWaMP Region is kept below the permissible limits in the event of waste growth rates being exceeded.

A number of specific actions have been suggested for helping to reduce waste within the SWaMP Region. These have ranged from incentives and targets to fines for non-compliance and the introduction of Pay as You Throw Schemes. A number of stakeholders also believe that the waste prevention measures proposed within the Plan do not go far enough in terms of preventing waste and that SWaMP should consider a “Zero Waste” approach.

As with waste prevention, there was broad agreement with the measures suggested for recycling and composting with a number of additional measures being suggested to help facilitate an improvement in performance and ensure that SWaMP continues to move towards meeting recycling and recovery targets. Stakeholders believe that Councils should work towards ensuring that all householders within the Region are offered the same level of facilities and services and that these should be extended to facilitate the collection of a greater range of materials.

In terms of targets, respondents are split in their opinion regarding the ability of SWaMP to meet the recycling and recovery targets stated within the consultation document. The unsurity of this is on the basis that the achievement of these targets will be reliant on the full buy in from all stakeholders and will be dependant on the delivery of the full range of services and treatment facilities required for the recovery of waste. It should be noted however that there were a number of respondents who were of the opinion that the targets within the document did not go far enough and suggested that these should be effectively doubled.

In terms of the cross border movement of waste for recycling and recovery, the majority of respondents recorded support for the principle but considered that any benefits received from this should be maintained within the local community.

There was general support for the movement of waste for disposal although a number of respondents considered that waste should be disposed close to the area in which it is produced. For both movements associated with recovery and disposal, respondents were concerned that this had the potential to increase illegal movements of waste and therefore rigorous supervision of cross border movements would be required.

In terms of the treatment of residual waste with energy recovery, there was general support for the principle of using MBT for treating wastes and the principle of using waste to produce energy. There is still however a lack of understanding of the process of MBT, with many of the stakeholders erroneously believing that the technology involved mass burn incineration. This led to concerns over the perceived health and environmental risks associated with emissions from traditional mass burn incinerators. Considering the fact that mass burn incineration has not been proposed as part of the plan modifications, it is therefore imperative that the revised plan includes an explanation of the technologies proposed and categorically states that mass burn incineration does not form part of these proposed technologies.

There was also general agreement that energy recovery from Waste will be an essential component of the infrastructure mix for the SWaMP Region, although as with MBT, there was a presumption among a number of respondents that this meant mass burn incineration.

Those who did support the concept however, generally concurred with the suggestion that SWaMP should have a number of smaller scale energy recovery facilities within the Region and these should be located close to the end users of the heat and power. This would not only allow maximum efficiency of the fuel source and minimal environmental impacts associated with transport but would also encourage a sense of community ownership and provide revenue in the form of employment to receiving communities.

In conclusion therefore, the consultation responses have been broadly supportive of the suggestions for the modification of the SWaMP Waste Management Plan in terms of prioritising waste prevention followed by maximising, as far as practicable, recycling and composting before further treating the residual waste by MBT to remove any remaining recyclables, reduce the biodegradability and produce a resource in the form of energy. There is however the need for careful explanation of the processes involved in the treatment of wastes to ensure all stakeholders are fully informed of the mechanisms of the process and also to allay public fears.

ANNEX C

TECHNICAL ASSESSMENT

C.0 TECHNICAL ASSESSMENT

INTRODUCTION

- C.1 A technical assessment was undertaken by the SWaMP Region, was to inform the decision making process in identifying the preferred scenario (the BPEO) for the management of municipal waste to enable the Councils to meet their obligations, under the Northern Ireland Waste Management Strategy and the Northern Ireland Landfill Allowance Scheme (NILAS) in particular.
- C.2 A number of options/scenarios were developed through the technical assessment for the SWaMP Region, using the published NI BPEO Guidance as the reference standard. The scenarios were developed and assessed using the same model as that utilised in the preparation of the NI BPEO Guidance, published by Environment and Heritage Service, and the reader is referred to the Guidance and accompanying Technical Report for further details on the model¹. This methodology was used to maintain consistency of approach, and to allow for direct comparison with the NI BPEO scenario for municipal waste, as the reference standard against which the other scenarios could be compared.
- C.3 The assessment took into account a number of factors including: the modelling of waste prevention as a 'technology' to limit waste growth, and energy recovery including recovery of power and combined heat and power. This was undertaken in a number of stages, as outlined further below:
- Definition of objectives for the assessment, taking into account the guidance produced from the NI BPEO and also the Strategic Environmental Assessment undertaken for the Region
 - Development of a number of scenarios containing different mixes of technology and provision of services for the future management of wastes.
 - Evaluation of the scenarios including the application of decision criteria to identify a preferred scenario

DEFINITION OF OBJECTIVES

- C.4 A technical assessment was undertaken in order to fulfill the following objectives of the Waste Management Plan:
- To develop an integrated network of facilities to meet the needs of the Region
 - To minimise the amount of waste produced within the Region
 - To maximise resource efficiency.
 - To minimise environmental impact.

- To encourage regional self sufficiency, as far as practicable and economical, within the Region.

DEVELOPMENT OF SCENARIOS

- C.5 The scenarios considered in the Technical Assessment, which are summarised in Table C.1, fall broadly into three categories, depending on the mix of technologies and approach to treating the residual waste, as follows:
- **Single Technology Options**
 - Energy from Waste (Incineration)
 - Mechanical Biological Treatment, with landfilling of residues.
 - **Target Compliant Options** - integrated scenarios, with just enough treatment to meet the Northern Ireland Landfill Allowance Scheme (NILAS) Allowances for the diversion of biodegradable waste from landfill.
 - **'Maximum Value' Options** – integrated scenarios, with the objective of recovering maximum value (materials and energy) from the residual waste stream. These scenarios ensure compliance with the NILAS targets.
- C.6 Waste prevention was modelled as a technology in the integrated scenarios. This had the effect of limiting waste growth to a maximum of 1.5%, and reducing it to 0.5% to parallel population growth over time.
- C.7 For the purposes of modeling only, energy recovery within the alternative scenarios was assumed to be represented by a waste to energy facility, consistent with the approach developed in the NI BPEO Guidance. Recognising all the local factors, needs and priorities, it was proposed within the Consultation paper that the energy recovery elements of the scenarios be achieved through the production of a fuel, as an output from the Mechanical Biological Treatment process, for use in third party applications. This approach was reinforced, through both the consultation process and during Council meetings, with broad support for the principle of energy recovery.

Table C.1 Summary of Scenarios for the Management of Municipal Wastes

Reference Standard	
1	NI BPEO <i>As per published guidance. Waste growth 2.5% - No waste prevention. Includes Anaerobic Digestion, Mechanical Biological Treatment and Energy from Waste. Energy recovery: power only – not combined heat and power.</i>
Single Technology Solutions	
2	Energy from Waste <i>Relies on energy from waste. 2010 NILAS Target is not met as facility cannot be delivered in time. Waste growth 2.5% - No waste prevention.</i>
3	Mechanical Biological Treatment <i>Relies on MBT to reduce biodegradability and landfilling outputs. Waste growth 2.5% - No waste prevention and no energy recovery.</i>
4	Minimal Integration I <i>Minimally integrated approach. Relies on simple MBT to meet short term NILAS target, which is replaced by Energy from Waste from 2013 onwards. Power is generated by Energy from Waste. Waste prevention included.</i>
5	Minimal Integration II <i>As for Scenario 4, with district heating used to model Combined Heat and Power. Waste prevention included.</i>
6	MBT and Energy Recovery I <i>Greater integration with MBT used throughout and Energy from Waste on line in 2013, but does not accept residue from MBT, the output from which continues to be landfilled. Power is generated by Energy from Waste – no CHP. Waste prevention included.</i>
7	MBT and Energy Recovery II <i>As for Scenario 6, with Energy from Waste capacity sized to accept fuel output from MBT process.</i>
8	Minimum Landfill <i>Seeks to minimise waste sent to landfill. MBT used to meet 2010 NILAS target. Energy from Waste on line from 2013. MBT outputs diverted to energy recovery from landfill from 2013. Power is generated by Energy from Waste – no CHP. Waste prevention included.</i>
9	Maximum Energy Recovery from Residual Waste <i>As for Scenario 8, except that district heating is added to model CHP to maximise fully the value recovered from the waste.</i>
10	Autoclaving <i>Similar to Scenarios 8 and 9, except autoclaving is added to maximise the potential recovery of clean materials from the residual waste stream.</i>

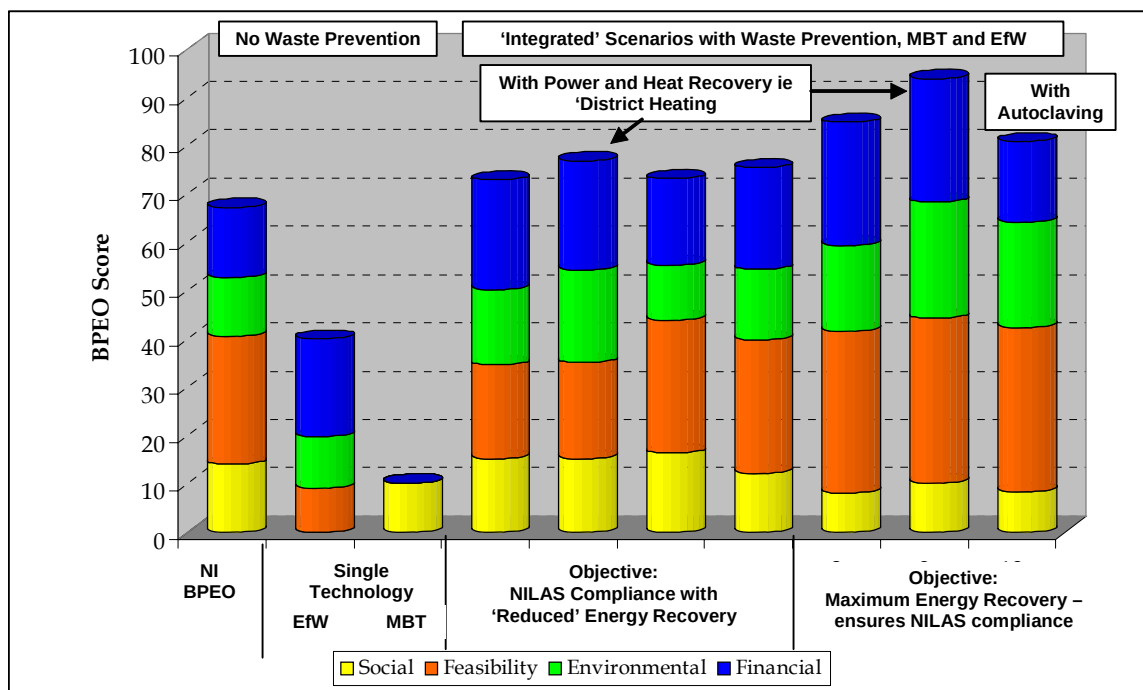
EVALUATION OF SCENARIOS

C.8 Each of the scenarios set out in Table C1 was assessed against a number of decision criteria. The decision criteria used for the assessment process were divided into four categories: environmental, financial, social and feasibility, each with a number of sub-criteria, as outlined below:

- **Environmental criteria:** Resource Depletion, Air Acidification, Greenhouse Gas Emissions, Landtake, Extent of Water Pollution.
- **Financial criteria:** Financial Costs.
- **Social criteria:** Health Effects, Employment, Public Acceptability, Risk of Accidents, Producer Responsibility, Local Amenity and Social Equity.
- **Feasibility Criteria:** Technical feasibility, Practical Feasibility, Flexibility, Existing Facilities and compliance with policy.

C.9 A summary of the results of the Technical Assessment, evaluated against each of the decision criteria, is illustrated in Figure C.1.

Figure C.1 Summary of Assessment of Scenarios



IDENTIFICATION OF THE PREFERRED SCENARIO

- C.10 The Technical Assessment identified Scenario 9 as being the most favourable mix of options for implementation within the Region. The key components of this scenario are set out below:
- **Waste Prevention.** Modelled as a technology, and costed accordingly, to limit the growth in waste arisings.
 - **Recycling and Composting.** Minimum of 40% achieved through source separated collection, with balance to meet targets recovered from residual waste.
 - **Mechanical Biological Treatment.** Required to ensure compliance with NILAS targets and to recover additional materials from the residual waste stream.
 - **Energy Recovery.** Most efficient when used for Combined Heat and Power (CHP) to maximize resource efficiencies.
 - **Landfill.** The option of last resort- minimised as far as practicable to minimise loss of resource and value from the wastes.
- C.11 As part of the development of modifications to the Waste Management Plan, a public consultation exercise was undertaken, the results of which are included in Annex B. The feedback from this, together with input from the Group and constituent Councils, allowed a Best Practicable Environmental Option for municipal waste within the Region to be identified. This represents the preferred scenario for the management of municipal waste and is defined as follows:
- **Waste Prevention** – limiting annual waste growth to:
 - 1.5% up to 2010
 - 1.0% from 2010 to 2013
 - 0.5% from 2013 to 2020
 - **Materials Recovery-** a 3 bin system for the separate collection of dry recyclables. Organic waste (in the form of both garden and kitchen wastes) and residual waste for all households, where practicable and appropriate, with recycling and composting through source segregated collection to be at least:
 - 30% by 2010
 - 35% by 2013
 - 40% by 2020
 - **Energy Recovery and Residual Waste Treatment-** the mix of technologies to include Mechanical Biological Treatment (MBT) with the objectives of:
 - **Additional materials recovery**, which coupled with the amounts to be collected through source separated collections, combine to meet the Strategy targets of 35%, 40% and 45% by 2010, 2013 and 2020 respectively.
 - **Reduction in biodegradability** to meet the statutory BMW landfill diversion and NILAS targets.

-
- **Energy Recovery-** through the production of a fuel for the generation of both electricity and heat- to maximise the value of the waste as a resource in accordance with the Waste Hierarchy to reduce reliance on fossil fuels and to comply with the objectives set for the Plan.

ANNEX D

EDUCATION COMMUNICATIONS PLAN

1. Background

1.1 General

The Southern Waste Management Partnership (SWaMP) is a voluntary coalition of councils established for the purposes of joint working across the 8 southern-most local authority areas in Northern Ireland.

The regional partnership enables joint waste planning in accordance with Article 23 of the Waste and Contaminated Land (Northern Ireland) Order 1997. In addition, the partnership delivers economies of scale and facilitates sharing of resources. The overall aim of the group is to develop a waste management system that meets the region's needs and contributes to economic and sustainable development.

The region has approximately 170,000 households and a population of approximately 470,000. It is a largely rural environment with the main population centres being Armagh, Newry, Banbridge, Craigavon, Enniskillen, Cookstown, Omagh and Dungannon

Partnership working enables the group to share recycling targets, procure jointly and to communicate to share and develop best practice. There are also examples of localised partnerships between authorities in developing kerbside recycling services. For example, Armagh and Banbridge Councils are working in partnership with Bryson Recycling.

1.2 Services

All councils within the partnership have introduced kerbside collection of dry recyclables to all or some of the households within their council areas. A number of authorities have also introduced alternate week collections. Although each authority is committed to increasing diversion from landfill through recycling, the schemes that have been introduced are diverse across the partnership.

The Southern Waste Management Partnership is developing group working where this can be seen to benefit the group and the member councils. In the recent past joint tendering of a contract for collection and disposal of fridges secured a low price per unit for each authority.

All recycling collection services, with the exception of the Bryson Recycling scheme, are delivered through each council's DSO. As a result, the destinations of collected recyclables vary from council to council.

	HWRCs	Bring Sites
Armagh	4	8
Banbridge	3	21
Craigavon	2	6
Cookstown	2	17
Dungannon	6	
Fermanagh	7	39
Newry and Mourne		26
Omagh	-	-

At present the group is conducting a joint tendering exercise for In Vessel Composting. It is proposed that, following the successful award of this tender, all collected organics material will be processed in the same facility.

1.3 Waste Data

The overall recycling rate for the group is 18.2% (2004-2005 figures).

1.4 Proposed Service Changes

Each authority within the partnership has established its own kerbside collection schemes for dry recyclables and organics.

During the term of this communications plan (up until December 2007), authorities within the group are planning to expand their collection schemes to include additional materials or to bring additional properties onto their schemes. Each member authority is at a different stage of rolling out their individual collection scheme. This would make detailed group communication very complicated.

Therefore the promotional activity detailed in this communications plan is generic to ensure that it can be applied across all member councils without impacting on any scheduled changes to service.

1.4 Funding

The SWaMP Recycling Officers sub-group has no specific funding for its activities. The group has, in the past, identified individual promotional activities to be delivered by the group and made requests for funding to the Technical Officers Working Group.

1.5 Research

Some of the partners have already conducted research projects. These include:

- Rural Waste Composition Analysis, Banbridge District Council, 2003
- Set out data for kerbside box collections in Armagh and Banbridge (operated by Bryson Recycling)

1.6 Promotion to date

The SWaMP group formed a Recycling Officer sub-group in January 2004 to meet regularly and co-ordinate group promotional activities. As a result, the group has co-ordinated a small number of partnership promotions. Promotions have included Environmental Youth Speak in 2005 and the joint purchase of some promotional literature.

2. Situational Analysis

The purpose of this Communications Plan is to set out the joint communications activities to be delivered by the Southern Waste Management Partnership with the aim of:

- Raising the level of awareness and usage of kerbside recycling schemes across the region
- Maximising the number of households participation in the kerbside recycling schemes and quantity of recyclable materials handled through the region's bring facility network.
- Reaching residents of all ages through targeted promotional activities such as schools competitions, direct mail and use of the SWaMP website

For two years the Recycling Officer sub-group has met to share best practice, procure jointly and co-ordinate regional activities relating to national promotions such as Compost Awareness Week. The activities included in this plan are limited to those within the group who have agreed to deliver promotions jointly. The group does not wish to expand the remit of a joint communications plan to include the development of a 'brand' or 'regional identity'. It is thought that it would impossible to reach agreement among all member councils at this time.

In addition, there are many important individual communications activities carried out by each individual council, such as an extensive schools education programme, that are not within the scope of this plan.

Wake up to Waste

The group has been supportive of national campaign initiatives run under the banner of Wake up to Waste. These promotions have been co-ordinated by Environment and Heritage Service in partnership with the local councils. These have included a 'Smart Shopping' waste minimisation campaign and a campaign on recycling waste paper.

At present funding for any national campaign promotions is limited and there are no immediate plans for any more promotions. However, the SWaMP group will continue to support the national campaign and link it to local promotions where possible.

3. Communications Aims and Objectives

3.1 Aims

- To raise awareness of the benefits of recycling across all key stakeholder groups
- To develop a co-ordinated programme of activities across all member authorities
- To increase communications reach through working with partner organisations

3.2 Objectives

- To establish a mechanism for measuring participation rates for all kerbside collections of dry recyclables and organics by September 2006
- To reduce recorded contamination levels of collected recyclables collected at kerbside by December 2007
- To reach all households within the SWaMP region at least once with a recycling communication during the period of this communications plan.

4. Strategic Approach

In order to achieve the objectives of this communications plan the campaign will adopt the following strategic approach:

- Develop data baselines on contamination and participation for each kerbside collection scheme across the region
- Deliver targeted information on services to all householders in each council area
- Develop local and regional partnerships to help deliver the message
- Develop monitoring and evaluation programmes for all kerbside collection schemes
- Maintain and develop relationships amongst partners with regular meetings and information sharing
- Joint working with the national waste campaign where possible

5. Branding and Campaign values

Each local authority has its own 'brand' and to varying degrees has its own corporate identity guidelines. The SWaMP sub-regional group has developed its own logo but this is only used on the group website, internal reports and on consultation documents. As a result, it has little or no resonance with the general public. To introduce a 'new' identity on future communications would only serve to dilute the message and possibly confuse the householder.

At an initial meeting with the SWaMP Recycling Officers Group it was unanimously agreed that the partnership would not be able to adopt a single partnership identity. At most the group of councils could begin to develop a consistent look and feel for some joint communications. Supporting guidelines could then be developed for this to ensure that all partners were developing appropriate communications. This may be the first step to increased joint communications and the future development of a SWaMP 'brand'.

In order to maximise the regional impact of joint recycling communications this report recommends that the group work towards the development of a regional brand for all Southern Waste Management Partnership communications materials. This would have the added benefit of minimising the costs of design and printing. This brand could also be used to raise the profile of the group website.

At present there are no definite future plans for the national 'Wake up to Waste' campaign in Northern Ireland. The Southern Waste Management Partnership is committed to working with any future national campaign initiatives.

6. Target Audiences

The main aim of this plan is to increase usage of all kerbside schemes and bring facilities in the region whilst reducing contamination. As a result, the communication elements within this joint plan target all users of the group's recycling collection schemes, Household Waste Recycling Centres and bring facilities.

Householders

Research has shown that it is generally the female head of the household who takes responsibility for waste management in the home. All direct mail, advertising material and generic scheme communications should take account of this fact to maximise their impact.

Council employees

Promoting recycling services will lead to increased enquiries with members of the public. It is important that each authority plans to brief their staff and elected members in advance of any planned communications activity. The key groups to arrange briefing sessions for include:

- Contractor/DSO Staff
- Frontline Office Staff
- Elected Members

Community Groups

Recycling Officers offer recycling presentations to local community groups on request. There are no agreed targets for this activity and so it has been omitted from this plan.

Schools

The SWaMP Recycling Officers have developed a partnership working arrangement with the Southern Education and Library Board and EnCams' Eco-Schools Programme. Throughout the year council officers contact schools within their district to make themselves available for waste and recycling presentations to pupils. In addition to schools presentations officers, in some of the partnership councils, will co-ordinate 'Eco-Cluster' information sessions for teachers with responsibility for environmental education.

There are no agreed targets for this work and it is been omitted from this plan.

7. Communications Mix

In order to ensure that the relevant groups are targeted the partnership will deliver a range of communications. The main purpose of these will be to encourage householders to participate with the recycling services and reduce levels of contamination. The following mix is recommended:

7.1 Direct Mail / Printed Literature

Direct mail communication will be used to promote the existing and proposed services. This communications will be eye-catching, and well designed to create a high impact campaign. The information will be simple and instructional providing readers with important information about the new services. All material will be printed on recycled/post consumer waste paper. This will be noted on all material produced.

Printed material is one of the cheapest and most effective methods of communicating a recycling message to householders.

7.2 Staff Training / Awareness

Frontline staff and crews will be briefed to ensure they are fully informed and able to answer any likely questions from members of the public.

7.3 PR

Good PR is an effective way of securing free advertising. An article in the local newspaper has several times the value of a paid advertisement. Radio interviews are an effective way of getting key messages across and are often much more effective than radio advertisements.

Public relations are a very important aspect of raising the profile of the services available to the public. This will be achieved through:

- Developing press information packs for local newspapers
- Holding regular press briefings and information events to build relationships with local media groups.
- Preparation and distribution of regular press releases, articles and features relating to all campaigns
- Developing interesting facts, figures and statistics to support press releases

It is recommended that a sub-group be established to co-ordinate all joint PR in relation to this communications plan.

7.4 Advertising

External advertising is a useful mechanism for raising awareness of the services available to members of the public but can be costly. The SWaMP group should be able to negotiate some good rates as they are buying advertising for a number of Council areas. Consideration must be given to rural Councils who may not have all advertising media available to them. Alternative, advertising mechanisms should be reviewed for this.

The main external advertising media will include: bus panels, adshells and billboards.

7.5 Exhibitions and Roadshows

Regular exhibitions and displays at areas of high footfall throughout each council area will serve to raise the profile of council services and group-led initiatives.

A schedule of roadshow events will be developed to promote existing and new services throughout the region. This will enable all Councils to speak to residents who have queries about their local services on a one to one basis.

7.6 Monitoring and Evaluation

Without a regular monitoring programme it is virtually impossible to target recycling communications or to identify the success of any council or group communications initiative. Clear guidance on how to establish a monitoring regime is contained in WRAP's 'A Good Practice Guide to Monitoring and Evaluation'.

Each individual campaign element will have its own monitoring and evaluation mechanisms to measure its success. A general approach will include:

- Conducting regular set out and participation studies throughout the district once the scheme is established to identify high and low performing areas
- Recording recycling tonnages if possible by round
- Regular reviews of the communications schedule will be conducted to assess whether actions and targets are being achieved. If actions fall behind the timescales can be modified
- Budget reviews will be conducted monthly to monitor campaign spending
- A website statistics package will be used to measure the effectiveness of the waste and recycling pages of the SWaMP website
- The opportunities to see and hear generated through advertising will be recorded to assess the effectiveness of advertising media
- The advertising value equivalents for newspaper/magazine coverage will be calculated.

7.7 Website

The Council will promote the SWaMP website to provide additional information about existing and proposed services and activities.

All promotional material will include details of SWaMPs website.

8. Campaign Elements

8.1 Kerbside Recycling Promotion

Each local authority within the Southern Waste Management Partnership operates a kerbside collection of dry recyclables. The schemes are both co-mingled and kerbside sort and the range of materials collected varies between authorities. The group has agreed to deliver a joint generic campaign to increase participation levels while at the same time reducing levels of contamination in the bins and boxes.

Aims:

To raise the level of public awareness of the region's kerbside collections of dry recyclables and the materials accepted through these schemes.

Objectives:

- To increase participation levels of individual schemes by at least 10% by the end of the campaign.
- To reduce the number of rejected loads and contamination
- To reach each household within the SWaMP region with a kerbside recycling communication

Tactics:

- Book advertising space for all relevant media
- Design and develop creatives for bus advertising.
- Design and develop creatives for billboards
- Design and develop 250,000 (approx) A5 4 page leaflets to include information on recycling services
- Deliver leaflets to all households
- Update service and contact information on SWaMP website
- Arrange press briefing and issue press release
- Develop materials for exhibitions and roadshows
- Develop a schedule of roadshows / events to link with the campaign.
- Maximise PR opportunities at these events

Monitoring Mechanisms:

- Tonnages of recyclables collected
- Advertising value equivalent of press releases
- Opportunities to see billboards and bus panels
- Website usage
- Levels of contamination
- Number of roadshows and events

8.2 Environmental Calendar

Newry and Mourne District Council and Craigavon Borough Council have, over the past few years, produced an A4 Environmental Calendar. Each month shows environmental themed artwork produced by a pupil attending a school within the district. This year SWaMP aims to run a competition within each district to find twelve suitable pieces of artwork for a district calendar. The design of the calendar will be consistent across all council areas. The calendar will be localised for each district by the use of artwork from schools only within that district. It will also display contact details for that authority.

Aims:

- To raise awareness of annual environmental promotions within the region, e.g. compost awareness week.
- As a perennial reminder to householders to make best use of each council's recycling services.

Objectives:

- Design, print and distribute 64,000 copies of the environmental calendar within each district

Tactics:

- Plan and run a schools art competition for each district
- Design and print 64,000, A4 28 page calendars
- Identify distribution points through local schools and council buildings
- Distribute all calendars, through schools, council buildings and promotional event by the end of 2006

Monitoring Mechanisms:

- Number of calendars distributed through schools and council buildings

8.3 *Christmas and New Year Recycling Campaign*

Each December and January the partnership councils individually organise a number of seasonal promotions. For example, Christmas card recycling and Christmas tree recycling. The impact of each promotion is localised to within the boundary of the co-ordinating authority. The joint co-ordination of a Christmas campaign would increase the impact of the recycling message on three key waste streams (glass, organics and card) across the region for a period of two months. The consistent message, look and feel to each aspect of the campaign will aid recall and serve to reinforce the message.

Aims:

- By targeting three seasonal waste streams, to raise awareness of the high levels of waste produced at Christmas
- To make people aware of their nearest recycling facilities and encourage them to recycle

Objectives:

- To increase the amount of green waste, cardboard and glass collected for recycling in January 2007

Tactics:

- Engage partnerships with pubs, clubs, hotels and off licences in promoting glass recycling
- Agree communications distribution and Christmas card collection points
- Develop partnerships with local supermarkets, post offices etc. as collection points for old Christmas cards
- Design and print 20,000 recycled bar mats / coasters and 800 A3 posters
- Purchase flat pack recycling bins for use at local Christmas Card collection points
- Arrange press briefing and issue press release
- Update list of HWRCs and recycling points to SWaMP website
- Issue post-campaign press release

Monitoring Mechanisms:

- Number of coasters distributed
- Number of pubs, clubs, hotels and off licences participating in glass recycling promotion
- Percentage increase in glass recycled in January 2007 compared to January 2006
- Increase in the tonnage of green waste collected at HWRC's in January 2007
- Number of collection points for old Christmas cards
- Number of hits to SWaMP website glass recycling link

8.4 Reusable Bag Campaign

In recent years a number of SWaMP councils have carried out campaigns aimed at raising awareness of plastic bags as a waste stream. Promotions have included initiatives such as partner stores asking customers to make a donation to charity for every carrier bag they use, giveaways of reusable cotton bags and events attended by local environmental campaigner, Baglady.

Although raising awareness of plastic bags may not significantly reduce the tonnage of waste going to landfill, there are spin-off benefits such as reduced bag litter, less use of fossil fuels in bag manufacture and an increased level of awareness of waste issues generally.

The Recycling Officers sub-group has found that the plastic bag issue is one that engages the public. As a result, any campaign is likely to generate local press coverage and raise awareness of waste reduction within the region.

Aims:

- To raise public awareness of waste issues generally by campaigning for the reuse of plastic bags in particular
- To encourage members of the public to make use of their kerbside recycling schemes.

Objectives:

- To hold 16 Reusable Bag events across the region

Tactics:

- Purchase 8000 reusable cotton bags
- Arrange press briefing and issue press release
- Negotiate space for 16 roadshows / events across the region

Monitoring Mechanisms:

- Number of roadshows / events held during the campaign
- Number and Advertising Value Equivalent of press articles
- Number of promotional bags issued

8.5 Cash for Clobber

Cash for Clobber is an innovative textiles recycling campaign promoted by Cookstown Textile Recycling (CTR) in partnership with councils in Northern Ireland. Schools register their intention to participate in the collection scheme with the local

authority and collection bags are issued to the school. The bags are collected from each participating school by CTR and the school receives £1 for each bag of textiles collected.

Aims:

- To raise awareness of the benefits of reuse and recycling among school children

Objectives:

- To engage 50% of schools in the Southern Waste Management Partnership in textiles recycling

Tactics:

- Write to all schools inviting them to register to participate in Cash for Clobber
- Arrange press briefing and issue press release

Monitoring Mechanisms:

- Number of schools registered to participate in Cash for Clobber
- Amount of money raised by participating schools
- Tonnage of textiles collected

8.6 Real Nappy Campaign

Disposable nappies can form up to 10% of the domestic waste stream by volume. The Southern Waste Management Partnership has agreed to promote Real Nappy Week (usually held in March) across the region. At present, each authority within the group promotes this aspect of waste minimisation differently. Activities range from local press articles to offering financial incentives to parents choosing to use a real nappy laundry service.

Aims:

- To raise awareness of the health, financial and environmental benefits of using real nappies.
- To reduce the amount of disposable nappies going to landfill
- To increase take up of real nappies / real nappy laundry services

Objectives:

- To co-ordinate a standard approach to the promotion of real nappies across the SWaMP region
- To issue at least 1 press release per council

Tactics:

- Organise real nappy information packs to relevant staff where possible
- Draft and issue one press release to all local newspapers in the region

Monitoring Mechanisms:

- Number of exhibitions held throughout the region during Real Nappy Week
- Advertising Value Equivalent of local press coverage
- Number of nappy information packs issued

8.7 Environmental Youthspeak

Environmental Youth Speak is a public oration competition run on two levels; a Junior section for Key Stage 2 and a Senior section for Key Stage 3. The competition is open to all schools in Northern Ireland and finals are staged within each local authority area, each sub-regional grouping and for Northern Ireland. In 2007 the national competition will be in its third year.

Aims:

- To encourage environmental awareness among young people by giving them the opportunity to research waste management issues

Objectives:

- To raise the number of schools participating by 10% across the SWaMP region in 2007

Tactics:

- Issue of targeted invitation letters to all schools within the region offering to meet with key teaching staff to discuss the competition
- Plan and co-ordinate council heats, regional and national finals
- Arrange press coverage, including press release and photographers for council heats and SWaMP final

Monitoring Mechanisms:

- Number of participating schools
- Number of press articles across the SWaMP
- Advertising value equivalent of press coverage

8.8 Compost Awareness Week

Each member authority is engaged in both the kerbside collection of organics material and reception of organics at Household Waste Recycling Centres. Compost Awareness Week is a national campaign to raise the public understanding of the environmental benefits of composting.

The group will develop a mobile composting exhibition kit for each Recycling Officer. This will comprise a pop-up stand, home composting unit(s), composting leaflets and a stock of 'Composting for All' books. The composting exhibition kit will be used at key local events and particularly during Compost Awareness Week.

Aims:

- To develop a standard package for promoting home composting across all SWaMP authorities
- To increase public awareness of the environmental benefits of composting at home, kerbside collection schemes and through HWRCs.
- To promote the availability of home composters throughout the region
- Investigate the possibility of a regional compost giveaway during Compost Awareness Week

Objectives:

- To deliver 8 compost awareness roadshows across the Southern Waste Management Partnership during Compost Awareness Week 2007.

Tactics:

- Purchase 8000 'Composting: an easy household guide' booklets
- Design creatives for pop-up stands and leaflets as part of composting exhibition kit
- Upload details of all regional events to council websites and to the SWaMP website
- Issue localised press releases in advance of Compost Awareness Week
- Develop articles for council ratepayer magazines

Monitoring Mechanisms:

- Tonnage of compost given away during Compost Awareness Week
- Number of home composters issued
- Measure advertising value equivalents during Compost Awareness Week

8.9 Website

The SWaMP website will be updated to include information on all new promotional activities and services. The main page will include links to information on home composting, Christmas recycling activity and a list of council contacts. The group will also create a URL to take visitors directly to regional recycling information at www.swampni.org.uk/recycling.

Aims:

- To provide up to date information on the Southern Waste Management Partnership website.

Objectives:

- To increase the number of visits to the recycling and waste pages of the SWaMP website by 50% by March 2007.

Tactics:

- Establish number of visits to the recycling web pages to act as a baseline before the communications activities roll out
- Develop a short URL for recycling
- Investigate the possibility of capturing visitor email addresses through the SWaMP website
- Ensure a website statistics package can be used to monitor website traffic to the recycling and waste pages
- Draw up a schedule of when information needs to be updated and uploaded
- Regularly upload information as it becomes available

Monitoring Mechanisms:

- Use statistics package to track website hits and visits on the recycling and waste pages

8.10 Staff & Crew Training

Operational staff and crew are key to ensuring services are delivered effectively. Crews must be full briefed about the purpose of their job and the benefits to the community and environment.

Aims:

- To ensure all operational staff and crews can inform the public of the new collection services and opportunities for recycling and waste reduction.

Objectives:

- Provide training to at least 90% of operational staff by the end of March 2007.

Tactics:

- Develop a training course information and presentation materials for crews
- Develop a schedule of training events for operational and crews – organise venue & run events
- Produce information sheets, which include frequently asked questions
- Run regular briefings for all operational staff and crews

Monitoring Mechanisms:

- Number of staff trained
- Number of training events organised
- Number of information sheets issued

8.11 PR

Positive coverage in the local media can help Councils significantly, not only in maximising campaign reach but also in providing an independent endorsement of the campaign.

The SWaMP group should issue regular press releases on campaign activities to the local media. Representatives of the group should also consider meeting the local media to establish a rapport and discuss future possibilities of running joint campaigns.

Aims:

- To maintain a high profile PR campaign to keep all media groups informed of progress with kerbside collection schemes and bring facilities.

Objectives:

- To maximise press and radio coverage through targeted messages, photo opportunities, press briefings and press releases.

Tactics:

- Develop a PR schedule
- Arrange meetings with local media groups and involve relevant member of the PR sub-group
- Develop press packs for briefings
- Seek to develop good working relationships with newspapers
- Develop a list of interesting and unusual facts about recycling (see Recycle Now partners site & Recycle Now consumer site) – use these to make press releases more interesting
- Develop a list of key waste and recycling statistics
- Develop a series of frequently asked questions to address any questions the media have about the kerbside collection schemes within the partnership area
- Develop feature articles on recycling

Monitoring Mechanisms:

- Number of press releases issued
- Number of media partnerships established
- Log radio interviews
- Measure advertising value equivalents of media coverage achieved
- Press cutting service if possible

9. Appendices

ANNEX E

FINANCIAL ASSESSMENT

E.0 FINANCIAL ASSESSMENT**INTRODUCTION**

- E.1 This Annex presents the projected costs for the management of municipal waste within the SWaMP Region over the period up to 2020. Article 23(3) of the Waste and Contaminated Land (NI) Order 1997 requires the costs to be estimated for recovery, treatment and disposal, and also looks for the savings attributable to the proposed methods of dealing with the wastes.
- E.2 The costs therefore have been estimated on the basis of 'gate fees' for the recovery, treatment and disposal of the wastes, and is presented in two Tables. The first details the baseline costs, i.e. those costs that would be incurred if no further measures were implemented, with the second setting out the costs associated with the implementation of the measures set out in the Plan, together with the anticipated savings.

ESTIMATED BASELINE/DO NOTHING COSTS FOR MANAGEMENT OF MUNICIPAL WASTE

- E.3 Table E.1 presents the estimated 'baseline' waste management costs. These are the costs that would be incurred by the constituent Councils in the region under the 'Do Nothing' scenario i.e. if the measures in the Plan were not to be implemented. Implicit in these estimated costs are the assumptions that:
- Education and Awareness Initiatives continue to be funded at the same level as set out in the Waste Management Plan for the period 2000 – 2005.
 - Waste growth continues at 2.4% per annum up to 2020.
 - Recycling continues at a constant rate (in terms of percentage recycled) of 25%.
 - Fines are incurred for the landfilling of biodegradable waste over and above the Group's allowances under the NILAS scheme at the rate of £150 per tonne.
 - Landfill tax reaches £36 per tonne in the medium term (under an annual increment of £3/tonne) and remains constant thereafter to 2020.
- E.4 The 'Do Nothing' scenario is not a viable option. It does not enable the councils to fulfil their statutory obligations and fails to meet both statutory and policy targets. As an option, it is inconsistent with the waste hierarchy and the policy objective of shifting to a more sustainable resource management approach. It does however provide the baseline reference against which the proposed modifications to the Plan can be compared.
- E.5 Under this scenario, the impact of fines incurred under the Northern Ireland Landfill Allowance Scheme (NILAS) is a significant proportion of the estimated costs, due to the large quantities of biodegradable municipal waste that continue to be landfilled.

Table E.1 Estimated 'Baseline/Do Nothing' Waste Management Costs to 2020

WMP Aspect	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Education and Awareness ¹	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m	£0.3m
No. of Households	180,920	184,539	188,230	191,053	193,919	196,828	199,780	201,778	203,796	205,834	207,892	208,931	209,976	211,026
Collection Cost/Household	£44.00	£44.00	£45.00	£45.00	£45.00	£46.00	£46.00	£47.00	£47.00	£48.00	£49.00	£50.00	£51.00	£52.00
Costs for Collection ²	£8.0m	£8.2m	£8.4m	£8.6m	£8.8m	£9.0m	£9.2m	£9.4m	£9.7m	£9.9m	£10.1m	£10.4m	£10.6m	£10.9m
Total Waste Arisings	290,486	297,458	304,597	311,907	319,393	327,058	334,908	342,945	351,176	359,604	368,235	377,072	386,122	395,389
Quantity Material Recovered ³	72,621	74,364	76,149	77,977	79,848	81,765	83,727	85,736	87,794	89,901	92,059	94,268	96,531	98,847
Costs for Recovery	£4.2m	£4.3m	£4.4m	£4.6m	£4.7m	£4.8m	£4.9m	£5.0m	£5.1m	£5.3m	£5.4m	£5.5m	£5.6m	£5.8m
Quantity waste landfilled	217,864	223,093	228,447	233,930	239,545	245,294	251,181	257,209	263,382	269,703	276,176	282,804	289,592	296,542
Costs for disposal	£14.4m	£15.4m	£16.5m	£17.5m	£18.7m	£19.9m	£20.3m	£20.8m	£21.3m	£21.8m	£22.4m	£22.9m	£23.5m	£24.0m
Biodegradable waste landfilled	154,684	158,396	162,198	166,090	170,077	174,158	178,338	182,618	187,001	191,489	196,085	200,791	205,610	210,545
NILAS Fines	£0	£0	£0	£5.6m	£6.1m	£6.8m	£13.5m	£14.7m	£15.9m	£17.1m	£18.4m	£19.7m	£21.0m	£22.3m
Baseline Cost	£26.9m	£28.2m	£29.6m	£36.6m	£38.6m	£40.8m	£48.2m	£50.2m	£52.3m	£54.4m	£56.5m	£58.8m	£61.0m	£63.3m
Cost/Household	£149.00	£153.00	£157.00	£191.00	£199.00	£207.00	£241.00	£249.00	£257.00	£264.00	£272.00	£281.00	£291.00	£300.00
Cost/Tonne	£93.00	£95.00	£97.00	£117.00	£121.00	£125.00	£144.00	£147.00	£149.00	£151.00	£154.00	£156.00	£158.00	£160.00

- Notes:
1. Collection costs include the costs of bin collection, as well as the costs of waste collection from bring banks and civic amenity sites.
 2. The quantity of material recovered includes those recovered through source-separated collection for recycling and composting, as well as materials recovered from the residual waste stream by mechanical sorting.
 3. The cost of recovery includes the costs of recycling and composting source separated materials.

ESTIMATED COSTS FOR MANAGEMENT OF MUNICIPAL WASTE UNDER THE PREFERRED SCENARIO

- E.6 Table E.2 presents the estimated costs associated with implementing the measures set out in the Waste Management Plan for municipal waste. These are based on assumed gate fees, and make provision for:
- Waste Prevention
 - Materials Recovery, including recycling and composting.
 - Mechanical Biological Treatment of the residual waste fraction, to:
 - Recover additional materials from the residual waste stream;
 - Reduce the biodegradability of the residual waste; and
 - Produce a fuel for use in a third party application.
 - Disposal to landfill of non-recoverable residues.
- E.7 Implicit in these estimated costs are the assumptions that:
- Education and Awareness Initiatives are funded at an increased level to provide the resources to encourage and promote waste prevention, and re-use.
 - Waste growth is limited to 1.5% to 2010 (as set out in the Waste Management Strategy), thereafter falling over time to 0.5% to parallel projected population growth, as a consequence of waste prevention initiatives.
 - Materials recovery, meeting the Strategy targets of 35%, 40% and 45% is achieved by the source-separated collection of biowastes and mixed dry recyclables, with some additional materials being recovered through the sorting of residual waste through the Mechanical Biological Treatment process.
 - The fuel produced by the Mechanical Biological Treatment process is assumed to be cost neutral i.e. no income from the sale of the fuel, or costs as an incentive to use the fuel have been assumed.
 - The costs of landfill disposal (as a gate fee - £/tonne) will increase over time, as the quantities of residual waste being landfilled are significantly reduced.
- E.8 This scenario meets both statutory targets for the diversion of Biodegradable Municipal Waste from landfill, as well as policy targets for materials recovery. No fines are incurred under the Northern Ireland Landfill Allowance Scheme (NILAS).
- E.9 It is estimated that the proposed measures will provide significant savings, in excess of £20M per year by 2015, compared to the Do Nothing Baseline scenario, if NILAS fines are taken into account. Discounting these fines, the estimates indicate savings of the order of £5M per year by 2018/19 compared with the Do Nothing scenario.

Table E.2 Estimated Costs for Management of Municipal Waste under the Preferred Scenario to 2020

WMP Aspect	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Education and Awareness ¹	£0.3,	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m	£1.0m
No. of Households	180,920	184,539	188,230	191,053	193,919	196,828	199,780	201,778	203,796	205,834	207,892	208,931	209,976	211,026
Collection Cost/Household	£47.00	£48.00	£49.00	£50.00	£51.00	£52.00	£54.00	£54.00	£54.00	£54.00	£55.00	£56.00	£56.00	£56.00
Costs for Collection ²	£8.6m	£8.9m	£9.2m	£9.6m	£9.9m	£10.3m	£10.7m	£10.9m	£11.0m	£11.2m	£11.4m	£11.6m	£11.8m	£11.9m
Total Waste Arisings	285,402	289,683	294,028	298,439	301,423	304,438	307,482	309,019	310,564	312,117	313,678	315,246	316,822	318,407
Quantity Material Recovered ³	74,205	78,214	82,328	104,416	110,193	116,516	122,774	124,790	126,966	130,432	134,075	137,605	139,877	142,169
Costs for Recovery	£3.6m	£3.8m	£4.1m	£4.6m	£4.8m	£5.2m	£5.7m	£5.8m	£5.9m	£6.2m	£6.4m	£6.6m	£6.8m	£6.9m
Quantity waste treated	0	0	0	104,454	117,555	112,642	162,965	162,235	163,046	160,740	159,976	157,623	158,411	159,203
Cost for MBT	-	-	-	£5.7m	£6.5m	£6.2m	£9.0m	£9.0m	£9.0m	£8.8m	£8.8m	£8.7m	£8.7m	£8.8m
Quantity waste landfilled	211,198	211,469	211,701	143,101	133,922	133,009	71,039	71,071	69,873	69,569	68,019	67,699	66,454	65,194
Costs for disposal	£12.9m	£13.5m	£14.2m	£11.5m	£11.1m	£11.4m	£7.2m	£7.2m	£7.1m	£7.0m	£6.9m	£6.8m	£6.7m	£6.6m
Biodegradable waste landfilled	152,690	152,084	150,690	98,146	91,193	90,045	55,032	55,457	54,460	54,419	53,247	52,889	52,162	51,423
NILAS Fines	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
WMP Implementation Cost	£25.3m	£27.2m	£28.5m	£32.4m	£33.3m	£34.2m	£33.6m	£33.8m	£34.0m	£34.2m	£34.5m	£34.8m	£35.0m	£35.1m
Cost/Household	£140.00	£147.00	£151.00	£169.00	£172.00	£174.00	£168.00	£167.00	£167.00	£166.00	£166.00	£166.00	£166.00	£167.00
Cost/Tonne	£89.00	£94.00	£97.00	£109.00	£110.00	£112.00	£109.00	£109.00	£109.00	£110.00	£110.00	£110.00	£110.00	£110.00
Comparison with "Do Nothing" Scenario														
Cost Savings	-£1.6m	-£1.0m	-£1.1m	-£4.2m	-£5.3m	-£6.6m	-£14.7m	-£16.5m	-£18.3m	-£20.2m	-£22.1m	-£24.0m	-£26.1m	-£28.2m
Savings/Household	-£9.00	-£5.00	-£6.00	-£22.00	-£27.00	-£33.00	-£73.00	-£82.00	-£90.00	-£98.00	-£106	-£115	-£124	-£133

- Notes:
1. Waste prevention is 'costed' under Education and Awareness.
 2. Collection costs include the costs of bin collection, as well as the costs of waste collection from bring banks and civic amenity sites.
 3. The quantity of material recovered includes those recovered through source-separated collection for recycling and composting, as well as materials recovered from the residual waste stream through the Mechanical Biological Treatment process.
 4. The cost of recovery includes the costs of recycling and composting source separated materials. It does not include any costs associated with the recovery of materials through the Mechanical Biological Treatment process.

ANNEX F

MARKET DEVELOPMENT FORUM PLAN

NORTHERN IRELAND MARKET DEVELOPMENT FORUM

Northern Ireland Recycled Materials Market Development Plan DRAFT

1 Introduction

This Plan outlines a structure and approach to the development of markets for recycled materials in Northern Ireland. The implementation and ongoing review of the Plan will be guided by the Northern Ireland Market Development Forum.¹

The overall objective of this Plan is to stimulate and support the creation and growth of markets for recycled materials and recycled content products in Northern Ireland. Measures and actions outlined in the Plan will aim to:

- support and develop new markets for recycled materials
- identify and prioritise market development activities that add value to existing economic development activities
- exploit opportunities to maximise the growth of the Northern Ireland recycling sector, and
- overcome barriers to the growth of recyclables markets

This approach will contribute to improving resource efficiency in Northern Ireland through increasing the amount of waste recycled in Northern Ireland and the displacement of virgin materials from manufacturing with recycled materials of sufficient quality. It is clear that market opportunities will not be restricted to Northern Ireland as markets accessible to Northern Ireland also exist in ROI, GB and internationally. However, the potential to grow local markets and the Northern Ireland economy will be a key consideration.

The Plan supports the achievement of the Northern Ireland objectives for recycling markets and resource efficiency expressed in the Northern Ireland Waste Management Strategy 2006 – 2020 *Towards Resource Management* (NIWMS). Strategy targets set for recovery and recycling address materials that will arise from the municipal and commercial waste streams and also relate to Northern Ireland objectives on to Public Procurement and Sustainable Development.

The targets for recovery and recycling are:

- recycling and composting of Household waste to be at:
 - 35% by 2010
 - 40% by 2015
 - 45% by 2020
- 75% Construction, Demolition and Excavation waste recycled or reused by 2020
- 60% Commercial and Industrial Waste to be recycled by 2010

¹The Forum was established in 2005 to enable an organised approach to market development for recycled materials. It involves organisations and interests that have market development roles. The present membership and Terms of Reference are given in Appendix 1.

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Some of the drivers that are directly influencing present-day actions include:

- landfill directive – landfill diversion of biodegradable municipal waste (BMW); zero landfilling of whole and shredded tyres by mid-July 2006
- Government targets imposed on local authorities for the diversion of increasing tonnages of BMW from landfill over time (NILAS regulations)
- producer responsibility obligations for – packaging, waste electrical and electronic equipment and end of life vehicles
- the annually increasing costs of waste to businesses and of disposal costs,
- the landfill tax escalator (presently at £21/tonne rising by £3/tonne/annum to £35/tonne)
- Northern Ireland Waste Plans arc21; SWaMP, NWRWMG
- Guidance on the Best Practicable Environmental Option for Waste Management in Northern Ireland
- the arc21 Corporate Plan 2006 – 2009
- Central Procurement Directorate sustainable construction guidelines
- Northern Ireland Sustainable Development strategy impacting on all government departments

2 Market Development Mechanisms

In terms of resource efficiency, recycling is an option after waste prevention and reuse in the waste hierarchy and the Plan scope recognises this in its methodology.

The approaches to developing markets for recycled materials are varied. They include:

- stimulating increase in recycling capacity to match supply of waste materials arising from increases in:
 - materials capture
 - recycling targets, and
 - the types of materials, eg under producer responsibility and landfill directive
- increasing the supply of quality materials for recycling, eg into commodity markets or to local reprocessors
- increasing the opportunities for trading recycled materials and optimising their market value
- growing demand for recycled content products through client and customer specification – both government and private sector
- supporting innovation in:
 - reprocessing technology
 - product design, and
 - displacement of virgin raw materials in products with recycled materials

In this respect this Plan will give regard to both the strengths and weaknesses of the Northern Ireland and all-island economies and markets and of the recycling sector in

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general and it will aim to apply these approaches to achieve the best possible outcomes for Northern Ireland.

Examples of mechanisms are shown in Table 1.

Table 1 Market Development Mechanisms

Mechanism	Activity	Examples
market surveys/research	• assessment of market opportunities • benchmarking • end markets for materials/sectors	• market intelligence reports • baseline materials surveys – materials specific and by sector
influencing supply chains	• sustainable procurement • market intelligence • materials pricing data • marketing	• case studies • road shows • 'meet the buyer' • demonstration projects • procurement policy
business support	• investment leverage • business management advice • product/process • commercialisation • business skills • interim managers	• case studies • road shows • training • bespoke business support services
technical support	• product specifications • product quality • technical advice	• materials technical expert support • technology • process optimisation
funding interventions	• capital grants • financial mechanisms - leasing - equity - capital grants • green technology loans • share capital	• reprocessing capacity building • investment brokering • specialised sector schemes
Regulatory and non-statutory guidance	• specifications • definitions of waste and recovery	• quality protocols • procurement policy

Present-day approaches to market development for recycled materials address increasingly sophisticated supply chains, where the evolution of a recycling infrastructure is enabling business opportunities to displace virgin materials in manufactured goods with recycled feedstocks and to trade recycled-content products in response to growing

demand. And key commercial sectors consuming large tonnages of materials are being increasingly influenced through procurement specifications that include recycled content products, for example the construction sector.

The links with recycling and economic development in Northern Ireland are outlined in Appendix 6.

2.1 Market Development Resources

Delivery of the actions outlined in the Plan will be monitored and guided by the Market Development Forum, which will take full advantage of UK-wide and Northern Ireland delivery activities and resources of existing market development organisations, such as WRAP, InvestNI and Full Circle.

Where gaps in resources indicate a need, for example for additional materials supply or market intelligence data, or for delivery of specific interventions to develop markets further, the Forum will work with Northern Ireland funding bodies to recommend provision of funds. It may well be that as the plan progresses new funds will be made available by government or other distribution bodies to existing delivery organisations or to other delivery organisations. Organisations may be able to participate to a greater extent in due course.

In Northern Ireland the main organisations presently involved in market development include:

- WRAP
- InvestNI
- Full Circle (which is the only Northern Ireland member of the Remade Network UK)
- Arena Network
- Belfast CC
- Sub-regional waste management groups – arc21; SWaMP and NWRWMG
- Strategic Waste Board
- Cross-border groups, including:
 - NS Market Development Group
 - ICBAN
 - NS Waste Management Forum
- Community sector groups

Mechanisms of delivering expenditure vary, but include organisations' business plans or funding proposals that support programmes and sector strategies that can disburse allocated funds. These originate principally from UK/NI Government (including allocation of landfill tax revenues) and European Funds. Some community sector funding is available from lottery schemes. This Plan presents details of active delivery in Northern Ireland and identifies areas for additional targeted attention.

3 Materials

3.1 Materials Sourcing

The materials this plan will cover are:

Paper, plastics, glass, wood, organics – source separated (green, kitchen, commercial food sector), organics (Non-PAS100), tyres, plasterboard and aggregates.

These will be principally sourced from municipal waste, commercial and industrial waste (C&I) and construction, demolition and excavation waste (CD&E). Wastes originating from new producer responsibility requirements, namely Waste Electronic and Electrical Equipment (WEEE) and end-of-life vehicles (ELV) (plastics and glass) and also plastics and tyres from agriculture will also be included.

Agricultural wastes (principally sludges and slurries) will not be covered in this plan. Provisions for methods of managing these wastes have been made through regulation measures that anticipate the need for separate provisions.

3.2 Municipal Wastes

Markets for quality materials are targets for both Local Authorities and commercial waste collection and recycling businesses. Best prices for collected and sorted materials are also dependent on quality.

Local authorities are eligible for support from the WRAP ROTATE service, part of the collections programme in Local Authority support. ROTATE assists local authorities to improve the performance of their kerbside recycling collection schemes. This can include advice and support on accessing end markets.

Local and export markets have been developed principally for paper, cardboard, plastic bottles and organics (green and food waste), but progress on increasing demand for local markets involving reprocessing is now being made. These will be competing with export markets and so advice on accessing local end markets will be important. Better advice to local authorities on local market availability would assist both collectors and users of materials.

3.4 Commercial and Industrial Wastes

Commercial wastes enter recycling through a number of businesses in Northern Ireland. Some operate typically as collect, sort and bale businesses and others are collectors and/or reprocessors. Quality of collected materials is again a priority and the scope for increasing capture of materials from C&I sources is significant given that commercial waste has a high percentage of recyclables. It is anticipated that the present survey on C&I waste arisings, being led by EHS, will report that a significant proportion of this is still collected as general waste and mainly disposed to landfill. The annual increases in

the rates of landfill tax and of commercial landfilling charges will influence business motivation to both prevent waste and to divert more waste from landfill. However, the commercial collection charging regime for small businesses can still offer them little incentive or opportunity to recycle their wastes.

Opportunities exist for the private and community sector to establish collection schemes to recover quality materials, such as office papers, from businesses and offices. Ongoing business support to businesses from Arena and Envirowise can influence and reinforce improved environmental performance including waste prevention.

3.4.1 Increasing materials capture from SME businesses

An SME recycle collection programme is being funded by WRAP and a number of schemes in the UK are undergoing piloting with commercial operators (http://www.wrap.org.uk/news/wrap_launches_15.html). These address the range and types of opportunity, from glass collection from pubs and clubs in specific areas through to improving recycling options to local clusters of small businesses. The results will inform options in Northern Ireland and further development of collection models will be undertaken in 2006/7. Northern Ireland contributes funding to the WRAP SME scheme. Work on this issue is also being undertaken by InvestNI and the opportunity exists to create better local networks for the dissemination of support and advice.

3.5 Construction, Demolition and Excavation Wastes

This waste stream presents much opportunity to increase resource efficiency. This is in terms of reducing the amount of waste produced during construction, improved segregation and capture of materials for recovery and recycling from construction and demolition activities and through the procurement of recycled content products in construction.

The Full Circle report, *The management of construction, demolition and excavation waste: a good practice guide*, published in 2005, highlights past achievements as examples of opportunity. The report on the supply in Northern Ireland of construction products with recycled content, *Demonstrating product options for higher recycled content in construction projects, 2005*² also provides guidance to developers and designers.

WRAP has a major programme centred on construction and addresses all aspects of resource efficiency in recycling during construction, demolition and the procurement of recycled content products (www.wrap.org.uk/construction).

Significant opportunities for developing markets in Northern Ireland will be linked with construction and regeneration projects and the aggregates sector.

²<http://www.investmentbelfast.com/downloads/Higher%20Recycled%20Product%20Options%2005b.pdf>

3.6 Supply Data

Progressing market development places a further requirement on timely and accurate data on the types and tonnages of materials being collected or potentially available for collection.

Up-to-date information is now more readily available for collections of municipal wastes, including household waste. Contemporary Northern Ireland data for C&I and CD&E – covering the period 2004-5 – will be available from EHS in the final quarter of 2006. The changes in regulation governing the diversion of biodegradable municipal waste from landfill is also driving a need for a contemporary characterisation of municipal waste to better define the percentage of the biodegradable component. This requirement is being addressed by EHS. The data will also serve to inform on the overall composition of municipal waste.

Other supply data from specific surveys that are delivered under this plan, such as for glass – containers, flat glass - can support this requirement.

Supply Data indicators are presented in Table 3. These draw on various reported sources deemed to be the best available at the present. These data correspond to the baseline data in the Assessment of Options in the NI BPEO³ for the principal waste streams mentioned above.

³ http://www.ehsni.gov.uk/environment/wasteManage/waste_management.shtml

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Table 3

Waste type	Tonnes	Source
Municipal	1,050,000 (2004/05)	EHS Report ⁴
Commercial and Industrial	635,000 (2001)	EHS Report ⁵
WEEE	25,000 and 30,000 tonnes/annum (estimated) (2001).	EHS Report ⁶
CDE ⁷	See Tables 3.1, 3.2, 3.3 (2001)	EHS Report ⁸
CDE	3,750,000 total (2002/3)	Symonds Report ⁹
CDE	1,280,000 (hard ¹⁰) (2002/3)	Symonds Report
Tyres	16,100 (equiv 1,738,117 units) – by predictive model (2000)	EHS Report ¹¹

⁴ <http://www.ehsni.gov.uk/pubs/publications/SummaryReport211205.pdf>

⁵ http://www.ehsni.gov.uk/pubs/publications/Indandcommwastesurvey_execsumm.pdf

⁶ http://www.ehsni.gov.uk/pubs/publications/ExecutiveSummary_WEEEsurvey.pdf

⁷ Abstract from the *CONSTRUCTION AND DEMOLITION WASTE SURVEY 2001* (pub EHS 2003). The survey sample gives an indication of the total C&D waste produced, reused, recycled and disposed in Northern Ireland but the analysis shows that the results are highly variable, with a total estimated waste arisings of 5,000,000 tonnes and a confidence range of nearly 6 million tonnes. This large range highlights that the estimated total is statistically highly variable. Analysis shows that the results are highly variable, with a total estimated waste arisings of 5,000,000 tonnes and a confidence range of nearly 6 million tonnes. This large range highlights that the estimated total is statistically highly variable.

⁸ http://www.ehsni.gov.uk/pubs/publications/ExecutiveSummary_WEEEsurvey.pdf

⁹ Assessment of the State of the Construction Aggregates Sector in Northern Ireland

¹⁰ total arisings of 'hard' construction and demolition waste suitable for crushing as aggregate are estimated to have been of the order of 1.28 million tonnes in the year to 31 March 2003, of which 1 million tonnes represented unrealised potential

¹¹ http://www.ehsni.gov.uk/pubs/publications/execsumma_USEDTYREsurvey.pdf

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Table 3.1 Construction and Demolition Waste Breakdown - Landfill respondents

EWG Category	Description	Tonnes
17 00 00	Construction and Demolition wastes	115,545
Of which,		
17 01 00	Concrete, bricks, tiles, ceramics	84,405
17 02 00	Wood, glass, plastics	195
17 05 00	Soil, stones and dredging spoil	5,450
17 09 00	Other Construction and Demolition Wastes	3,734

Table 3.2 C&D Waste Handled - Crusher/Screeners respondents

EWG Category	Description	Tonnes
17 01 00	Concrete, bricks, tiles, ceramics	10,000
17 02 00	Wood, glass, plastics	2,854
17 04 00	Metals	120
17 05 00	Soil, stones and dredging spoil	6,160
17 09 00	Other Construction and Demolition wastes	43,680
<i>Total</i>		<i>62,814</i>

Table 3.3 Waste Breakdown by Level 2 EWG Category – C+D companies

EWG Category	Description	Tonnes
17 00 00	Construction & Demolition wastes	773,859
Of which,		
17 01 00	Concrete, bricks, tiles and ceramics	92,382
17 02 00	Wood, glass and plastic	15,788
17 03 00	Bituminous mixtures, coal tar and tarred products	69,587
17 04 00	Metals (including their alloys)	3,453
17 05 00	Soil (including excavated soil from contaminated sites), stones and dredging spoil	540,562
17 06 00	Insulation materials and asbestos-containing construction materials	1,687
17 08 00	Gypsum-based construction material	633
17 09 00	Other construction and demolition wastes including mixed wastes	49,768

??Need for interpretive comments on the relationship of tonnes materials/category vs Northern Ireland Waste Management Strategy targets and ref to BPEO, which uses most of these data??

4 Market Development Delivery

The market development plan will bring together the various strands of activity that are being delivered through a number of organisations.

Individual organisations' business plan strategies and targets, where they are evident, are outlined in the Appendices.

The market development plan delivery is based on a number of key activity areas where materials-specific, sector-specific and generic activities (eg sustainable procurement and business and financial mechanisms) can be components in delivery. The activities are outlined in Section 4.1 and Table 4.1

At present recycled materials market development remits in Northern Ireland are with WRAP, Full Circle, with InvestNI fulfilling this type of activity as part of its business plan and overall activities, products and services.

WRAP Activities

Market development activities are ongoing and for WRAP these form part of its UK-wide delivery and NI-focused delivery. Reference is made to the WRAP Business Plan targets and a Northern Ireland Delivery Plan for 2006-8 in Appendix 5 and delivery is measured against these and the broader strategic targets for Northern Ireland.

Delivery of UK programmes by WRAP in Northern Ireland is a natural component of this market development plan. Delivery is through the maintenance of ongoing relationships with various stakeholders across the public and private sector as well as through specific interventions that can be detailed in this plan.

Where actions do relate to strategic matters for Northern Ireland market development these are outlined in Table 4.1

Full Circle Activities

Full Circle was formed by Investment Belfast to deliver a range of recycling market development programmes centred around Greater Belfast. It was funded from 2003-2006 by landfill tax credits administered by the Environmental Body, Better Belfast. Full Circle is also the only Northern Ireland member organisation of the Remade Network UK. The programmes comprised the following activities:

- Stimulating innovation and research through a grant fund,
- Supporting market development demonstration projects,
- producing materials and sector reports on resource efficiency and recycling market opportunities, and

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- Building a network involving the business and investment community, emerging and existing recycling businesses and the academic sector through communication events and stakeholder consultation

The capabilities and network developed by Full Circle make it well placed to continue to support market development in Northern Ireland. The post-March 2006 - next phase - proposals presented to DOE are given in Appendix 7.

InvestNI Activities

To add

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4.1 Market Development Plan Delivery

WRAP NI Delivery 2006 – 2008

(Note these targets are linked to WRAP Business Plan Targets - see Appendix 5)

	Activity	WRAP NI Delivery 2006-8	NIWMS Target	Key Players
1	Construction Sector	- At least 200,000 tonnes of material to be diverted from landfill or avoided from being extracted from primary resources - A minimum of £0.8bn worth of construction projects to set requirements for waste minimisation, recycling and recycled content - At least £2m savings to the construction sector from minimising site waste and recycling more	75% Construction, Demolition and Excavation waste recycled or reused by 2020 60% Commercial and Industrial Waste to be recycled by 2010 - Supporting development of Waste Prevention SMART target for C, D & E by 2010	- WRAP - Full Circle - Constructing Excellence NI - InvestNI - QPANI - Government – CPD - Strategic Investment Board - construction businesses - materials suppliers - developers - architects - construction firms - materials use - waste management companies - commercial waste recyclers - facilities managers
2	Manufacturing Sector – Key Materials – PET, HDPE, Glass	To support increased use of recycle by the UK-based manufacturing sector, which will include recycling of an additional 320 million plastic bottles in the UK (around 16,000 tonnes of plastics)	- recycling and composting of Household waste to be at: 35% by 2010 40% by 2015 45% by 2020	- WRAP - Full Circle - InvestNI - Local Authorities - Commercial waste collectors and recyclers

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	Activity	WRAP NI Delivery 2006-8	NIWMS Target	Key Players
		representing an increase of 30% in plastics recycling: - 10,000–20,000 tonnes recyclate will be either be processed by facilities in Northern Ireland or be recyclate sourced from Northern Ireland	• 60% Commercial and Industrial Waste to be recycled by 2010	• Main manufacturers (virgin product displacement) • reprocessors • recyclate suppliers
3	Organics	Operational delivery of at least an additional 30,000 tonnes annual processing capacity for source segregated biodegradable municipal waste delivery of at least 1 trailblazer project in NI UK demonstrating the technical and commercial case for use of compost in brownfield site regeneration, leading to the use of 5,000 tonnes of compost in the project Participate in projects where feasible that establish the most cost-effective and environmentally sustainable ways of diverting household food waste from landfill that lead to the production of a saleable product.	• recycling and composting of Household waste to be at: - 35% by 2010 - 40% by 2015 - 45% by 2020 • 60% Commercial and Industrial Waste to be recycled by 2010	• WRAP • InvestNI • Local Authorities • Full Circle • composting businesses • Commercial Waste companies; • Constructing Excellence NI • Government Estate • Landscapers • growers • Food industry
4	Business Growth	To support the delivery of sustainable growth in the recycling and reprocessing sector in the UK from its current size of £1.2 billion annually by	• 75% Construction, Demolition and Excavation waste recycled or reused by 2020	WRAP • InvestNI • Local Authorities • Full Circle

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	Activity	WRAP NI Delivery 2006-8	NIWMS Target	Key Players
		an additional 10% over the next two years – representing a growth aim of double the current rate of forecast growth in GDP apply the full range of products and services of the business growth programme provide data on business support activity through reports develop case studies on businesses supported in Northern Ireland, for example covering products and services, sales growth, investment, recycling capacity, product development maintain awareness of the sector to WRAP capital grant opportunities	• 60% Commercial and Industrial Waste to be recycled by 2010 • Supporting development of Waste Prevention SMART target for C, D & E by 2010	• Business community • commercial investors

Other WRAP Delivery Activities

- **Recycling Services to SMEs** This programme does not have specific delivery target for the UK. In Northern Ireland participation in the programmes will be organised as described in Section 3.7
- **WRAP Northern Ireland Web Space** WRAP will develop a Northern Ireland web portal to highlight information of direct relevance to Northern Ireland and to signpost routes to information and support.

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Full Circle Delivery

	Activity	Full Circle Delivery 2003-to Date	NIWMS Target	Key Players
1	Construction Sector	Activity around: - Trailblazers Completion to reporting Dissemination of findings Work with Government(CPD), construction sector and WRAP increasing procurement of construction projects with recycled content - Research and Development – Concrete/Rubber composite block; QUB/R4 project - Use of gulley waste in road surfacing, University of Ulster and Lagan Group	75% Construction, Demolition and Excavation waste recycled or reused by 2020 60% Commercial and Industrial Waste to be recycled by 2010 - Supporting development of Waste Prevention SMART target for C, D & E by 2010	- WRAP - Full Circle - Constructing Excellence NI - InvestNI - QPANI - Government – CPD - Strategic Investment Board - construction businesses - materials suppliers - developers - architects - construction firms - materials use - waste management companies - commercial waste recyclers - facilities managers
2	NI Economic Development	Activity around: - Environmental Business Forum - Investor recycling sector relationships - Advice and investment support for emerging businesses	- recycling and composting of Household waste to be at: 35%by 2010 40% by 2015 45% by 2020 75% Construction, Demolition and Excavation waste recycled or reused by	- NI Business - investment community - public sector

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	Activity	Full Circle Delivery 2003-to Date	NIWMS Target	Key Players
			2020 60% Commercial and Industrial Waste to be recycled by 2010	
3	Research and Development	Academic Business Challenge Fund - Linking university research and commercial business in the development of new products and technologies. Successes included: - harvesting ethanol from municipal waste - use of gulley waste in road surfacing - use of tyre recyclate in concrete blocks	- recycling and composting of Household waste to be at: 35%by 2010 40% by 2015 45% by 2020 75% Construction, Demolition and Excavation waste recycled or reused by 2020 60% Commercial and Industrial Waste to be recycled by 2010 - Supporting development of Waste Prevention SMART target for C, D &E by 2010	University and business/start-up business collaborations
4	NEW SECTORS?	WEEE; Food Sector; materials-specific programme Remade Network links	- recycling and composting of Household waste to be at: 35%by 2010 40% by 2015 45% by 2020 60% Commercial and	

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	Activity	Full Circle Delivery 2003-to Date	NIWMS Target	Key Players
			Industrial Waste to be recycled by 2010	

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InvestNI Delivery

	Activity	InvestNI Delivery	NIWMS Target	Key Players
1				

Eg specific to environmental sector strategy; sme recycling; business development; FD investment

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Other?

	Activity	InvestNI Delivery	NIWMS Target	Key Players
1				

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Table 4.1 Key Areas - summary

Activity and Materials		Markets/Sector
WRAP Programmes in NI – 2006-08		
Construction	Sustainable construction; C,D &E materials recycling/resource efficiency; tyres; plasterboard	
Manufacturing	post-consumer glass, PET and HDPE – displacement of virgin materials	Main manufacturing consumption; supply of quality recyclate to main manufacturing
Organics Market Development	Composting capacity building; source separated organic waste – municipal and commercial	Horticulture; landscaping; agriculture; brownfield regeneration
Local Authority Support	ROTATE; Training	Bulk materials – plastic containers, paper grades, card
Regional Economic Development	Region-specific market development – specific material – wood, glass, organics, paper, plastic; Recycling/reprocessing businesses; marketing (links to Business Growth)	Local, GB, all-island, international
SME Recycling	Commercial dry recyclables – all businesses	Commercial recyclate markets/trading SUB DIVIDE
Batteries Collection	Dry cell batteries – household	
Business Growth	Investment – debt, equity, leasing; business competency/skills; commercialisation; IPR support; interim managers; business advice	
Other Areas		
WEEE and ELV	Plastics; glass; collection, disassembly, transfer infrastructure; materials recovery and reprocessing	Export to reprocessors; local primary reprocessing
Farm Plastics	Collection infrastructure; reprocessing, eg diesel manufacture	Export for reprocessing; local/all-island
Other plastics	Films and rigid plastics eg drums, crates, pallets	Export for reprocessing
Aggregates		
InvestNI Business Services		

5 Opportunities for Development in Northern Ireland

For recycling activities across the board, there are a number of potential areas where further development of markets could be addressed through a variety of mechanisms and interventions. For some, priorities exist where producer responsibility requirements are now in place or are imminent. In other areas or sectors, the development requirements are linked to Northern Ireland Waste Plans and the objectives of the BPEO Guidance, which relate to provision of recycling capacity and of specific waste streams.

Some of the aspects where there are no current (known of) specific market development delivery activities are outlined below:

Table 5.1 Market Development Activity Gaps (indicative, not exhaustive - to be agreed)

	Activity	Possible Lead Organisations	Mechanism
Manufacturing	- manufacturing and reprocessing opportunities for WEEE and ELV materials; farm plastics - technology solutions, eg - plastics – solvent extraction of WEEE-derived resins - production of diesel fuel from plastics	- InvestNI - Full circle	- Directed research - Research Competiton –eg ABC fund
	tyres – uses for tyre rubber other than in construction	- WRAP - InvestNI - Full Circle	- WRAP Tyres programme - Directed research - Demonstration projects
Aggregates	stimulating growth of aggregates recycling infrastructure and capacity	- WRAP - QPANI - Full Circle	
	manufacture of dense concrete blocks with recycle content and production of low strength concrete with high recycled content	- QPANI - Full Circle	- Directed research - Demonstration projects

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	Activity	Possible Lead Organisations	Mechanism
Materials - general	Updated study of NI/regional end-markets (all-island, GB) – mapping of end markets; publicity/awareness raising	•WRAP •InvestNI	
	batteries – collection/bulking facilities	•WRAP •Waste Management Groups	
	WEEE and ELV materials recycling and reprocessing	•InvestNI •Full Circle	
Other materials and/or sectors...	<i>Please add suggestions</i>		

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Appendices – TO BE COMPLETED

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Appendix 1 Northern Ireland Market Development Forum Terms of Reference and Membership

Northern Ireland Recycling Market Development Forum

Terms of Reference – October 2005

1 Background

The Northern Ireland Waste Management Strategy 2000 (NIWMS) placed a requirement on the Department of the Environment to lead a Market Development Programme for recycled materials in Northern Ireland, giving regard to local markets and also markets for bulk materials, such as paper, plastics and glass.

A new NIWMS will be published during 2006 and is likely to retain an important placement for market development, which would be contemporary to Northern Ireland developments since 2000.

The views of stakeholders are that recycling market development activity in Northern Ireland could be more dynamically progressed through establishing a Northern Ireland Market Development Forum. This would comprise membership from Northern Ireland organisations with remits that include aspects of market development.

The Forum would recognise the potentials for development of local and all-island markets and also that existing businesses engaged in the recycling sector are impacting on these markets.

As an overarching principle, the Forum would have no executive responsibilities for delivery and not challenge the autonomy of a member organisation. Overall, it would serve to inform members and influence market development activities that organisations are engaged in, guiding the delivery of the overall market development plan.

2 Objectives of the Forum

The objectives of the Forum would include the following:

- 2.1 To provide a focus for information on activities in recycling market development in Northern Ireland.
- 2.2 To produce a market development programme for Northern Ireland (that would comprise the overview of key activities which would guide independent organisations' delivery through their own strategy and resources). The market development programme would be produced giving regard to quantitative targets for recycling in Northern Ireland.

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- 2.3 To produce a market development plan for Northern Ireland to deliver the market development programme in a co-ordinated manner.
- 2.4 To create an environment in which organisations with independent remits associated with market development can effectively utilise their resources and identify opportunities.
- 2.5 To monitor the relevance of the market development forum to the delivery of the Northern Ireland market development programme.

3 Delivery of Objectives

The objectives shall be delivered through the actions of the Forum. The scope of delivery actions against each of the objectives can be developed as required, but could include consideration of the following:

Objective	Delivery
To provide a focus for information on activities in recycling market development in NI.	Through inward and outward facing activities – eg as consultee, commentator or informer on Government Policy/waste management strategy related to recycling markets; assessment of recycling performance data; promotion of information to recycling sector and stakeholders
	By enabling organisations to be aware of the range of activities and plans for recycling market development – avoiding duplication and be relevant
To produce a market development programme for NI	Outlining the key activities which would guide independent organisations' delivery through their own strategy and resources (eg market development organisations; government procurement; waste management partnerships)
	Ensuring harmonisation with waste management strategy
	By giving regard to quantitative targets for recycling in NI.
To produce a market development plan for NI to deliver the market development programme in a co-ordinated manner.	Identification of key activities and assessment of NI resources required to deliver plan tasks
	Be relevant to the delivery of NI targets for recycling and for diversion of waste from landfill – and be appropriate to both municipal and commercial/industrial wastes (inc C, D +E)

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Objective	Delivery
	Identifying activities linked to quantitative NI targets for the recycling of materials (eg in terms of tonnes of recycling capacity; conversion into added-value products; creation of demand for recycled products; encouraging investment into the recycling sector)
To create an environment in which organisations with independent remits associated with market development can effectively utilise their resources and identify opportunities for delivery of their own plans	By providing circumstances where an exchange of information can occur and be developed
To note the outputs of the market development forum and monitor its relevance in the to the delivery of the NI market development programme	Review of objectives and output against plan at agreed intervals
	Produce a summary report to stakeholders

4 Forum Membership

Formal agreement on membership is to be decided at subsequent working group meeting. The general composition of membership, the organisational attributes of a Chairman and of a Secretariat was outlined in the workshop notes. In summary, the Forum membership would comprise:

- Chairman – CBI Northern Ireland
- Secretariat – EHS
- Members: (including, but not limited to)
 - Sub-Regional Waste Management Groups – arc21, SWaMP, NWRWMG----
 - Full Circle
 - CBI
 - WRAP
 - InvestNI
 - DOE/EHS
 - CBI Northern Ireland
 - Central Procurement Directorate
 - Construction Sector

Appendix 2 Strategy and Waste Plan References

- Northern Ireland Waste Management Strategy 2006-2020: Towards Resource Management
http://www.ehsni.gov.uk/environment/wasteManage/waste_management.shtml
- Sub-Regional Waste Plans
 - Arc21 <http://www.arc21.org.uk/cwmpcontents.asp>
 - SWaMP <http://www.swampni.org.uk/latestdocument.htm>
 - NWRWMG <http://www.northwestwasteplan.org.uk/>
- Northern Ireland Sustainable Development Strategy: First Steps Towards Sustainability
<http://www.doeni.gov.uk/epd/sustainable%20development.asp>

?InvestNI sector strategy and BP targets?

Appendix 3

Policy and Strategy Drivers

- NIWMS – recycling targets; waste prevention; data requirements; new legislation to increase capture of materials for recycling
- Northern Ireland sustainable development strategy
- Waste Plans
- NILAS (BMW)

QPS AND NEW QPS

List target numbers – NIWMS and NILAS

Appendix 4 ARC21 STRATEGY AND CORPORATE PLAN 2006-2009

Located at:

<http://www.arc21.org.uk/whooperations.asp>

Abstracted **Objective 5** from ARC21 Corporate Plan

6.5 OBJECTIVE 5

To promote the development of processing capacity and market outlets for secondary resources.

Planned Outcome

To achieve sustainability in arc21's collection, treatment and disposal activities by enhancing the opportunities for market outlets from materials produced.

Actions For The Period Ahead 2006/09

1. Contribute to the development of a Northern Ireland / All Island market development programme.
2. Continue to work with Waste and Resources Action Programme and the UK Market Development Forum to examine synergies and market opportunities.
3. Continue to structure contracts and specifications in a way which enhances the value of recyclates and incentivises end markets.
4. Continue to give advice to Member Councils on collection schemes which are appropriate to downstream market outlets and processing capacity.
5. Encourage Member Councils in the use of environmental management systems and green procurement policies.
6. Continue to work with government in creating green procurement opportunities across the public sector.

Associated Business Objectives for 2006/07

1. In the preparation of contracts, continue to specify the need for viable end markets fit for purpose.
2. In such contracts, continue to examine ways of sharing risk and reward via innovative partnership arrangements which incentivises market development.

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- 3.** Ensure, through the arc21 procurement route, that there is a presumption in favour of diversity of markets.
- 4.** Within contract documents continue to restrict contamination of input material by quality assuring input specifications for downstream treatment / recycling.
- 5.** Address the issue of market development in the Waste Management Plan, to include both municipal and non-municipal waste streams.
- 6.** Contribute to the workings of the newly created Market Development Forum with a view to the preparation of a Market Development Plan and Programme for Northern Ireland.
- 7.** Raise within the Market Development Forum the possibility of cross-regional collaboration e.g. North/South and East/West.
- 8.** Undertake, via the Market Development Forum, desktop datacapture to assess the currency and accuracy of data on recycle arisings and capacity in Northern Ireland.
- 9.** Work to the benefit of arc21 through the Market Development Forum to engage with the Environmental sector, Invest Northern Ireland, and local businesses.
- 10.** Continue to review the possibility of a specific arc21 or Northern Ireland Local Market Development Initiative similar to those (inter alia) in Scotland and London.
- 11.** Continue to interface with Waste and Resources Action Programme within the context of market development across the UK and specifically to Northern Ireland.
- 12.** Continue to promote further green procurement activity at local government, central government and Non Departmental Public Body levels via various public sector fora.
- 13.** Promote and participate in relevant operational trials to undertake the viability of local market development initiatives.
- 14.** Engage in local Waste and Resources Action Programme initiatives such as Product Trials, Landmark training courses, compost marketing events.
- 15.** Engage with the work of the Sustainable Procurement Taskforce particularly in the context of disseminating market development information, attending workshops and contributing to publications.

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Appendix 5 WRAP Business Plan Targets 2006-2008

Programme	UK-wide target
Construction	1.7m tonnes of material to be diverted from landfill or avoided from being extracted from primary resources £10bn worth of construction projects to set requirements for waste minimisation, recycling and recycled content £50m savings to the construction sector from minimising site waste and recycling more
Manufacturing	- to secure an additional 220,000 tonnes a year of increased use of recycle by the UK-based manufacturing sector - which will include recycling of an additional 320 million plastic bottles in the UK (around 16,000 tonnes of plastics) representing an increase of 30% in plastics recycling
Organics	- Operational delivery of an additional 450,000 tonnes annual processing capacity for source segregated biodegradable municipal waste - delivery of at least 20 trailblazer projects throughout the UK demonstrating the technical and commercial case for use of compost in brownfield site regeneration, leading to the use of 100,000 tonnes of compost in these projects - establish the most cost-effective and environmentally sustainable ways of diverting household food waste from landfill that lead to the production of a saleable product.
Business Growth	deliver sustainable growth in the recycling and reprocessing sector from its current size of £1.2 billion annually by an additional 10% over the next two years – representing a growth aim of double the current rate of forecast growth in GDP.
Local Authority Support:	- assist 100 Local Authorities to improve the efficiency of their recycling services - support 20 local authorities in introducing model separate food waste collections
Programmes not covering Northern Ireland	
Retail (England, Scotland, Wales)	- To secure reductions in packaging waste of 80,000 tonnes a year to offset projected growth. This will directly address the first element of the Courtald Commitment, and is the first stage in a programme that will deliver an accumulated 340,000tonnes a year minimised by 2010 - To deliver 100,000 tonnes of household food waste reduction
Behavioural Change (England)	- A further substantial increase in the level of public commitment to recycling, delivering at least four million additional 'committed recyclers' representing a further 10% of the adult population - A further 15% increase in households participating in local recycling schemes, where communications activities have been funded by WRAP

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Programme	UK-wide target
Local Authority Support Home Composting and England-specific targets	• reduce by 50% the number of local authorities in England not achieving statutory recycling targets • establish annual waste diversion of 400,000 tonnes through home composting and other minimisation activities

Appendix 6 Recycling and Northern Ireland Economic Development

A6.1 Development Areas

In Northern Ireland, market development can address the following aspects:

- investment opportunities – in recycling and reprocessing facilities; government infrastructure investment
- economic growth – increased sales, job creation, Northern Ireland consumption, exports
- stabilising markets – to assist local authorities; attract investment
- viability of emerging markets
- manufacturing/recycling/reprocessing capacity – currently available and/or forecast

National markets now exist for some materials, and as mentioned local authorities are able to achieve relatively stable prices. This is particularly the case for paper and plastics, which have become more stable in the past two years. The market for source-separated compostable waste is less established.

WRAP developed a Materials Pricing Report¹² to provide weekly bulletins to subscribers on markets for the major bulk recyclables markets – paper, plastic and glass. This Report indicates there has for a while been a period of price stability in the markets for recycled paper, colour separated glass cullet and plastic bottles. Subscription is free to parties engaged in recycled materials buying and selling.

Producer Responsibility Packaging Recovery Notes adds a further dimension to the market as may the mechanisms for producer responsibility for WEEE and ELVs that Government will outline in due course.

For certain materials in the UK, notably for recovered paper and plastics, there is a considerable export market, which is also of growing importance to other materials such as glass. In Northern Ireland the situation for bulk materials mirrors this analysis. This is particularly the case for local authorities collecting increased tonnages of paper and card, plastic bottles and metals. Commercial markets for glass packaging are also being exploited.

Proven technologies utilised widely in countries with more established recycling infrastructure may present inward investment opportunities for the UK. ????

A6.2 Market Considerations

Some potential is already being realised on the following points, but there is further scope for recycling to go further in supporting the Northern Ireland economy:

- direct/indirect employment opportunities;

¹² <http://www.wrap.org.uk/mp/>

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- the potential for improvements in business efficiency and competitiveness through waste minimisation and recycling;
- the contribution to achieving more sustainable development through resource efficiency;
- the role of the social enterprise sector in recycling and regeneration;
- the growth potential of the environmental technologies sector.

Hence, recycling has an important role to play in helping Northern Ireland to address economic, social and environmental objectives. Inevitably, this varies according to the significance of the recycling and manufacturing sector(s) in Northern Ireland and also through economic opportunities across the island and in relation to variations in policy emphasis.

A6.3 Northern Ireland Dimension

There are a number of benefits in developing a strong regional dimension, namely:

- the ability to tackle constraints/opportunities facing the sector, many of which will require concerted efforts across a range of policy/strategy areas, including some not within the remit of WRAP;
- the potential to lever in additional resources through existing programmes and funding initiatives such as EU Funds;
- the potential to build on and develop existing organisational/delivery capacity within Northern Ireland in order to better promote the sector; and
- ensure that unnecessary duplication/overlap is minimised and added value achieved.

??Progress to resource efficiency that NI has some direct engagement with, but can also use as models for shaping the MDP and to lever additional funds/resources ex government

Appendix 7 Full Circle post-March 2006 Phase II Proposals

Investment Belfast

March 2006

Full Circle Phase II

Investment Belfast, through its Full Circle initiative has sought to support the development of the recycling industries sector by delivering a number of tightly focused projects. These have:

- Led to the development of new secondary products from recycled materials
- Sought to encourage business development by celebrating and promoting business success through events such as the Goldin Waste Fair
- Promoted behavioural change and stimulated demand, for example in the Construction Sector

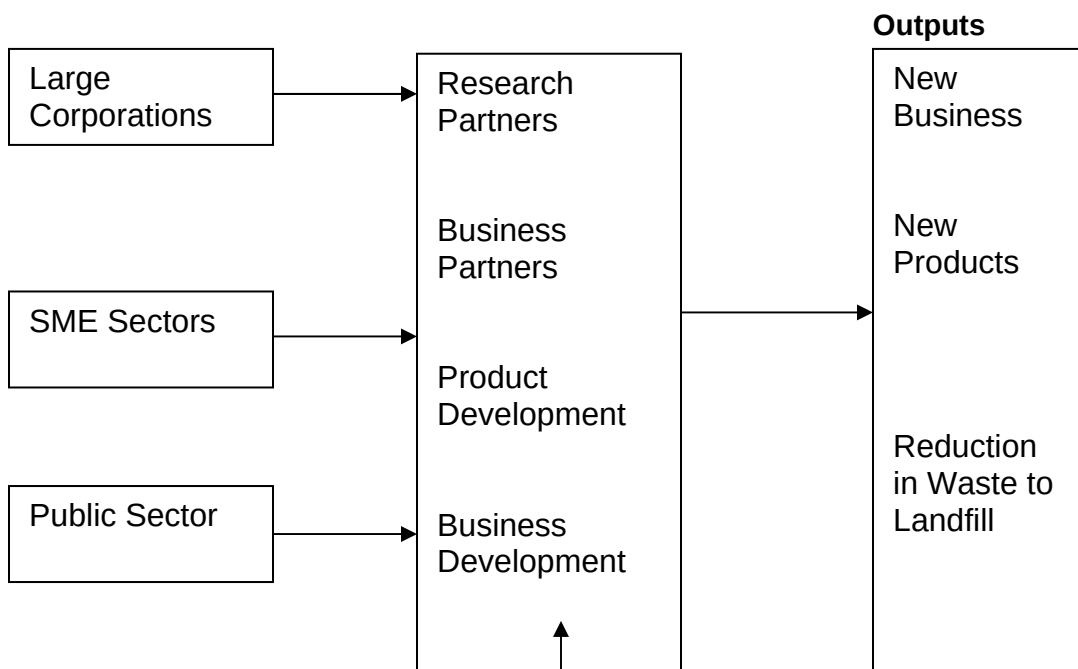
Phase II

In building on the solid foundations laid over the first two years, Full Circle will seek to support the Northern Ireland Waste Strategy by adding value in the key areas of:

- Encouraging the production of secondary materials and products
- Engaging with and supporting businesses in the recycling sector.

This will be achieved through:

- the establishment of a REGIONAL MARKET DEVELOPMENT FUND



FULL CIRCLE – Support and service these strategic research and business/product development partnerships through the establishment of a new Regional Market Development Fund.

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- SECTOR SPECIFIC WORK

Continue the work started with the construction sector .(including CEF, CIG and QPA) to encourage behavioural change particularly in the management of CD&E waste and the use of construction materials with high recycled content.

Target a new sector with a view to reducing the amount of waste arising from that sector. A sector that offers potential for future working may be the Food Sector. Organic waste is the largest area of concern for Local Authorities. This would encourage the development of materials for compost.

- ENVIRONMENTAL BUSINESS NETWORKING

Four tightly focused events will be held to debate topical market development issues.

Annual Conference & Showcase to profile national and local successes in the environmental sector and help to encourage entrepreneurs to take up the challenge.

All of the above are subject to securing funding.

NORTHERN IRELAND MARKET DEVELOPMENT FORUM

Appendix 8 Other Funded Market Development Activities

COMMUNITY WASTE INNOVATION FUND – SUCCESSFUL APPLICANTS - AWARDED 2005

APPLICANT	DESCRIPTION	FUNDING £
Greater Shantallow Area Partnership	Recycling initiative giving initially 5000 homes (increasing to 10,000), the opportunity to compost household-generated organic material.	266,867
Bryson House, Rathlin Island	Providing each Rathlin dwelling with a container to store and carry materials to a newly created multi – material bring site on the island.	9,858
Homewrap Ltd	A waste vegetable oil recycling and bio diesel refining plant which will refine 2 million litres per year.	100,000
Conservation Volunteers NI	A kerbside green waste collection facility in Coleraine Borough, with a processing yard and associated equipment.	126,548
East Belfast Mission	A new outlet for the resale of second-hand furniture and electrical appliances.	450,000
Oxfam NI, Armagh	A collection and processing service for unwanted furniture, household items and smaller electrical goods.	69,350
Bryson House, Sort It Out	'Sort It Out' waste minimisation educational programme for primary school children to promote and create awareness of waste management.	425,392
Carnany Community Association	A mini recycling centre within Carnany Estate, Ballymoney, Co. Antrim.	52,800
Derg Valley Care Ltd	Glass for Life project recycling glass to create meaningful employment for 20 adults with learning disabilities.	202,753

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Limavady Community Development Initiative	Home collection service for glass, textiles, furniture, garden waste and paper.	167,758
Centre 4ARD	Electrical components dis-assembly plant to extract end of life re-usable electrical materials.	450,000
Envirocentre Ltd	Northern Ireland Sustainability and Resources Institute as part of the Queens University Centre for Sustainability and Environmental Governance.	154,000
Sustainable NI	Major NI-wide conference in November 2005 on community waste issues and produce a Waste Guide highlighting best practice and offering practical help.	21,000
Baglady Productions	The NEEDabag 2 project to encourage alternatives to plastic bags, promote recycling, and reduce the number of non-biodegradable plastic bags to the environment.	58,480
Voluntary Services Lisburn Ltd	A collection service for unwanted domestic white goods and a 'drop off' area for the public to bring unwanted items for reuse or recycling.	450,000

ANNEX G

SITE DIGEST

G.0 SITE DIGEST**SWAMP LICENSED WASTE MANAGEMENT FACILITIES**

G.1 The following represents a list of the licensed waste management facilities within the SWaMP Region, as listed on the Environment and Heritage Service website in June 2006.

G.2 This list is regularly updated and can be found on the EHS website at the following address:

<http://www.ehsni.gov.uk/pubs/publications/LicencesMay06.pdf>

Table G.1 Licensed Waste Management Facilities in the SWaMP Region

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
ARMAGH					
WML 03/01	Eric Foster	Unit 15, Charlemont Industrial Estate, Moy	Recycling	Domestic & commercial waste, WEEE, Non-Haz industrial waste, Haz domestic waste, farm film	5 tonnes/day
WML 03/02	Greenway Ireland Ltd	11 Porthill Road, Mounthorris	Recycling	Waste Category B, Domestic & commercial waste	Untreated: 20 t/day Baled: 20 t/day
WML 03/03	Shabra Recycling Ltd	Station Road, Armagh	Recycling	Domestic & commercial waste, non-haz industrial waste, farm film	Domestic & commercial – baled 20t/day, non-haz ind waste – 10t/day, farm film – 5t/day
WML 03/04	Natural World Products (NWP) Recycling Ltd	55 Cargaclougher Road, Keady	Recycling	Domestic & commercial	Domestic & commercial – 10t/day (untreated), 166t/day (solid)

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 03/06	Mr R Anderson	Annareagh Road, Richill	Landfill	Category A & B	Not stated
WML 03/08	Mr K McClelland	Granemore Road, Ballybrolly Road, Keady	Recycling	Dismantling vehicles & storage of vehicle parts	5t/week
WML 03/09	Mr G Corr	101 Ballyards Road, Armagh	Recycling	Receiving, dismantling & refurbishing commercial vehicles	50t/week
WML 03/10	Traynors Ltd	86 Armagh Road, Moy	Carbreakers	Dismantling, cutting & storage of cars & lorries	300t/week
WML 03/13	T-Met Ltd	84 Armagh Road, Moy	Recycling	General waste - Cat B (ii), Cat B (iii), Category D	36,000 tpa General waste – Cat B (ii) – 300t/week, Cat B (iii) – 200t/week, Cat D – 5t/week
WML 03/20	Armagh City & District Council	Keady Recycling Centre, Annvale Industrial Estate, Annvale Road, Keady	CA Site	Domestic & commercial waste, haz domestic waste	10,000 tpa
WML 03/21	Armagh City & District Council	Station Road Recycling Centre, Station Road, Armagh	CA Site	Domestic & commercial waste, haz domestic waste	10,000 tpa
WML 03/22	Armagh City & District Council	Markethill Recycling Centre, Markethill Business Centre, Markethill	CA Site	Domestic & commercial waste, haz domestic waste	10,000 tpa
WML 03/23	Armagh City & District Council	Tandragee Recycling Centre, Madden Road, Tandragee	CA Site	Domestic & commercial waste, haz domestic waste	10,000 tpa
WML 03/24	NWP Recycling Ltd	Tassagh Road, Keady	Transfer Station	WEEE	50t/day or 12,500 tpa
WML 03/25	Gerard Thomas Molloy	185 Monaghan Road, Armagh	Recycling	Dismantling vehicles	10t/week

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
BANBRIDGE					
WML 06/01	Paul O'Meara	40 Greenan Road, Loughbrickland	Transfer Station	Domestic & commercial wastes, building, garden & farmyard waste	6 t at anytime
WML 06/03	Thompson Recycled Oil	33 Greenogue Road, Dromore	Recycling	Mixed waste mineral oils/hydrocarbons	19,600 gallons at anytime
WML 06/04	Colm McGreevy	Glebe Road, Annaclone, Banbridge	Landfill	Category A - topsoil, subsoil, bricks, concrete, stone, clay, plaster, sand, silica, coal, coke, ash, mineral processing wastes, hardcore, excavated road material	Not stated
WML 06/05	Annaclone Presbyterian Church	Glebe Road, Annaclone, Banbridge	Landfill	Category A - topsoil, subsoil, bricks, concrete, stone, clay, plaster, sand, silica, coal, coke, ash, mineral processing wastes, hardcore, excavated road material	Not stated
WML 06/07	Bryson House Recycling Centre	Kernan Technology Park, Kernan Road, Gilford	Transfer Station	Plastic (20 01 39), cans (20 01 40), H/hold & commercial paper (20 01 01), glass (20 01 02) etc	16t/day (4,000 tpa)
WML 06/08	Banbridge District Council	Banbridge Community Recycling Centre, Scarva Road, Banbridge	Recycling	Household waste	5,000 tpa
WML 06/09	Banbridge District Council	Dromore Community Recycling Centre, Mossvale Road, Dromore	Recycling	Household waste	5,000 tpa
WML 06/10	Banbridge District Council	Rathfriland Community Recycling Centre, Ballyrone Road, Rathfriland	Recycling	Household waste	5,000 tpa

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
COOKSTOWN					
WML 11/01	R & M Greenkeepers & Skiphire	130 Metres West of Annaghquinn Road, Rock, Pomeroy	Landfill	Category A	25t/day
WML 11/02	Desmond O Kane	Area Of Land at Craigs Road, Cookstown	Landfill	Category A	25t/day
WML 11/03	F Wilson	Disused Sand & Gravel Pit, Killgarvin Road, Cookstown	Landfill	Inert waste	100t/day
WML 11/04	Glassdon	160 metres east, 5 Ardagh Road, Ballinderry, Coagh	Recycling	H/hold & commercial waste, green waste	10,400 tpa
WML 11/06	Cookstown District Council	Magheraglass Landfill Site	Landfill	H/hold, commercial & industrial waste	Not stated
WML 11/07	Blue Circle Industries Plc	29 Sandholes Road, Cookstown	Landfill	Kiln precipitator flue dust	100t/day
CRAIGAVON					
WML 12/01	Ag-med Ltd	Watsons Lane, Lurgan	Treatment Plant		Not stated
WML 12/02	GD Recycling Ltd	Silverwood Ind Estate, Silverwood Road, Lurgan	Transfer Station	Glass, plastic, hardcore, wood, metal, paper, c/board, cotton, linen, polyester, wool, nylon	1500 m ³ /week
WML 12/03	Craigavon Area Hospital Group	Craigavon Area Hospital, 68 Lurgan Road, Portadown	Transfer Station	Clinical waste – Group A –E	7t/week
WML 12/04	Adco Distribution (NI) Ltd/R4 Ltd	16 Seagoe Ind Estate, Portadown	Tyre Storage & Shredding Facility	Car & commercial tyres	5t/day

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 12/05	Thomas Robinson	52 Hunters Hill Road, Gilford	Landfill		50t/day
WML 12/06	Covington Cars	207-209 Gilford Road, Lurgan	Scrapyard	Cars, other vehicles/engines/gearbox etc	100t/week
WML 12/07	Curran Waste Recycling	91 Moy Road, Ballyfodrin, Lurgan	Recycling	Domestic & commercial waste, C&D	Domestic & commercial waste – 52t/day, C&D – 0.75t/day
WML 12/08	Clearway Disposal Ltd	41 Dobbin Road, Portadown	ELV	Category A, B & D	Category A – 50t, Category B – 575t, Category D – 60t
WML 12/09	John Lindsay Professional Sportsurf	2 Carn Road, Portadown	Transfer Station	Empty & pre-washed plastic herbicide & fungicide containers	3 tpa
WML 12/10	Craigavon Borough Council	Ballyfodrin Landfill, Drumeven, Moy Road, Craigavon	Landfill	Domestic & commercial waste, C&D, sewage sludge, agricultural waste	Domestic & commercial waste – 250t, C&D – 50t, sewage sludge – 10t, agricultural waste – 5t
WML 12/11	Hugh Mc Cusker	Embankment Road, Aghacommon, Lurgan	Landfill	Clay, soil & quarry spoil	Not stated
DUNGANNON					
WML 15/02	Taylor Waste Services	Derryvale Industrial Estate, Farlough Road, Coalisland	Recycling	Fluorescent tubes, recovered fluorescent powder	2t/week
WML 15/03	O'Neill Fuels	227 Annaghmore Road, Coalisland	Recycling	Mineral oils, oily fractions & waste oil	120,000 litres at any time
WML 15/04	Noel Boyd	100M North Of Glencon Road, Newmills	Landfill	Category A	40t/day

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 15/05	Moygashel Ltd	Adjacent To Moygashel Mills, Dungannon	Landfill	Textile waste – cloth & yarn, paper, packaging, building materials, clay & soil	Not stated
WML 15/07	Stanley Emerson & Sons Ltd	44 Newmills Road, Glencon, Dungannon	Landfill	Topsoil, subsoil, clay etc	100t/day
WML 15/08	D Donaghy	159 Clonmore Road, Dungannon	Tyre Storage Facility	Car & commercial tyres	5t/day
WML 15/09	Dungannon & South Tyrone Borough Council	Benburb Road, Moy	CA Site	H/hold waste from public & non-haz from trade or business	10,000 tpa
WML 15/10	Dungannon & South Tyrone Borough Council	Station Road, Coalisland	CA Site	H/hold waste from public & non-haz from trade or business	10,000 tpa
WML 15/11	Dungannon & South Tyrone Borough Council	Drumcoo, Oaks Road, Dungannon	CA Site	H/hold waste from public & non-haz from trade or business	10,000 tpa
WML 15/12	Dungannon & South Tyrone Borough Council	Tullyvar Waste, 130 Tullyvar Road, Aughnacloy	CA Site	H/hold waste from public & non-haz from trade or business	10,000 tpa
WML 15/13	Dungannon & South Tyrone Borough Council	Screeby Road, Fivemiletown	CA Site	H/hold waste from public & non-haz from trade or business	10,000 tpa
WML 15/14	Dungannon & South Tyrone Borough Council	Fintona Road, Clogher	CA Site	H/hold waste from public & non-haz from trade or business	10,000 tpa
WML 15/15	COD International Ltd	110 Trewmount Road, Killyman	Treatment Plant	Refrigeration equipment	180,000 units or <7,200 tpa
WML 15/17	Dungannon & South Tyrone Borough Council	Tullyvar Waste, 130 Tullyvar Road, Aughnacloy	Landfill	H/hold & commercial wastes, industrial wastes, agricultural wastes, C&D, cars & trailers, mine & quarry wastes	Not stated

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
FERMANAGH					
WML 16/01	Fermanagh District Council	Glassmullagh Landfill Site, Enniskillen	Landfill	H/hold, commercial, industrial, sewage sludge cake	H/hold – 450t/week, Commercial – 290t/week, Industrial – 500t/week, Sewage sludge cake – 50t/week
WML 16/02	Fermanagh District Council	Glassmullagh Recycling Centre, Glassmullagh, Enniskillen	CA Site	H/hold & non-haz from trade & business	3,000 tpa
WML 16/03	Fermanagh District Council	Ballinamallard Civic Amenity Site, Kilskeery Road, Ballinamallard	CA Site	H/hold waste from the public	800 tpa
WML 16/04	Fermanagh District Council	Belleek Civic Amenity Site, Belleek	CA Site	H/hold waste from the public	1,000 tpa
WML 16/05	Fermanagh District Council	Brookeborough Civic Amenity Site, Brookeborough	CA Site	H/hold waste from the public	600 tpa
WML 16/06	Fermanagh District Council	Clabby Civic Amenity Site, Mountain Road, Clabby	CA Site	H/hold waste from the public	500 tpa
WML 16/07	Fermanagh District Council	Derrygonnelly Civic Amenity Site, Enniskillen Road, Derrygonnelly	CA Site	H/hold waste from the public	800 tpa
WML 16/08	Fermanagh District Council	Derrylin Civic Amenity Site, Main Street, Derrylin	CA Site	H/hold waste from the public	800 tpa
WML 16/09	Fermanagh District Council	Florencecourt Civic Amenity Site, Letterbreen Road, Florencecourt	CA Site	H/hold waste from the public	500 tpa

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 16/10	Fermanagh District Council	Kinawley civic Amenity Site, Derrylin Road, Kinawley	CA Site	H/hold waste from the public	300 tpa
WML 16/11	Fermanagh District Council	Kesh Civic Amenity Site, Dromard Road, Kesh	CA Site	H/hold waste from the public	800 tpa
WML 16/12	Fermanagh District Council	Donagh Civic Amenity Site, Donagh	CA Site	H/hold waste from the public	300 tpa
WML 16/13	Fermanagh District Council	Ederney Civic Amenity Site, Aghaleague Lane, Ederney	CA Site	H/hold waste from the public	400 tpa
WML 16/14	Fermanagh District Council	Garrison Civic Amenity Site, Belcoo Road, Garrison	CA Site	H/hold waste from the public	400 tpa
WML 16/15	Fermanagh District Council	Irvinestown Civic Amenity Site, Enniskillen Road, Irvinestown	CA Site	H/hold waste from the public	1500 tpa
WML 16/16	Fermanagh District Council	Lack Civic Amenity Site, Largy, Lack	CA Site	H/hold waste from the public	100 tpa
WML 16/17	Fermanagh District Council	Lisbellaw Civic Amenity Site, Lisbellaw	CA Site	H/hold waste from the public	800 tpa
WML 16/18	Fermanagh District Council	Lisnaskea Recycling Centre, Killypaddy Road, Lisnaskea	CA Site	H/hold & non-haz from trade & business	1,000 tpa
WML 16/19	Fermanagh District Council	Newtownbutler Civic Amenity Site, Crom Road, Newtownbutler	CA Site	H/hold from public	800 tpa
WML 16/20	Fermanagh District Council	Rosslea Civic Amenity Site, Lisnaskea Road, Rosslea	CA Site	H/hold from public	500 tpa
WML 16/21	Fermanagh District Council	Teemore Civic Amenity Site, Geaglum Road, Teemore	CA Site	H/hold from public	300 tpa

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 16/22	Fermanagh District Council	Tempo Civic Amenity Site, Brookeborough Road, Tempo	CA Site	H/hold from public	500 tpa
WML 16/23	Fermanagh District Council	Killyvilly Depot, Tempo Road, Enniskillen	Transfer Station	MDRs (newspapers, magazines, card, plastic bottles, aluminium & tin cans)	4,000 tpa
WML 16/24	Sperrin Lakeland Health & Social Care Trust	Adjacent to rear entrance to Erne Hospital, Enniskillen Road, Enniskillen	Clinical Waste Transfer Station	Prescription medicines, vaccines, including used sharps, cytotoxic waste, pathological waste, anatomical waste	Not stated
WML 16/25	Nixon Car Spares	Coolaran, Lismaskea Road	ELV	2,500 vehicles annually throughput – 1,000 vehicles stored, 50t of residual waste, 10t of hazardous waste from depollution	
WML 16/28	Fermanagh District Council	Magheraveely Civic Amenity Site, Magheraveely	CA Site	H/hold from public	300 tpa
NEWRY & MOURNE					
WML 22/01	McParlands Plant Hire	Disused Sand pit, Drumiller, Jerretspass	Landfill	Topsoil, subsoil, clay, stone, brick, concrete, plaster, sand, silica, ash, clinker of coal & coke	30t/day
WML 22/04	Thomas & Cyril Patterson	70m SE of Mourne Wood, Cranfield Road, Kilkeel	Transfer Station	Domestic & commercial, non-haz industrial, C&D, paper & plastic	Domestic & commercial – 2t/day, non-haz industrial – 5t/day, C&D – 17t/day, 100 bales of plastic & paper at one time
WML 22/05	Mr Robert Newell	120m NNW of 120 Greencastle Road, Kilkeel	Landfill	Category A	Not stated

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 22/06	Dromalane Quarries Ltd	25 Fathom Line, Newry	Landfill	Category A	Not stated
WML 22/07	Sean O'Hare	133 Camlough Road, Newry	Scrapyard	Dismantling, crushing & storage of cars	20t/week
WML 22/08	Sean O'Hare	Limekiln Road, Newry	Scrapyard	Dismantling, crushing & storage of car bodies	20t/week
WML 22/09	Newry & Mourne District Council	Aughnagun Refuge Disposal Site, Chapel Hill Road, Mayobridge	Landfill	Domestic & commercial, C&D, domestic & commercial incinerator wastes, clinical & non-haz industrial	Not stated
WML 22/10	Beatties	Quarter Road, Canmlough, Newry	Scrapyard	Cars, other vehicle engines, gearbox, axles, tyres, batteries	5t/week
WML 22/11	McCoy Autospares	4 Low Road, Drumintee, Newry	Scrapyard	Dismantling, crushing & storage of cars	12t/week
WML 22/12	SCL ONYX	121 Camlough Road, Bessbrook	Transfer Station	Commercial, C&D, non-haz industrial	Commercial – 150t/day, commercial baled – 80t/day, C&D – 200t/day, non-haz industrial – 100t/day
WML 22/13	Newry & Mourne H&SS Trust	Daisy Hill Hospital, 5 Hospital Road, Newry	Transfer Station	Clinical – Group A, B & E	4t/week
WML 22/14	Newry & Mourne District Council	Civic Amenity Site, Hilltown	CA Site	H/hold & small amount of non-haz trade	10,000t/annum
WML 22/15	Newry & Mourne District Council	Civic Amenity Site, Newtownhamilton	CA Site	H/hold & small amount of non-haz trade	10,000t/annum
WML 22/16	Newry & Mourne District Council	Civic Amenity Site, Newry	CA Site	H/hold & small amount of non-haz trade	10,000t/annum

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 22/17	Newry & Mourne District Council	Civic Amenity Site, Warrenpoint	CA Site	H/hold & small amount of non-haz trade	10,000t/annum
WML 22/18	Newry & Mourne District Council	Civic Amenity Site, Aughnagun	CA Site	H/hold & small amount of non-haz trade	10,000t/annum
WML 22/19	Newry & Mourne District Council	Civic Amenity Site, Kilkeel	CA Site	H/hold & small amount of non-haz trade	10,000t/annum
WML 22/20	Newry & Mourne District Council	Civic Amenity site, Camlough	CA Site	H/hold & small amount of non-haz trade	10,000t/annum
WML 22/21	Alpha Environmental Systems Ltd	Kilkeel Harbour, Kilkeel	Waste Treatment Facility	Dredging from Kilkeel harbour	Not stated
WML 22/22	Kinney Skip Hire	78 Chancellors Road, Newry	Transfer Station	Domestic & commercial, non-haz industrial, C&D	Untreated Domestic & commercial – 50t/day, Treated Domestic & Commercial – 20t/day, non-haz industrial – 5t/day, C&D – 70t/day, Cars – 5t/day.
WML 22/23	Sludge Clearance Ltd	Carrickbracken, Camlough	Landfill		400m ³ daily
WML 22/24	Allclear Environmental	Derrybeg Lane, off Newry bypass, Newry	Transfer Station	EWC codes: 15 01 01, 15 01 02, 15 01 03, 20 01, 20 03, 20 01 01, 20 01 30	15,000 tpa

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 22/25	Regen Waste Ltd	Shepherds Drive, Carbane Industrial Estate, Newry	Transfer Station	EWC codes: 07 02 13, 15 01 01 - 15 01 07, 15 01 09, 15 02 03, 17 01 01 – 17 01 03, 17 01 07, 17 05 04, 17 05 06, 17 05 08, 17 02 01 – 17 02 03, 17 04 01 – 17 04 07, 17 04 11, 17 09 04, 19 13 02, 20 01 01, 20 01 02, 20 01 10, 20 01 11, 20 01 38, 20 01 39, 20 01 40, 20 02 02, 20 02 03	110,000 tpa
WML 22/28	Joanne Newell	Adj to North of 24 Ballynahatten Road, Kilkeel	Transfer Station	Category D waste	60,000 tpa
OMAGH					
WML 25/01	Greenway Recycling Co Ltd (Shergrim Recycling)	430m East of Junction of, Farmhill Road & Cookstown Road, Omagh	Landfill	Paper, card, metals, plastic, cable, glass	Not stated
WML 25/02	Patrick McDermott	50 Aghaboy Road, Mountfield, Omagh	Waste Disposal Site	Washdown water from fish processing facility	Not stated
WML 25/03	Omagh District Council	Fintona Civic Amenity Site, Lisdergan Road, Fintona	CA Site	Household waste	Not stated
WML 25/04	Omagh District Council	Gortrush Industrial Estate, Great Northern Road, Omagh	CA Site	Household & non-haz trade waste	Not stated
WML 25/05	Omagh District Council	Dromore Civic Amenity Site, Fairgreen, Camderry Road, Dromore	CA Site	Household	Not stated
WML 25/06	Omagh District Council	Carrickmore Civic Amenity Site, Mullinmore Road, Carrickmore	CA Site	Household	Not stated

WML Ref	Licence Holder	Site Address	Use Of Site	Materials Accepted	Capacity
WML 25/07	Omagh District Council	Trillick Civic Amenity Site, Effernan Road, Trillick	CA Site	Household	Not stated
WML 25/08	Sperrin Lakeland Health & Social Care Trust	Store Adjacent to Pharmacy on Ground floor, main block, Tyrone County Hospital	Transfer Station	Prescription medicines, vaccines, sharps, cytotoxic, pathological Group C, anatomical Group A	Not stated
WML 25/11	Greenaway Recycling Co Ltd	430m East of Junction of, Farmhill Road & Cookstown Road, Omagh	Recycling	Inert materials	Not stated

SWAMP WASTE MANAGEMENT FACILITIES WITH EXEMPTIONS

G.3 The following represents a list of exempted waste management facilities within the SWaMP Region, as listed on the Environment and Heritage Service website in June 2006.

G.4 This list is regularly updated and can be found on the EHS website at the following address:

<http://www.ehsni.gov.uk/pubs/publications/ExemptionsMay06.pdf>

Table G.2 Exempted Waste Management Facilities in the SWaMP Region

WML Ref	Licence Holder	Site Address	Use Of Site
ARMAGH			
WMEX 03/06	Armagh City and District Council	16 Bring Bank sites	Bring Banks
WMEX 03/08	John Woods (L) Ltd	2A Ballyrath Road, Armagh	Recycling Milk Bottles
WMEX 03/11	Polygon Recycling	Brownleas Road, Allistragh Trading Estate, Moy Road, Armagh	Baling, sorting waste plastic
WMEX 03/13	S.L McNiece	80m South of 74 Gosford Road Markethill	Infilling of new build
WMEX 03/14	DRS Developments Ltd	Opposite 49 Rock Road, Armagh	Infilling
WMEX 03/15	W W Boyd	102 Castleblayney Road, Keady	Infilling
BANBRIDGE			
WMEX 06/03	UPU Industries Ltd	1 Quilyburn Business Park, Banbridge Road, Dromore	Bale Plastic Waste

WML Ref	Licence Holder	Site Address	Use Of Site
WMEX 06/05	Mr George Chambers	149 Dromara Road, Dromore	Infilling for agricultural waste
WMEX 06/08	Vincent Cunningham	Opposite 18 Ballysallagh Road, Dromore	Infilling for new build
WMEX 06/10	Vincent Cunningham	140m South of 18 Ballysallagh Road, Dromore	Infilling for new build
WMEX 06/11	Thompson Developments	Land Adjacent to 43 Hillsborough Road, Dromore	Infilling for construction of roads.
WMEX 06/12	Tullyraine Quarries Ltd	122 Dromore Road, Banbridge	Storage of stone, brick, concrete, soil, clay, bitmac road cuttings and road planings.
WMEX 06/13	Broad oak Investments Ltd.	Peggy's Loaning, Opposite NW of 100-154 Edenderry Park and 116-1a Brookfield and adjacent & SW of Brookdale, Banbridge.	Infilling
WMEX 06/15	Kerrie Patterson	40m NE of 43 Ballymacallen Road, Gilford, Banbridge	Infilling for purpose of construction of a building.
COOKSTOWN			
WMEX 11/02	Abbey Recycling Group	Quinn's Farm, Old Airfield, Kinrush, Ardboe	Wood waste storing and processing
WMEX 11/05	Dale Farm Ltd	Dunmanbridge Factory 139, Moneymore Road, Cookstown	Sludge Disposal
WMEX 11/06	Creagh Concrete Products Ltd.	93 Kilmascully Road, Ardboe	Crushing of waste reinforced hardened concrete
WMEX 11/08	Quinns Automatic Limited	Land adjacent to 55a Cavvakeeran Road, Pomeroy	Infilling
WMEX 11/09	Jason Arrell	Opposite 52 Ruskey Road, Coagh, Cookstown	Infilling for construction of road.

WML Ref	Licence Holder	Site Address	Use Of Site
WMEX 11/12	Eco Solutions	324 Drum Road, Cookstown	Composting
WMEX 11/13	Eco Solutions	324 Drum Road, Cookstown	Exemption 14
WMEX 11/14	Abbey Recycling Group Ltd	Quinns Farm, Old Airfield, Kinrush	Accepting food waste for composting.
CRAIGAVON			
WMEX 12/01	Mr John Martin	Clare House, 30 Ballynabraggett Road, Waringstown	Haulage and storage of sawdust, shavings and paper for bedding farm animals.
WMEX 12/02	Smylie Spares	9 Waring Terrace, Waringstown	Car Dismantler
WMEX 12/10	McAtee Recycling	49 Plantation Road, Gilford	Waste paper/cardboard, plastic and wood
WMEX 12/12	Mr John Maginn	120m N of 40 Byrne Rampart, Derrytrasna, Lurgan	Infilling around new house
WMEX 12/13	Verner Contracts	Old Fort Lodge, Moyraferty Road West, Craigavon	Infilling
WMEX 12/14	CMC Group Ltd	33 Seagoe Industrial Estate	Storage of non-liquid waste
WMEX 12/16	Daniel Connolly	7a Derrinraw Road, Portadown	Infilling for construction
WMEX 12/17	Daniel Connolly	7a Derrinraw Road, Portadown	Composting
WMEX 12/20	Richard Hunniford	76 Moy Road, Portadown	Landspreading on agricultural land of waste from poultry preparation plant
DUNGANNON			
WMEX 15/02	Guy Recycling	Ballynakilly, Coalisland	Recycling of cardboard and plastic

WML Ref	Licence Holder	Site Address	Use Of Site
WMEX 15/04	A Morrow Contracts	20 Derraghadoan Road, Dungannon	Treatment of waste for agricultural improvement
WMEX 15/05	Jermon Ltd	26 Kingarve Road, Dungannon	Infilling around new dwelling
WMEX 15/06	Conwell Contracts	49 Caledon Road, Aughnacloy	Infilling
WMEX 15/07	Concrete Flooring Systems Ltd	98 Derrytresk Road, Derrytresk, Coalisland	Crushing, grinding & size reduction of concrete and storage.
FERMANAGH			
WMEX 16/01	Pallets Direct	Teemore Business Complex, Teemore	Baling of cardboard and plastic
WMEX 16/05	James and Christine McGovern	Unit 1, 66 Kiladeas Road, Enniskillen	Recycling of confidential shredded paper
WMEX 16/08	James Balfour and Sons Ltd	Drogan Quarry, Irvinestown	Storage of waste- road planings. Fill material, soil and demolition waste.
WMEX 16/09	Conwell Contracts	200m NW of 145 Teighs Hill Rd, Bunnisnagapple	Disposal of waste for sewerage scheme.
WMEX 16/12	Tarmac Ltd	Carn Quarry, Barnalackan Road, Ederney	Crushing, grinding and size reduction of concrete and storage.
NEWRY			
WMEX 22/01	John Tinnelly and Sons	Newtowncloughogue, Newry	Processing and storing of ferrous and non ferrous metals
WMEX 22/09	Leod Quarries	Leod Quarries, Leod Road, Hilltown	Importation and storage of road planings and road breakout arising from construction works for processing prior to resale
WMEX 22/10	Seatruck Ferries Ltd	The Ferry Terminal, The Harbour, Warrenpoint	Ships galley waste
WMEX 22/13	Mac Skips	126 Greencastle Road, Kilkeel	Baling and storing

WML Ref	Licence Holder	Site Address	Use Of Site
WMEX 22/14	Riverside Sand and Gravel Ltd	7 Leestone Road, Kilkeel	To receive excavated soil for the purpose of extracting sand and gravel.
WMEX 22/15	Dromolane Quarries Ltd	25 Fathom Line, Newry	Importing materials for crushing
WMEX 22/20	C & F Products Ltd	8 Keady Road, Cornonagh, Crossmaglen, Newry	Collect scrap HPIE plastic and grind down to use for recycling
WMEX 22/21	CWS Recycling Ltd	Lisnalea Business Park, 195 Bessbrook Road, Mountnorris	Recycling of paper and plastic
WMEX 22/22	Guy Recycling	Vestry Road, Armagh Road, Corran, Newry	Recycling of waste cardboard and plastic
WMEX 22/23	Mourne Compost Ltd	21 Ryan Road, Mayobridge	Composting plant
WMEX 22/24	James McDonagh	39 Lowerfaughill Road, Annesborough, Newry	Infilling for land improvement
WMEX 22/25	Euro-African Textiles Recycling Ltd	Unit B6, Loughbrook Industrial Estate, Newry	Sorting and baling of waste textiles and clothing.
WMEX 22/26	Ministry of Defence	Jonesborough Mountain, South Armagh	Burning of waste
WMEX 22/27	Ministry of Defence	Camrough Mountain, South Armagh	Burning of waste
WMEX 22/28	Ministry of Defence	Croslieve Mountain, South Armagh	Burning of waste
WMEX 22/29	Lavelle and McAlinden	Lands SE of Well Road, Clonallon Road Junction, Warrenpoint	Infilling
WMEX 22/30	Macwaste	Milltown Industrial Estate, Warrenpoint	Baling, sorting or shredding of waste
WMEX 22/32	Brendan Quinn	31 Edenmore Road, Mayobridge	Infilling for landscaping a garden

WML Ref	Licence Holder	Site Address	Use Of Site
OMAGH			
WMEX 25/07	R J Maxwell & Son Ltd	Mountfield Quarry, 22 Inisclan Road, Mountfield	Importation and storage of road planings and road breakout
WMEX 25/08	Mills Contracts Ltd	Crammonds, Crevenagh Farm, 23 Crevanagh Road, Omagh	Infilling
WMEX 25/09	Mr Vincent McCarroll	Blackfort Avenue, Edergoole, Omagh	Infilling for agricultural improvement
WMEX 25/12	Northern Ireland Housing Executive	Lisanelly Heights, Gortin Road, Omagh	Construction of new road- infilling to adjust existing levels
WMEX 25/14	T/A R J Maxwell & Sons	Carrickmore Quarry, 50 Quarry Road, Carrickmore	The importation and storage of road planings and road breakout arising from construction works for processing prior to resale
WMEX 25/15	McFadden Ltd	Land to east of 29 Killens Road, Mountfield, Omagh	Infilling
WMEX 25/16	Kieran McBrien	320m south of 71 Balckfort Road, Omagh	Infilling
WMEX 25/18	Patrick McCullagh	50 Ballygowan Road, Omagh	Infilling
WMEX 25/21	Holy Trinity Church	Lislimnaghhan Parish, Beltany Road, Omagh	Infilling
WMEX 25/24	K J McElroy Ltd	53 Derry Road, Omagh	Infilling.

SWAMP WASTE RE-PROCESSORS AND EXPORTERS

G.5 The following represents a list of accredited re-processors and exporters within the SWaMP Region, as listed on the Environment and Heritage Service website in June 2006.

G.6 This list is regularly updated and can be found on the EHS website at the following address:
<http://www.ehsni.gov.uk/pubs/publications/List-of-Accredited-Reprocessors-and-Exporters-2006.pdf>

Table G.3 Accredited Re-Processors

EHS NI Region	Material	2006 Accreditation Number	EHS NI Re-Processor's Number	Address 1	Address 2	Address 3	Address 4	Accreditation Status	Size of Re-Processor 400 tonnes or less is defined here as "small". Over 400t is defined here as "large"
EHS NI	Glass	NR062005561	Quinn Glass Ltd	Toneymore	Derrylin	Co. Fermanagh		Active	Large
EHS NI	Plastic	NR062005562	Cirrus Ltd	Eskey Drive	Carn	Portadown	Co. Armagh	Active	Small

Accredited Exporters

G.7 None Registered in the SWaMP Region.