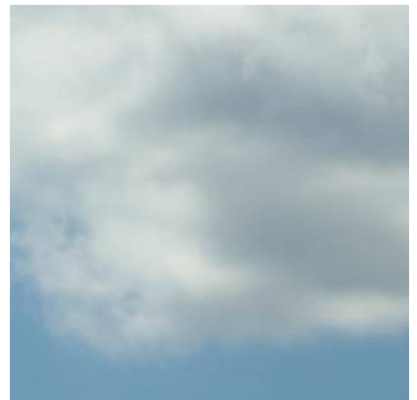
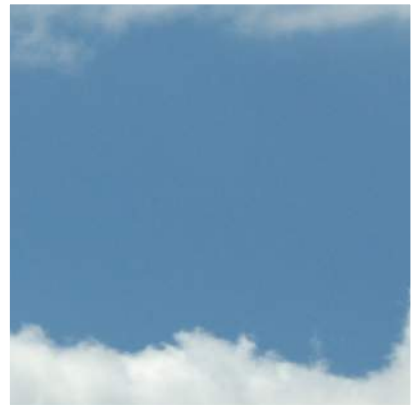




North West Region Waste Management Group (NWRWVG)

Review of Waste Management Plan Draft for Determination

IBR0760 - 14 October 2015



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1 Introduction

Review of the Waste Management Plan

- 1.1 A waste management plan was first prepared by the North West Region Waste Management Group (NWRWMG) in 2000, which set out detailed actions for the period 2000 to 2005. A second waste management plan was published in December 2006, which set out the arrangements for the management of controlled waste arisings in the North West Region over the period 2006 to 2020. This was a detailed plan and included identifying capacity needs, potential sites and/or siting criteria and the services required for the collection treatment and disposal of the wastes in the NWRWMG.
- 1.2 The development of an effective waste management plan is a continuous process. Plans require regular review and refinement to ensure that the implementation programme continues to be relevant and that the initial objectives are still appropriate. At this stage in the delivery of the waste management plan it is necessary to review the management of waste to take account of new legislative requirements and to focus on interventions that can ensure the delivery of the Plan and revised legislative targets. It is important to note that in working towards having effective waste management infrastructure in place for the Region there is a significant lead time in delivering such projects including the planning, procurement and construction of the works.
- 1.3 The councils and the NWRWMG have always recognised the speed with which waste management is evolving and the importance of developing a waste management plan that is up-to-date and responsive to changing circumstances and needs. The purpose of this Plan therefore is to undertake a review of the Waste Management Plan 2006 to 2020, and revise as required as per the revised Waste Framework Directive 2008/98/EC Article 30 which states that “waste management plans and waste prevention programmes are evaluated at least every sixth year and revised as appropriate”.
- 1.4 This Plan seeks to build upon the significant progress made from 2006 to present day. It amends the previous Waste Management Plan and seeks to take into account recent waste management legislation, policy and practice both at European, at national and regional levels.
- 1.5 This Plan has been prepared by RPS in conjunction with the North West Region Waste Management Group and in consultation with stakeholders including the general public.

Background

- 1.6 The North West Region Waste Management Group (NWRWMG) represents a voluntary grouping of two district councils who include, in alphabetical order:
- Causeway Coast and Glens Borough Council; and
 - Derry City and Strabane District Council.
- 1.7 The North West Region Waste Management Group consists of the administrative areas of Causeway Coast and Glens Borough Council and Derry City and Strabane District Council. These areas are all situated in the north western region of Northern Ireland, they have a combined area of 3,219 square kilometres, which is 22.8% of the area of the country, and a combined population of 288,597 (2011 census) which is 15.9% (2011 census) of the population of Northern Ireland.
- 1.8 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. NWRWMG 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.
- 1.9 To date the NWRWMG has been cooperating with Southern Waste Management Partnership, arc21, the Department of the Environment and the Northern Ireland Environment Agency on issues of mutual interest in relation to 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

- 1.10 The purpose of the Plan is to set out the arrangements for the management of controlled municipal wastes arising within the North West Region to 2020. This includes the services and infrastructure needed for the collection, treatment and disposal of wastes.
- 1.11 This Plan seeks to build upon the significant progress made by the previous Waste Management Plans, which set out detailed actions for the period 2000 to 2005 and 2006 to 2020.

- 1.12 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;
 - The Roadmap to a Resource Efficient Europe (RE Roadmap);
 - The Northern Ireland Waste Management Strategy - *Delivering Resource Efficiency*;
 - The Northern Ireland Landfill Allowance Scheme (NILAS) and amendments; and
 - The Revised Waste Framework Directive.
- 1.13 To promote sustainable waste management, and recognising the social dimension as well as the economic and environment, an overall aim has been defined by NWRWMG for the Plan remains as follows:
- ***Aim: To develop a waste management system that meets the region's needs and contributes to economic and sustainable development.***
- 1.14 The defined objectives of the Plan remain unchanged and are as follows:
1. To develop treatment facilities and / or let contracts to meet the needs of the North West 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, as a minimum, 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 North West 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 NWRWMG 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

- 1.15 This Plan sets out the arrangements for the management of the following waste streams:
- **Local Authority Collected Municipal Waste**, that is the waste collected by or on behalf of District Councils (See Section 7);
 - **Waste Education and Awareness** (See Section 8)
 - **Commercial and Industrial Waste** (see Section 9);
 - **Packaging Waste** (see Section 10);
 - **Hazardous Waste** (see Section 11);
 - **Construction, Demolition and Excavation Waste** (see Section 12);
 - **Agricultural Waste** (see Section 13);
 - **Priority and Other Waste Streams** (see Section 14);
 - **Implementation, Monitoring and Review** (see Section 15) and;
 - **Landfill Review** (Section 16).

Planning Horizon

- 1.16 The Plan covers the period from 2012 to 2020, and sets out the arrangements and measures identified through the Waste Management Plan review process.
- 1.17 The Plan will also be subject to a formal Review and consultation every six 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.

2 General Description of the Area

Introduction

- 2.1 The North West Region Waste Management Group (NWRWMG) consists of the administrative areas of Causeway Coast and Glens Borough Council and Derry City and Strabane District Council. These areas are all situated in the north western region of Northern Ireland, they have a combined area of 321,900 hectares, which is 22.8% of the area of the country, and a combined population of 288,597¹ which is 15.9%² of the population of Northern Ireland.
- 2.2 One of the administrative areas (Derry City and Strabane District Council) border the Republic of Ireland (County Donegal). This border runs from the northern shores of Lough Mere in the South of the Region to the western shores of Lough Foyle on the Inishowen peninsula in the North of the Region.
- 2.3 In 2013, there were 10,060 VAT and / or Pay As You Earn (PAYE) registered businesses in the NWRWMG, this accounts for approximately 15.1% of the total number of registered businesses in Northern Ireland. Within the North West Region Waste Management Group the principal towns and cities are Ballymoney, Coleraine, Derry, Limavady, Ballycastle and Strabane.

Table 2.1 Key Statistics for the NWRWMG

Council	Area (Hectares)	Population (Census 2011)	Households	Average Household Size	Vat and/or PAYE Registered Businesses
Causeway Coast and Glens BC	187,700	140,877	53,722	2.61	5,580
Derry City and Strabane DC	134,200	147,720	55,596	2.64	4,480
Total	321,900	288,597	109,318		10,060

¹ Northern Ireland Census 2011

² Northern Ireland Census 2011

Causeway Coast and Glens Borough Council

- 2.4 The new Causeway Coast and Glens Borough Council was established on 1 April 2015 and replaces the four Councils of Ballymoney Borough Council, Coleraine Borough Council, Limavady Borough Council and Moyle District Council.
- 2.5 The new Council area covers an area of almost 2,000 km² and includes rich coastal environments of the North Coast stretching from Lough Foyle to the Glens of Antrim (and Rathlin Island) and as far south as the Sperrin Mountains.
- 2.6 There are almost 120 designated environments within the new Council area, including National Nature Reserves, Areas of Outstanding Natural Beauty and a World Heritage Site of the Giant's Causeway.
- 2.7 The area has an mix of independent and multiple retail centres. In addition, the new Council area has strong links with its agricultural background with approximately 1,000 farms and related businesses and industries forming an important part of the employment mix.
- 2.8 Tourism, including accommodation, activity and entertainment providers, is also a growing part of the local economy within the new Council area. This includes the Causeway Coastal Route which runs from the Glens of Antrim to Lough Foyle.
- 2.9 The new Council area also includes a range of further and higher education facilities, including the University of Ulster located in Coleraine.
- 2.10 Further information on Causeway Coast and Glens Borough Council can be found on the Council's website:
<http://www.causewaycoastandglens.gov.uk/>

Derry City and Strabane District Council

- 2.11 The new Derry City and Strabane District Council was established on 1 April 2015 and replaces the two Councils of Derry City Council and Strabane District Council.
- 2.12 The new Council area includes the city of Derry~Londonderry which is the second largest urban area in Northern Ireland. The Council area stretches south and east from the city and is bordered to the west by County Donegal and to the south by County Fermanagh and encompasses the Sperrin mountains including the Sperrins Area of Outstanding Natural Beauty and the scenic Derg and Mourne river valleys.

- 2.13 The new Council area includes the City of Derry Airport, Londonderry Port, rail links to Belfast and Dublin and key transport corridors to all the major centres of population on the island of Ireland.
- 2.14 Derry~Londonderry is developing as a thriving regional hub. Derry's economy has shifted significantly towards knowledge sector activity in the last decade. Other key sectors include technology manufacturing, software development and digital media, business processes in technology and financial services, life sciences, tourism and retail.
- 2.15 Further information on Derry City and Strabane District Council can be found on the Council's website:
<http://www.derrycityandstrabanedistrict.com/>

3 Setting the Waste Management Scene

Key Players

- 3.1 The Northern Ireland Executive's Programme for Government 2011-2015, under the objective 'Protecting of People, the Environment and Creating Safer Communities', contains a specific commitment to achieve a household recycling or composting rate of 45% by the end of March 2015 and to reduce the consumption of single use carrier bags by at least 80%. The NI Executive oversee twelve government departments which include the Department of the Environment.
- 3.2 Amongst the Department of the Environment's aims is to improve the quality of life for everyone in NI through the promotion of sustainable development principles in all the activities of government and wider society in particular, their application in DOE's responsibilities for land use, air and water quality, waste management and the natural and built environments. The DOE published a Revised Northern Ireland Waste Management Strategy in order to delivery statutory and non-statutory targets, comply with the revised Waste Framework Directive and move the emphasis of waste management in NI from resource management (with landfill diversion as they key driver) to resource efficiency.
- 3.3 The Northern Ireland Environment Agency is an Agency with the Department of the Environment which was established to protect, conserve and promote the natural environment and built heritage for the benefit of present and future generations. NIEA take the lead in advising on, and in implementing, the Government's environmental policy and strategy in Northern Ireland. They carry out a range of activities, which promote the Government's key themes of sustainable development, biodiversity and climate change. In relation to waste and resources management NIEA are responsible for the implementation of waste management policy and the promotion of a more sustainable approach to dealing with waste in Northern Ireland. The Land and Resource Management Unit was established for delivery of European and Northern Ireland Waste Management Legislation through waste strategy and regulation. Furthermore, NIEA seek to safeguard the quality of the environment through effective regulation of activities that have the potential to impact on air, water and land. This involves engagement with businesses and the public to provide information and advice; monitoring, recording, reporting and setting standards for compliance; issuing consents, licences, permits and authorisations and enforcing legislation.

- 3.4 The Strategic Investment Board Limited is a professional advisory company within the public sector in Northern Ireland, working wholly in the public interest. The company was established under statute by Ministers in 2003 to bring high calibre investment skills into the public sector in order to accelerate the delivery of major infrastructure programmes and to ensure a good deal for the public purse. The company remains fully owned by and accountable to the Office of the First Minister and deputy First Minister (OFMDFM). SIB supports the Northern Ireland Executive to deliver major and complex infrastructure projects successfully including waste related projects.
- 3.5 The Northern Ireland Waste Management Strategy 2006-2020 proposed the establishment of a Ministerial-chaired advisory committee, the Strategic Waste Board, to co-ordinate and monitor the Waste Strategy Delivery Programme. The Board is made up of senior representatives of all the key statutory organisations, and will include representatives of local government at both officer and elected member level.
- 3.6 The Waste Infrastructure Task Force was established in April 2005 to consider and report on key stakeholders' views on how best to facilitate the delivery of the waste infrastructure required to enable Northern Ireland to meet national and European waste management targets.
- 3.7 The Waste Programme Board was established in September 2010 and is a non-statutory advisory committee chaired by the Minister of the Environment. Its role is to oversee the implementation of the targets contained within the NI Waste Management Strategy 2006-2020.
- 3.8 The Waste Infrastructure Programme Board (WIPB) is also an advisory board, accountable to the Waste Programme Board and responsible for overseeing the delivery of an effective and efficient Waste Infrastructure Programme. It is chaired by the Department of Environment's Deputy Secretary Environment and Marine Group, and is comprised of representatives from Central and Local Government and the Strategic Investment Board.
- 3.9 Municipal waste collection, management and disposal is under the control of local authorities. Each local authority in Northern Ireland is a member of one of the three sub-regional waste management groups. Local authorities are required to report to the DOE regarding the Accounts Commission Performance Indicators, six key waste collection and disposal indicators. Local authorities must also report quarterly to Northern Ireland Environment Agency (NIEA) on the following:
- KPI (a) Household waste sent for recycling/composting as a % of household waste arisings
 - KPI (b) Household waste landfilled as % of household waste arisings

- KPI (e) Percentage of local authority collected municipal waste sent for recycling/composting as a % of total local authority collected municipal waste arisings.
- KPI (f) Percentage of local authority collected municipal waste landfilled as a % of total local authority collected municipal waste arisings
- KPI (g) Biodegradable local authority collected municipal waste landfilled (tonnes)
- KPI (h) Household waste per household per annum (tonnes)
- KPI (j) Total municipal waste arisings (tonnes)
- KPI (n) Local authority collected municipal waste arisings growth rate as a percentage
- KPI (p) Household waste per annum per capita (tonnes)

3.10 There are several private waste management companies which operate within the North West and work in close partnership with both the Councils and businesses in the region in delivering sustainable management of wastes by the provision of waste infrastructure and collection arrangements.

Key Strategic Drivers

3.11 In preparation of this Plan the NWRWMG have considered a number of other key strategic drivers' out-with the waste legislation and policy framework. These are:

- The Northern Ireland Sustainable Development Strategy;
- The Regional Development Strategy for Northern Ireland (2035);
- Climate Change Agenda;
- The Green and Circular Economies; and
- Better Regulation Strategy and Environmental Better Regulation Agenda.

3.12 Northern Ireland's Sustainable Development Strategy entitled 'Everyone's Involved' was adopted by the NI Executive in May 2010. The Strategy has six strategic objectives as follows:

1. Building a dynamic, innovating economy that delivers the prosperity required to tackle disadvantage and lift communities out of poverty.
2. Strengthening society such that it is more tolerant, inclusive and stable and permits positive progress in quality of life for everyone.
3. Driving sustainable, long-term investment in key infrastructure to support economic and social development.
4. Striking and appropriate balance between responsible use and protection of natural resources in support of a better quality of life and a better quality environment.
5. Ensuring reliable, affordable and sustainable energy provision and reducing our carbon footprint.
6. Ensuring the existence of a policy environment which ensures the overall advancement of sustainable development in and beyond government.

- 3.13 The Regional Development Strategy for Northern Ireland entitled 'Building a Better Future' was published in March 2012 and informs spatial aspects of all other strategies. It recognises that managing our waste is a significant part of how we treat our environment and highlights the need to manage waste sustainably. It requires applying the waste hierarchy and the proximity principle when developing waste treatment or disposal facilities and highlights the contribution that recycling more waste and recovering energy from it can make to reduce carbon footprint and greenhouse gas emission.
- 3.14 The NI Executive Programme for Government has set an ambitious target of working towards a reduction of greenhouse gas (GHG) emissions of at least 35% by 2025. In order to drive this forward a Northern Ireland Climate Change Bill with interim and long term targets for GHG emissions is anticipated in the coming years. The waste and resources management industry can help minimise climate change impacts through a reduction of carbon footprints.
- 3.15 The waste and resource management industry can influence positively on a shift towards more sustainable consumption and production and more environmentally and resource efficient technologies. Making more efficient use of natural resources and facilitating increased reuse and recycling is expected to have a favourable impact on the economy and help promote and support green jobs. Furthermore the need to conserve and secure all material flows.
- 3.16 Managing waste through up to date and effective regulation is essential over the period of this plan. In recent years the NWRWMG have successfully reduced dependency on landfill disposal by increasing the availability of recycling services and developing more sustainable treatment technologies. A modern and effective approach to regulation is required to reduce waste production and to significantly increase the reuse, recycling and sustainable treatment and recovery of waste in the NWRWMG. NIEA are committed to delivering simple and effective regulation which will provide greater protection for the environment and have embarked on an ambitious Better Regulation Programme to modernise and simplify regulation for businesses through:
- More accessible guidance;
 - Streamlined, risk-based permitting and inspections; and
 - Consistent and proportionate enforcement.
- 3.17 The NWRWMG will support NIEA on taking the principles of better waste regulation forward, when appropriate.

Health and Social Well-Being

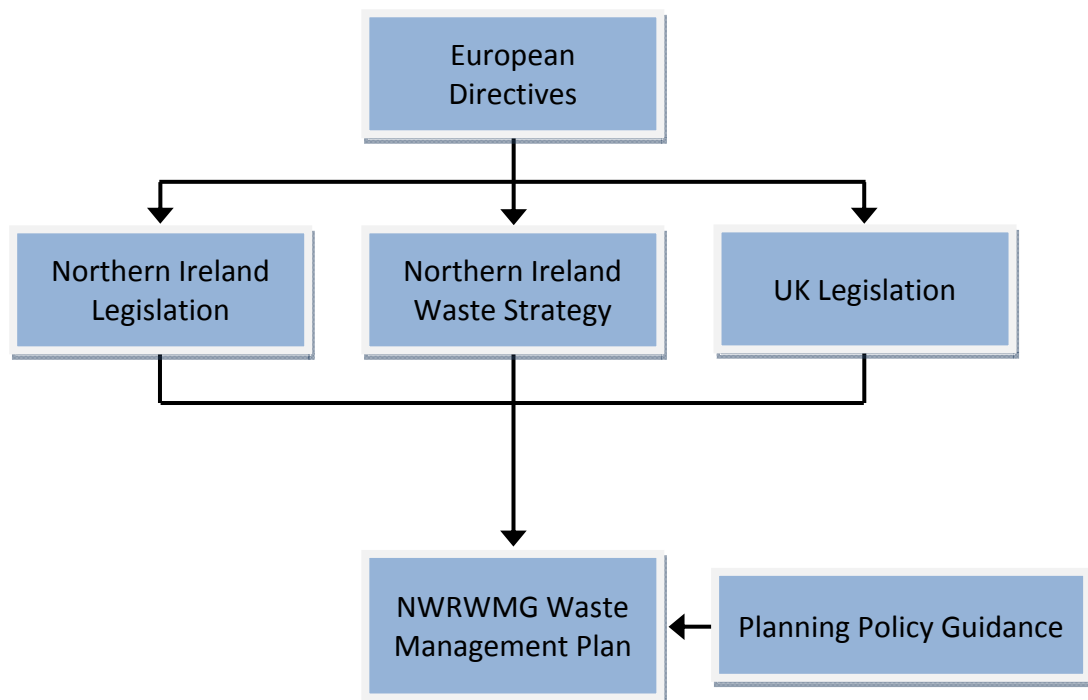
- 3.18 Waste management affects all of us, at home, at school, at work and in our purchasing decisions. Everyone has an active part to play if the NWRWMG is to achieve the necessary changes to comply with the high standards set across the European Union.
- 3.19 With large quantities of waste being produced, it is of vital importance that it is managed in such a way that it does not cause any harm to either human health or to the environment.
- 3.20 This waste management plan recognises that the proper management of waste can contribute to the health and social well-being of the people residing in the North West. The NWRWMG is working hard to ensure that local communities have access to waste management facilities and are consulted and informed on the continuing work of the local authorities and the NWRWMG in terms of waste prevention, reuse, recycling, recovery and landfill across the North-West Region.

4 Drivers For Change - The EU Policy Context

Introduction

- 4.1 Current and future waste management activities are influenced by the legislative and policy framework in Northern Ireland. This includes EU waste policy which aims to reduce the environmental and health impacts of waste and improve resource efficiency. The majority of waste policy and guidance is based on EU Directives which are then translated into National legislation and policy within certain timescales.
- 4.2 This Chapter 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.
- 4.3 The overall place and strategic influence of EU policy in the legislative and policy framework in Northern Ireland relevant to the development of the Waste Management Plan is set out in Figure 4.1 below.

Figure 4.1 Legislative and Policy Framework



- 4.4 It should be stressed that this Chapter provides a simple overview of EU waste policy. 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

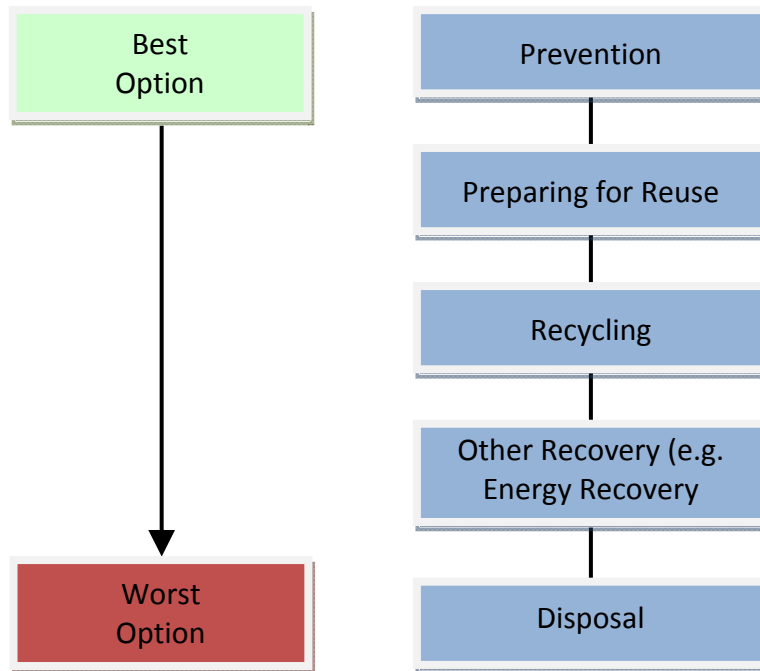
- 4.5 The EU gives strong direction to its member states on waste issues and much of UK and NI waste policy and guidance are based on EU legislation. EU waste policy and legislation had an initial focus in putting in place measures to manage and control waste and this led to the adoption of the Waste 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 (Regulation (EEC) 259/93) put in place the regulatory framework for waste. These pieces of legislation define waste, and other fundamental concepts including licensing, and put in place controls for handling and movement of waste, to prevent damage to the environment or human health.
- 4.6 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.
 - Re-affirmed the 'polluter pays' principle for waste; and
 - Developed the concept of Priority Waste Streams.
- 4.7 The Thematic Strategy on the Prevention and Recycling of Waste is one of the seven thematic strategies programmed by the Sixth Community Environmental Action Programme which was adopted by the European Commission on 21 December 2005. The Strategy 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. The Strategy noted the need to assess the existing definitions of recovery and disposal, the need for a generally applicable definition of recycling and a debate on the definition of waste.

- 4.8 Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste established the legislative framework for the handling of waste. It defines key concepts such as waste, recovery and disposal and puts in place the essential requirements for an establishment of waste management operations to have a permit or to be registered and placed an obligation for member States to prepare waste management plans. Furthermore it also established principles such as an obligation to handle waste in a way that does not have negative impacts on the environment or human health, an encouragement to apply the waste hierarchy and, in accordance with the polluter-pays principle, a requirement that the costs of disposing of waste must be borne by the holder of waste, by previous holders or by the producers of the product from which the waste came.
- 4.9 The outcome of the Thematic Strategy on the Prevention and Recycling of Waste resulted in the revision of the Waste Framework Directive.

Revised Waste Framework Directive (WFD)

- 4.10 The Waste Framework Directive (2008/98/EC) is the overarching legislative framework and is of particular significance to the development of the Plan. It provides a foundation for sustainable waste management practice and defines waste. This Directive, which was adopted on the 19th November 2008, sets out measures to minimise the negative effects of the generation and management of wastes on human health and the environment and aims to reduce the use of resources. This Directive also repealed directives on Waste Disposal (75/439/EEC), Hazardous Waste (91/689/EEC) and Waste Oils (2006/12/EC).
- 4.11 A key component of the revised WFD is the new Waste Hierarchy, the primary purpose of which is to, minimise adverse environmental effects from waste and to increase resource efficiency in waste management and policy. Article 4 of the WFD sets out the new Waste Hierarchy as a priority order for waste management, as set out in Figure 4.2 below.

Figure 4.2 Waste Management Hierarchy



- 4.12 Waste prevention is set out as the most favourable option even though it is not technically a waste measure, as it occurs before a material becomes waste. However, the reduction of waste through reuse or other policy initiatives is a key objective of turning waste into a resource. Preparing for Reuse has also been included in the new Waste Hierarchy above Recycling with the aim of also improving resource efficiency.
- 4.13 When applying the Waste Hierarchy the WFD states that measures should be taken to encourage the options that deliver the best overall environmental outcomes. The WFD also makes a provision that specific waste streams may depart from the Waste Hierarchy where this is justified by a life cycle assessment taking into account overall impacts (environmental, economic and social) that a product or service will have throughout its whole life, and will deliver the best overall outcome.
- 4.14 The revised WFD also contains a requirement for the separate collection of recyclables, at least paper, metal, glass and plastic by 2015 in order to optimise recycling. In addition, the WFD also requires Member States to take measures, as appropriate, to encourage the separate collection of bio-waste with a view to composting and digestion of biowaste.

4.15 In order to move towards a recycling society with a high level of resource efficiency the revised WFD also implements new targets for the reuse and recycling of materials.

- To achieve a recycling rate of 50% (including preparing for reuse) of household waste by 2020.
- To achieve a recovery rate of 70% (including preparing for reuse, recycling and other material recovery) for all non-hazardous construction and demolition waste by 2020.

4.16 The revised WFD also specifies the requirement for waste management plans and strategies to be established which set out the current waste management situation, as well as the measures to be taken to improve reuse, recycling, recovery and disposal of waste.

4.17 Article 29 of the revised WFD places a requirement for each Member State to develop a Waste Prevention Plan by December 2013. Waste Prevention Plans will be reviewed and revised every 6 years.

4.18 The revised WFD sets out 'end of waste' conditions that must be met, and the European Commission has subsequently published end of waste criteria for iron, steel and aluminium scrap. Where end of waste criteria have not been set at EU level, Member States may develop their own.

4.19 The revised WFD sets out measures that Member States may implement in order to extend Producer Responsibility and to strengthen the reuse, prevention, recycling and other recovery of waste. Member States may therefore take legislative or non-legislative measures to make sure that anyone who professionally develops, manufactures, processes, treats, sells or imports products has extended producer responsibility. This may include an acceptance of returned products and of the waste that remains after products have been used, as well as the subsequent management of the waste and financial responsibility for such activities.

4.20 The requirements of the revised WFD have been transposed into Northern Ireland legislation through the Waste Regulations (Northern Ireland) 2011.

Landfill Directive

4.21 The aim of the Landfill Directive (99/31/EC) is to provide measures, procedures and guidance to prevent or reduce as far as possible the negative effects on the environment from landfill waste. This is to be implemented through changing the way waste is disposed and progress up the waste management hierarchy achieved, through the minimisation of waste being sent to landfill.

- 4.22 Key objectives of the Landfill Directive include:
- The categorisation of landfills as inert, non-hazardous and hazardous;
 - Ban on the co-disposal of hazardous and non-hazardous waste;
 - Ban on the disposal of tyres;
 - Ban on the landfill of certain types of hazardous wastes such as clinical or infectious;
 - 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;
 - Practice pre-treatment of waste going to landfill; and
 - Reduction in the amount of biodegradable waste sent to landfill.
- 4.23 The requirements of this Directive are implemented in Northern Ireland through the Landfill (Northern Ireland) Regulations, 2003 SR 297 (as amended) and the Landfill (Amendment) Regulations (Northern Ireland), 2011 SR 101.

Packaging and Packaging Waste Directive

- 4.24 The Packaging and Packaging Waste Directive (94/62/EC as amended by Directive 2004/12/EC) sets targets for the management of packaging and packaging waste by Member States through the introduction of targets for the recycling and recovery of packaging wastes and encouraging the reduction and reuse of packaging.

Waste Electrical and Electronic Equipment (WEEE) Directive

- 4.25 The WEEE Directive provides a framework for the control of Waste Electrical and Electronic Equipment in the EU. A new WEEE Directive (2012/19/EU) was passed by the European Parliament in August 2012, and this Directive builds upon work started by the previous Directive (2002/96/EC) the aims of which were to:
- Prevent WEEE arising;
 - To encourage reuse and recycling; and
 - To improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment (EEE);
- 4.26 The Directive sets targets for the recovery and recycling of different product categories of EEE and an overall collection target of 4 kg of WEEE per person per annum.
- 4.27 The recast of the WEEE Directive will come into force across the EU from January 2014, and will include the following proposals:

- A move to a collection rate of 45% of EEE placed on the market by 2018 increasing to 65% of EEE placed on the market by 2021;
- A broadening of the scope of the Directive to include more EEE and a redefinition of the categories;
- An increase to all recovery and recycling targets for all categories of EEE;
- The potential to introduce a mandatory reuse target of 5%; and
- An obligation on distributors to provide for the collection of small WEEE at certain retail shops.

End of Life Vehicles (ELV) Directive

4.28 The ELV Directive (2000/53/EC) aims to reduce the environmental impacts of vehicles (cars and vans up to 3.5 tonnes) by introducing higher environmental standards for the treatment and dismantling of vehicles when they are scrapped. The Directive was transposed into legislation in 2003 and is implemented in Northern Ireland by the End of Life Vehicles Regulations 2003 SI 2635 (as amended).

4.29 The objectives of this Directive are to:

- Increase the recycling of ELVs and their components; and
- Improve the environmental performance of all the economic operators involved in the life cycle of vehicles.

4.30 This Directive has set an overall target of 85% for reuse, recycling and recovery from 2006 which rises to 95% in 2015. For the 2015 target, energy recovery can contribute a maximum of 10% of the total. The following measures have been implemented in order to reach the target:

- Facilitate and increase the reuse, recycling and recovery of ELVs;
- Reduce the incidence of hazardous waste within vehicles and their components and encourage 'Design for Disassembly';
- Ensure producer responsibility for ELVs; and
- ELVs can only be scrapped by Authorised Treatment Facilities under the right environmental standards.

Batteries and Accumulators Directive

4.31 The Batteries and Accumulators Directive (2006/66/EC) seeks to minimise the negative impacts of batteries and accumulators on the environment. Key requirements of the Directive include:

- Registration of all producers, for example, manufacturers or importers of batteries;

- Collection target for waste portable batteries of 45% of average annual sales in the UK by 2016;
- A ban on the disposal of untreated automotive and industrial batteries in landfill or by incineration and a requirement for producers to arrange for the collection and recycling of waste industrial and automotive batteries; and
- Restrictions on the use of cadmium and mercury in the design and manufacture of new batteries.

4.32 The Directive is implemented in Northern Ireland through UK wide legislation, namely the Batteries and Accumulators (Placing on the Market) Regulations, 2008 which places obligations on producers, distributors and treatment facilities to meet the requirements of the Directive.

Industrial Emissions Directive

4.33 The Industrial Emissions Directive (2010/75/EC) recasts seven existing EU Directives including the Waste Incineration Directive, the Integrated Pollution Prevention and Control (IPPC) Directive, Solvents Directive and Large Combustion Plants Directive.

4.34 The Directive aims to improve the interaction between the seven Directives that it will replace, as well as strengthening the provisions in them.

4.35 The current legislative framework uses the concept of "best available techniques" (BAT) for dealing with potential pollution. Under this, the conditions in each installation's permit have to be based upon the application of BAT relevant to the industry sector concerned.

4.36 The Directive gives more emphasis to BAT requirements and some activities become newly subject to IPPC, but the framework of the existing Directives as currently implemented in the UK remain otherwise mostly unchanged.

4.37 The Directive was implemented into UK law in January 2013 and is implemented in Northern Ireland through the Pollution, Prevention and Control (Industrial Emissions) Regulations (Northern Ireland), 2012.

Strategic Environmental Assessment Directive

4.38 The Strategic Environmental Assessment Directive (2001/42/EC) seeks to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.

- 4.39 SEA extends the assessment of environmental impacts from individual projects to the broader perspective of regional or district level plans. Plans and programmes which require environmental assessment are defined in Article 3 of the Directive, which includes plans or programmes for waste management.
- 4.40 SEA is a systematic process for evaluating at the earliest appropriate stage, the environmental quality, and consequences, of plans or programmes and to ensure that any environmental consequences are assessed during their preparation and before they are adopted. The process requires collecting information, defining alternatives, identifying environmental effects, developing mitigation measures and revising proposals in the light of predicted environmental effects.
- 4.41 This Directive is implemented in Northern Ireland through the Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004.

Transfrontier Shipment of Waste Regulations

- 4.42 The Transfrontier Shipment of Waste Regulations 2007 as amended by the Transfrontier Shipment of Waste (Amendment) Regulations 2008 set out procedures for the movement of all waste materials within and outside the EU.
- 4.43 They are made in accordance with and deal with the enforcement of Regulation (EC) 1013/2006 on shipments of waste, which sets out details for the supervision and control of shipments of waste.

Hazardous Waste Directive

- 4.44 The Hazardous Waste Directive (91689/EEC) plans to minimise the effect of hazardous waste on the environment and human health. Its objectives are to define which waste is hazardous and provide controls on its tracking, movement and management.
- 4.45 The Directive is implemented in Northern Ireland through the Hazardous Waste Regulations (Northern Ireland) 2005.

Environmental Impact Assessment Directive

- 4.46 The Environmental Impact Assessment Directive (85/337/EC), as amended by Directive 97/11/EC, concerns the impact of the development on the environment prior to the granting of planning permission for a proposed development.

4.47 This Directive is implemented in Northern Ireland through the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 1999.

Environmental Liability Directive

4.48 The Environmental Liability Directive (2004/35/EC) aims to establish a framework of environmental liability based on the 'polluter-pays' principle, in order to prevent and remedy environmental damage.

4.49 This Directive applies to:

- Environmental damage, or the threat of any damage, from any of the following occupational activities;
 - operation of installations under Directive 96/61/EC, on integrated pollution prevention and control,
 - waste management operations,
 - discharges into inland surface waters,
 - discharges into groundwater,
 - discharge or injection of pollutants into surface water or groundwater,
 - water abstraction and impoundment of water,
 - manufacture, use, storage, processing, filling, release and transport of dangerous substances or preparations, plant protection products or biocidal products,
 - transport of dangerous or polluting goods,
 - operation of installations under Directive 84/360/EEC, on air pollution from industrial plants,
 - any contained use or deliberate release of genetically modified organisms,
 - transboundary shipments of waste,
- Operation of storage sites in accordance with Directive 2009/31/EC, on the geological storage of carbon dioxide; and
- Damage, or the threat of any damage, to protected species and natural habitats caused by any occupational activities not listed above.

4.50 The Directive is implemented in Northern Ireland through the Environmental Liability (Prevention and Remediation) Regulations (Northern Ireland) 2009 SR2009/252.

Sewage Sludge Directive

4.51 This Directive (1986/278/EEC) regulates the use of sewage sludge in agriculture in such a way as to prevent the harmful effects on soil, vegetation, animals and man, thereby encouraging the correct use of such sludge.

- 4.52 It covers the use of sewage sludge from sewage plants, septic tanks and other treatment installations in any commercial crops including stock-rearing. Certain restrictions are put on the use of sewage sludge in agriculture and producers of such sewage sludge are to provide certain information to the users.
- 4.53 This Directive is implemented in Northern Ireland through the Sludge (Use in Agriculture) (Northern Ireland) Regulations 1990 SR1990/245.

Mining Waste Directive

- 4.54 This Directive (2006/21/EC) sets out measures, procedures and guidance to prevent and reduce the adverse effects on the environment and human health through the management of waste from the extractive industries. This includes waste from prospecting, extraction, treatment and storage of mineral resources, as well as the working of quarries.
- 4.55 This Directive is implemented in Northern Ireland through the Planning (Management of Waste from Extractive Industries) Regulations (Northern Ireland) 2010 SR2010/64.
- 4.56 A summary of selected key provisions of these Directives is included above. Further information on EU waste legislation is available from the following websites:
- Northern Ireland Environment Agency:
http://www.ni-environment.gov.uk/waste-home/regulations_legs.htm
 - Activities of the European Union – Summaries of Legislation – Waste:
<http://europa.eu/scadplus/leg/en/s15002.htm>
<http://ec.europa.eu/environment/waste/legislation/index.htm>

EU Thematic Strategies

- 4.57 Thematic Strategies have been developed to reorganise the legislation concerning the environment with an aim of simplifying the complex legislative package. Seven separate strategies have been developed. These strategies focus on key environmental impacts, three of which are relevant to waste management in Northern Ireland.

Thematic Strategy on the Sustainable Use of Natural Resources

- 4.58 This strategy identifies that the environmental impacts from consumption and production patterns continue to be severe and inefficient use of resources is impairing economy and business. The main objectives of this strategy include improving resource efficiency, introducing policy measures for resource consumption and improving recycling rates.

Thematic Strategy for Soil Protection

- 4.59 This strategy identifies eight threats to soil including: erosion, decline in organic matter, local and diffuse contamination, sealing, compaction, decline in biodiversity, salinisation and landslides. The strategy aims to impede these threats using a number of objectives including integrating soil protection concerns into major EU policies and the introduction of soil monitoring legislation.

Thematic Strategy on the Prevention and Recycling of Waste

- 4.60 This strategy is concerned with the environmental impact of emissions from poorly managed waste and inefficient consumption and production patterns. Additionally the Strategy intends to encourage more recycling within Member States.
- 4.61 A report from the Commission to the European parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Thematic Strategy on the Prevention and Recycling of Waste was completed in 2011. This Communication reviewed progress towards achieving the Strategy's objectives.
- 4.62 This communication concluded that the Strategy has played an important role in guiding policy development and that significant progress has been achieved on a number of fronts, particularly in the improvement and simplification of legislation, the establishment and diffusion of key concepts such as the waste hierarchy and life-cycle thinking, on setting focus on waste prevention, on coordination of efforts to improve knowledge, and on setting new European collection and recycling targets.

Concluding Comments

- 4.63 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.
- 4.64 This Review has highlighted the dynamic nature of the waste policy and legislative environment at an EU level, such as the revised Waste Framework Directive 2008/98/EC adopted since the publication of the last plan which has:
- Changes to the definition of waste
 - Revised Targets, and
 - Streamlined EU waste legislation

5 National and Local Policy and Legislative Context

Introduction

- 5.1 Waste legislation in Northern Ireland is implemented in three levels, comprised of European Union Directives, UK wide legislation and Northern Ireland specific legislation and policy (Northern Ireland Orders, Regulations and national planning guidelines). In Northern Ireland, EU Directives are implemented through primary and secondary legislation. Primary legislation includes Orders and Acts and secondary legislation includes Regulations and planning guidelines.
- 5.2 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.
- 5.3 It is the framework that implements the requirements of EU policy and Directives, as set out in the Section above, at the regional level. This section of the Chapter therefore provides an overview of waste policy and legislation in place in Northern Ireland to consider those issues relevant to the Plan. A list of the key legislation, relevant to the management of wastes, is presented in Annex A.
- 5.4 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. Further information, which provides a greater level of detail (and which is also subject to updating) can be found at:
- Northern Ireland Environment Agency: www.ni-environment.gov.uk
 - NetRegs: www.netregs.gov.uk

Waste Management Policy

Programme for Government

- 5.5 The Northern Ireland Executive's Programme for Government 2011 – 2015 contains a specific commitment to achieve a household recycling or composting rate of 45% for Northern Ireland by 2014/15, under the objective 'Protecting our People, the Environment and Creating Safer Communities'.

Northern Ireland Waste Management Strategy: Delivering Resource Efficiency

- 5.6 This Strategy is a revision of the current Northern Ireland Waste Management Strategy: Towards Resource Management which was published in March 2006 and set the strategic direction for waste management in Northern Ireland at the time. Following a scoping exercise by the Department, it was proposed that a 'recast' Strategy would be developed that would incorporate all the requirements of the relevant EU Environmental Directives coupled with a continuation and development of policies and support of resource efficiency. The recast Strategy developed will be based on the principle of the waste hierarchy while maintaining the core principles of the 2006 Strategy.
- 5.7 The Strategy moves the emphasis of waste management in Northern Ireland from resource management (with landfill diversion as the key driver) to resource efficiency, that is, using resources in the most effective way while minimising the impact of their use on the environment. This Strategy has a renewed focus on waste prevention (including reuse), preparing for reuse and recycling in accordance with the waste hierarchy, as set out in Chapter 4.0.
- 5.8 The key principles of the Strategy are:

- **Waste Hierarchy** – indicates the relative priority of the different methods of managing waste.
- **Life Cycle Approach** – to take into account the overall impacts that an approach or service will have throughout its whole life, that is, from cradle to grave.
- **Polluter Pays Principle** – means that waste generators should pay the costs of providing services to manage their wastes.
- **Proximity Principle** – emphasises the need to treat or dispose of waste as close as practicable to the point of generation, the minimise the environmental impact of waste transportation
- **Integration of Waste Streams** – encouraging the development of waste management solutions that encompass all waste.

5.9 In agreement with the European Commission the definition of municipal waste in Northern Ireland has been broadened and this is reflected in the revised Strategy. The definition now includes waste from all households and all wastes of similar nature and composition to households, including commercial wastes, whoever collects it. Previously, the definition only included wastes which were collected by Councils and these are now defined as Local Authority Collected Municipal Waste. These revised definitions are set out below.

- **Municipal Waste** – waste from households and other waste which is similar in nature to waste from a household. This includes Commercial and Industrial waste which is similar in nature to waste from a household.
- **Local Authority Collected Municipal Waste** – waste that is collected by, or on behalf of, a District Council.

5.10 The targets set out in the Strategy include:

Household Waste

- To achieve a recycling rate of 50% (including preparing for reuse) of household waste by 2020.
- To achieve a recycling rate of 45% (including preparing for reuse) of household waste by 2015 (Programme for Government Target)

Local Authority Collected Municipal Waste

- To achieve a recycling rate of 60% (including preparing for reuse) of Local Authority Collected Municipal Waste)

Construction, Demolition and Excavation Waste

- To achieve a recovery rate (including preparing for reuse, recycling and other material recovery) of 70% for all non-hazardous construction and demolition waste by 2020.

Packaging Waste

- To achieve the recovery and recycling rates for individual packaging waste streams by 2017.
- To achieve an overall recovery rate of 79% and overall recycling rate of 72.7% of packaging by 2017.

Waste Electrical and Electronic Equipment (WEEE)

- To achieve a collection rate of 45% of EEE placed on the market by 2018 increasing to 65% of EEE placed on the market by 2021.
- To achieve the recovery and recycling targets for all categories of EEE as set out in the recast WEEE Directive

Batteries and Accumulators

- To achieve a collection rate of 45% of average annual sales in the UK of all waste portable batteries by 2016.

End of Life Vehicles

- To achieve an overall reuse, recycling and recovery rate for end of life vehicles of 95% by 2015.

- 5.11 The document also sets out a number of proposals in relation to reducing the amount of food waste sent to landfill in Northern Ireland. Reduced food waste can contribute to improving resource efficiency and food security at a global level, and would contribute to a reduction in GHG emissions resulting from their disposal in landfill.¹
- 5.12 The Department of the Environment is proposing to introduce an obligation for district councils to provide receptacles for the separate collection of food waste from households from April 2017. In addition, it plans to ban separately collected food waste from being sent to landfill and introduce a requirement which will see all food waste producers segregate food waste from April 2015.
- 5.13 A copy of the Northern Ireland Waste Management Strategy can be downloaded from the DOENI website:
http://www.doeni.gov.uk/wms_2013.pdf

Food Waste Regulations (Northern Ireland), 2015

- 5.14 The Food Waste Regulations (Northern Ireland), 2015 came into operation in February 2015, and require the following:
- Separate collection of food waste;
 - A ban on mixing separately collected food waste;
 - A ban on landfilling separately collected food waste; and
 - A ban on the non-domestic discharge of food waste into the public sewer network.
- 5.15 The Food Waste Regulations (Northern Ireland) 2015 will amend the:
- Waste and Contaminated Land (Northern Ireland) Order 1997;
 - Pollution, Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2013;
 - Landfill Regulations (Northern Ireland) 2003; and
 - Waste Management Licensing Regulations (Northern Ireland), 2003.

¹ Delivering Resource Efficiency

5.16 Key points of the Regulations, which are relevant to the Councils in the NWRWMG, are as follows:

- The introduction of a Duty of Care on councils to provide receptacles to every domestic property for the separate collection of food waste;
- Prohibit the acceptance of separately collected food waste at landfill sites;
- Requirement for waste operators, for food waste that is presented separately, to collect and transport food waste separately;
- Requirement for waste management licences and pollution prevention and control permits to contain conditions to make sure that any separately collected food waste is not mixed with any other waste to the extent that it would hamper recycling;
- Requirement for businesses that carry out activities involving food to present food waste for separate collection; and
- Requirement for businesses that carry out activities involving food to make sure that food waste is not deposited in a lateral drain or sewer.

5.17 Although the regulations are now in force, a staggered approach has been adopted for their implementation. Details of implementation dates are presented in Table 5.1 below.

Table 5.1 Key Dates for Implementation of the Food Waste Regulations

Date	Implementation Activity
1st April 2015	<ul style="list-style-type: none"> ▪ The acceptance of separately collected food waste at landfills prohibited; and ▪ Waste operators, for food waste that is presented separately, to collect and transport that food waste separately.
1st April 2016	<ul style="list-style-type: none"> ▪ Food businesses that produce more than 50kg of food waste per week to present that food waste for separate collection.
1st April 2017	<ul style="list-style-type: none"> ▪ Food businesses that produce between 5kg and 50kg of food waste per week to present that food waste for separate collection; ▪ Hospitals to present food waste for separate collection; and ▪ Food businesses to ensure that food waste is not deposited in a lateral drain or sewer.
1st April 2017	<ul style="list-style-type: none"> ▪ Councils must make sure that every property has a separate bin for food waste by 1st April 2017.

Better Regulation and Enforcement

- 5.18 In 2008 NIEA began a programme of Better Regulation, designed to modernise the environmental regulatory framework, simplify guidance and better target its enforcement activities; and in doing so improve how it tackles those who do not comply with the law and undermine legitimate businesses.
- 5.19 The Better Regulation for a Better Environment set the framework for the Better Regulation Programme, which was focused around the four key areas of:
- Compliance Assistance;
 - Compliance Assessment;
 - Streamlined Permitting; and
 - Better Enforcement.
- 5.20 The Better Regulation Programme has also made significant progress in developing a risk based approach to regulation. The aim of this risk based approach is to ensure that regulatory activities are streamlined and focused appropriately where they need to, thereby reducing the burden on business. NIEA have rolled out a risk assessment model to provide greater consistency across regulatory regimes.
- 5.21 A key aspect of the Better Regulation Programme has been the provision of simplified guidance and advice to businesses on waste regulation. An example of this is NetRegs, a partnership between NIEA and SEPA, which provides free online advice for businesses covering all environmental topics and can be viewed by business sector. NIEA are also working with industry to produce sector specific guidance on topics which have a mutual benefit to business and the environment.
- 5.22 The Environmental Better Regulation Bill was introduced to the NI Assembly on 22 June 2015. The Bill aims to reduce the complexity of environmental legislation in respect of environmental permitting and powers of entry and associated powers in order to lessen regulatory burdens on businesses. The new Regulations will also provide for an environmental permitting system to replace the existing model.
- 5.23 The policy underlying the Bill was developed as a result of extensive consultation, initially research carried out and published in DOENI's 2011 White Paper on Better Regulation. The DOENI consulted widely on its 'Proposals for an Environmental Better Regulation Bill' in May 2013.

Waste Management Legislation

Primary Legislation

Waste and Contaminated Land (Northern Ireland) Order, 1997 SI 2778 (including Amendments)

- 5.24 This Order was enacted into Northern Ireland legislation in March 1998 and largely incorporates European Waste Framework Directive 75/442/EEC and Amendments. 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, Waste Management Licensing, Hazardous Waste and Producer Responsibility.
- 5.25 The Order also included the requirement for a Waste Management Strategy to be developed for the recovery and disposal of waste in Northern Ireland, along with a Waste Management Plan to be prepared for each District Council including appropriate arrangements for managing controlled waste arisings.

The Waste and Emissions Trading Act, 2003

- 5.26 The main aim of this Act is to meet European Landfill Directive 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. The DOENI 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 SI 3153 (including Amendments)

- 5.27 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).

Producer Responsibility Obligations (Northern Ireland) Order, 1998 SI 1762 (including Amendments)

- 5.28 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.

Litter (Northern Ireland) Order, 1994

- 5.29 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.
- 5.30 The Order has been amended by the Clean Neighbourhoods and Environment (Northern Ireland) Act 2011.

Waste (Amendment) (Northern Ireland) Order, 2007 SI 611

- 5.31 This Order makes miscellaneous amendments to the Waste and Contaminated Land (Northern Ireland) Order 1997. The aim of this Order is make provision to deal with illegal waste activity. The Order provides stronger powers for enforcement officers and additional powers for the courts to impose wider ranging and more significant financial penalties in order to combat and deter illegal waste activity. The new powers largely replicate those in the rest of the United Kingdom as set out in Part 5 of the Clean Neighbourhoods and Environment Act 2005.

Clean Neighbourhoods and Environment (Northern Ireland) Act 2011

- 5.32 This Act came into force on 1st April, 2012. The objective of this Act is to improve the quality of the local environment by giving district councils additional powers to deal with litter, nuisance alleys, graffiti and fly posting, abandoned and nuisance vehicles, dogs, noise and statutory nuisance. The Act increases the level and range of on the spot fines as well as the introduction of new fines for a range of offences.

Secondary Legislation

The Waste Regulations (Northern Ireland) 2011 SR 127

- 5.33 These Regulations came into effect in April 2011, and implement the revised Waste Framework Directive. The Regulations apply the waste hierarchy as a priority order in waste prevention and management policy:
- Prevention;
 - Preparing for re-use;
 - Recycling;
 - Other recovery (e.g. energy recovery); and
 - Disposal.

- 5.34 The provisions relating to:
- The Waste Hierarchy, came into force on 8 October 2011; and
 - The separate collection of at least paper, metal, plastic and glass will come into force on 1 January 2015.
- 5.35 These Regulations implement Directive 2008/98/EC, on waste (the revised Waste Framework Directive), in order to help achieve its overall objectives of:
- Protecting the environment and human health;
 - Reducing waste and encouraging it to be used as a substitute for other non-renewable resources;
 - Making sure the EU becomes a recycling society by applying the principles of:
 - Self-sufficiency,
 - Polluter pays, and
 - Proximity.

The Landfill Allowance Scheme (Amendment) Regulations (Northern Ireland) 2011

- 5.36 The Northern Ireland Landfill Allowances Scheme (NILAS) came into force on 1st April 2005 and applies 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.
- 5.37 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.
- 5.38 The Landfill Allowances Scheme (Amendment) Regulations (Northern Ireland) 2009, No. 46 came into operation on 1 April 2009, amend the NILAS 2004 Regulations by reducing from 71% to 64% by weight (rounded up to the nearest tonne), the assumed amount of biodegradable municipal waste in an amount of collected municipal waste.
- 5.39 It should be noted that Defra has been in discussions with the European Commission in regard to changing the way in which the UK meets its landfill allowance targets. As a result of this, a consultation was issued in March 2010 with the aim of addressing the implications of changing the approach adopted by the UK in meeting the diversion targets. Key to this was a change in the way in which municipal waste is classified with plans proposed to broaden this definition to include most notably commercial or industrial wastes not collected by or in control of Councils. The implication of this was a significant increase in the amount of waste classified as municipal waste.

- 5.40 This would subsequently require a change to the targets for diverting BMW from landfill, although it has been stated that the Authority allowances will not be affected for the portion of the waste formally defined as municipal. In order to achieve this, there was a need for the UK to review the way in which obligations have been reported. It would appear that the current preferred option would be to measure the BMW content of the waste at the point at which it is landfilled, based on the tonnages of the waste and the European Waste Catalogue Codes to which the waste pertains.
- 5.41 In addition, consideration has been afforded to changing the approach adopted by the UK in meeting the targets. The proposals for this include additional landfill restrictions as well as using the statutory recycling targets and waste prevention plans within the revised Waste Framework Directive as drivers for change.
- 5.42 The Landfill Allowances Scheme (Amendment) Regulations (Northern Ireland) SR 2011/373 amend the Landfill Allowances Scheme (Northern Ireland) Regulations 2004 by providing for the use of the term “local authority collected municipal waste”. The term “local authority collected municipal waste” was introduced to the Waste and Emissions Trading Act 2003 (c.33) (the “2003 Act”) by the Waste and Emissions Trading Act 2003 (Amendment) Regulations 2011 (S.I.2011 No.2499). The term is used in provisions relating to the setting up and operation of landfill allowance schemes and is distinguished from the use of the term “municipal waste” to describe the waste that must be diverted from landfills under Article 5(2) of Council Directive 1999/31/EC on the landfill of waste.
- 5.43 It is the Department’s view that NILAS will, in the short term at least, maintain an important role in contributing to reductions in BMW to landfill in line with the new EU landfill diversion targets.

The Landfill (Northern Ireland) Regulations, 2003 SR 297 (as amended)

- 5.44 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; and
 - Technical standards for the lining and capping of landfills.

The Landfill (Amendment) Regulations (Northern Ireland) 2011 SR101

5.45 The Landfill (Amendment) Regulations (Northern Ireland) 2011 were made on 14 March 2011 and came into operation on 15 April 2011. The Landfill Regulations 2003 required landfill sites in Northern Ireland which closed after 6 January 2004 to meet aftercare standards to comply with the Landfill Directive (1999/31/EC). A number of landfill sites across Northern Ireland closed between 16 July 2001 and 6 January 2004 under arrangements which did not specifically require landfill operators, including district councils, to put in place appropriate aftercare arrangements. The 2003 Landfill Regulations now apply to all landfill sites in Northern Ireland which closed after 16 July 2001. Landfill (Amendment) Regulations 2011 and these sites must now comply with the Landfill Directive procedures for closure and aftercare.

The Controlled Waste (Duty of Care) Regulations (Northern Ireland), 2002 SR271 (as amended)

5.46 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.

5.47 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; and
- Ensures that the movement of waste is recorded and monitored from the point of generation to the point of disposal.

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

5.49 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.

5.50 The Controlled Waste (Duty of Care) (Amendment) Regulations (Northern Ireland) 2004 amends the 2002/271 Regulations to change the codes used on waste transfer notes to the European Waste Catalogue codes.

Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland), 1999 SR 362

- 5.51 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), 2003 and Amendments

- 5.52 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. Northern Ireland Environment Agency is directly responsible for the implementation of these Regulations.

- 5.53 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; and
- The use of certain mobile plant to control or treat controlled waste.

- 5.54 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), 2007 SR 198 (as amended)

- 5.55 The Producer Responsibility Obligations (Packaging Waste) regulations implement the EU directive on packaging and packaging waste. These regulations make packaging producers responsible for recovering and recycling waste packaging.

- 5.56 These Regulations are concerned with the recovery and recycling obligations imposed on producers that produce packaging and whose annual turnover exceeds £2 million and who produce or handle more than 50 tonnes of packaging and packaging materials a year.

- 5.57 A producer can purchase packaging waste recovery notes or packaging waste export recovery notes or both to satisfy obligations or may join a compliance scheme. Where a producer joins a scheme that is registered with the Department they will be exempt from complying with his producer responsibility obligations for that year.
- 5.58 These Regulations also sets out the duties, powers and requirement of the Department such as monitoring compliance and their duties in relation to keeping a public register.
- 5.59 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.
- 5.60 The A UK-wide consultation paper has been published seeking views on proposals for new recovery and recycling targets for 2013-2017 in the Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (as amended). The consultation sets out options for statutory recycling targets for packaging producers to ensure the UK continues to meet the minimum recovery and recycling targets set down in EC Directive on Packaging and Packaging Waste (94/62/EC).

The Animal By-Products (Enforcement) Regulations (Northern Ireland) 2011 SR 124 (as amended)

- 5.61 These Regulations enforce:
- Regulation (EC) No 1069/2009 of the European Parliament and of the Council on laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002. (O.J. No L 300, 14.11.2009, p 1) (“the EU Control Regulation”).
 - Regulation No. 142/2011 implementing Regulation (EC) No. 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption and implementing Council Directive 97/78/EC as regards certain samples and items exempt from veterinary checks at the border under that Directive (the “EU Implementing Regulation”) (O.J. No L 54, 26.02.2011) that provides technical supplementation of those requirements of the EU Control Regulation.

5.62 Under the EU Control Regulation there are obligations on operators in relation to animal by-products, including obligations as to disposal and use, prohibitions on feeding, and placing on the market. In addition, there are requirements for operators, plants and establishments to be registered or approved. The obligations vary according to the categorisation of the material, the higher risk animal by-product is categorised as Category 1 material, next in risk is Category 2 and then Category 3 material. The EU Implementing Regulation, supplements the requirements of the EU Control Regulation. These Regulations enable decisions by member states to be made including the appointment of a Department as the competent authority. The Regulations allow the member state to derogate from the obligations and also enable the Department to make authorisations in relation to specified obligations. These regulations revoke The Animal By-Products Regulations (Northern Ireland) 2003.

Transfrontier Shipment of Waste Regulations, 2007 SI 1711 (as amended)

5.63 These Regulations enforce Regulation (EC) No 1013/2006 of the European Parliament and of the Council on shipments of waste.

5.64 These Regulations:

- Set out the competent authorities for the purposes of the Community Regulation;
- Requires the Secretary of State to implement a waste management plan that contains his policies on the bringing into, or dispatch from, the United Kingdom of waste for disposal;
- Requires the Secretary of State to consult on that plan and requires the competent authorities of dispatch and destination to object to shipments of waste that do not comply with that plan;
- Creates a number of offences in relation to the shipping of waste which breach and/or fail to comply with the requirements of the Community Regulation in relation to management of shipments such as shipments of waste to or from the United Kingdom to or from other member States, to exports of waste to and from the United Kingdom to third countries, to the transit of waste through the United Kingdom to and from third countries;
- Sets out the fees that will apply in Northern Ireland. Regulation 47 provides for competent authorities to recover the costs of take-back under Articles 22 and 24 of the Community Regulation;
- Sets out the procedure applicable to the application for an approval of a financial guarantee or equivalent insurance; and
- Provides that the Regulations must be enforced by the competent authorities and sets out the enforcement powers of competent authorities, authorised persons and officers of Revenue and Customs.

The Controlled Waste Regulations (Northern Ireland), 2002 (as amended)

- 5.65 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 SR46

- 5.66 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). These regulations were amended in 2004 and 2007 to include additional activities.

- 5.67 It should be noted that these regulations were revoked and replaced on 14th January 2014 by the Pollution, Prevention and Control (Industrial Emissions) Regulations (Northern Ireland), 2012. These are discussed in further detail below.

Pollution, Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) SR 2012 / 453

- 5.68 These new Regulations came into force in January 2013. They implement Directive 2010/75/EU on industrial emissions (integrated pollution, prevention and control) and incorporate a number of other EU measures on industrial pollution (including those on waste incineration, large combustion plant and solvent emissions). These new regulations revoked the current Pollution, Prevention and Control Regulations (Northern Ireland), 2003 on 7th January 2014.

- 5.69 In particular, the regulations will require those facilities that recover, or undertake a mix of disposal and recovery of non-hazardous waste with a capacity exceeding 75 tonnes per day involving one or more of the following activities to operate under a Pollution Prevention and Control permit. With regard to waste management, these activities include:

- Biological treatment;
- Pre-treatment of waste for incineration or co-incineration;
- Treatment of slags and ashes; and
- Treatment in shredders of metal waste, including waste electrical and electronic equipment and end-of-life vehicles and their components.

- 5.70 When the only waste treatment activity carried out is anaerobic digestion, the capacity threshold for this activity shall be 100 tonnes per day.

Landfill Tax Regulations, 1996 and Amendments

- 5.71 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.
- 5.72 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.
- 5.73 The Landfill Tax (Amendment) Regulations 2009 which come into force on 1st September 2009 revoke Part of the Landfill Tax Regulations 1996 which relates to temporary disposals of material on a landfill site and introduce a new requirement to give information and keep records in relation to information areas. Material on a landfill site which is not going to be disposed of as waste must be deposited in an information area until the Commissioners clarify the taxable status of the material.
- 5.74 The Landfill Tax (Prescribed Landfill Site Activities) Order 2009, which comes into force on 1st September 2009, prescribes certain activities which take place on a landfill site for the purposes of the Finance Act. The effect of this is that the prescribed activities will be treated as disposals and will be subject to landfill tax. Three of the activities are the use of material to create or maintain temporary hard standing, the use of material to create or maintain a temporary screening bund and the use of material to create or maintain a temporary haul road. The Regulation provides for landfill tax to be re-credited when material has been used in one of these three ways and is subsequently used for site restoration.

Hazardous Waste Regulations (Northern Ireland), 2005 SR 300 (as amended)

- 5.75 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 as amended and Commission Decision 2000/532/EC and revoke the Special Waste Regulations (Northern Ireland) SR 1998/289.
- 5.76 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.

5.77 Implementation of the revised Waste Framework Directive has brought some changes to the Hazardous Waste Regulations. These changes have been brought in by the Waste Regulations (Northern Ireland) 2011.

End of Life Vehicles Regulations 2003 SI 2635 (as amended)

5.78 These Regulations came fully into force 2003 and 2010 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;
- The provision of information;
- Certificates of destruction; and
- Imposing a cost for their disposal.

5.79 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.

End of Life Vehicles (Producer Responsibility) Regulations 2005 SI 263 (as amended)

5.80 The 2005 regulation introduces the reuse, recovery and recycling targets for end-of-life vehicles treated at authorised treatment facilities and a take back for End of Life Vehicles.

The Waste Electrical and Electronic Equipment Regulations 2006 SI 3289 (as amended)

5.81 These Regulations transpose the main provisions of Council Directive 2002/96/EC of 27th January 2003 on waste electrical and electronic equipment and aim to:

- Reduce the amount of waste electronic and electrical equipment (WEEE) sent to landfill;
- Promote the separate collection, treatment and recycling of WEEE;
- Ensure the safe treatment and disposal of hazardous components; and
- Encourage producers to make products easier to recycle.

5.82 All producers who market electronic and electrical (EEE) in a compliance period, the first of which will run from 1 July 2007 to 31 December 2007, must finance the cost of the collection, treatment, recovery and environmentally sound disposal of WEEE from:

- Private and non-private households;
- Designated collection facilities; and
- Distributors, from WEEE that is returned to them in a compliance period.

5.83 All producers with such an obligation must join an approved compliance scheme, where the operator of the scheme will register the producer and will become responsible for all financing provisions, as well as the reuse, treatment and recovery of WEEE.

- 5.84 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 2035

- 5.85 Shaping Our Future: The Regional Development Strategy for Northern Ireland (RDS 2035 'Building a Better Future') was published in March 2012 and informs the spatial aspects of all other strategies. It complements the Sustainable Development Strategy and highlights the contribution that recycling more waste and recovering energy from it can make to a reduction in carbon footprint and Greenhouse Gas Emissions (GHG).
- 5.86 The Strategy recognises that managing our waste is a significant part of how we treat our environment and highlights the need to manage waste sustainably. This will be achieved by applying both the waste hierarchy, introduced by the Waste Framework Directive, and the proximity principle when developing treatment or disposal facilities in order to minimise the environmental impacts of waste transport.

Northern Ireland Sustainable Development Strategy

- 5.87 The Northern Ireland Sustainable Development Strategy ('Everyone's Involved') was adopted by the Northern Ireland Executive in May 2010. The Strategy sets out the principles and strategic objectives to ensure socially responsible economic development while protecting the resource base and the environment for future generations.
- 5.88 The six strategic objectives of the strategy are:
- Building a dynamic, innovating economy that delivers the prosperity required to tackle disadvantage and lift communities out of poverty;
 - Strengthening society such that it is more tolerant, inclusive and stable and permits positive progress in quality of life for everyone;
 - Driving sustainable, long term investment in key infrastructure to support economic and social development;
 - Striking an appropriate balance between the responsible use and protection of natural resources in support of a better quality of life and a better quality environment;
 - Ensuring reliable, affordable and sustainable energy provision and reducing our carbon footprint; and
 - Ensuring the existence of a policy environment which ensures the overall advancement of sustainable development in and beyond government.

Planning Policy Statements

- 5.89 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.
- 5.90 It should be noted however, as outlined in the Waste Management Strategy, the Department is committed to undertaking a comprehensive consolidation and review of existing planning policy in order to bring forward a single regional planning policy statement. This will be required in advance of the transfer of planning powers to District Councils. It is anticipated that the new planning policy statement will be simpler, shorter and more strategic in focus. The document is currently at the scoping stage and therefore, until appropriate detail and any transitional arrangements are known, it is considered prudent to include details of current planning policy statements. The position will however be kept under review and an update provided when available.

Planning Policy Statement 1 (PPS 1) – General Principles

- 5.91 PPS 1 was published in March 1998 and sets out the general principles that the Department observes in formulating planning policies, making development plans and exercising control of development. The Statement also sets out the key themes that underlie the Department’s overall approach to planning across the whole range of land-use topics and provides strategic guidance on issues such as sustainability, the status of various planning documents and environmental assessment.

Planning Policy Statement 2 (PPS 2) – Planning and Nature Conservation

- 5.92 This statement was published in June 1997 and sets out the Department’s Planning Policies for nature conservation for Northern Ireland. This statement contains a number of policies, driven by the importance placed on compliance with various international Treaties, Conventions and Directives which underlie the legislative framework for nature conservation in Northern Ireland. In determining the suitability of a potential development, the Department will seek to ensure, that as far as is practicable and consistent with the requirements of the various designations, that the network of designated sites in Northern Ireland is protected from damage and destruction. In this regard, all plans or projects considered to have a potential impact on a site will be duly assessed to determine whether nature conservation interest would be damaged. Where there is potential for damages, a plan or project will only be granted in instances where there is no alternative or where there is overriding public interest.

Planning Policy Statement 3 (PPS 3) – Access, Movement and Parking

- 5.93 This Statement sets out the Department's planning policies for vehicular and pedestrian access, transport assessment, the protection of transport routes and parking. It forms an important element in the integration of transport and land use planning. In addition, PPS3 embodies the Government's commitments to the provision of a modern, safe, sustainable transport system, the improvement of mobility for those who are socially excluded or whose mobility is impaired, the promotion of healthier living and improved road safety.
- 5.94 This Policy Statement also takes into consideration the Department's Local Air Quality Management Policy Guidance and 'Investing for Health' a document published by the Department of Health, Social Services and Public Safety (DHSSPS).

Planning Policy Statement 6 (PPS 6) – Planning, Archaeology and the Built Heritage

- 5.95 This statement was published in March 1999 and sets out the Department's Planning Policies for the protection and conservation of archaeological remains and features of the built heritage. The preservation of an archaeological site or monument is a material consideration for the Department in determining planning applications. Within the application, consideration will be afforded to the potential for a proposed development to damage or destroy a site or monument, result in inappropriate change to the setting or whether the existing quality and character of the site or monument would be retained.

Planning Policy Statement 11 (PPS 11) – Planning and Waste Management

- 5.96 This statement was published in December 2002 and sets out the Department's Planning Policies for the development of waste management facilities. PPS11 supersedes Policy PSU 8 (New Infrastructure) and PSU 14 (Waste) of the Planning Strategy for Rural Northern Ireland. It seeks to promote the highest standards in development proposals for waste management facilities. This statement contains a number of policies. Those of relevance to the development of waste infrastructure are as follows:
- Policy WM1 Environmental Impact of a Waste Management Facility; and
 - Policy WM2 Waste Collection and Treatment Facilities.
- 5.97 Within Policy WM1 Environmental Impact of a Waste Management Facility, proposals would not be permitted where it is considered that the facility would cause demonstrable harm to the environment including air, water, soil, water resources, nature conservation, archaeological/built heritage interests and human health that cannot be prevented or controlled by mitigating measures.
- 5.98 Further to this, development will not be permitted where it is not compatible with the surrounding landscape or where it will have an unacceptable visual impact on any area designated for its landscape quality.

- 5.99 In addition, the proposals would not be acceptable where it is considered that the access to the site and the nature and frequency of associated traffic movements would prejudice the safety and convenience of road users or constitute a nuisance to neighbouring residents resulting from noise, dirt and dust.
- 5.100 Within Policy WM2 Waste Collection and Treatment Facilities, there is a requirement to ensure that the proposed facility is in compliance with one or more of a number of locational criteria. The locational criteria in this instance include: within an industrial or port area; within an active or worked out hard quarry or on the site of an existing waste management facility, where the development will bring previously developed or contaminated land back into productive use and also, where the proposal is in the countryside, it involves the use of existing buildings or is on land within or adjacent to existing building groups.
- 5.101 It should be noted that PPS 11 is currently under review. The current PPS 11 includes BPEO as a key principle in pursuing greater sustainability in waste management. Proposals for Policy WM2 Waste Collection and Treatment Facilities, Policy WM3 Waste Disposal and Policy WM4 Land Improvement are currently required to demonstrate BPEO. However, the Department considers that the Strategic Environmental Assessment (SEA) duplicates this process and as a result plan to remove the link with BPEO for plans and waste proposals.

Planning Policy Statement 15 (PPS 15) – Planning and Flood Risk

- 5.102 This Statement sets out the Department's planning policies to minimise flood risk to people, property and the environment. It embodies the government's commitment to sustainable development and the conservation of biodiversity. It adopts a precautionary approach to development and the use of land that takes account of climate change and is supportive of the well being and safety of people.

Planning Policy Statement 18 (PPS 18) - Renewable Energy

- 5.103 This Statement sets out the Department's planning policy for development that generates energy from renewable resources and that requires the submission of a planning application. The aims and objectives of this Statement are to facilitate the siting of renewable energy generating facilities whilst ensuring protection of the built and natural environment and providing due regard to potential environmental, landscape, visual and amenity impacts.
- 5.104 Within this Statement, the Policy of relevance to the development of energy from waste facilities is Policy RE 1- Renewable Energy Development. This Policy states that development that generates electricity from renewable sources will be permitted provided the proposal and associated infrastructure does not result in an unacceptable adverse effect on the following:
- Public safety;

- Human health;
- Residential amenity;
- Visual impact and landscape character;
- Biodiversity;
- Nature conservation or built heritage interests;
- Local natural resources; and
- Public access to the countryside.

5.105 In addition, the Policy states that the wider environmental, economic and social benefits of all proposals are material considerations in determining the granting of planning permission.

Development Plans

5.106 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.

5.107 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;
- 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.

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

http://www.planningni.gov.uk/index/policy/dev_plans.htm

Future Northern Ireland Legislation

Site Waste Management Plans Regulations (Northern Ireland) 2011

- 5.109 Construction, demolition or excavation projects, with an estimated cost greater than £300,000 will be required to prepare a SWMP. The regulations will include all methods of construction, including civil engineering, modifications to existing constructions, site preparation, on-site pre-fabrication and work relating to utilities.
- 5.110 The Department consulted on proposals to make site waste management plans (SWMP) a legal requirement for certain construction and demolition projects in Northern Ireland. The consultation closed on 11 March 2011, but the implementation of the regulations is currently on hold.

Single Use Carrier Bags

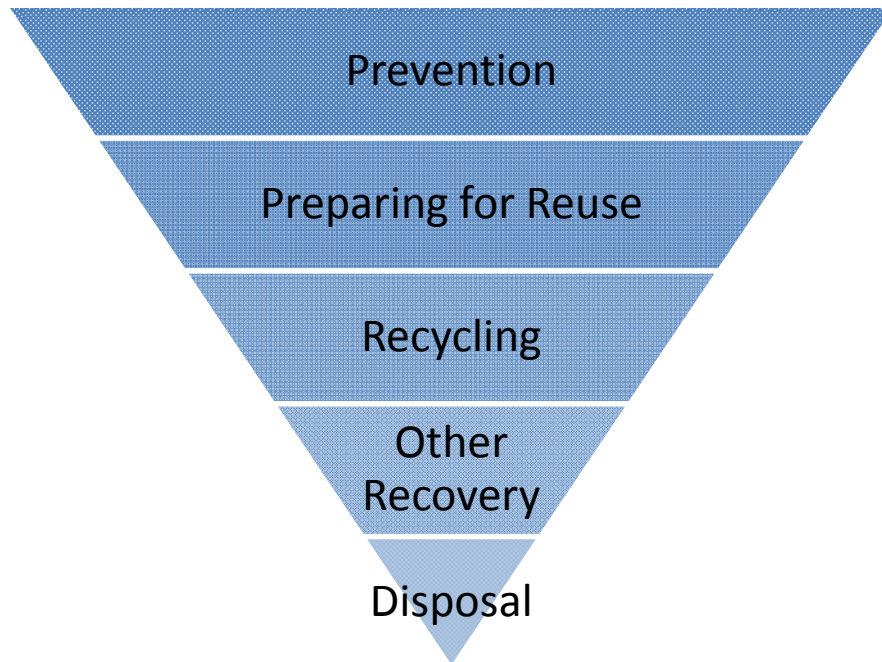
- 5.111 The Carrier Bag Levy was introduced in April 2013 and retailers in Northern Ireland must now charge at least 5 pence for a new single use carrier bag. The aim of the levy is to cut the number of carrier bags used. This will benefit the environment by reducing carbon emissions and air and water pollution associated with unnecessary carrier bag production, transportation and disposal. Carrier bag usage figures for the first year of operation of the levy indicate that 84.5 million single use carrier bags were issued by Northern Ireland retailers compared to around 300 million bags in the year before the levy was introduced. This is a reduction of 72%.
- 5.112 Retailers are required to pay the proceeds of the levy to the Department and the money raised is used to help communities, charities, businesses, schools and voluntary organisations to deliver local programmes to improve the environment for everyone. To date, £4.17 million has been raised and £3.4 million has already been allocated to environmental projects.
- 5.113 From the 19 January 2015 the 5 pence levy was extended to all new carrier bags with a retail price of less than 20 pence.

6 Approaches for the Management of Waste

Introduction

- 6.1 This section provides an updated summary on the various technologies considered for the current and future management of wastes within the North West Region Waste Management Group. It is designed to provide an overview of the technologies considered for the future management of wastes within the North West Region 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.
- 6.2 The North West Region Waste Management Plan identified that a mix of technologies would be required to treat Contract waste, including a combination of MBT and Energy Recovery Facilities. Mass Burn and Incineration of waste have been excluded for use by the NWRWMG in line with the decision of the Joint Committee on 27 January 2009.
- 6.3 The waste hierarchy ranks waste management options in terms of sustainability and environmental impact. The revised Waste Framework Directive (Directive 2008/98/EC) requires the application of the revised waste hierarchy as a priority order in waste prevention.
- 6.4 Prevention (at the 'top' of the hierarchy) is given top priority as it aims to stabilise and reduce waste generation whilst disposal to landfill is the lowest priority. The revised Directive also sets out 'preparing for reuse' as an additional activity in the waste hierarchy. This is consistent with European and national policy objectives to reduce the amount of waste disposed to landfill.
- 6.5 The waste hierarchy is the conceptual framework currently used for all waste management practices in the NWRWMG.

Figure 6.1 The Revised Waste Management Hierarchy



Waste Prevention

- 6.6 The Revised Northern Ireland Waste Management Strategy – Delivering Resource Efficiency and the revised Waste Framework Directive has considered waste prevention as the number one priority for waste management.
- 6.7 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”.*
- 6.8 Reducing the amount of waste generated at source is regarded as the highest priority according to the Waste Hierarchy established in the Revised Waste Framework Directive. Waste prevention is closely linked with improving manufacturing methods and influencing consumers to demand greener products and less packaging.
- 6.9 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:

- **Avoidance:** the avoidance of waste generation for example, by buying fewer items, reducing process wastes or using less material per unit;
 - **Reduction:** reduction at source; and
 - **Re-Use:** involves the multiple use of a product in its original form.
- 6.10 The previous waste management plan recognised that the high levels of waste growth were neither sustainable nor acceptable for the future and stated that 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.
- 6.11 In 2011/2012, 949,491 tonnes of Local Authority Collected Municipal Waste (LACMW) was collected in Northern Ireland which was 3.6% less than in 2010/2011. The local authority waste arisings have decreased by 7.2% since 2002.
- 6.12 Many of the actions necessary to directly influence levels of waste production are beyond the direct powers of Local Authorities. To prevent household waste arisings in the future each of us has to consider how we can avoid, reduce or reuse the amount of waste we produce in our every day routines. There are a number of initiatives in progress on waste prevention, see Chapter 8 of this Plan for more details.

Preparing for Re-Use

- 6.13 Article 11 of the revised Waste Framework Directive states that Member States shall take measures, as appropriate, to promote the re-use of products and preparing for re-use activities, notably by:
- Encouraging the establishment and support of re-use and repair networks;
 - The use of economic instruments;
 - Procurement criteria;
 - Quantitative objectives; or
 - Other measures.
- 6.14 Reuse is not a new concept; a large majority of the population over a certain age are familiar with the doorstep delivery of milk in refillable bottles. In recent years reuse systems have been in decline especially in developed countries. 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.
- 6.15 Historically, financial motivation was one of the main drivers of reuse. In Europe however current environmental awareness and the introduction of legislation and policy is gradually changing attitudes and gradually beginning to reverse the situation.
- 6.16 For example, in England, a system exists whereby credits are paid for the tonnage of waste prepared for reuse activities. Waste Disposal Authorities have the power to pay disposal credits for re-use, and Waste Collection Authorities have the power to pay collection credits for re-use to third parties.
- 6.17 There are a number of initiatives in place in the NWRWMG in relation to preparing for reuse, see Chapter 8 of this Plan for more details.

Recycling

- 6.18 Recycling is the collection and sorting of waste materials and reprocessing to produce, material or substance whether for the original or other purposes. This usually involves the following phases: collection, sorting, reprocessing and resale.
- 6.19 A summary of the advantages of Recycling are given below:
- 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; and
 - Consumer participation through enhanced public awareness and understanding of environmental issues.
- 6.20 There are three systems used for the collection of household recyclable materials in the NWRWMG:
- Kerbside Collections;
 - Recycling Centres; and
 - Bring Sites / Community Recycling Centres (CRCs).

Kerbside Collection

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

Mixed Dry Recyclables Collection

- 6.22 With the mixed dry recyclables system (blue bin 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 reprocessing markets.

Kerbside Box

- 6.23 The kerbside 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 at the kerbside 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 reprocessing markets.

Recycling Centres

- 6.24 Recycling Centres are located throughout the Region to encourage active participation in recycling. A wide range of materials are accepted for recycling at Recycling Centres. Recycling Centres can provide substantial quantities of materials for recycling if located and promoted appropriately.

Bring Sites/Community Recycling Centres (CRCs)

- 6.25 Bring banks are located throughout the region for the recycling of glass, aluminium drinks cans and steel food cans, paper and textiles.

Materials Recovery Facilities

- 6.26 A Materials Recovery Facility (MRF) 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.

- 6.27 The marketing of the recycled materials to various users is also an important function of the facility. MRFs tend to combine the use of both mechanical means and labour intensive hand sorting to separate out the various fractions of the recyclables.
- 6.28 Both “clean” and “dirty” MRFs are in operation in the NWRWMG. As the name suggests that type of MRF is dependent on the quality of materials it is licensed to accept. A “clean MRF” generally accepts clean source separated materials from a kerbside collection system. A “dirty MRF” accepts materials that are commingled and as a result dirtier in nature.

Composting

- 6.29 Composting is the aerobic decomposition of biodegradable organic matter to produce compost. The composting of kitchen and garden wastes has the potential to be a major factor in achieving the recycling and composting targets for municipal waste. Composting can be approached in two ways:
- Centralised/Industrial Composting; and
 - Home Composting.

Centralised Composting

- 6.30 Centralised composting involves the collection and centralised processing of various wastes from households and businesses. These wastes are then used to make a range of compost and mulch products.
- 6.31 Centralised composting options include a range of options from open air composting to fully enclosed systems. The materials can be collected via either Recycling Centres or specially designed “compostainer” brown bins for kerbside collection.
- 6.32 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 (Invessel) composting systems.
- 6.33 In Northern Ireland the Northern Ireland Environment Agency has issued a composting guidance document stating that compost is no longer considered waste and is fully recovered if it meets the PAS 100:2005 standard or is not disposed of. Input materials for compost that meets the PAS 100 standard should be biodegradable materials that have not been mixed, combined or contaminated with other potentially polluting waste, products or materials.

Home Composting

- 6.34 Home composting is an environmentally friendly method of dealing with organic waste. Separating and composting kitchen scraps and garden waste reduces the amount of household waste that is sent to landfill. 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.
- 6.35 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

- 6.36 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.
- 6.37 Anaerobic digestion is carried out in an oxygen-free environment (known as anaerobic conditions) to allow the presence of bacteria adjusted to these conditions which then multiply and grow, and by so doing achieve the process aims of: sanitisation of the feed material and of any liquid discharged; and a net positive surplus generation of energy as a biofuel to allow power production from methane gas (biogas) produced by the organisms.
- 6.38 The process has the advantage of producing gas for energy recovery in addition to a usable end product. The Publicly Available Specification (called PAS110) for digestate derived from anaerobic digestion of source segregated biodegradable materials creates an industry specification against which producers can verify that the digested materials are of consistent quality and fit for purpose.
- 6.39 In September 2011 there were 214 anaerobic digestion plants in the UK which had an overall capacity to process more than 5 million tonnes of material¹. There are currently 4 operational anaerobic digestion plants in Northern Ireland².

¹ Anaerobic Digestion Infrastructure in the UK: September 2011, WRAP

² <http://www.biogas-info.co.uk/index.php/ad-map.html>

Mechanical Biological Treatment

- 6.40 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.
- 6.41 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.
- 6.42 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; and
 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.

Thermal Treatment - Energy from Waste

- 6.43 Thermal treatment involves the use of heat to either burn or degrade waste under controlled conditions. These processes result in the release of heat energy, a significant reduction in the total volume of waste and significant removal of the biodegradable content. The heat energy created can be used to generate electricity and is often referred to as Energy from Waste (EfW).
- 6.44 Energy from waste treatment technologies tend to fall into two main categories:
- Combustion technologies, such as waste incineration with energy recovery³; and
 - Advanced Thermal Treatment technologies such as Gasification and Pyrolysis.

³ Mass Burn and Incineration of waste have been excluded in line with the decision of the Joint Committee of the NWRWVG on 27 January 2009.

Incineration with Energy Recovery

- 6.45 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) and Directive 2010/75/EU on industrial emissions (Integrated Pollution Prevention and Control) which have been brought into effect in Northern Ireland by The Waste Incineration Regulations (NI) 2003 and Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2012 respectively.
- 6.46 Wide ranges of waste streams are suitable for incineration. These include municipal / household waste, clinical waste and some industrial waste streams. The suitability is dependent 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 for the treatment and disposal of clinical waste.
- 6.47 In a municipal waste incinerator, waste is fed into a series of furnaces at temperatures of around 850-1200°C. A hazardous waste incinerator works on the same processes except for the fact that temperatures need to be maintained at a minimum of 1100°C 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 and waste gases. The bottom ash produced can be landfilled or recycled. 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 400°C 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.
- 6.48 There have been concerns raised in relation to 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.

Gasification

- 6.49 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.
- 6.50 Gasification is focused on treating the biodegradable based materials present in MSW (for example, paper, card, putrescible waste, green waste, wood), as well as plastics as they have a high carbonaceous content which are pre-processed. Non combustible materials and recyclables (typically metals and glass), are normally removed in a pretreatment stage as they can result in a reduction in the heat available for the process therefore affecting the process and operational efficiency. Other processing and pre-treatment undertaken on waste stream are the removal of excess moisture and shredding to reduce the size. SRF from MBT plant can be used as a feedstock for the gasification process.
- 6.51 It is only in recent years that gasification has been commercially applied to the treatment of MSW; however, large scale plants have been built and are in operation in Europe, North America and Japan
- 6.52 Two waste gasification plants for MSW are currently operational in the UK, one on the Isle of Wight, the other at Dargavel near Dumfries.

Pyrolysis

- 6.53 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.

Cement Kiln

- 6.54 As part of the production of cement high temperature kilns are used. In the past fossil fuels was used in these kilns. This is being replaced by alternative fuels such as Solid Recovered Fuel (SRF) which is produced from the MBT process of non-hazardous MSW and Commercial and Industrial Wastes. SRF is intended for use in energy recovery facilities, and is produced to meet a standard (in 2006 the European Committee for Standardization (CEN) published a set of Technical Specifications to promote recovery and reduce disposal through the standardisation of SRF into quality classes for use in the production and trade of SRF).

Mechanical Heat Treatment

- 6.55 Mechanical Heat treatment (MHT) or autoclaving applies thermal drying technology using autoclaving and sterilisation equipment. Autoclaving allows more waste (than MBT approaches) to be sterilised and converted to a form where different materials fractions can be separated for reprocessing or re-use. MHT is classed as a physical treatment process as, unlike MBT, there is no biological stage in the process. Residual waste is treated through a series of interconnected steam conditioning vessels (autoclaves) to produce a sterile product that can be further treated to extract materials and stabilise the waste. Autoclaves are pressure vessels that are similar to those used in hospitals to sterilise surgical instruments but are much larger and have unique patented characteristics.

Landfill

- 6.56 Landfills are part of an integrated management approach in the control of municipal solid waste and are used with a combination of treatment techniques comprising thermal, biological and physical techniques. The implementation of the Landfill Directive (1999/31/EC) has placed specific engineering requirements on landfill developments to ensure that landfills offer the protection to the environment from the design stage through to decommissioning and aftercare. This requires landfills to be designed with a basal lining system, leachate collection system and landfill gas extraction system.
- 6.57 Landfill sites in Northern Ireland are regulated through the Pollution Prevention and Control Permitting (PPC) regime. There are currently 12 PPC permits in operation for non-hazardous landfill sites in Northern Ireland.
- 6.58 Although landfill gate fees in Northern Ireland have decreased in recent years, the overall cost of landfilling waste has increased due to the Landfill Tax and the introduction of the landfill tax escalator.
- 6.59 The object of the Landfill Tax was to de-incentivise landfill as a waste disposal solution by charging a tax for each tonne of waste so disposed-of. This tax affects all materials collected by local authorities and sent to landfill. In 2007 proposals were made to introduce the landfill tax escalator. This meant increases of £8 per tonne each year on active wastes. From April 2010, the landfill tax on active wastes was £48 per tonne. The landfill tax escalator is set to continue to £80 by 2014.

6.60 Falling gate fees are considered unsustainable and are a result of the anticipation of other treatment technologies being available in the coming years. As a result landfill operators in Northern Ireland are currently working towards filling excess landfill capacity.

7 Local Authority Collected Municipal Waste (LACMW)

Introduction

- 7.1 Key definitions of different waste streams included in this section of the Plan are included below. Following agreement with the European Commission, the definition of municipal waste in Northern Ireland has been broadened and now includes waste from all households and all wastes of similar nature and composition to households, including commercial wastes, whoever collects it. Previously, the definition only included wastes which were collected by Councils and these are now defined as Local Authority Collected Municipal Waste (LACMW).
- **Municipal Waste** – is defined in the Waste Regulations (Northern Ireland) 2011 and means waste from households and other waste which is similar in nature to waste from a household. This includes Commercial and Industrial waste which is similar in nature to waste from a household.
 - **Local Authority Collected Municipal Waste** – is defined in the Waste and Emissions Trading Act 2003 (Amendment) Regulations 2011, and means waste that is collected by, or on behalf of, a District Council. These wastes can be collected either directly at the household or premises by the council or its agents, or through Recycling Centres and bring banks.
 - **Household Waste** – is defined in the Waste and Contaminated Land (NI) Order 1997 and Schedule 1 to the Controlled Waste Regulations (NI) 2002 (as amended) and means a domestic property or other specified premises.
- 7.2 **Biodegradable Local Authority Collected Municipal Waste** is defined in the Waste and Emissions Trading Act 2003 (Amendment) Regulations 2011 as biodegradable municipal waste that is collected under arrangements made by a waste collection authority or a waste disposal authority.
- 7.3 Significant progress has been made in recent years in managing the municipal wastes that we as a society produce. Recycling rates in the seven Councils which previously made up the NWRWMG have risen from 4.0% in 2002 to 37.3% in 2011/12.
- 7.4 This step change has been delivered through the provision of an increased range of services and facilities for recycling and composting, supported by the commitment of the people within the Region. That was the primary objective of the Waste Management Plan 2006 to 2020. However, challenges still lie ahead.

- 7.5 Statutory targets, with significant penalties, now apply to the diversion of biodegradable municipal waste from landfill. The revised Waste Framework Directive (rWFD) increases the household recycling target at 2020 from 45% to 50%. Furthermore on the 18th June 2012 the Environment Minister announced legislation plans to introduce a statutory 60% recycling target for local authority collected municipal waste.
- 7.6 Therefore, the NWRWMG needs to continue the momentum already built up in relation to limiting and reducing the quantities of waste produced, while also further increasing the levels of recycling, recovery and diversion from landfill.
- 7.7 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. Further details on Education and Awareness in the NWRWMG is provided in Chapter 8.
- 7.8 This Chapter therefore reviews the measures set out in the Waste Management Plan 2006 to 2020 for the future management of municipal wastes within the NWRWMG, 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. This section also considers the effects of the waste management developments in the NWRWMG since 2006 and how they may impact on the future management of municipal waste through to 2020. All details in relation to waste education and awareness initiatives can be found in Chapter 8.0 of this Revised Plan.

Management and Control

- 7.9 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.
- 7.10 Chapter 3 set out the key players in the waste management industry in Northern Ireland. In relation to LACMW, 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 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 Local Authority Collected Municipal Waste. In many cases, this is affected through contractual arrangements with private companies.	District Councils

- 7.11 Obligations under the Duty of Care and Registration of Carriers, as described in Chapter 5, 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

- 7.12 The targets that apply to Local Authority Collected Municipal Waste or Household Waste come from a number of sources, and include:
- Statutory targets for the diversion of Biodegradable Local Authority Collected Municipal Waste from landfill;
 - NI Executive's Programme for Government recycling target; and
 - Statutory targets for recycling.

Each of these are summarised below.

Landfill Diversion Targets

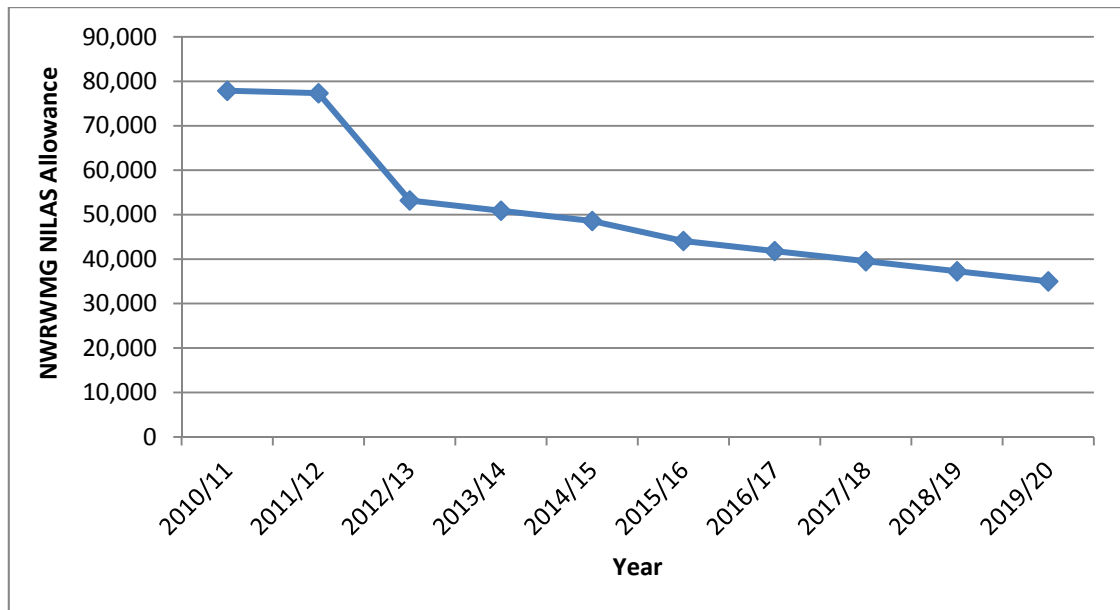
- 7.13 These targets originate from the requirements of the Landfill Directive (99/31/EC), which set targets limiting the quantities of biodegradable Local Authority Collected Municipal Waste going to landfill, as follows:
- 75% of 1995 levels by 2010;
 - 50% of 1995 levels by 2013; and
 - 35% of 1995 levels by 2020.

- 7.14 This requirement is implemented in Northern Ireland through the Landfill Allowances Scheme (Amendment) Regulations (Northern Ireland), 2011 and is referred to as the Northern Ireland Landfill Allowance Scheme (NILAS). It allocates annual allowances to district councils for the amount of biodegradable Local Authority Collected Municipal Waste allowed to be landfilled over the period up to 2020.
- 7.15 The allowances for the district councils within the North West Region are presented in Table 7.2 and Figure 7.1. 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 shared / reallocated between councils in Northern Ireland.
- 7.16 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 7.1 Summary of Landfill Allowances by District Council in the NWRWMG to 2020

Council	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20
Causeway Coast and Glens BC	37,525	37,289	25,667	24,570	23,468	21,494	20,386	19,278	18,170	17,062
Derry City and Strabane DC	40,332	40,034	27,522	26,321	25,115	22,586	21,422	20,257	19,093	17,929
NWRWMG	77,857	77,323	53,189	50,891	48,583	44,080	41,808	39,535	37,263	34,991

Figure 7.1 Reduction in the Biodegradable Municipal Waste Landfill Allowances over time for NWRWVG



Programme for Government Target

7.17 The Northern Ireland Executive's Programme for Government introduces an interim recycling target for household waste of 45% by 2014/15.

Recycling and Composting Targets

7.18 The EU Waste Framework Directive sets a statutory recycling target, including preparation for reuse, of 50% of household and other similar wastes by 2020. This has been implemented into Northern Ireland law through the Waste Regulations (NI) 2011 which specifically requires "measures to be taken to ensure that by 2020, at least 50% by weight of waste from households is prepared for re-use or recycled".

7.19 The Northern Ireland Waste Management Strategy: *Delivery Resource Efficiency*, plans to introduce a statutory target of 60% of Local Authority Collected Municipal Waste by 2020.

7.20 The introduction of a 60% recycling target has since been the subject of a Consultation ('Policy Options for a Bill to Introduce Recycling Targets') by the Department of the Environment in May 2013. This consultation closed in September 2013.

Waste Quantities and Composition

Waste Prevention Targets

- 7.21 In recognition of the priority that needs to be attached to Waste Prevention, and the unsustainability of high waste growth rates, the Group had 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; and
 - 0.5% from 2013 to 2020.

Waste Arisings

- 7.22 The Local Authority Collected Municipal Waste arisings for Northern Ireland and the NWRWMG for the reporting year 2011/12 have been extracted from the Key Performance Indicator and WasteDataFlow returns to Department of the Environment, and are summarised in Table 7.3.

Table 7.3 Summary of Municipal Waste Arisings (2011/12)

Waste/Region	Waste Arisings (tpa)	Recycling & Composting (%)	Landfilled (%)
Northern Ireland			
LACMW	949,491	38.4%	58.1%
Household Waste	834,149	39.7%	56.7%
North West Region Waste Management Group:			
LACMW	152,620	33.7%	63.4%
Household Waste	136,150	34.4%	62.8%
Biodegradable Waste	97,677	33.7%	61.4%

- 7.23 The data indicate that NWRWMG was responsible for producing approximately 16% of Northern Ireland's LACMW in the reporting year 2011/12.

- 7.24 Since the preparation of the previous Waste Management Plan for the NWRWMG region, LACMW has fluctuated with most years either showing small growth or significant decreases. Overall since 2005/06 the LACMW has decrease by over 7%. Growth rates for each reporting period since 2005/06 are set out in Table 7.4 below.

Table 7.4 Growth Rates in NWRWMG since 2005/06

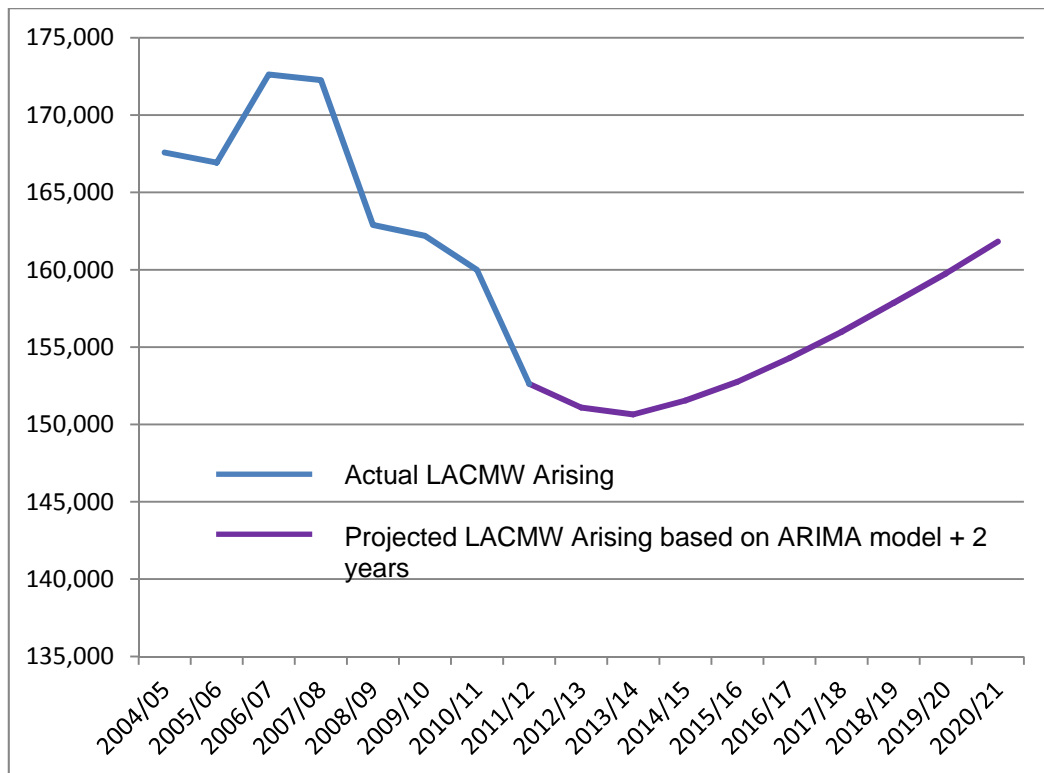
Year	Growth Rate
2005/06	-0.4%
2006/07	3.4%
2007/08	-0.2%
2008/09	-5.4%
2009/10	-0.4%
2010/11	-1.4%
2011/12	-4.6%

Waste Projections

- 7.25 In 2010/11, DEFRA carried out significant analysis of waste growth projections and this work is largely documented in the reports “Spending Review 2010 – Changes to the Waste PFI Programme (December 2010)” and “The Economics of Waste and Waste Policy (June 2011)”.
- 7.26 In determining the need for waste treatment capacity in England, DEFRA constructed an autoregressive integrated moving average (ARIMA) waste forecast model for household waste arisings. This generated forecasts based on past events and trends. It captured the recent moderating trend, and forecast a modest bounce back in waste arisings.
- 7.27 The ARIMA model developed by DEFRA indicates that, in England, household waste will decline until 2011/12 followed by periods of variable growth of up to 1.3%. The projections reflect the impact of low economic growth experienced in recent years which is predicted to continue in the near future.
- 7.28 Given the recent economic conditions and the uncertainty surrounding when Northern Ireland will enter a period of sustained economic growth it is difficult to project the long term waste growth profile for the NWRWMG.

- 7.29 Since 2003, household waste arisings in Northern Ireland have fluctuated around a flat / downward overall trend indicating potentially some decoupling of waste arisings from economic growth.
- 7.30 The recent recession has complicated the picture further, making it difficult to determine the extent to which the fall in waste arisings was due to temporary recessionary effects and the extent to which it has been driven by genuine decoupling between the economy and waste arising in the years preceding 2008.
- 7.31 Based on information provided by DEFRA of their modelling outputs the Department undertook an analysis specific to Northern Ireland and in particular how differences in macroeconomics between the recovery profiles in Great Britain and Northern Ireland.
- 7.32 In the Department of Environment report 'Analysis of 2020 Residual Waste Infrastructure requirements in Northern Ireland to meet EU Obligations' suggested that while they would expect the fundamental profiles for Great Britain and Northern Ireland to be similar, Northern Ireland was likely to experience a lag in recovery of about 2 years behind Great Britain.
- 7.33 Given these local factors it is proposed that NWRWMG will base overall waste projections for the Region on the DEFRA ARIMA model with a 2 year lag to reflect the economic situation in Northern Ireland. Figure 7.2 below illustrate the projected profile of waste arising up to 2021.

Figure 7.2 Waste Projections for the North West Region



Waste Composition

- 7.34 The composition of municipal waste in Northern Ireland, extracted from the Review of Municipal Waste Component Analysis carried out by RPS on behalf of the Northern Ireland Environment Agency, is presented in Table 7.5. A full copy of the report can be viewed at http://www.ni-environment.gov.uk/waste_compositional_study_2007-08_full_report.pdf
- 7.35 The Landfill Allowances Scheme (Amendment) Regulations (Northern Ireland) 2009, came into operation on 1 April 2009. The Regulations amend the NILAS 2004 Regulations by reducing from 71% to 64% by weight (rounded up to the nearest tonne), the assumed amount of biodegradable municipal waste in an amount of collected municipal waste.
- 7.36 The original 71% figure was based on a waste compositional study undertaken in 2000. More recently, waste compositional studies carried out in Great Britain and in Northern Ireland provided compelling evidence that this figure might not accurately reflect present day circumstances. Following the completion of the Review of Municipal Waste Component Analysis Study in February 2008, the Department of Environment concluded that the current biodegradable municipal waste percentage of collected municipal waste in Northern Ireland was 64%.

Table 7.5 Total Composition of LACMW in Northern Ireland

Component	Mean (%)
Paper	12.51%
Card	5.16%
Dense Plastic	6.38%
Plastic Film	4.79%
Textiles	3.05%
Glass	6.17%
Miscellaneous Combustibles	12.37%
Miscellaneous Non-Combustibles	5.33%
Ferrous Metal	2.24%
Non-Ferrous Metal	1.69%
WEEE	1.79%
HHW	0.44%
Organic Non-Catering	14.55%
Organic Catering	22.68%
Fines	0.87%

Best Practicable Environmental Option

- 7.37 Guidance on the Best Practice Environmental Option for Waste Management in Northern Ireland was published in June 2005 by the Department of the Environment and can be found at: http://www.ehsni.gov.uk/pubs/publications/NI_BPEO_Guidance_652kb.pdf
- 7.38 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:

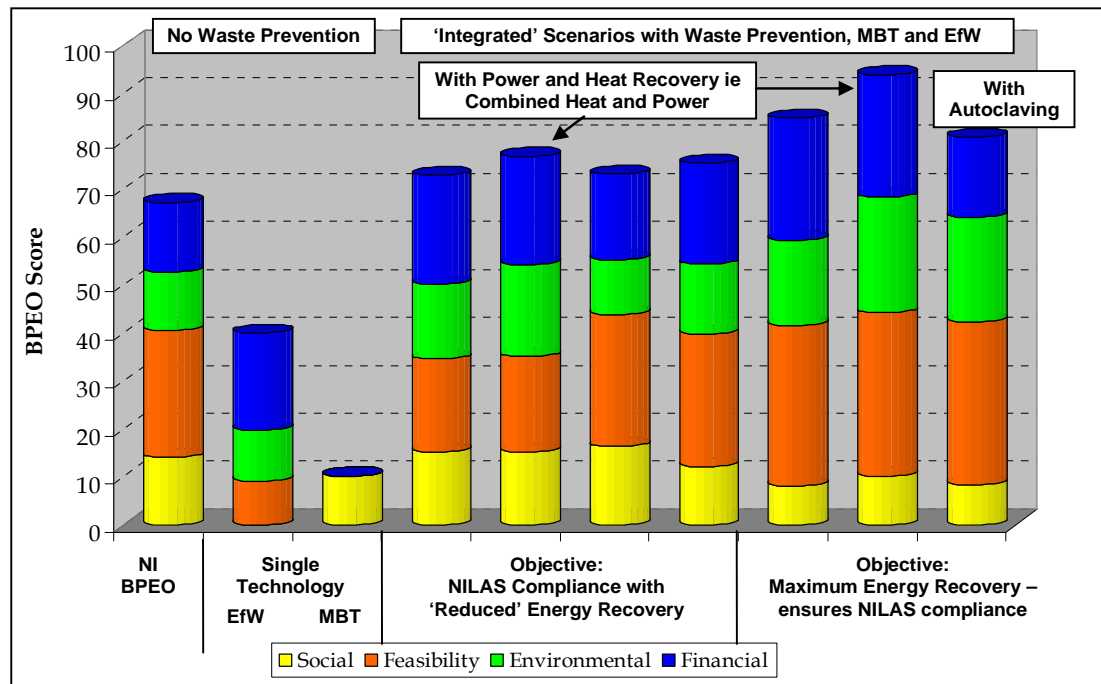
- 35% by 2010;
- 40% by 2013; and
- 45% by 2020.
- The use of a mix of waste technologies, to include:
 - Mechanical Biological Treatment and Anaerobic Digestion; and
 - Thermal Treatment (Mass burn incineration).

7.39 However, since the BPEO Assessment was undertaken the minimum recycling and composting rates stated have been superseded by those set out in the EU Waste Framework Directive (50%) and the Northern Ireland Waste Management Strategy – *Delivering Resource Efficiency* (60%). However, it should be noted that the implementation of a 60% recycling target stated in the Northern Ireland Waste Management Strategy has recently been the subject of a consultation process and is still being considered by the DOENI and therefore this Waste Management Plan sets out the measures that the NWRWMG, and its constituent Councils, will implement to achieve the 50% household recycling and preparing for reuse target set out in the Waste Regulations (NI) 2011.

7.40 However, the Department considers that the statutory Strategic Environmental Assessment (SEA) required to be undertaken as part of the preparation of the Waste Management Plan duplicates the BPEO process and as a result plan to remove the link with BPEO for plans and waste proposals, an approach that is common with other UK administrations. Although it is proposed to remove BPEO for plans and waste proposals, the concept remains one of a number of non-statutory tools that Waste Management Groups may choose to use to assess different waste management options in the development of their Waste Management Plans. BPEO, therefore continues to be used by the NWRWMG as a high level tool to determine the overall technology mix for the Region.

7.41 In accordance with the BPEO Guidance, a technical assessment was undertaken by the NWRWMG to inform the decision-making process in identifying the specific requirements for the region during the preparation of the 2006 Plan. This assessment 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 7.3.

Figure 7.3 Scenario Assessment Summary



7.42 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.

7.43 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, it was proposed that energy recovery be achieved by the production of fuel as an output from Residual Waste Treatment for use in third party applications. This approach was reinforced by the results of a previously undertaken consultation process, with broad support for the principle of energy recovery, but a number of concerns being raised with respect to mass burn incineration.

Current Arrangements for the Management of LACMW

7.44 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 a more sustainable approach to waste management, and are summarised in Table 7.4, are made up of three main components, as follows:

- Education and Awareness Programme;
- Materials Recovery – Recycling and Composting; and
- Landfill of Residual Wastes.

Education and Awareness Programme

7.45 Education and Awareness are dealt with separately in Chapter 8.

Materials Recovery – Recycling and Composting

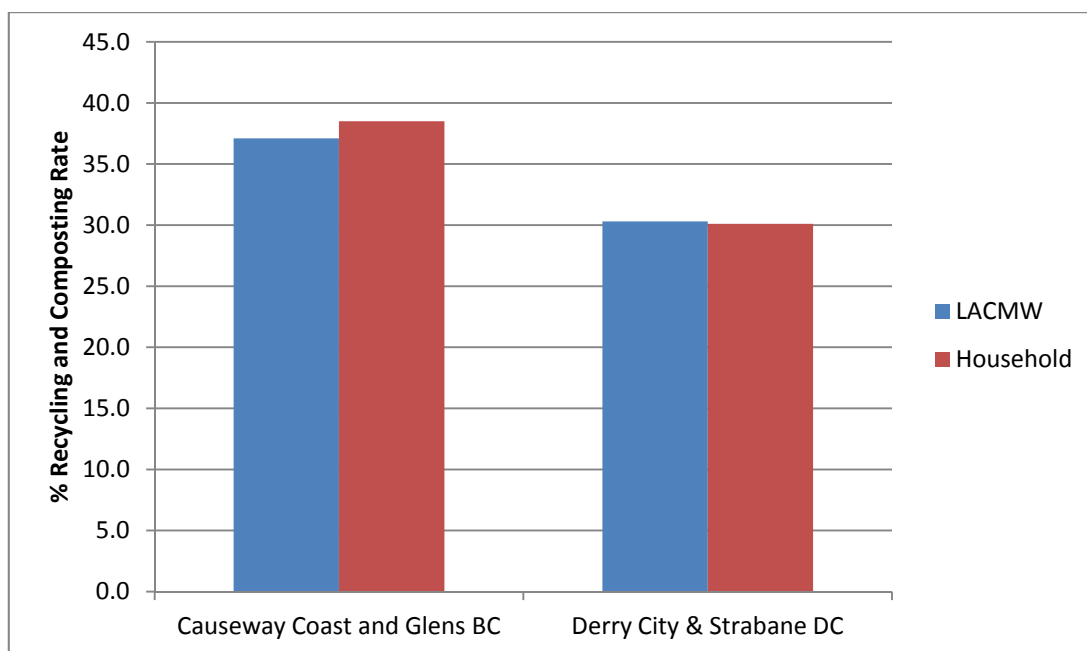
7.46 These arrangements, which are described further below, have been successful in delivering a significant increase, year on year, in the LACMW and Household recycling and composting rates since 2004/05, as shown in Figure 7.4. In 2011/12, the LACMW recycling and composting rate was 33.7% and the Household recycling and composting rate was 34.4%.

Figure 7.4 LACMW and Household Recycling Rates within the NWRWMG from 2004/05 to 2011/12



7.47 Another characteristic of the performance within the region is the variation between individual councils, as illustrated in Figure 7.5. These results show that the LACMW recycling and composting rates range from 30.3% to 37.1%, with the highest being achieved by Causeway Coast and Glens Borough Council. Similar variations are observed for Household waste recycling and composting rates where rates range from 30.1% to 38.5%.

Figure 7.5 NWRWMG LACMW and Household Recycling and Composting Rates in 2011/12 by Individual Councils



7.48 The Council operated facilities currently in use for treating LACMW and Household wastes within the Region include:

- Recycling Centres (23);
- Waste Transfer Stations (6);
- Landfill Site (1); and
- Composting Facilities (2).

7.49 The services for the recovery of materials for recycling and composting are based on prioritising segregation at source and have included:

- Provision of receptacles for segregated collection at households;
- Expansion in the number of bring sites within the region; and
- Enhancement of capacity at Recycling Centres, for the segregation of wastes for recovery.

7.50 The two councils have adopted a common kerbside collection scheme for residual waste and mixed dry recyclables. This consists of:

- A blue wheeled bin for the commingled collected of dry recyclables including: paper, card, plastic bottles, mixed metal cans, aerosols, juice cartons, textiles, small appliances and household plastic packaging;
- A black wheeled bin for collection of residual waste; and
- An alternate week collection for dry recyclables and residual waste.

7.51 All waste and recycling collection services are delivered through in house services.

- 7.52 The mixed dry recyclables, which are managed through a Group wide contract, are transferred to a Materials Recovery Facility, in Northern Ireland.
- 7.53 In 2010 Councils in the NWRWMG extended the range of materials collected at the kerbside in order to capture additional mixed dry recyclables. Materials such as empty glass, aerosols, tetra packs, textiles, small appliances and an expanded range of household plastic packaging have been added to the materials that can be recycled into the blue wheelie bins.
- 7.54 In 2011/12 a number of the Council areas (such as Ballymoney, Limavady, and Moyle) provide either a proportion or all households within their area with receptacles for the collection of biodegradable wastes. All of these collections, except those in the Ballymoney area, accept both food and garden wastes whereas Ballymoney operate a garden waste only service.
- 7.55 Currently, the NWRWMG in partnership with the ERP collect batteries and WEEE materials from Recycling Centres.
- 7.56 From 2006 to present day the NWRWMG have been upgrading and expanding upon the current network of bring banks and community recycling sites in the Region. Significant resources have contributed to enhancement of capacity at RCs across the region.
- 7.57 Table 7.6 sets out the current waste management arrangements for each individual Council within the NWRWMG in terms of numbers of bins and Recycling Centres in 2011/12.

Table 7.6 Summary of Waste Management Arrangements (2011/12)

	Action	2011/12
Causeway Coast and Glens Borough Council	Household Waste and Recycling Centres	11
	Recycling Points	50
	Mixed Dry Recyclables bins	60,075
	Green Waste/Organics Collection	21,098
Derry City and Strabane District Council	Household Waste and Recycling Centres	12
	Recycling Points	28
	Mixed Dry Recyclables bins	57,053
	Green Waste/Organics Collection	0

Treatment of Residual Wastes

- 7.58 In 2011/12 part of the Council areas within the NWRWMG Group were sending residual wastes collected at both Recycling Centres and at the kerbside for treatment / processing with a view to obtaining additional recycling and recovery of waste and to also divert waste from disposal to landfill. Additional recyclable materials are removed from the waste prior to the production of a RDF / SRF which can then be used provide additional recovery of waste and / or energy.
- 7.59 Councils have procured individual contracts with private companies to undertake the processing of residual wastes to obtain additional recycling, recovery and diversion from landfill.

Landfilling of Residual Wastes

- 7.60 The region has one landfill that currently accepts municipal wastes for disposal. This site, Craighulliar Landfill Site, is Council-owned and operated and is located within the Causeway Coast and Glens Borough Council area.
- 7.61 Craighulliar landfill site is regulated by the Northern Ireland Environment Agency (NIEA) under the Pollution Prevention and Control Regulations (Northern Ireland) 2003, and currently operate under a PPC permit for the site which is required to be reviewed every 4 years from the date of issue.
- 7.62 The remaining void space at Craighulliar Landfill Site is approximately 300,000m³. Based on a permitted waste acceptance of 90,000 tonnes per year and ratio of 1.0 tonnes/m³ the remaining lifespan of the site is approximately 3 years.

Proposed Arrangements for the Management of LACMW

- 7.63 The assessment of the requirements for the future management of municipal waste within the region identified three main elements. The elements are focused on maximising, as far as is practicable, waste prevention first and foremost followed by recycling and composting, with the aim being to minimise the amount of material requiring residual treatment and hence ensure that waste within the Region is managed in the most sustainable way possible.

Table 7.7 Approach to managing municipal waste and delivering infrastructure and associated services within the Region and associated objectives

Method	Approach	Objectives
Waste Prevention	Waste prevention having an increasingly key role in limiting the growth of waste arisings, by capping the waste growth rates.	<ul style="list-style-type: none"> ▪ To limit the growth in waste arisings. <i>Waste prevention measures are detailed in Chapter 8.</i>
Materials Recovery	<p><u>Recycling</u> 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 enhanced recovery at RCs).</p> <p><u>Biowaste</u> Treatment of biowaste increasing as the coverage of brown bins is increased over time. It is assumed that the collection of garden wastes will remain as at present.</p>	<ul style="list-style-type: none"> ▪ To provide a segregated collection of dry recyclables, organic waste (garden and food wastes) and residual waste - where practicable and appropriate. ▪ 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.
Residual Waste Treatment	<p><u>MBT</u> Mechanical Biological Treatment is the primary tool in diverting biodegradable municipal waste from landfill.</p> <p><u>Energy Recovery</u> Recover energy from the non recycled output from the MBT facility.</p>	<ul style="list-style-type: none"> ▪ To include MBT and landfill, with the objectives of providing: <ul style="list-style-type: none"> - Additional materials recovery; - Reduction in biodegradability; - ER through the production of a fuel; and - Secure disposal capacity. ▪ Diversion of Biodegradable Municipal Waste from landfill
Landfill	Landfill is set to become the option of last resort, with only limited quantities landfilled directly without prior treatment.	

Materials Recovery

- 7.64 Although the Councils fell slightly short of meeting the materials recovery target of 25% in 2005/06 as set by the Northern Ireland Waste Management Strategy, increased recycling and composting has facilitated in the councils in meeting the 30% target by 2010. Further uplift in recycling and composting is now needed in order to meet the targets for materials recovery by source-separated collections.
- 7.65 Additional materials recovery from the residual waste stream, coupled with the amounts to be collected through segregated source collection, will also be required in order to ensure NWRWMG meets the household recycling targets of 45% in 2014/15 and 50% in 2019/20.
- 7.66 Waste Flow Modelling has been undertaken for each individual Council and the NWRWMG as a whole to determine the tonnage of additional material that is required to be diverted to achieve the overall recycling targets.
- 7.67 The Waste Flow Modelling, set out in Annex B, included the following key assumptions for each NWRWMG Council:
- Kerbside Mixed Dry Recyclables (including glass) in 2011/12 are assumed to increase by 11% in performance by 2019/20, in addition to waste projected waste growth. It should be noted that in 2011/12, the former Council of Strabane DC, now part of Derry City and Strabane District Council, was the only Council not to collect glass at the kerbside and therefore kerbside glass projections for this Council area have been assumed based on average performance of other Councils in the NWRWMG;
 - Kerbside Composting in 2011/12 is assumed to increase by 10% in performance by 2019/20 without any increase in composting bin numbers;
 - Recycling Centres in 2011/12 is assumed to increase by 10% in performance by 2019/20;
 - Two options for increasing the numbers of Composting Bins have been modelled, firstly to show an increase in the number of Composting Bins as projected by individual Councils and also full roll out of Composting Bins / Food Waste Collection as necessary for compliance with the Food Waste (Northern Ireland) Regulations 2015; and
 - Recycling of Residual Waste is assumed at a maximum of 25% of waste input to residual waste treatment facility. However, it is noted that a residual recycling rate of 15-18% should allow the NWRWMG to achieve the household waste recycling target of 50% in 2019/20 provided that all the measures set out in this paragraph are achieved. This is however dependent on the Group's approach to the collection of food waste.

- 7.68 The additional materials will be recovered through:
- Capture of mixed dry recyclables, by increased provision of householders at the kerbside and the provision of additional facilities at Bring facilities and Recycling Centres, and the collection of additional materials; and
 - Expanding the coverage, where applicable, of segregated collection of mixed kitchen and garden wastes or separate food waste collections through increased kerbside collection, with treatment through In-Vessel Composting or Anaerobic Digestion.
- 7.69 Given the extent of source separated collection services and facilities for recyclables already in place across the Region, it is estimated that only a limited additional quantities will be recovered through recycling. Detailed decisions will be taken to address local needs and priorities at individual Council level, such as improvements at Recycling Centres and Education and Awareness Initiatives which may contribute to small increases in recycling. In addition, household glass will be collected at the kerbside alongside other Mixed Dry Recyclables, in all households including Strabane DC, where it was not currently collected in 2011/12. The additional quantity of Mixed Dry Recyclables to be treated by 2019/20 are estimated to be in the order of 3,000 - 3,500 tonnes. It is assumed that this capacity will be provided through existing service contracts already in place with individual Councils within the NWRWMG.
- 7.70 Proposals for the future collection of kerbside mixed dry recyclables should also consider the requirement, as part of the revised Waste Framework Directive, for Member States to set up separate collections of waste for at 'least' paper, metal, plastic and glass by 2015. However, it should be noted that the Department have not provided any indication of when this will be implemented in Northern Ireland. These materials are currently collected co-mingled by all Councils in the NWRWMG and by a total of twenty Local Authorities in Northern Ireland prior to RPA. At this stage there are not believed to be any consideration by the Department to force Councils to move away from co-mingled collections however the Department may in the future introduce legislation to implement the requirements of the Waste Framework Directive and in particular for the kerbside collection of glass.

- 7.71 In 2011/12 the majority of the Council areas that now make up Causeway Coast and Glens Borough Council provide either a proportion or all households within their area with receptacles for the collection of biodegradable wastes. All of these areas, except those covered by the former Ballymoney BC, accept both food and garden waste. The area covered by the former Ballymoney BC operates a garden waste only service. Other Councils who do not currently have a kerbside biodegradable waste collection have plans to introduce a service. In particular, Derry City and Strabane District Council plans to introduce a separate food waste collection service to 25,000 households in 2014/15 for households in the former Derry City Council area, in addition to the implementation of a garden waste only service to 7,000 households. The Council also plans to implement a separate food waste collection service to 5,000 households in 2014/15, along with a garden waste only collection to 7,000 households in 2014/15 in the former Strabane District Council area. In addition, Causeway Coast and Glens Borough Council plans to introduce a separate food waste collection service to 17,000 households by 2014/15 in the former Coleraine Borough Council area.
- 7.72 Based on these plans, the additional quantity of biowastes that are estimated to be treated by 2019/20 to be in the order of 8,500 - 9,000 tonnes. This capacity will be provided through existing service contracts already in place with individual Councils within the NWRWMG. This treatment of biowastes will be in the form of the process which will meet the requirements of the Animal By-Products Regulations, such as In-Vessel Composting or Anaerobic Digestion.
- 7.73 The number and location of the biowaste treatment plants is determined by the contracts into which the Councils, as part of the NWRWMG, are currently part of and will subsequently enter into at the completion of the current contracts.
- 7.74 The Food Waste Regulations (Northern Ireland) 2015 came into operation on 14th February 2015 and are considered to be one of the most important pieces of legislation for the Councils to consider at the current time. These Regulations will require the following:
- Separate collection of food waste;
 - A ban on mixing separately collected food waste;
 - A ban on landfilling separately collected food waste; and
 - A ban on the non-domestic discharge of food waste into the public sewer network.
- 7.75 In consideration of the requirements of these Regulations, NWRWMG have also undertaken modelling to determine the impact of the requirements of the Food Waste Regulations (Northern Ireland) 2015. Under these Regulations, each Council will be required to provide each household with a separate receptacle for the collection of food waste. This scenario has therefore been modelled for the NWRWMG with the following assumptions:

- Where Councils currently have a co-mingled or separate food waste collection in operation these have been assumed to continue;
- Where Councils currently have no collection for food waste in place it has been assumed that a separate food waste collection system through household caddies will be implemented; and
- Where Councils currently have a system in operation and this is not at full roll out it is assumed that full roll out for the Council will be achieved through implementation of additional receptacles for the system currently operating.

7.76 Additional bring facilities will also be provided, where appropriate, particularly in the context of new housing and retail developments, as well as shifting the focus at RCs from disposal to recycling.

7.77 It should also be noted that, Limavady Borough Council have recently developed a RC at Chapel Road, Dungiven while Strabane District Council have developed a Waste Transfer and RC at Strahan's Road, Strabane hence enhancing the recycling facilities available to local residents in those areas. Derry City and Strabane District Council propose to redevelop and extend its Pennyburn Recycling Centre.

7.78 In the Waste Management Plan 2006-2020 the Councils 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.

7.79 Such facilities may 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.

Residual Waste Treatment and Energy Recovery

7.80 Treatment of the residual waste is required to ensure that both recycling targets and targets for the diversion of Biodegradable Municipal Waste (BMW) are met.

7.81 Residual Waste Treatment has the key aims of:

- Recovery of additional materials, such as metals, glass, and other marketable resources, which can contribute to overall recycling targets by 2019/20;
- Energy recovery; and
- Reduce the landfilling of wastes.

7.82 The additional quantity of household waste that is estimated to be required to be treated to ensure that recycling targets are met in 2019/20 is in the order of 45,000 tonnes, over and above residual waste currently being treated by Councils within the NWRWMG. The additional recycling projected has been modelled against a maximum recycling rate of 25% for those materials delivered for residual treatment, although the level of recycling achieved will be subject to procurement and value for money. It is recognised that the number and location of facilities required to deliver this additional capacity will be determined by the contracts and commitments that either Councils or NWRWMG as a Group enter into.

7.83 However, modelling undertaken of waste in the NWRWMG has determined that a residual recycling rate of 15-18% should allow the Group to meet the household waste recycling rate of 50% in 2019/20 provided that all other recycling measures set out in this Waste Management Plan (paragraph 7.67) are achieved. In addition, this will be dependent on the Group's approach to the collection of food waste.

7.84 The Residual Waste Treatment facilities will be provided through appropriate procurement and contractual arrangements. The Group will therefore not be specific about the precise nature of the residual treatment process, where a service contract is sought. However, Mass Burn Incineration is not permissible. Rather the focus will be on performance-based specifications, setting out the objectives for the treatment process such as targets for recycling and minimum targets for diversion from landfill, and allowing contractors / service providers to respond accordingly. Specific contractual requirements include targets for the following:

Kerbside Residual Waste

- Materials recovery (recycling of up to 25%); and
- Diversion from landfill (diversion to be in the order of 60%).

Recycling Centres Co-Mingled Waste

- Materials recovery (recycling of up to 25%);
- Diversion from landfill (diversion to be in the order of 60%); and
- Bulky waste to achieve a minimum of 70% recycling.

Street Sweepings

- Recycling of Street Sweepings to achieve 100%.

7.85 NWRWMG are currently out to tender for a contract for residual waste treatment.

- 7.86 Non-suitable residues may be landfilled. The landfill capacity requirements, in 2019/20 following the implementation of each of the Waste Management Plan options, are anticipated to be in the order of 30-40,000 tonnes per annum. This assumes that Residual Waste Treatment facilities are operational by that time, and that all outputs following recycle and additional recovery (assumed to be in the order of 60% of the input to Residual Waste Treatment), are landfilled. However, given the required residual waste treatment will be delivered by contracts that either each Council or NWRWMG enter into, it is anticipated that the potential landfill capacity will be a requirement of these contracts and may be delivered outside of the NWRWMG.
- 7.87 NWRWMG will review and modify the relevant section of the Waste Management Plan within one month of award of the NWRWMG residual waste contract to give full details of how the Group will manage residual waste, including the locations of waste infrastructure.

Compliance with NILAS

- 7.88 The implementation of additional materials recovery, through increased recycling and composting, and the delivery of the residual waste treatment project will divert additional wastes from landfill to work towards the NWRWMG achieving compliance with NILAS allowances in 2019/20. Table 7.8 below illustrates the projected quantity of biodegradable waste landfilled by each Council in 2019/20 along with the corresponding NILAS allowance, further details on the calculations used for these projections are set out in Annex B.

Table 7.8 NWRWMG NILAS Compliance - 2019/20

Council	Biodegradable LACMW Landfilled (Tonnes)	NILAS Allowance (Tonnes)	Surplus (+) / Deficit (-) (Tonnes)
Causeway Coast and Glens Borough Council	11,938	17,062	+5,124
Derry City and Strabane District Council	16,996	17,929	+933
NWRWMG	28,934	34,991	+6,057

Costs

7.89 In order to determine the potential costs or savings that will be achieved from the implementation of the measures set out in the Waste Management Plan it is necessary to first analyse the current costs of waste management in 2011/12. It should be noted that these costs relate to waste treatment only and do not include those for collection or any other associated costs. Cost per tonne for each waste treatment option have been based on those provided in the WRAP Gate Fees Report 2013, where available Northern Ireland figures have been used and elsewhere adjustments have been made to UK figures for NI. Table 7.9 sets out an estimate of the current waste treatment costs for the NWRWMG for 2011/12. Table 7.10 sets out the projected costs of waste treatment for the NWRWMG in 2019/20 should the options set out in this Waste Management Plan be implemented.

Table 7.9 Estimate of Current Waste Treatment Costs (2011/12)

Recycling of Household Mixed Dry Recyclables		
Treatment	Cost per tonne (£) ¹	Treatment Cost (£)
Recycling (MRF)	£21	£373,000
Composting of Household Organic Waste		
Treatment	Cost per tonne (£) ¹	Treatment Cost (£)
IVC	£53	£143,000
Civic Amenity Site Recycling		
Treatment	Cost per tonne (£) ¹	Treatment Cost (£)
Recycling (MRF)	£21	£519,000
Residual Waste Treatment		
Treatment	Cost per tonne (£) ¹	Treatment Cost (£)
MBT	£87	£2,395,000
Landfilling		
Treatment	Cost per tonne (£) ¹	Treatment Cost (£)
Landfill	£96	£8,213,000

¹ Costs per tonne of treatment options are based on information provided in the WRAP Gate Fees Report 2013. Where available Northern Ireland figures have been used elsewhere adjustments have been made to UK figures for NI.

Table 7.10 Estimate of Projected Waste Treatment Costs (2019/20)

Increase in Kerbside Mixed Dry Recyclables by 11% (2,877 tonnes)		
Treatment	Cost per tonne (£)¹	Treatment Cost (£)
Recycling (MRF)	£21	£60,000
Increase in Kerbside Composting by 10% without increase in bin numbers (410 tonnes)		
Treatment	Cost per tonne (£)¹	Total Cost (£)
IVC	£53	£22,000
Increase in Civic Amenity Site Recycling and Composting by 10% (2,452 tonnes)		
Treatment	Cost per tonne (£)¹	Total Cost (£)
MRF	£21	£52,000
Increase in Household Composting Bins (as projected by Councils at present without the implementation of the Food Waste Ban) (8,081 tonnes)		
Treatment	Cost per tonne (£)¹	Total Cost (£)
IVC or AD	£53	£428,000
Increase in Household Composting Bins (due to the implementation of the Food Waste Ban) (10,353 tonnes)		
Treatment	Cost per tonne (£)¹	Total Cost (£)
IVC or AD	£53	£549,000
Recycling of Residual Waste (as planned by Councils without the implementation of Food Waste Ban) (80,799 tonnes)		
Treatment	Cost per tonne (£)¹	Total Cost (£)
MBT	£87	£7,030,000
Recycling of Residual Waste (due to the implementation of the Food Waste Ban) (78,527 tonnes)		
Treatment	Cost per tonne (£)¹	Total Cost (£)
MBT	£87	£6,832,000

¹ Costs per tonne of treatment options are based on information provided in the WRAP Gate Fees Report 2013. Where available Northern Ireland figures have been used elsewhere adjustments have been made to UK figures for NI.

Costs for the Implementation of the 60% Recycling Rate

7.90 Estimated costs associated with the implementation of the 60% recycling rate within the North West Region are set out in Table 7.11. Collection costs have been used as set out in the WRAP Kerbside Recycling: Indicative Costs and Performance Technical Annex (June 2008).

Table 7.11 Estimated Costs for the Implementation of the 60% Recycling Rate

Measure	Treatment (£ / tonne)	Collection ¹ (£ / tonne)
Diversion of RC Site Waste	120	25
Increase in biowaste from schools	53	25
Increase in biowaste from commercial	53	25
Increase in MDR from commercial	21	30

¹ Costs per tonne of collection options are based on information provided in the WRAP Kerbside Recycling: Indicative Costs and Performance Technical Annex (June 2008).

Proposed 60% Recycling Target

7.91 The implementation of the arrangements set out above, demonstrate that the NWRWMG should achieve the target of 50% if household waste prepared for reuse and recycled by 2019/20. However, given the proposed implementation of a 60% LACMW recycling rate as set out in the Northern Ireland Waste Management Strategy – *Delivering Resource Efficiency*, which has also been subject to a separate consultation, NWRWMG have also considered how this target may also be met.

7.92 The achievement of a 60% recycling target will require a further additional uplift to projected recycling rates for 2019/20, and achievement of such is likely to require the inclusion of alternative sources of recycling, such as:

- Best Practice Measures from District Councils, including:
 - Recycling Street Sweepings (where feasible);
 - Diversion of residual waste from Recycling Centres Sites to dirty MRFs for treatment;
 - Extension of the collection and treatment of biowaste from schools; and
 - Extension of the collection of commercial organics / food waste for biowaste treatment from and also the collection of recyclables at the kerbside.
- Composting from Home Composters issued by Councils to householders;
- Recycling of Bottom Ash produced from Energy Recovery facilities;
- Compost Like Output (CLO) from Mechanical Biological Treatment facilities; and
- Recycling of Fly Ash from Energy Recovery Facilities.

- 7.93 In addition to the other proposed measures the Councils will also need to undertake further enhancements to their existing infrastructure, some of which is already planned / undertaken, for example, Strahans Road Recycling Centre in Strabane and the redevelopment of the Pennyburn Recycling Centre in Derry. There will be an ongoing requirement to develop collection, bring and processing infrastructure within the region throughout the life of this plan. In order to achieve a 60% recycling target there will also be a need to promote the existing and proposed collection arrangements to ensure that these offer a high level of recycling.
- 7.94 As set out previously, the Department of the Environment has implemented the Food Waste Regulations (Northern Ireland) 2015 which introduces an obligation for district councils to provide receptacles for the separate collection of food waste from households from April 2017. In addition, it implements a ban on separately collected food waste being sent to landfill and introduces a requirement which will see all food waste producers segregate food waste from April 2015. The impact of these Regulations on recycling rates have been considered and modelled by NWRWMG and have been included previously in this Section of the Waste Management Plan.
- 7.95 It is recognised that many councils with very high recycling rates also exhibit high levels of waste arisings per capita. As waste prevention is accorded the highest ranking in the waste management hierarchy in terms of its environmental benefits over any other waste management option it is important that recycling is not promoted to the detriment of efforts to prevent waste arising in the first place.
- 7.96 In reviewing this plan the Councils of the NWRWMG have taken into account the proposed 60% recycling target. However it is with the caveat that in order to meet any such revised target will mean an increased burden on Councils and hence their ratepayers. For example, proposed policy and legislative changes will require, at the very least additional (or further) separate collection regimes.
- 7.97 In light of the above the Councils of the NWRWMG, in presenting this review of our Waste Management Plan, ask the Department to examine how resources can be made available to ensure that the approaches outlined in the Plan can be best implemented.

The Green Economy

- 7.98 Waste management, including current measures and those proposed by the NWRWMG, can form part of the Green Economy (such as Derry City Council's 4Rs Reuse Centre) through the creation of 'green jobs', underpinning existing jobs and increasing regional productivity. Examples of this include:

- Rethink Waste revenue funding, which provided £806,000 for 18 months between 2010 and 2012, with £367,000 allocated for 2012/13 for 9 further projects;
- The development of policy which may lead to increasing collections of recyclables and biowastes for composting will support the recycling and composting industries and emerging technologies such as Anaerobic Digestion and In-Vessel Composting;
- The adoption of waste quality protocols which have the potential to create cost savings and to increase sales of waste derived products;
- The work of the North – South Market Development Steering Group (NSMDSG) in exploring opportunities for reprocessing facilities based on the island of Ireland; and
- Continued delivery of resource efficiency support including financial incentives for businesses.

Health and Social Well Being

7.99 Waste which is managed properly and in line with all appropriate policy and legislation can contribute to the health and social well being of the population. In order to do this, waste management must be carried out without endangering human health through the pollution of water, air or soil or contamination of plants or animals. The environmental impact of this Waste Management Plan has been assessed by NWRWMG through the Strategic Environmental Assessment process.

7.100 NWRWMG will ensure that local communities take an active role in reuse and recycling activities, through Education and Awareness Initiatives and informing them of any new waste management measures, such as Derry City Council's 4Rs Reuse Centre in Pennyburn, which will lead to a greater sense of community and social cohesion.

Review of Public Administration (RPA)

7.101 In 2002 the Review of Public Administration (RPA) was established. This body was formed to undertake a comprehensive and strategic examination of all parts of the public sector in Northern Ireland including the administration of health, social services, education, housing, local government and quangos.

7.102 In June 2012, on recommendation by the RPA appointed Local Government Boundaries Commissioner, the NI Assembly approved legislation to reduce the number of councils from 26 to 11 local government districts¹. This process was completed by April 2015.

1 <http://www.nidirect.gov.uk/local-government-structure>

7.103 The names of the new district Councils are set out below:

- Antrim and Newtownabbey Borough Council;
- Ards and North Down Borough Council;
- Armagh City, Banbridge and Craigavon Borough Council;
- Belfast City Council;
- Causeway Coast and Glens Borough Council;
- Derry City and Strabane District Council;
- Fermanagh and Omagh District Council;
- Lisburn and Castlereagh City Council;
- Mid and East Antrim Borough Council;
- Mid Ulster District Council; and
- Newry, Mourne and Down District Council.

7.104 Table 7.12 sets out the new RPA Districts that each of the former NWRWMG Councils are now part of. The majority of changes involved Councils merging to form larger Districts. The new Districts are already existing members of NWRWMG group and as such changes within them, with regards to Waste Management Planning, should be relatively limited.

Table 7.12 NWRWMG Councils and RPA Districts

RPA Districts	Council
Derry City and Strabane District Council	Derry City Council
	Strabane District Council
Causeway Coast and Glens Borough Council	Ballymoney Borough Council
	Coleraine Borough Council
	Limavady Borough Council
	Moyle District Council

Funding and Affordability

7.105 Funding and affordability is an important issue in the delivery of the additional infrastructure and services required. The NWRWMG believe 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. However, additional

funding will be required for each of the Councils in order to allow them to meet the required recycling targets.

Cross Border

- 7.106 There is significant potential for facilities to be used by parties from both sides of the Border. The NWRWMG 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.

Partnership Working

- 7.107 The NWRWMG has, and is currently liaising and working with, the other two sub-regional waste management groups within Northern Ireland to identify opportunities, where possible, for joint working to deliver a cost effective waste management solution for Northern Ireland. This has included a range of initiatives, such as the Waste Prevention and the Hazardous Waste Forums.
- 7.108 In particular the NWRWMG and SWaMP2008 have identified the potential for joint working and procurement of a number of services in the implementation of the Waste Management Plan.
- 7.109 The NWRWMG will continue to liaise with arc21 and SWaMP2008 to identify future opportunities for co-operation that will bring mutual benefit.

Fly-Tipping

- 7.110 Fly-tipping, or the illegal deposit of waste on land, is being tackled through partnership working between NIEA and Councils. Under the Waste and Contaminated Land Order, District Councils have a statutory responsibility for taking action or arranging for appropriate action to be taken in respect of fly-tipping incidents, however these have not commenced.
- 7.111 However, a 12 month pilot study to develop operational arrangements on fly-tipping was launched in June 2012 and 11 District Councils signed up to participate. The purpose of this pilot study is to further develop the partnership approach, increase the Agency's clean up experience and collect data to inform a future review of the Fly Tipping Framework. Under the conditions of the study, NIEA will be responsible for waste deposits of more than 20m³ of non-hazardous waste, with Councils responsible for amounts below this threshold. In the case of hazardous waste the division of responsibility is based on waste type. The results of the pilot study will be assessed to inform the way forward.

Measures and Actions

- 7.112 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 municipal wastes, 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.
- 7.113 In all areas, the key players include:
- Householders and the public;
 - District Councils; and
 - Government Departments, agencies, boards and associated organisations.

District Councils

Fly-Tipping and Illegal Dumping

- 7.114 In relation to fly-tipping the District Councils are to facilitate education and awareness campaigns to highlight the dangers of illegal dumping and the consequences of those involved in illegal waste activities.
- 7.115 District Councils are to work in partnership with the NIEA enforcement teams to deter, detect and prosecute those individuals involved in illegal dumping of waste.

Administrative Arrangements

- 7.116 The Councils recognise that the delivery of future services and facilities for the management of municipal wastes present significant challenges. The Councils will continue to assess 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.

Funding and Affordability

- 7.117 The infrastructure and services needed will increase the costs of waste management significantly within the NWRWMG, 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.

Independent Auditing

- 7.118 Councils are to instigate and facilitate an independent audit of recycling and recovery performance to ensure that both the targets and commitments identified within this Plan are being achieved.

Data Collection and Monitoring

- 7.119 Commit resources to data collection and management to monitor and assess performance. This includes the development of a systematic reporting mechanism that can be used by all Councils in contracts.
- 7.120 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 WasteDataFlow and compositional surveys.
- 7.121 Waste compositional analysis on kerbside collected household residual waste and residual waste from RCs was carried out in 2009 which was supported by the Councils in the region. Councils will support a survey to monitor the composition of all municipal waste to, inter alia assess 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.

Waste Prevention

- 7.122 Identify, prioritise and implement waste prevention initiatives as set out in the Waste Prevention Plan, prepared by the Department of the Environment.
- 7.123 Continue to deliver 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 local level, but also at a level that complements national campaigns such as Rethink Waste.
- 7.124 Continue to 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.

Materials Recovery - Recycling and Composting

- 7.125 Continue to provide receptacles for the segregated kerbside collection of compostable materials in areas where this is considered practicable and appropriate, and maintain a collection service. The provision of receptacles for mixed garden and food wastes or separately collected food waste will be taken into consideration with the implementation of the Food Waste Regulations (Northern Ireland), 2015.
- 7.126 Continue to ensure that suitable contracts are in place for the treatment of mixed garden and food wastes.
- 7.127 Continue to provide receptacles for the segregated kerbside collection of mixed dry recyclables for each new household within the region, as necessary.
- 7.128 Enhance Recycling Centres, as appropriate, to encourage the collection of source separated waste to enable a shift away from waste disposal and towards recycling and reuse.
- 7.129 Continue to 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. NWRWMG will as far as is practicable continue to streamline current contracts and develop a Group approach.

Residual Waste Management and Energy Recovery

- 7.130 Prepare and implement contracts for the procurement, delivery and operation of residual waste treatment for the North West Group. It is anticipated that this will be a performance-based contract, including additional recycling by at least 2019/20 and landfill diversion. The level of recycling to be achieved will be subject to the procurement process and value for money considerations. The duration of contracts will be on a short to medium term and will be operational towards 2019/20 with the potential option to extend beyond that date to enable landfill diversion targets to be achieved.

8 Waste Education and Awareness

Introduction

- 8.1 Education and awareness has been a key component of the NWRWMG's Waste Management Plans since the production of the first Plan just over ten years ago in 2000. In 2000 the Plan had a strong focus in communicating with stakeholders in all areas to change attitudes and behaviour. This continues to be at the forefront of the Group's sustainable approach to the management of waste in the NWRWMG and for this reason a separate section of the Revised Plan has been developed which sets out the out the education and awareness activities undertaken in the NWRWMG and details initiatives planned for the future.
- 8.2 Given the fact that the two jurisdictions in the NWRWMG are geographically contiguous, County Donegal is represented at meetings of the North West Region Waste Management Group Recycling Officers Forum, to facilitate the sharing of best practice.
- 8.3 The Local Authorities north and south of the border operate within different constraints and have different approaches to waste management issues. This Revised Plan recognises the individuality of each local authority, whilst acknowledging that common themes and joint collaboration will add value to the process and outcome.
- 8.4 In general terms, the education and awareness activities outlined within this Section of the Plan articulate a vision for regional collaboration for the two Northern Ireland councils; however, mechanisms can be put in place to ensure that Donegal County Council is also engaged in project delivery when this is appropriate for the constituent local authorities.
- 8.5 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.
- 8.6 Partnership working enables the Group to promote waste prevention, share recycling targets, procure jointly, communicate on a regular basis and share best practice.
- 8.7 There are many important individual communications activities carried out by each council (such as an extensive schools education programme) which are not within the scope of this Revised Plan. It is anticipated that collaborative activities will consolidate and enhance individual actions.

- 8.8 The activities included in this Section of the Revised Plan are limited to those within the Group who have agreed to deliver promotions jointly. A logo has been developed for the NWRWMG and this will be used on joint communications.

Education and Awareness Aims And Objectives

- 8.9 The revised Northern Ireland Waste Strategy, 'Delivering Resource Efficiency' sets out a number of additional targets for recycling and composting. The Strategy aims to maintain the downward trend in waste arisings in Northern Ireland, which has shown a 7% reduction between 2002 and 2011/12, and effect a decoupling of waste arisings from economic growth.
- 8.10 There are currently no EU targets for Waste Prevention, however any reduction in waste generated will have a significant impact on meeting EU targets. Under Article 29 of the revised EU Waste Framework Directive, Member States must have in place Waste Prevention Programmes by December 2013.
- 8.11 The Department of the Environment has published the Waste Prevention Programme for Northern Ireland. The programme encompasses a range of policies and actions which will be beneficial to the environment and the economy.
- 8.12 The Programme addresses a number of Areas for Action, including:
- Household Activity;
 - Commercial and Industrial Activity;
 - Construction and Demolition Activity; and
 - Reuse Activity.
- 8.13 A copy of the Waste Prevention Programme for Northern Ireland can be found at the link below:
<http://www.doeni.gov.uk/waste-prevention-programme-for-ni.pdf>
- 8.14 It is expected that Rethink Waste funding will play an important role in underpinning the Waste Prevention Programme, especially with assistance to the Third Sector, in order to promote and support innovative and sustainable projects.

- 8.15 The NWRWMG will work with DOE on the implementation of waste prevention initiatives, including awareness raising and stakeholder engagement, to co-ordinate activities as appropriate to ensure that the delivery of waste prevention messages are consistent and effective.
- 8.16 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. Waste generation, as measured through WasteDataFlow, will continue to be monitored. Councils will continue to commit adequate resources to ensure that the data is collated and managed effectively, and in a timely manner to allow performance to be assessed to ensure that contingency measures are implemented if necessary.

Aims

- 8.17 The aims in relation to waste education and awareness are as follows:
- Encourage environmental awareness among all sections of the community by giving them the opportunity to research sustainability issues;
 - Increase awareness of sustainable waste management in the North West Region Waste Management Group area;
 - Encourage waste prevention and encourage participation in waste prevention initiatives;
 - Remind people to use their kerbside collections and increase participation in council recycling collections;
 - Increase the materials that can go into the mixed dry recyclables wheelie bin 'blue bin';
 - Raise awareness of the health, financial and environmental benefits of using real nappies;
 - Reduce the amount of disposable nappies going to landfill;
 - Increase public awareness of the environmental benefits of composting at home, kerbside biowaste collection schemes and through Recycling Centres (RCs);
 - Promote the availability of home composters throughout the Region;
 - Raise awareness of high levels of waste produced during the holidays;
 - Raise awareness of the nearest Recycling Centre and/or Bring Sites and encourage an increased usage of these facilities;
 - Improve the ease of use of council bring facilities;
 - Reduce contamination in recycling collections; and
 - Supporting National Campaigns and raise awareness of the Re-think brand.

Objectives

- 8.18 The associated objectives are as follows:
- To reduce the amount of waste being sent to landfill;
 - To increase the recycling rate year by year to meet targets;
 - To increase participation levels;
 - To establish levels of contamination in collected mixed dry recyclables;
 - To raise the number of schools participating in campaigns;
 - Deliver a targeted external advertising campaign across the Region;
 - Tie into the National Promotions;
 - To increase the quantity and improve the quality of materials collected through Kerbside Recycling, RCS and other bring facilities; and
 - To install new signage at RCs and bring sites in line with the agreed Recycle Now iconography.

Tactics

- 8.19 Tactics employed to achieve the aims and objectives are as follows:
- Arrange door-to-door delivery of localised recycling leaflets;
 - Design and print educational materials;
 - Arrange press briefing and issue press release;
 - Design and print the newsletter 'Waste Watch' on a bi-annual basis;
 - Issue of targeted invitation letters to all schools within the Region offering to meet with key teaching staff;
 - Issue post-campaign press release;
 - Establish levels of contamination with MRF contractor;
 - Book door-to-door delivery of leaflets with Royal Mail;
 - Design and develop creative's for bus advertising and billboards;
 - Design and apply vehicle livery to all recycling vehicles;
 - Update service and contact information on NWRWVG website; and
 - Arrange press briefing and issue press release.

Co-ordination and Control

- 8.20 The North West Region formed a Recycling Officers Forum in May 2005 to meet regularly and co-ordinate Group promotional activities.
- 8.21 In general terms, waste awareness and education is delivered through two main strands, namely:

- Officers, appointed within councils, with responsibility for education and awareness in recycling and waste prevention.
- Rethink Waste, a media campaign across Northern Ireland, was launched by the Department of the Environment in 2010, and is co-ordinated by WRAP working in partnership with district councils to:
 - Prevent waste and minimise the use of primary resources;
 - Increase recycling and recovery of materials from the waste stream, diverting them from landfill and maximising their economic value; and
 - Reduce the impact that waste can have on climate change.

Target Audiences

8.22 One of the key aims of this Revised Plan is to increase usage of all kerbside schemes and bring facilities in the Region whilst reducing levels of contamination. As a result, the communication elements target all users of the Group's recycling collection schemes, RCs and Bring facilities.

Householders

8.23 Research has shown that it is generally the female head of the household who takes responsibility for waste management in the home and is therefore most receptive to recycling messages. This should influence the tone and design of any direct mail, advertising material and generic scheme communications used as part of this campaign.

Council Employees

8.24 Council employees, whether involved in collections, managing a RC or answering enquiries by telephone are at the frontline of council recycling services. Increased communications may result in additional enquiries about services. 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; and
- Elected Members.

Community Groups

- 8.25 Recycling Officers offer recycling presentations to local community groups on request, for example, residents groups, youth groups, sports groups and church groups. This is an ongoing activity for each council.

Schools

- 8.26 The NWRWMG Recycling Officers work closely with the local Education and Library Boards to deliver Tidy Northern Ireland Eco-Schools Programme in Northern Ireland and the Green Schools programme in the Republic of Ireland. Eco-Schools is a programme for environmental management, certification and sustainable development education for schools. Throughout the year council officers contact schools within their district to make themselves available for waste and recycling presentations to pupils.

Commercial and Industrial Organisations

- 8.27 The communications activities within this Revised Plan aim to increase householder participation of kerbside recycling collections and bring facilities. This Revised Plan does not list communications activities targeting commercial and industrial organisations.

Strategic Approach

- 8.28 In order to achieve the objectives of this Revised Plan the campaign will adopt the following strategic approach:
- Achieve brand consistency across the NWRWMG and support national waste initiatives where appropriate by promoting these at local level;
 - Develop NWRWMG waste reduction and recycling campaigns including: materials specific recycling campaigns and ongoing development of established campaigns on home composting and biowaste kerbside collection and other waste minimisation initiatives;
 - Investigate opportunities for third party funding;
 - Ensure that NWRWMG councils who are presently running successful local campaigns are able to continue their work concurrently and with due regard to integration with the joint strategy;
 - Ensure that individual campaigns focus on raising awareness, creating interest, celebrating success and encouraging behavioural change by motivating householders to take action via education for sustainability;
 - Encourage ownership of the regional project at a local level;

- Propose a methodology for coordinating press releases, campaigns and events between partner councils;
- Identify tactical aspects which apply at a partnership and individual council level. For example, making use of generic templates; and
- Developing appropriate monitoring and evaluation mechanisms to assess what works.

Current Waste Promotion Arrangements

- 8.29 Recycling Officers within NWRWVG member councils have carried out a broad range of promotional activities over many years. These have included: schools presentations and competitions, community group meetings and waste minimisation advice to local businesses.
- 8.30 The NWRWVG has also co-ordinated joint communications activities since the Group's formation. These activities have included region-wide consultation on the group Waste Management Plan and participation alongside arc21 and the Southern Waste Management Partnership (SWaMP2008) in Environmental Youth Speak.
- 8.31 The Group redeveloped its web-site www.northwestwaste.org.uk in 2009. The NWRWVG improved functionality of the website by making the site simpler, easier to navigate, informative and user-friendly www.northwestwaste.org.uk
- 8.32 The Group has developed a bi-annual newsletter entitled Waste Watch, which is delivered to public spaces such as schools, council foyers, community organisations, businesses etc. The newsletter can also be accessed via the Groups web-site www.northwestwaste.org.uk.

Figure 8.1 Front pages of the Waste newsletter Summer 2010 and Winter 2010/2011 editions



Branding

- 8.33 The Waste Management Plan 2006 to 2020 stated that a distinct identity will be developed for the Group so that all communications material will have a clear look that will become recognised by all householders.
- 8.34 The Group has engaged with a graphic designer and developed an 'identity' that can be used on all partner communications to ensure that all communications material will have a consistent look and feel that will become recognised by all householders. This brand also helps build recall and recognition of the identity amongst householders across the Region and also has the added benefit of minimising the cost of design and printing. This 'identity' is used to raise the profile of the Group website.
- 8.35 Each local authority has its own 'brand' and supporting corporate identity guidelines.
- 8.36 The NWRWGMG has decided that the Recycle Now icon will be used in its promotional materials. Recycle Now is a free service for local authorities/businesses/community groups and government to develop the style and feel for their promotions. The Group currently uses the service in developing content for its leaflets, posters and signage.

Figure 8.3 Recycle Now Icon



- 8.37 Using the recycle now logo on communications materials offers many benefits:
- Consistent message for householders – by using the logo householders will identify your communication as recycling information;
 - Well recognised - Used in national TV and press advertising, so will be familiar to householders;
 - Tried and tested – consumers like the logo, identify with it and it is known to engage people with recycling; and
 - Compliment local campaigns – The iconography can be used to compliment local messaging.

Education and Awareness Campaigns

- 8.38 The partnership councils individually and collectively organise a number of promotions. For example, activities during the European Week for Waste Reduction, Christmas card recycling, Christmas tree recycling, Real Nappy campaigns, Compost Awareness Week, Recycle Week, and Environmental Youth Speak. The impact of each promotion may be localised to within the boundary of the co-ordinating authority. The campaigns employ several complementary communications tools; website, direct mail and roadshows / events. The consistent look and feel of the campaign will aid recall and understanding amongst the public.
- 8.39 The Department of the Environment has created a new national campaign in Northern Ireland entitled: www.rethinkwasteni.org.uk. The NWRWVG has committed to working with this national campaign initiative through participation on the Learning and Communication Forum and involvement in the following initiatives:
- European Week for Waste Reduction (EWWR);
 - Love Food Hate Waste;
 - Compost Awareness Week;
 - Recycle Week; and
 - Christmas Recycling.

- 8.40 Local authorities, businesses, youth groups and community groups throughout the NWRWVG have been participating in the European Week for Waste Reduction (EWWR) in November for the past number of years. EWWR is a Europe-wide initiative which aims to raise awareness about waste reduction strategies, with the overall aim of encouraging changes in behaviour. EWWR is all about how making even the smallest changes in our daily lives can make a big difference in our local environment and help Northern Ireland to move towards becoming a more sustainable and resource efficient society. For more information on EWWR visit <http://rethinkwasteni.org/ewwr>.
- 8.41 The Love Food Hate Waste campaign aims to raise awareness about the extent of food waste, thus reducing the amounts sent to landfill. In the UK £12 billion is spent every year in buying and throwing away good food, which costs the average family £680 a year, around £50 per month. The campaign shows that by doing some easy, practical, everyday things in the home we can all waste less food. Recipes using typical leftovers are available at www.lovefoodhatewasteni.org. Promotional material has been developed by the Department for the Environment for use by Recycling and Educational officers. For more information visit www.lovefoodhatewaste.com.
- 8.42 All NWRWVG authorities receive organics at their Recycling Centres and currently three authorities collect organic waste via a kerbside wheeled bin. Compost Awareness Week is a national campaign to raise the public's understanding of the environmental benefits of composting.
- 8.43 Disposable nappies can form up to 10% of the domestic waste stream by volume. The North West Region Waste Management Group has agreed to promote Real Nappy Week (usually held in March) across the Region. The Councils promotional activities range from local press articles to promoting the use of real nappies at community meetings and antenatal classes.
- 8.44 Eco-Schools is an international award programme that guides schools on their sustainable journey, providing a framework to help embed these principles into the heart of school life.
- 8.45 Eco-Schools is one of five environmental education programmes run internationally by the Foundation for Environmental Education (FEE). In addition to Eco-Schools, FEE runs Green Key, Young Reporters for the Environment, Blue Flag and Learning about Forests. There are 46 countries around the world that run the Eco-Schools programme, linking more than 40,000 schools – from the UK to France, from Morocco to South Africa. Eco-Schools is administered in Northern Ireland by Tidy Northern Ireland.

- 8.46 The Junk Kouture competition is well supported by schools throughout the North West Region. Junk Kouture, in association with the European Recycling Platform (ERP), is a national competition for second level students in Ireland and Northern Ireland which challenges teenagers to create high-end wearable fashion from everyday junk and waste materials that would normally find its way into the bin. Junk Kouture aims to inspire and ignite passion in these teenagers while at the same time subtly educating them about the importance of recycling and reusing waste for the good of the planet.
- 8.47 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.
- 8.48 The group developed an educational video entitled 'The Future of Waste Resource Management' showing materials collection, recycling and reprocessing. This can be shown in presentations and in public meetings to reinforce the "Closing the Loop" message and can be accessed from the group's website www.northwestwaste.org.uk.
- 8.49 Recycle Week is an annual event held in June, organised by the Recycle Now campaign. The week is promoted at national level using a variety of communication methods and delivered to the public through awareness raising events by local authorities, retailers and other organisations, both private and public. Each year Recycle Week takes a particular focus.

Reuse

Derry City and Strabane District Council Partnering with the Resource Centre Derry

- 8.50 Derry City and Strabane District Council undertook a procurement exercise in 2011 to identify a social enterprise partner that could deliver the service required. This was a lengthy process but resulted in Derry City and Strabane District Council agreeing to partner with the Resource Centre Derry. A Service Level Agreement (SLA) is currently being prepared setting out the roles and responsibilities of both parties with regard to the project. Derry City and Strabane District Council was keen for the partner to be a social enterprise and they understand there are many additional non-monetary benefits to working with such an organisation, beyond diversion of waste.

- 8.51 The Resource Centre was set up in 1973 and employs 66 people in initiatives such as SureStart, debt advice, meals on wheels and the management of a charity shop selling predominantly clothing and furniture. They are also a sub-contractor for the Government Steps to Work programme. The reuse centre will support the Resource Centres overall aims. It will help deliver objectives within the Derry Regeneration Plan. Training of young people and the long term unemployed is a key objective, therefore the Resource Centre has developed a skills escalator. Trainees will identify the level of qualification they aspire to obtain, and the Resource Centre will develop a two to three year training plan towards that goal. There will also be job opportunities for adults with learning difficulties and partnerships with local artists and young people to up-cycle furniture.
- 8.52 The new social enterprise will also partner with Sustrans, a UK charity that encourages people to choose healthier, cleaner and cheaper journeys. It enables people to travel on foot, bike or public transport. The partnership will again focus on skills development and will work with school leavers to repair bicycles. The aim is for this project to tie into the Derry 2013 City of Culture initiative and provide bikes for hire around the city.
- 8.53 The Resource Centre is applying for additional funds, for example from the Department of Education and Learning and the Department of the First Minister and Deputy First Minister. The Resource Centre is also liaising with the local college of further education to recruit local tutors and managers.
- 8.54 There are seven Recycling Centres in Derry City and Strabane District Council and each will have a dedicated covered reuse area where site users can drop-off items they wish to have reused and that have reuse potential. Site staff will undertake some pre-checking of the items but it will be the responsibility of the Resource Centre to identify the items they want. The items will then be transported to the reuse warehouse for further appraisal. This may include broken items that have salvageable parts, as it is anticipated that some items may be beyond repair but have parts that can be used in the repair of similar items. A checking system will be put in place to identify items for Reuse, Refurbishment, Recycling or Re-product¹ (the 4Rs).
- 8.55 Derry City and Strabane District Council has estimated that the reuse activity may result in 1,500 tonnes of waste diverted from recycling and landfill. This is not a significant tonnage but there are greater benefits and this will be reflected in the reporting criteria. There will be a number of full time posts, training and volunteer placements created and items sold or given to individuals and families on low incomes.

1 Re-product refers to creating a new use for an item, for example a bath could be used for growing vegetables. The Resource Centre will work with a think tank of young people to develop other ideas to re-product waste

The Green Shed

- 8.56 The Green Shed is one of a dozen groups that form Limavady Community Development Initiative and acts as its environmental arm. Activities include furniture reuse, recycling of paper, glass and card, as well as operating a garden centre and offering gardening services. It has retail shops in Limavady and Coleraine. Based alongside the local healthcare trust, it provides placements for people with learning disabilities. The Green Shed will supply items free of charge to people in need who have been referred to the Green Shed by the charity St. Vincent de Paul. Green Shed's business model successfully operates at a good profit due to high levels of sales, and a grant from the healthcare trust to pay for an employee to work closely with people with disabilities.
- 8.57 Causeway Coast and Glens Borough Council, through the Technical Services Department, provides financial support in the form of an annual grant to the Green Shed; part of the Limavady Community Development Initiative (LCDI).
- 8.58 There are three services provided by the Green Shed:
- Sale of second hand goods, including clothing, books and furniture through a shop;
 - Gardening and composting service; plants and compost are sold to the public; and
 - Collection of dry recyclables from primary schools.
- 8.59 The Green Shed generates income from: the sale of goods, performing the dry recycling collections (income per school per month) and grants. It provides employment for the local community, in particular individuals with learning difficulties. At the present time sites in the Limavady and Coleraine areas do not have facilities to accept items for reuse separately on-site.
- 8.60 However, the in these areas callers can book household kerbside bulky waste services to the Green Shed where the caller indicates the item is in a useable condition. The Green Shed will collect free of charge, whereas the Councils service incurs a charge. The Councils do not pay the Green Shed to perform the collection, nor does it pay recycling / reuse credits.
- 8.61 The Green Shed presently makes in excess of 50 collections in the Limavady area and 35 collections in the Coleraine area each week.
- 8.62 The Councils would like to investigate possibilities of segregating reusable items on-site at their Recycling Centres however at present there is no suitable container. Issues around access to any proposed container and servicing by a third party would also have to be resolved as part of this process.

8.63 Table 8.1 lists other education and awareness activities that have recently been carried out of are ongoing initiatives within the Group

Table 8.1 Other Education and Awareness Activities being carried out within the Group

Key Education and Awareness Activities within Schools
<ul style="list-style-type: none"> ▪ Day Trips to RCs and Transfer Stations ▪ Development of Education Programmes including Presentations and Games ▪ Environmental Awareness Talks ▪ Organisation of Litter Pick ▪ Wormery Demonstrations ▪ Schools Battery collection
Key Education and Awareness Activities within Business
<ul style="list-style-type: none"> ▪ Green Dragon Project ▪ Environmental Businesses Clubs to raise Awareness and Recycling among Businesses ▪ Distributing waste watch around businesses
Key Activities Education and Awareness Activities within Community Groups
<ul style="list-style-type: none"> ▪ Can Collection ▪ Group Presentations to Community Organisations ▪ Spring Clean Weeks ▪ Community Composting to Increase Participation in Waste Minimisation ▪ Development of Community Recycling Centres
Key Education and Awareness Activities within the General Public
<ul style="list-style-type: none"> ▪ Promotion of Eco-Congregation – the Churches’ Environmental Programme ▪ Textiles Challenge ▪ Promotion of Smart Shopping

Promotion of RCs and Bring Sites

8.64 RCs and bring sites are long established and well known waste and recycling reception points. As RCs are reception points for a significant proportion of all household waste arisings it is important that members of the public understand the how these facilities should be used. Effective householder education allows the centres run more smoothly and result in increased segregation of materials.

- 8.65 The NWRWMG was awarded support from Waste & Resources Action Programme (WRAP) via its Local Authority Support Service (ROTATE) to conduct a Review of Recycling Centres and Bring Sites in September 2009.

Proposed Waste Promotion Arrangements

Communications

- 8.66 In order to target the relevant groups the partnership will deliver a range of communications. The purpose of these will be to encourage householders to participate with the recycling services and to use them correctly.
- 8.67 Printed material is one of the cheapest and most effective methods of communicating a recycling message to householders.
- 8.68 Direct mail communication will be used to promote the services. This communication 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 services. All material will be printed on recycled/post consumer waste paper. This will be noted on all material produced.

Public Relations

- 8.69 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 or television interviews are an effective way of getting key messages across and are often much more effective than advertisements.
- 8.70 Public relations are a very important aspect of raising the profile of the services available to the public. This will be achieved through:
- Preparation and distribution of regular press releases, articles and features relating to all campaigns; and
 - Developing interesting facts, figures and statistics to support press releases.
- 8.71 All Group communications activity in relation to this Revised Plan will be agreed and issued centrally through the NWRWMG to ensure consistent messages and branding are used across the Group.

Advertising

- 8.72 External advertising is a useful mechanism for raising awareness of the services available to members of the public but can be costly. The Group should be able to negotiate 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 will be reviewed for this.
- 8.73 The main external advertising media will include: bus panels, adshels, shopperlites and billboards.

Exhibitions and Roadshows

- 8.74 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.
- 8.75 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.

Website - www.northwestwaste.org.uk

- 8.76 The Councils will continue to promote the NWRWMG website to provide additional information about existing and proposed services.
- 8.77 The Group will aim to increase the number of visits to the recycling and waste pages of the NWRWMG website and investigate the use of website statistics package to monitor website traffic such as website hits and number of visits to recycling and waste pages.

Site Visits

- 8.78 Although there is no specific campaign element for site visits within this Revised Plan, a site visit to a recycling facility can be organised occasionally for school or community groups.

Continued Kerbside Collections Promotion

- 8.79 The Group will continue to encourage greater participation among householders in relation to the mixed dry recyclable collection and the collection of biowastes via the brown bin.

- 8.80 The Group will continue to promote 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.

Campaigns

- 8.81 Ongoing education and awareness campaigns are integral to the implementation of the future management of municipal waste within the North West Region. These campaigns will have to cover all aspects, ranging from waste prevention and recycling to separation of wastes and purchasing decisions at the individual or household level. They will focus on behavioural and attitudinal changes, seeking to influence each and every person within the North West Region.
- 8.82 The NWRWMG will implement sustained education and awareness campaigns to encourage a sense of community involvement and ownership of waste management at a local 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 compliments national campaigns such as the recently launched Rethink Waste Campaign.
- 8.83 The NWRWMG will continue to facilitate local and national waste education and awareness campaigns such as:
- EWWR;
 - Environmental Youth Speak;
 - Real Nappy Campaign;
 - Love Food Hate Waste;
 - Compost Awareness Week; and
 - Christmas Recycling.

Continued Promotion of RCs and Bring Sites

- 8.84 Continue householder education on the use of RCs and Bring Sites. The campaigns will serve to remind householders of the need to recycle using the schemes already available to them and remind them of the range of materials that can be recovered through these schemes. The campaign will adopt a positive tone, include a clear call to action and encouraging householders to maximise the amount of material they recycle.

Staff Training / Awareness

Operational Staff and Crew

- 8.85 Operational staff and crew are key to ensuring all recycling services are delivered effectively. This includes kerbside collections and council bring facilities. It is important that crews are fully briefed about the purpose of their job and the benefits to the community and environment. It is equally important that all relevant office staff (not all relevant officers are in Environmental Services) are fully briefed on the current services and any planned changes to these.
- 8.86 Develop a Staff and Crew Training Programme to ensure that all staff and crews can inform the public of any new collection services and opportunities for recycling and waste reduction. Once developed the staff and crew training programme will be delivered regularly by individual council Recycling Officers and on-going training will be provided to relevant staff where appropriate.
- 8.87 The Staff and Crew Training Programme should contain information and presentation materials for the crews, information sheets which include frequently asked questions, and regular briefings.
- 8.88 This will be monitored by the number of staff trained, the number of training events organised and the number of information sheets issued.

Recycling Officer Training

- 8.89 Recycling Officers engage daily with a broad range of people. These include; members of the public, school children, community groups, contractors, businesses, council members and the media. Each interface requires a different set of skills. It is crucial that officers have the skills to facilitate group discussions, conduct public consultations and workshops, prepare and issue press releases and have basic website development and updating skills.
- 8.90 Assess the training needs for Recycling Officers on a yearly basis and ensure and that all Recycling Officers have and maintain the necessary skill set to engage with all local stakeholders.

Illegal Dumping

- 8.91 Facilitate education and awareness campaigns to highlight the dangers of illegal dumping and the consequences of those involved in illegal waste activities.

Monitoring and Evaluation

- 8.92 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.
- 8.93 The NWRWMG will develop a policy for monitoring and evaluation and each council will develop a monitoring schedule in line with Group policy. Guidance on how to establish a monitoring regime is contained in WRAP's 'A Good Practice Guide to Monitoring and Evaluation'.
- 8.94 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;
 - A website statistics package will be used to measure the effectiveness of the waste and recycling pages of the NWRWMG website;
 - The opportunities to see and hear generated through advertising will be recorded to assess the effectiveness of advertising media; and
 - The advertising value equivalents for newspaper / magazine coverage will be calculated.
- 8.95 Continue to 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.
- 8.96 Other monitoring mechanisms that may be used are as follows:
- Number of leaflets distributed;
 - Number of roadshows / displays held;
 - Advertising Value Equivalent of press coverage;
 - Increased recycling tonnage over the same periods in previous years;
 - Number of participating schools and receiving Eco-school status and participating in Environmental Youth Speak;
 - Number of home composters issued;
 - Tonnages of recyclables collected;
 - Opportunities to see billboards and bus panels;

- Website usage;
- Levels of contamination;
- Tonnage of clean material collected for recycling through RCs; and
- Number of roadshows and events held.

8.97 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 and to ensure that contingency measures are implemented if necessary.

Measures and Actions Required From Householders and The Public

8.98 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.

8.99 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.

8.100 Make use of take back schemes where available, for example plastic bag take back schemes within supermarkets and home shopping delivery.

9 Commercial and Industrial Waste

Introduction

9.1 The commercial and industrial sector produces a sizable proportion of waste arisings in Northern Ireland. These Commercial and Industrial (C&I) wastes comprise of various waste streams, several of which are subject to their own specific legislation, targets and/or planning requirements. These are considered in separate chapters in this Waste Management Plan, and include:

- Packaging Waste
- Construction, Demolition and Excavation Wastes
- End of Life Vehicles (ELVs)
- Batteries
- Hazardous Waste
- Waste Electrical and Electronic Equipment (WEEE)
- Tyres
- Sewage Sludge

9.2 This Chapter sets out the current arrangements for the management of C&I waste and outlines the statutory obligations and relevant targets for this waste stream. Effective management of C&I waste is also required in order to minimise environmental impacts and to allow financial benefits to be realised.

9.3 Resource efficient and cost effective management of C&I wastes produced are key considerations for many businesses. In particular, a wide range of businesses in Northern Ireland have introduced Environmental Management Systems which have delivered significant environmental benefits and financial savings in relation to management of wastes.

Definitions

9.4 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...'; and
- **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 telecommunications services.'

9.5 Commercial and Industrial wastes also form part of the wider Local Authority Collected Municipal Waste (LACMW) definition, which is defined by the Waste and Emissions Trading Act 2003 (Amendment) Regulations 2011 as waste that is collected by, or on behalf of, a District Council. 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.

Management and Control

9.6 Management and control of C&I wastes is provided by the legislative framework primarily under the Waste and Contaminated Land (Northern Ireland) Order 1997, and associated Regulations.

9.7 The main roles and responsibilities under the legislative provisions are summarised in Table 9.1 below.

Table 9.1 Summary of Key Roles and Responsibilities for C&I Wastes

Element	Responsibility
Waste Production: Compliance obligations include: Duty of Care; Transfer to Authorised 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)

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

9.9 The Department of the Environment have previously consulted on the draft Controlled Waste and Duty of Care Regulations (Northern Ireland) 2013 which closed in April 2013. The Controlled Waste and Duty of Care Regulation (Northern Ireland) 2013 came into force on the 30 November 2013 followed by a subsequent amendment which came into operation on 30 May 2014. The purposes of the revised Regulations are:

- To clarify what is classified as household, commercial or industrial waste;
- To provide for district councils to be able to levy a charge for the disposal of certain household wastes as well as commercial and industrial wastes; and
- To strengthen duty of care requirements by requiring Waste Transfer Notes to accompany the waste to which it refers whilst in transit.

- 9.10 Proposals for the future collection of mixed dry recyclables should also consider the requirement as part of the revised Waste Framework Directive for Member States to set up separate collections of waste for at 'least' paper, metal, plastic and glass by 2015.
- 9.11 The Polluter Pays Principle recognises that those who pollute should pay for the damage / impact their actions have on the environment and this extends to the waste we all produce. In accordance with the polluter pays principle, the costs of waste management shall be borne by the original waste producer or by the current or previous waste holders.
- 9.12 There are currently no statutory recycling targets for C&I wastes, however the Northern Ireland Waste Management Strategy – *Towards Resource Efficiency* acknowledges that the introduction of a statutory recycling target for C&I waste in the near future is therefore considered desirable. The European Commission has also indicated the possibility of proposing recycling targets for C&I waste by 2014.
- 9.13 In order to facilitate the setting of a statutory target for C&I waste in the future and to improve the capacity to report on possible future EU targets the Department intends to consult on proposals to introduce a statutory requirement on waste operators to provide specified data on C&I waste as a condition of their license or permit by December 2013.

Waste Quantities and Composition

Waste Generation and Growth

- 9.14 There are difficulties in obtaining accurate estimates of C&I waste in Northern Ireland. Commercial waste collected by Council's is monitored and reported through WasteDataFlow system but there is no comparable system for C&I waste that is privately collected. Currently, there is no mechanism that collates data on arisings and / or movement of C&I waste nor is there mandatory reporting, therefore estimates have historically been based on surveys which have provided information on C&I arisings and recycling figures required by the European Commission under the Waste Statistics Regulation (Regulation (EC) No 2150/2002). However, waste surveys generally have low response rates and the results produced therefore have a level of uncertainty.

9.15 The latest study conducted in Northern Ireland on the C&I Waste Stream carried out by WRAP (Northern Ireland Commercial & Industrial (C&I) Waste Estimates) estimated there to be 1.3 million tonnes of C&I waste in 2009. This comprised 0.8 million tonnes from the industrial sector and 0.5 million tonnes from the commercial sector. The methodology for this Study applies factors (waste per business) derived from the DEFRA study covering England: *C&I Waste Survey 2009*. These factors are applied to the 2009 business profile of Northern Ireland. The total C&I arisings from this WRAP Study are set out in appropriate business sectors in Table 9.2 below.

Table 9.2 Total C&I waste arisings by sector in 2009

	Sector	Tonnes
Industrial Waste	Food, drink and tobacco	243,856
	Textiles / wood / paper / publishing	103,848
	Power and utilities	125,645
	Chemical / non-metallic minerals manufacture	141,820
	Metal manufacturing	146,746
	Machinery and equipment (other manufacture)	53,725
Commercial Waste	Retail and wholesale	207,326
	Hotels and catering	78,402
	Public administration and social work	53,783
	Education	9,514
	Transport and storage	40,271
	Other services	84,060
	Total	1,288,996

Source: Northern Ireland Commercial & Industrial (C&I) Waste Estimates

9.16 Table 9.3 shows the estimated C&I waste arisings for each District Council in Northern Ireland.

Table 9.3 Total C&I Waste Arisings for each District Council in NI (2009)

Council	Waste Management Group	C&I Waste Arisings (tonnes)	Percentage of total arisings
Ballymoney Borough Council	NWRWVG	12,723	1.0%
Coleraine Borough Council		35,857	2.8%
Derry City Council		53,640	4.2%
Limavady Borough Council		10,582	0.8%
Magherafelt District Council		38,771	3.0%
Moyle District Council		3,873	0.3%
Strabane District Council		27,263	2.1%
Armagh City and District Council	SWaMP2008	43,691	3.4%
Banbridge District Council		20,850	1.6%
Cookstown District Council		29,836	2.3%
Craigavon Borough Council		103,825	8.1%
Dungannon & South Tyrone Borough Council		49,645	3.9%
Fermanagh District Council		80,338	6.2%
Newry & Mourne District Council		54,002	4.2%
Omagh District Council	21,289	1.7%	
Antrim Borough Council	arc21	39,135	3.0%
Ards Borough Council		21,650	1.7%
Ballymena Borough Council		42,629	3.3%
Belfast City Council		294,074	22.8%
Carrickfergus Borough Council		47,667	3.7%
Castlereagh Borough Council		73,071	5.7%
Down District Council		22,802	1.8%
Larne Borough Council		25,787	2.0%
Lisburn City Council		70,327	5.5%
Newtownabbey Borough Council		38,043	3.0%
North Down Borough Council		27,623	2.1%
Total		1,288,996	100%

Source: Northern Ireland Commercial & Industrial (C&I) Waste Estimates

9.17 The C&I waste arisings in the NWRWMG for 2010/11 was approximately 143,938 tonnes which accounts for approximately 11% of the total C&I waste arisings generated in Northern Ireland. Table 9.4 below sets out the C&I wastes arisings in each of the current Councils in the NWRWMG.

Table 9.4 C&I Waste Arisings in the NWRWMG 2010/11

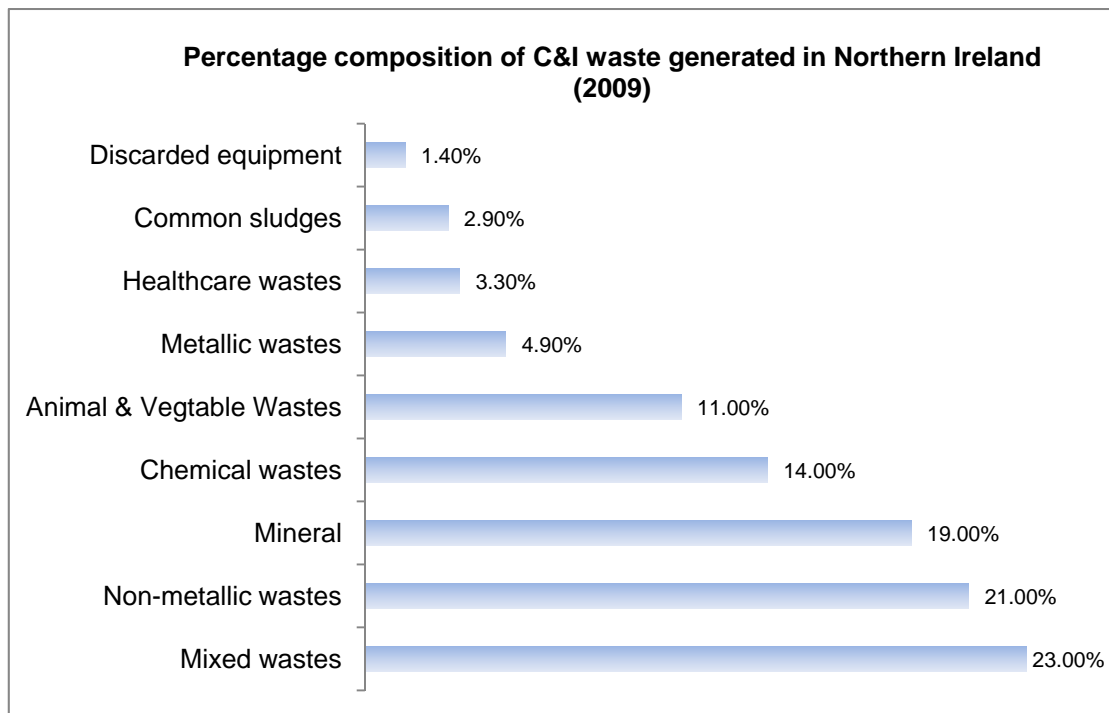
Council Area	Total C&I Wastes Produced (tonnes)
Derry City and Strabane District Council	5,011
Causeway Coast and Glens Borough Council	2,099
Total:	7,110

Source: Northern Ireland Commercial & Industrial (C&I) Waste Estimates

Composition

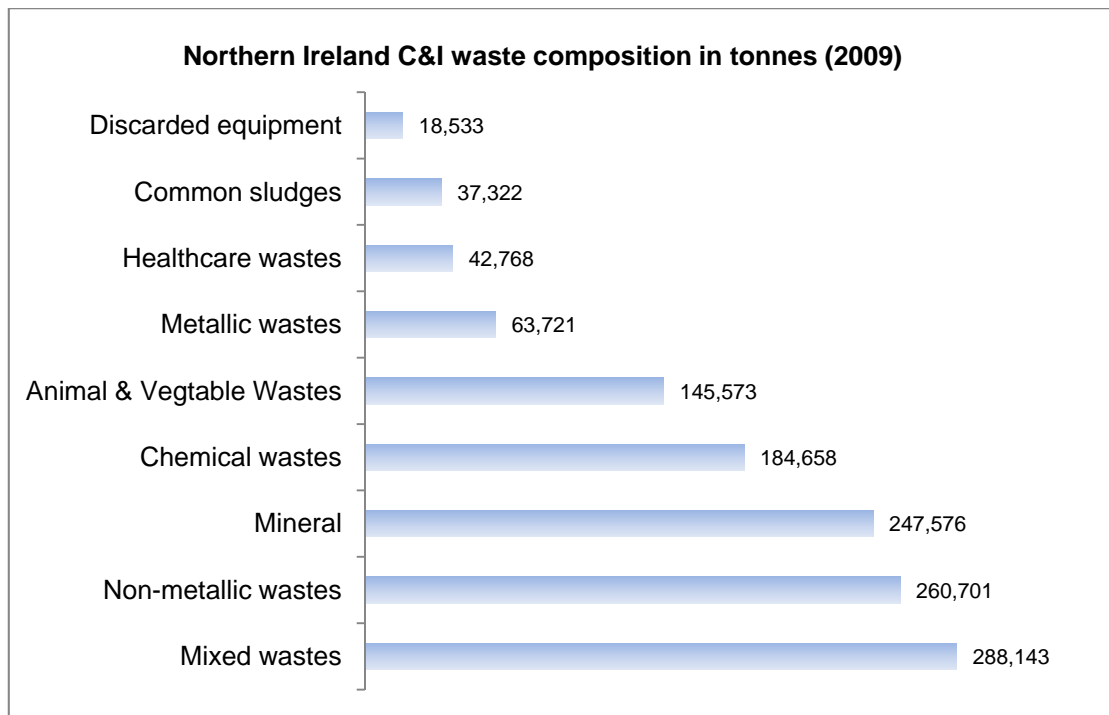
9.18 The composition of C&I waste derived from the WRAP Study are detailed in Figure 9.1 and 9.2 below.

Figure 9.1 Composition of C&I waste generated in Northern Ireland (Percentage)



Source: Northern Ireland Commercial & Industrial (C&I) Waste Estimates

Figure 9.2 Composition of C&I waste generated in Northern Ireland (Tonnes)



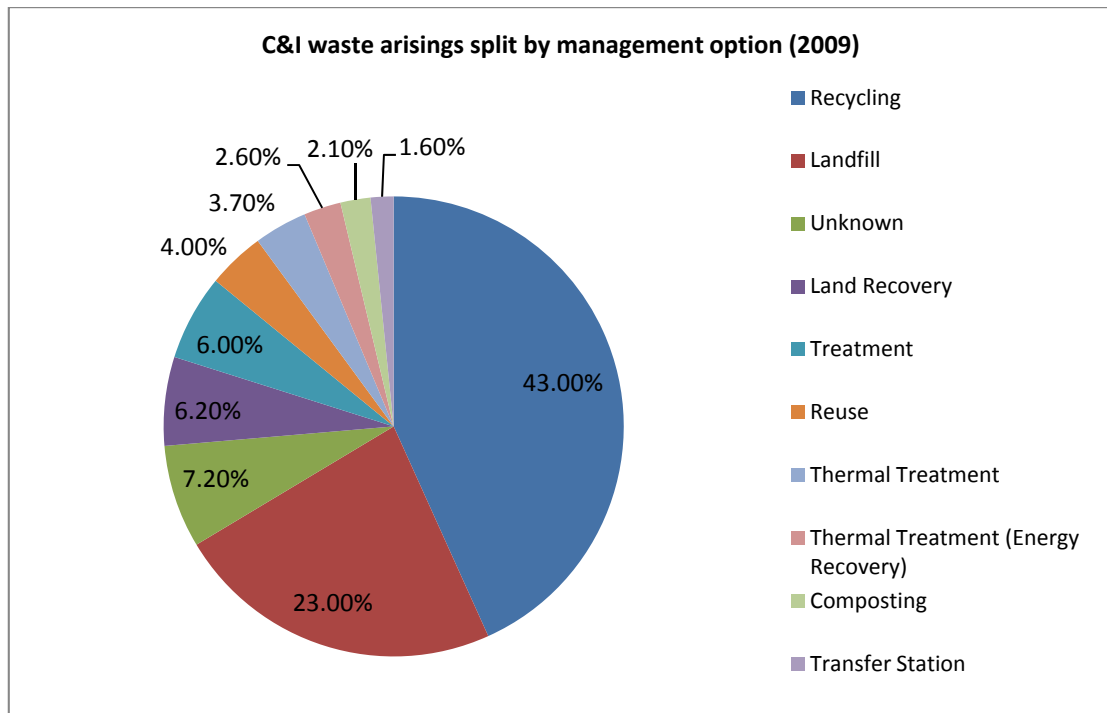
Source: Northern Ireland Commercial & Industrial (C&I) Waste Estimates

9.19 A large proportion of C&I waste is similar in nature to Local Authority Collected Municipal Waste (LACMW). As a result, there is potential that much of these wastes can be managed alongside each other, reducing the need for separate facilities for C&I wastes.

Current Arrangements for the Management of C&I Wastes

9.20 Figure 9.3 illustrates the current arrangements for the management of C&I wastes in Northern Ireland by management option as set out in the WRAP NI Commercial and Industrial (C&I) Waste Estimates Study.

Figure 9.3 Current Arrangements for the Management of C&I Wastes in Northern Ireland



Source: Northern Ireland Commercial & Industrial (C&I) Waste Estimates¹

- 9.21 Figure 9.3 above illustrates that approximately just less than 50% of C&I wastes in Northern Ireland are estimated to be managed via reuse, recycling and composting.
- 9.22 The figures above show that approximately 23% of C&I wastes are landfilled, and this represents a 17% improvement on the results recorded in the 2002 C&I survey where 40% of C&I wastes were assumed to be landfilled. However, it should be noted that the results for waste management options for 2009 as set out in the Northern Ireland Commercial and Industrial (C&I) Waste Estimates Study are not considered as robust as the other results for the study given the differences in management options available in Northern Ireland in comparison with England.
- 9.23 WRAP is running several voluntary agreements or responsibility deals aimed at helping the business sector make efficiencies and reduce waste. WRAP will continue to work with businesses in Northern Ireland and promote agreements including the grocery voluntary agreement, hospitality and food service agreement.
- 9.24 At a local authority level each of the Councils in the NWRWMG currently operates a commercial waste uplift service for businesses in their areas. The scale of these services varies in each Council district.

¹ Where thermal treatment was known to include energy recovery, this has been specified.

- 9.25 Wastes arising within the C&I sector are generally managed within the private waste sector. Many businesses now operate Environmental Management Systems and have policies and procedures in place to help them management their waste more effectively and expect that the private waste management businesses collect their waste and achieve high diversion from landfill.

Proposed Arrangements for the Management of C&I Waste

- 9.26 Currently there are no statutory targets that apply to C&I waste, however in order to facilitate the setting of a statutory recycling target for C&I waste in the future and to improve the capacity to report on possible future EU targets the Department of the Environment intends to consult on proposals to introduce a statutory requirements on waste operators to provide specified data on C&I waste as a condition of their licence.
- 9.27 In order to promote high quality recycling of C&I wastes the Department of the Environment intends to introduce a general mandatory requirement for C&I waste producers to take steps to segregate / pre-sort and for waste collectors to separately collect food waste and recyclable waste such as paper, cardboard, metal, plastics and glass. This is a requirement emanating from the revised Waste Framework Directive to be implemented by 2015 for all Local Authority Collected Municipal Waste.
- 9.28 These proposed changes will have a significant impact on the commercial and industrial sector in the Region and require significant planning.
- 9.29 Businesses in the Region continue to have a firm understanding of the sustainable waste management options open to them. The management of C&I waste will be closely linked to that of Local Authority Collected Municipal Waste, with management techniques focusing on greater recycling and better quality of recyclate while also reducing the proportions sent to landfill.

Measures and Actions

- 9.30 Key issues associated with the future management of C&I waste in Northern Ireland are as follows:

Central Government

- 9.31 The revised Northern Ireland Waste Management Strategy - *Delivering Resource Efficiency* highlights a number of policy and legislative proposals one of which is the introduction of a statutory requirement on waste operators to provide specified data on C&I waste.
- 9.32 NIEA will continue to provide guidance to small and medium-sized businesses on environmental regulations through its NetRegs website and complementary guidance on www.nibusinessinfo.co.uk.
- 9.33 In relation to the ban on the landfilling of food waste, the initial focus will be on separate collection of food waste, in order to recover its material and energy value and avoid contamination of other waste materials. The Department of Environment will work with the industry to provide guidelines on the introduction of measure in relation to a food waste ban to landfill and the separate collection of food waste.

District Councils

- 9.34 Councils will continue to consider potential C&I waste arisings into the planning and delivery of waste management services proposed within the North West Region for the treatment of LACMW wastes.
- 9.35 Councils will, through their Waste Prevention and Recycling Officers continue to provide advice and guidance to businesses on the more sustainable management of their wastes.

Waste Management Sector

- 9.36 The waste management sector has a critical role to play in improving the management of waste 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.
- 9.37 Key actions in this sector therefore include:
- Continue to develop the supporting infrastructure for the recovery of materials and energy, including recycling, anaerobic digestion and mechanical biological treatment capacity;
 - Continue to build synergies with other sectors including the agricultural and municipal sectors as far as is practicable; and
 - Continue to expand the range of collections services available to organisations to facilitate the source separated collection of food waste, glass, paper, plastic and metals.

10 Packaging Waste

- 10.1 This Chapter has been prepared in fulfilment of Article 14 of the EU Directive on Packaging and Packaging Waste (94/62/EC) as amended¹), which requires a specific chapter on the management of packaging and packaging waste to be included in waste management plans.

Introduction

- 10.2 Packaging plays a vital role in protecting and preserving our products and much has already been done to optimise it. Packaging protects food and other goods on their journey from farm or factory via warehouses and shops until they arrive at homes, offices or wherever they are used. Packaging helps to reduce the amount of wastage through spoilage and damage in the supply system and in the home. Consumer packaging increases shelf life for the retailer and allows consumers to keep food fresher for longer. Other roles include dispensing products, carrying an increasing amount of information – much of which is required by law, being easy to open and re-close, showing when tampering has occurred, and being child resistant.
- 10.3 While an increasing amount of the packaging is recycled, there is still a proportion that is not. Reducing the environmental impact of all packaging can be largely influenced at the design and specification stage – determining which materials are used, how much packaging is used and how easy it is to recycle.
- 10.4 In recent years a great deal of focus has been given to reducing packaging waste and significant progress has been made, particularly in the grocery sector. For example, re-thinking the way a product is produced, used and delivered can significantly improve its environmental impact and reduce costs across the supply chain. To this effect, Defra, in consultation with the four UK administrations have published a Strategy entitled “*Making the Most of Packaging- A Strategy for a Low Carbon Economy*”² with the aim being to encourage producers to move towards a more resource efficient and low carbon economy.
- 10.5 Despite recent successes in increasing the amount of packaging that is recycled, there is still a perception amongst both householders and businesses that more packaging should be recycled. It is still a very visible presence in our bins.

1 Amending Acts – Directive 2004/12/EC, Directive 2005/20/EC and Regulation (EC) No. 219/2009

2 <http://www.defra.gov.uk/publications/files/pb13189-full-packaging-strategy-090624.pdf>

Definitions

- 10.6 Packaging is defined in the Producer Responsibility Obligations (Packaging Waste) (Amendment) Regulations (Northern Ireland) 2010 (SR/2010/396) 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 producers to the user or consumer...”
- 10.7 Packaging can be further grouped as follows:
- ‘Primary’ or ‘Sales’ packaging – the packaging which forms a sales unit for the user of final consumer, for example, a box containing soap powder;
 - ‘Secondary’ or ‘Grouped’ packaging – packaging which contains a number of sales units; and
 - ‘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.
- 10.8 A range of materials, principally paper, cardboard, plastic, aluminium, steel and wood are used in packaging applications. This diversity of materials reflects their characteristics and qualities, with respect to different producer, product, transit and consumer requirements.

Management and Control

- 10.9 In Northern Ireland packaging waste is the most significant waste stream dealt under Producer Responsibility legislation.
- 10.10 The Producer Responsibility Obligations (Packaging Waste) Regulations (SR/1999/115) were introduced in Northern Ireland in 1999 as part of the UK implementation of the EC Directive on Packaging and Packaging Waste (94/62/EC).
- 10.11 This Producer Responsibility legislation makes producers responsible for meeting their share of the targets, based on their role in the supply chain and the amount of material handled in the preceding year. A fundamental principle of current producer responsibility legislation is to incentivise the incorporation of eco-design in the manufacture of products. In particular the packaging PR scheme encourages manufacturers to design their products to reduce the amount and type of materials used; improve the longevity of products and maximise the potential for re-use.

- 10.12 The minimum recovery and recycling target requirements of the EU Directive on Packaging and Packaging Waste are implemented through the Producer Responsibility Obligations (Packaging Waste) Regulations (NI) 2007 and only apply to businesses which handle more than 50 tonnes of packaging waste and have a turnover in excess of £2 million per annum (i.e. obligated businesses). Companies that exceed both thresholds are known as 'producers'.
- 10.13 Producers may join a compliance scheme that will take on their producer responsibility recovery obligations or they can carry out self compliance however producers are required to demonstrate and provide evidence to the Northern Ireland Environment Agency how they have met their obligations.
- 10.14 As not all businesses are obligated (small businesses below the thresholds are exempt), those obligated producers above the thresholds have to recover more packaging waste to enable the Member States to meet its targets.
- 10.15 Compliance scheme members must ensure that the information and data they provide to their scheme are as accurate as reasonably possible (Regulation 19).
- 10.16 The EU Directive on Packaging and Packaging Waste (94/62/EC) aims to harmonise the management of packaging waste by minimising the impact of packaging and packaging waste on the environment and by avoiding obstacles to trade and distortion and restriction of competition within the Community. It sets a minimum recovery target (60%) and recycling target (55%) as well as material specific targets for glass, paper, plastic, wood and metals in order to minimise the impact of packaging waste on the environment. By placing these obligations on business, the Packaging Waste Regulations encourage waste minimisation and reuse of packaging, reduce landfill disposal of packaging wastes and support the development of the packaging waste recycling sector.
- 10.17 Northern Ireland has no specific targets for the recovery of packaging waste but the data from businesses registered in Northern Ireland contribute to the UK target as the Member State. In 2008, the total amount of packaging was estimated at 10.7 million tonnes and the total amount of packaging recovered was 7.03 million tonnes yielding a recovery rate of 65.7%, therefore over achieving the target by 5.7%. In 2010, the UK's packaging waste recovery rate was calculated to be 67%³.
- 10.18 Regulation 31 of the Packaging Waste Regulations places a duty on NIEA to monitor compliance in Northern Ireland covering:

3 Northern Ireland Producer Responsibility Obligations (Packaging Waste) Regulations - NIEA Compliance Monitoring Plan for 2012

- Obligated producers (direct registrants and members of schemes);
- Non-obligated businesses who may exceed the thresholds (potential 'free riders');
- Compliance schemes; and
- Accredited reprocessors and exporters.

10.19 Recovery and recycling of packaging waste is carried out by reprocessors and exporters. In Northern Ireland, only those that are accredited and monitored by the NIEA may generate evidence of recovery in the form of Packaging Waste Recovery Notes (PRNs) or Packaging Waste Export Recovery Notes (PERNs) for each tonne of packaging waste that is reprocessed or exported.

10.20 The establishment and implementation of voluntary responsibility agreements is becoming increasingly important in ensuring best use of resources and cutting down packaging waste. Deals such as the Courtauld Commitment, which is a responsibility deal aimed at improving resource efficiency and reducing the carbon and wider environmental impact of the grocery retail sector contribute through their commitment to the reduction of food waste packaging. Further details of the Courtauld Commitment can be found at:
<http://www.wrap.org.uk/node/62/>

Waste Quantities and Composition

10.21 Packaging waste in Northern Ireland arises from two principal sources; the household waste stream and from the commercial and industrial waste stream.

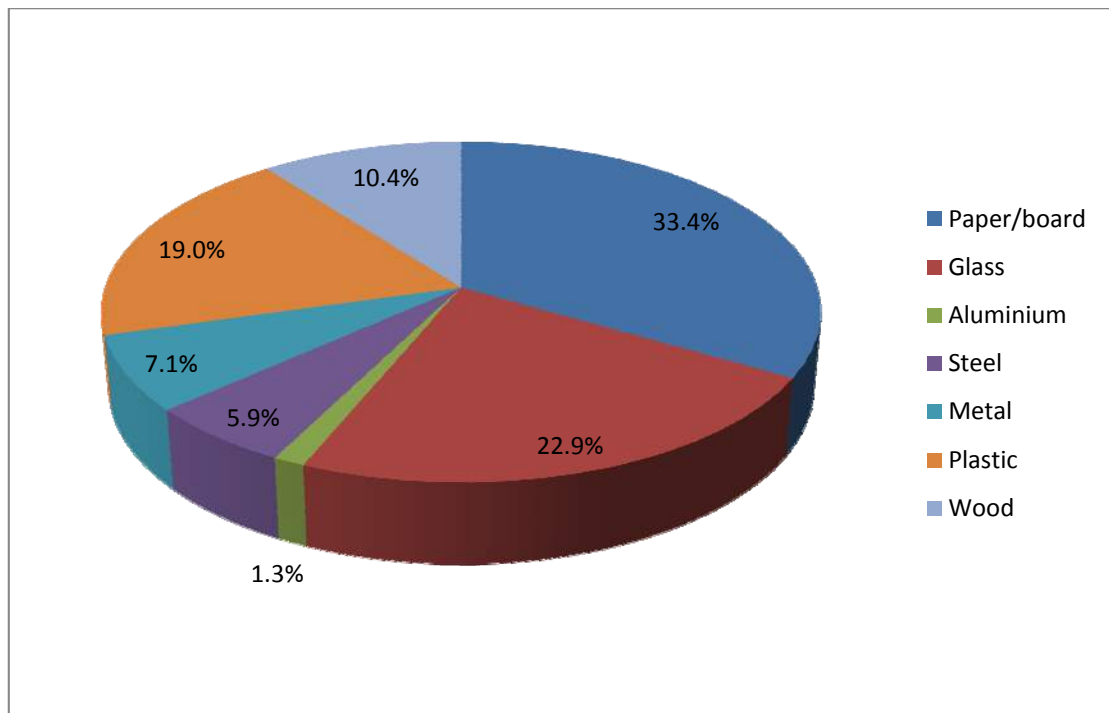
10.22 Data on waste packaging was provided by the Producer Responsibility Section of the NIEA and from public reports available from the UK National Packaging Waste Database. NIEA have stated that they do not currently produce reports specifically for Northern Ireland for packaging waste.

10.23 The estimated packaging waste arisings for the UK in 2008 was 10.6 million tonnes⁴. Of this waste, 61.7% was recycled and 65% was recovered. This represents a saving of approximately 6.4 million tonnes of CO₂ equivalent⁵ from being emitted into the atmosphere. The percentage composition of this waste stream is presented in Figure 10.1.

4 <http://www.defra.gov.uk/environment/waste/producer/packaging/data.htm>

5 Using the Carbon figures listed in Annex A of the Packaging Strategy

Figure 10.1 Composition of UK Packaging Waste Arisings



10.24 Based on the 2008 arisings and estimated tonnages from 2009 (to take into consideration the economic downturn) Defra have applied a number of predicted growth rates of packaging flowing into the UK waste stream by material percentage. Using this, the following estimations have been made for UK packaging waste arisings in 2011.

Table 10.1 Total Estimated Packaging UK Waste Arisings 2011

Material	2011
Paper	3,817,860
Glass	2,739,989
Aluminium	148,680
Steel	676,000
Plastic	2,515,809
Wood	1,066,189
Other	22,443
Total	10,986,971

10.25 Consultation with the NIEA Producer Responsibility Unit has confirmed that producer obligation data is the only separately published data for Northern Ireland in relation to packaging waste. In this regard, data for those businesses obligated under the Northern Ireland Packaging Waste Regulations, show that for 2011 a total of 423 businesses were obligated with a total recovery figure of 167,662 tonnes. In addition, in 2012, 416 businesses were obligated with a total recovery figure of 156,159 tonnes. This data is set out in Table 10.2 below.

Table 10.2 Northern Ireland Packaging Recycling for Obligated Businesses

	2011	2012
Obligated Businesses	423	416
	Tonnes	Tonnes
Paper Recycling	58,013	56,181
Glass Recycling	44,372	37,115
Aluminium Recycling	2,542	1,352
Steel Recycling	4,618	4,961
Plastic Recycling	16,912	14,921
Wood Recycling	5,244	6,379
General Recycling	24,091	24,237
Total Recycling	155,792	145,146
General recovery	11,870	11,013
Total Recovery	167,662	156,159

10.26 The data summarised in Table 10.3 shows that the total packaging waste arisings in Northern Ireland in 2011 is estimated to be 263,040 tonnes. This has been calculated on a pro rata basis from the estimated total UK packaging waste arisings figure for 2011 as shown in Table 10.1 and from packaging waste managed by obligated businesses for 2011 as shown in Table 10.2.

Table 10.3 Northern Ireland Packaging Waste Arising 2011

	Estimated Total Packaging Waste Arising Tonnes	Packaging Waste Obligation
UK	10,986,971	7,003,357
Northern Ireland	263,040	167,662

Future Trends in Packaging Waste Arisings

10.27 A consultation process on proposals to increase recovery and recycling targets under the Producer Responsibility Obligations (Packaging Waste) Regulations was undertaken in 2012 by Defra. Predicted growth rates of packaging flowing into the UK waste stream were determined and verified by industry during the Defra consultation process. These are provided in Table 10.4.

Table 10.4 Predicted growth rates of packaging flowing into the UK waste stream⁶

	2011	2012	2013	2014	2015	2016	2017
Paper	0.8%	0.8%	0.5%	0.5%	0.5%	0.5%	0.5%
Glass	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Aluminum	0.8%	0.8%	1.0%	1.0%	1.0%	1.0%	1.0%
Steel	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%
Plastic	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Wood	0.0%	0.0%	0.5%	0.5%	0.5%	0.5%	0.5%
Other	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%

10.28 Taking the estimated packaging flowing into the waste stream for 2011 as a baseline (which is based on industry estimated for packaging production) and applying the growth rates as per Table 10.3 the projected packaging waste arisings for the period 2013-2017 were derived as set out in Table 10.4.

⁶ <http://www.defra.gov.uk/consult/files/packaging-ia-120321.pdf>

Table 10.5 Total tonnes of packaging in waste stream⁷

	2011	2012	2013	2014	2015	2016	2017
Paper	3,817,860	3,848,403	3,867,645	3,886,983	3,906,418	3,925,950	3,945,580
Glass	2,739,989	2,767,389	2,795,063	2,823,013	2,851,244	2,879,756	2,908,554
Aluminium	160,877	162,164	163,786	165,424	167,078	168,749	170,436
Steel	648,740	645,496	642,269	639,057	635,862	632,683	629,519
Plastic	2,515,809	2,553,546	2,591,849	2,630,727	2,670,188	2,710,241	2,750,894
Wood	1,023,939	1,023,939	1,029,059	1,034,204	1,039,375	1,044,572	1,049,795
Other	22,443	22,555	22,555	22,555	22,555	22,555	22,555
	10,929,657⁸	11,023,492	11,112,225	11,201,964	11,292,720	11,384,505	11,477,333

Current Arrangements for the Management of Packaging Waste

Recycling and Recovery of Packaging Waste in Northern Ireland

10.29 A total of 438 companies were registered with NIEA in 2011, of which 125 companies were directly registered and the remainder were registered through various compliance schemes.

10.30 In 2011 there were 14 compliance schemes operating in Northern Ireland.

⁷ <http://www.defra.gov.uk/consult/files/packaging-ia-120321.pdf>

⁸ Consultation on recovery and recycling targets for packaging waste for 2013-2017. Defra

Table 10.6 Companies registered with NIEA

Compliance Scheme	Number of Registered Companies
Biffpack	37
Budget Pack	8
CO2 Compliance Ltd	1
Compliance Link	10
Complypak	1
DHL Packaging Compliance	28
Nipak Ltd	81
Paperpak	5
Pennine-Pack	1
Recycle-Pak	16
Synergy Compliance Ltd	3
Valpak	89
Veolia Environmental Services	14
Wastepack UK	19

Reprocessing and Exporting of Packaging Waste in Northern Ireland

10.31 In November 2012 there were five accredited reprocessors and six accredited exporters registered with NIEA. There were no accredited reprocessors of plastic, aluminium and steel registered with NIEA. Details of these reprocessors and exporters are set out in Table 10.7.

Table 10.7 Accredited Reprocessors and Exporters Registered with NIEA

Packaging Waste Stream	Reprocessors	Exporters
Paper and Cardboard	Huhtamaki (Lurgan) Limited	BJ Bannside Recycling Greenway Group Re-Gen Limited
Plastic		BJ Bannside Recycling Re-Gen Limited
Glass	Glassdon Recycling Quinn Glass Ltd Re-Gen Limited	BJ Bannside Recycling
Aluminium		Ballyvesey Recycling Solutions Limited BJ Bannside Recycling Re-Gen Limited
Steel		Ballyvesey Recycling Solutions Limited BJ Bannside Recycling Clearway Ltd Re-Gen Limited T-Met Ltd
Wood	Eglinton (Timber Products) Ltd	BJ Bannside Recycling

Material Specific Issues

10.32 This section outlines some of the issues relating to waste packaging materials in the Northern Ireland context.

Glass

10.33 Traditionally, household glass in Northern Ireland 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 Household Recycling Centres, and Bring Sites. It should be noted that the Councils in the NWRWGM have commenced the collection of glass at the kerbside through the Mixed Dry Recyclables collections.

10.34 Between a quarter and a fifth of waste glass packaging in the UK arises in the commercial and industrial stream⁹. A large proportion of this arises in pubs, clubs, restaurants etc. An increase in collection rates from commercial and industrial sources is being achieved through voluntary agreements.

10.35 From 2013, there will also be split targets for glass. The targets for individual businesses with an obligation in glass will be as follows:

- 63% of which glass must come from remelt for 2014, 2014 and 2015; and
- Increasing to 64% for 2016 and 2017.

⁹ Making the most of packaging A strategy for a low-carbon economy. Defra 2009

Steel

- 10.36 The majority of steel packaging waste arises from the commercial and industrial sector, but the majority of this is already recycled or reused.
- 10.37 The majority of untapped steel lies within the household waste stream and in the Away from Home stream¹⁰. There is therefore scope to increase the recycling rate by improving participation rates amongst householders.
- 10.38 Infrastructure for the recycling of most steel packaging already exists in the UK. 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.
- 10.39 Compared with paper, glass or plastics the proportion of steel packaging waste is relatively low, and the quantity of steel packaging is predicted to decrease.
- 10.40 Recycling rates for steel beverage cans will benefit from measures which will target cans consumed outside of the home. Increasing the capture rates of steel in the current household collections is required to assist in meeting the recovery targets.

Aluminium

- 10.41 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.
- 10.42 Over 95% of aluminium packaging waste is primary consumer packaging (drink cans, ready meals trays etc.). It is estimated by industry that approximately 18% of all aluminium packaging is used 'on the go' and it tends to end up in street bins rather than be taken home to be recycled¹¹
- 10.43 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 aluminium foil in the dry recyclables collections and increasing the provision of can banks at bring sites and Household Recycling Centre.

10 PackFlow 2012 UK Compliance with the European Packaging & Packaging Waste Directive Volume 1: Summary Report & Recommendations. 2009

11 Implementing the Packaging Strategy: recovery and recycling targets, funding transparency and technical changes. Defra 2010

10.44 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.

Plastics

10.45 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.

10.46 Plastic waste because of its light weight and volume is expensive to collect and the diverse nature of the polymers used can make it difficult to recycle for certain waste streams. One of the main challenges to recycling more plastics is extracting them in a suitable form from the mixed waste stream to enable them to be processed into new products. Improving the quality of materials at MRFs is key to increasing the quantities and value of plastics recycled. This would enable MRFs to be able to meet the input requirements of reprocessors and manufacturers. Collectors and operators of MRFs need to be encouraged to improve quality and take advantage of the added value that can be obtained by bringing the materials up the value chain.

10.47 The flows of plastic packaging waste suggest that, at a UK 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.

10.48 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 drives up the costs of collection and transportation on a per tonne basis.

10.49 The Irish Recycled Plastic Waste Arisings Study completed by rx3 in collaboration with the Department of the Environment, Community and Local Government, Department of the Environment Northern Ireland and WRAP Northern Ireland, identified that increasing the quantities collected for recycling and recovery can be achieved by the following:

- Including mixed films (bags etc.) and rigid plastics from post consumer sources (pots, tubs trays etc.) in the recyclables co-mingled collection;
- Targeting new waste streams that are not currently collected for recovery, such as on the go consumption; and

- Exploring innovative waste of collecting plastics such as reverse vending machines or deposit refund schemes.

10.50 Councils across NI have increased the provision of plastic banks at both bring and Recycling Centres sites to encourage a greater level of plastic recycling. The range of plastics now accepted at the kerbside for recycling has also increased.

Paper / Cardboard

10.51 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.

10.52 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.

10.53 Segregated collection facilities for such materials are now available at Recycling Centres. Councils and the private sector are providing services for the source-separated collection of paper/cardboard and other materials to SMEs.

10.54 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.

Wood

10.55 Wood packaging waste arises mainly in the commercial and industrial sector.

10.56 Councils generally now are providing for the collection of wood at their Recycling Centres. Waste wood is also being used increasingly as a fuel, as life cycle thinking is increasingly applied. The burning of wood in the form of pellets or chips is carbon neutral and also avoids the formation of the greenhouse gas methane in landfill.

Proposed Arrangements for the Management of Packaging Waste

Targets of the Recovery of Packaging Waste

- 10.57 In recognition of the potential to optimise packaging further and to address public concern about excessive packaging, the Department of Environment Northern Ireland plans to introduce higher recycling rates for aluminium, plastic, and steel for the period 2013-2017.
- 10.58 The proposed recycling targets for each waste stream are set out below and will be implemented through an amendment to the Packaging Regulations to take effect from 1 January 2013.

Table 10.8 Proposed packaging recycling targets for each waste stream

Material	2012	2013	2014	2015	2016	2017
Paper	69.5 %	69.5%	69.5 %	69.5%	69.5 %	69.5 %
Glass	81.0 %	81.0%	81.0 %	81.0%	81.0 %	81.0 %
Aluminium	40.0 %	43.0 %	46.0 %	49.0 %	52.0 %	55.0 %
Steel	71.0 %	72.0 %	73.0 %	74.0 %	75.0 %	76.0 %
Plastic	32.0 %	37.0 %	42.0 %	47.0 %	52.0 %	57.0 %
Wood	22.0 %	22.0 %	22.0%	22.0 %	22.0%	22.0 %

- 10.59 Under these proposals the overall recovery rate will rise to 79% and the recycling rate to 72.7% 2017, thus ensuring that Northern Ireland meets the minimum EU Directive targets.
- 10.60 New EU End of Waste Regulations for iron, steel and aluminium came into force on 7 October 2011. Defra is currently looking at changes in the point at which PRNs can be issued to take account of these Regulations. Glass end-of-waste has been agreed in Europe, but no date has yet been set for its introduction.

Measures and Actions

- 10.61 Key issues associated with the future management of packaging waste in Northern Ireland include five fundamental priorities which are as follows:

- Waste prevention is key to optimising resource efficiency across all waste streams and is at the top of the waste hierarchy. The Waste Framework Directive priorities waste prevention reflecting the need to promote sustainable consumption and production through improved product design and consumer behaviour change. Waste prevention needs to be an area of greater focus for businesses and councils to minimise the quantities of packaging waste generated and encourage 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 establishment of a presence in the market to secure suitable contracts for the supply of captured packaging waste materials to reprocessors; and
- 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.

10.62 Although the Packaging Regulations imposes specific obligations on certain businesses, reprocessors and exporters, as part of the system that has been implemented in Northern Ireland 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. The identified actions are set out below on a sectoral basis.

Businesses

10.63 Businesses in Northern Ireland are beginning to think about their wastes as a resource or commodity, and so be part of the move towards a low carbon economy. There are a number of actions businesses can take relatively quickly in relation to increasing packaging recycling:

- Examine their waste disposal costs and consider getting together with a nearby business to recycle waste. One business's waste could be turned into another business' raw materials. To support this, WRAP and NISP are working together to find new industrial markets for recyclates in the UK;
- Ask their suppliers about take-back schemes for unused products. They may be able to get their money back, or at least a portion of the cost; and
- Let their customers and suppliers know they are committed to reducing their environmental impact, and promote it through their marketing. More than a third of consumers would favour a product that has been designed with either low environmental impact, minimal packaging or recyclability in mind ¹².

12 DEFRA – Making the most of packaging – A Strategy for a low carbon economy, 2009

- 10.64 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 WRAP 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; and
 - Awareness raising of and training in waste prevention for staff.
- 10.65 Voluntary agreements led by WRAP in relation to packaging waste are playing an important role in packaging waste reduction such as the Courtauld Phase 2 Commitment. The primary aims of this are:
- Reducing the carbon impact of all grocery packaging by 10% through reduced packaging weight, increased recycling rates and increased recycling content; and
 - To reduce traditional grocery product and packaging waste in the grocery supply chain by 5%.
- 10.66 Initial results are positive in relation to meeting or exceeding these targets.
- 10.67 The Hospitality and Food Service Sector agreement, launched in June 2012, aims to cut food and associated packaging waste by 5% and to increase the overall rate of food and packaging waste that is being recycled, sent to AD or composted to 70% by the end for 2015. The voluntary agreement, which was developed with industry and all four UK governments is being led by WRAP.
- 10.68 In relation to recycling and recovery, obligated businesses are required to:
- Register with NIEA, 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 targets that are in place and the further targets that are likely to emerge in the longer term; and
 - Obligated businesses should also seek to maximise the recycling and recovery of all wastes, including packaging wastes, as outlined below for non-obligated businesses.

- 10.69 Non-Obligated Businesses have a role to play in increasing the recycling and recovery of packaging wastes, though there is not a statutory requirement to do this. 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.
- 10.70 All businesses have a responsibility 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

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

Central Government

- 10.72 Responsibility for the implementation, monitoring and enforcement of the Packaging Regulations lies with the Northern Ireland Environment Agency (NIEA). Key responsibilities include:
- Publishing guidance for businesses, in this legally complex and challenging area with increasing targets;
 - 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); and
 - Facilitating and supporting the Agencies and Industry Packaging Operational Liaison Group and the Advisory Committee for Packaging on an ongoing basis.

- 10.73 The Agencies and Industry Packaging Operational Liaison Group (AIPOLG) meets quarterly to discuss and address operational issues around the regulation of the Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (as amended). Members of the Advisory Committee for Packaging (ACP) represent Industry and the agencies are represented by the NIEA, EA, SEPA.
- 10.74 There is a responsibility on all government departments to provide leadership in the more sustainable management of wastes, including packaging wastes. Across the Government estate, a recycling contract was established in 2008 to separately collect and recycle food waste, paper, cardboard, shredded confidential paper, newspaper, plastic, metal, cans and glass.
- 10.75 With their significant buying power, government departments are continuing to implement 'green' procurement policies, including the use of the supply chain to encourage 'producer responsibility' in their suppliers. This has included:
- The application of packaging waste take-back terms in contractual agreements;
 - Specification or use of refillable or reusable multi-trip packaging; and
 - Awareness raising of and training in waste prevention, and recycling for staff.
- 10.76 To operate most effectively, packaging policy requires better data to be available throughout the packaging chain. There is a need for more accurate information about the amount and types of packaging put on the market.
- 10.77 In Northern Ireland, there is still a lack of reliable data on packaging wastes, and not all packaging waste that is recycled or recovered is recorded in the Northern Ireland data sets. This is an area that needs to be improved in collaboration with all parties led by NIEA and including businesses, compliance schemes, councils, and others as appropriate, working together to ensure that all packaging wastes recycled and recovered are recorded. 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 as well as facilitating benchmarking with other administrations.

District Councils

- 10.78 Councils will continue to encourage consumers and businesses to exercise thought and avoid excessive packaging through their Education and Awareness Campaign.
- 10.79 Councils will encourage businesses, as part of their Education and Awareness Campaign, to adopt the principles of supply chain management, to work with their suppliers to take back packaging waste, and encourage the use of re-useable packaging.

- 10.80 Councils will encourage the public and businesses to participate in the segregation and collection of packaging wastes for recycling and recovery, through their Education and Awareness Campaign.
- 10.81 The availability of collection services for packaging waste has increased significantly through the actions of councils in recent years. Packaging waste can now be recycled at the kerbside or through a network of Recycling Centres and Bring Sites. Although the range of materials collected and the availability of these facilities has been expanded by councils, investigation into the potential to increase the range of packaging waste accepted for collection at the kerbside, bring sites, Recycling Centres should be encouraged, where appropriate.
- 10.82 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.
- 10.83 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.
- 10.84 Councils will continue to use '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; and
 - Specification or use of refillable or reusable multi-trip packaging, where appropriate.
- 10.85 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.

The General Public

- 10.86 Waste Prevention - 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, for example, 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.
- 10.87 Recycling - 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.

11 Hazardous Waste

Introduction

- 11.1 The management of hazardous wastes has changed significantly in recent years, largely as a result of more stringent legislation governing its treatment and disposal. This legislation, discussed further in this chapter, has extended the definition of hazardous waste as well as banning the co-disposal of hazardous and non-hazardous wastes.
- 11.2 The aim of this Chapter is to address the current arrangements for the management of hazardous wastes within Northern Ireland and specifically within the NWRWMG. The ultimate aim is to ensure that the NWRWMG, and Northern Ireland as a whole, are aware of their requirements in light of recent legislative changes concerning the treatment and disposal of hazardous wastes.
- 11.3 The revised Waste Framework Directive (2008/98/EC) was adopted on the 19th November 2008 and repealed directives on Waste Disposal (75/439/EEC), Hazardous Waste (91/689/EEC) and Waste Oils (2006/12/EC). The revised Waste Framework Directive provides a European wide definition of hazardous waste and requires the correct management and regulation of this waste.
- 11.4 Hazardous waste is defined as a waste possessing one or more of the 15 hazardous properties set out in Annex III of the revised Waste Framework Directive. The hazardous properties are discussed below.

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" : <ul style="list-style-type: none"> - liquid substances and preparations having a flashpoint of below 21⁰C (including extremely flammable liquids) or - substances and preparations which may become hot and finally 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 of ignition 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 (including very toxic substances or preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and 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 induce non-hereditary congenital malformations or increase their incidence.
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	Waste which releases toxic or very toxic gases in contact with water, air or in acid.
H13	"Sensitising" : substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitization such that on further exposure to the substance or preparation, characteristic adverse effects are produced [As far as testing methods are available].
H14	"Ecotoxic" : waste which presents or may present immediate or delayed risks for one or more sectors of the environment.
H15	Waste capable by any means, after disposal, of yielding another substance e.g. a leachate, which possesses any of the characteristics above.

Management and Control

- 11.5 The Hazardous Waste Regulations (Northern Ireland) came into operation in 2005 and replaced the Special Waste Regulations (Northern Ireland) 1998 and apply to those who produce, broker / deal, carry and receive hazardous waste to keep, treat or dispose of. The purpose of the Regulations is to provide an effective system of control for hazardous waste in order to ensure that they are properly managed from their point of production through to their final destination for disposal or recovery.
- 11.6 The Hazardous Waste Regulations also introduced the creation of one consignment note for hazardous waste exported to Great Britain which tracks the waste to the destination in Great Britain. The consignment notes also require that the Standard Industrial Classification (SIC 2003) Code for the process giving rise to the waste must be entered in Part B of the note. The regulations also introduce the requirement of consignees to send returns to producers notifying them of receipt of the waste.
- 11.7 Implementation of the revised Waste Framework Directive has brought about a number of changes to the Hazardous Waste Regulations. These changes have been brought in by regulations 45 to 63 of the Waste Regulations (Northern Ireland) 2011 and came into operation on 8 April 2011: They include the following:
- The mixing of hazardous waste must be carried out by holders of an appropriate permit allowing the activity and the activity must be carried out using “best available techniques”;
 - A new hazardous waste property (H13 sensitising) has been introduced; and
 - Record keeping has been extended to dealers and brokers of hazardous waste.
- 11.8 In addition, the following changes came into effect on 8 October 2011:
- The consignment note has been amended; and
 - The waste hierarchy must be considered and applied in a priority order when hazardous waste is transferred.
- 11.9 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 produced an Action Plan in 2004 and an Implementation Plan in 2006. The objectives of this were as follows:
- To provide a clear and robust regulatory system for hazardous waste management, consistent with EU, international and national legislation;
 - To raise awareness of the issues surrounding hazardous waste management in business and industry; and

- To ensure the provision of hazardous waste management facilities to meet legislative requirements.

Current Hazardous Waste Arisings

- 11.10 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 with relevant information being entered into the NIEA Hazardous Waste Arisings Database. The start 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.
- 11.11 In addition, wastes may reduce in weight through treatment processes such as dewatering, or may gain weight through the addition of substances such as lime. Treatment may also partially or totally recover wastes, or result in a non-hazardous residue. Hazardous waste may also be transported between sub-regional areas and may be exported and then re-imported. These factors make it difficult to calculate an accurate figure for hazardous waste production and to reconcile waste arisings figures with deposits.
- 11.12 Data on hazardous waste arisings in 2010/2011 has been collated from datasets provided by NIEA. The total hazardous waste arisings for Northern Ireland (NI) in 2010/2011 was approximately 68,658 tonnes, as presented in Table 11.1.

Table 11.1 Total Hazardous Waste Arisings in Northern Ireland 2010/11

Council Area	Total Hazardous Wastes Produced (tonnes) ¹
Antrim Borough Council	2,787
Ards Borough Council	1,249
Armagh City and District Council	3,352
Ballymena Borough Council	1,832
Ballymoney Borough Council	229
Banbridge District Council	486
Belfast City Council	15,329
Carrickfergus Borough Council	748
Castlereagh Borough Council	1,236

Council Area	Total Hazardous Wastes Produced (tonnes) ¹
Coleraine District Council	1,364
Cookstown District Council	607
Craigavon Borough Council	5,419
Derry City Council	4,540
Down District Council	4,232
Dungannon & South Tyrone Borough Council	2,663
Fermanagh District Council	1,866
Larne Borough Council	3,330
Limavady Borough Council	360
Lisburn City Council	3,795
Magherafelt District Council	834
Moyle District Council	146
Newry & Mourne District Council	4,146
Newtownabbey Borough Council	3,964
North Down Borough Council	2,177
Omagh District Council	1,495
Strabane District Council	471
Total	68,658

Source: NIEA Hazardous Waste Data for Northern Ireland - 2010/2011

Note: 1. Figures rounded to nearest tonne

- 11.13 The hazardous waste arisings in the NWRWMG for 2010/2011 was approximately 7,110 tonnes which accounts for approximately 10% of the total hazardous waste arisings generated in Northern Ireland. Table 11.2 below sets out the hazardous wastes arising in each of the current Councils in the NWRWMG.

Table 11.2 Hazardous Waste Arisings in the NWRWVG 2010/11

Council Area	Total Hazardous Wastes Produced (tonnes) ¹
Derry City and Strabane District Council	5,011
Causeway Coast and Glens Borough Council	2,099
Total	7,110

Source: NIEA Hazardous Waste Data for Northern Ireland - 2010/2011

Note: 1. Figures rounded to nearest tonne

11.14 A breakdown of the arisings by council and generic type (EWC Chapter Headings), is summarised in Table 11.3.

Table 11.3 Breakdown of 2010/2011 Hazardous Waste Arisings by Council and EWC Chapter Headings

Waste Description	Derry City and Strabane District Council	Causeway Coast and Glens Council	Totals	Totals
	(Tonnes)	(Tonnes)	(Tonnes)	%
Alcoholic and non-alcoholic beverages (02)	0.0	0.1	0.1	0.00%
Wood and paper production (03)	0.0	3.5	3.5	0.05%
Leather, Fur and Textiles (04)	0.0	0.0	0.0	0.00%
Petrol, gas and coal refining/treatment (05)	0.0	0.0	0.0	0.00%
Inorganic chemical processes (06)	1.2	0.0	1.2	0.02%
Organic chemical processes (07)	1272.9	28.2	1301.1	18.30%
Paints, varnish, adhesive & inks (08)	70.4	22.4	92.8	1.31%
Photographic industry (09)	31.7	14.7	46.4	0.65%
Thermal processes waste (inorganic) (10)	35.7	0.0	35.7	0.50%
Metal treatment & coating processes (11)	52.0	7.7	59.7	0.84%
Shaping/treatment of metals & plastics (12)	0.0	3.2	3.2	0.05%
Oil and oil/water mixtures (13)	849.3	645.0	1494.3	21.0%
Solvents (organic) (14)	1.0	0.8	1.8	0.03%
Packaging, cloths, filter materials (15)	172.8	24.2	197.0	2.77%
Not otherwise specified (16)	1149.4	232.3	1381.7	19.43%
C&D waste & asbestos (17)	303.1	350.9	654.0	9.20%
Healthcare (18)	366.9	234.6	601.5	8.46%
Waste/water treatment & water industry (19)	0.0	0.0	0.0	0.00%
Municipal & similar commercial (20)	704.3	531.7	1236.0	17.38%
Totals	5010.7	2099.3	7110.0	100%

Source: NIEA Hazardous Waste Data for Northern Ireland - 2010/2011

Note: 1. Figures rounded to nearest 0.1 tonne

- 11.15 As can be observed from Table 11.3, the highest volumes of hazardous waste arisings in 2010/2011 were generated in the Derry City and Strabane District Council area which accounted for approximately 71% of the total hazardous waste arisings in the NWRWMG. It can also be observed from Table 11.3 that EWC Code 13 Oil and oil / water mixtures account for approximately 21% of the total hazardous waste stream in the NWRWMG for the period April 2010 to March 2011. Municipal and similar commercial wastes and Not otherwise specified also account for a significant portion of the hazardous waste stream in 2010/11 accounting for 17.38% and 19.43% respectively.
- 11.16 These hazardous waste arisings were consigned to a range of waste management facilities for treatment, recovery, disposal and onward transfer. The total quantity of hazardous waste registered with the NIEA for treatment and disposal in Northern Ireland in 2010/2011 was 75,432 tonnes. The disparity between the reported hazardous waste arisings figure of 68,658 tonnes and the figure of 75,432 tonnes is likely to represent wastes entering the licensed facility sites prior to April 2010 and transport of waste occurring in the period April 2010 to March 2011. The hazardous waste arisings in 2010/2011 have been identified by treatment/disposal route and summarised in Table 11.4.

Table 11.4 Summary of Hazardous Waste by Treatment/Disposal Route in Northern Ireland in 2010/2011

Treatment/Disposal Route	Total 2010/2011	
	(Tonnes) ¹	(%)
Export to Great Britain	21,746	28.83
Use principally as a fuel to generate energy (R01).	5,630	7.46
Solvent reclamation/regeneration (R02).	84	0.11
Recycling/reclamation of organic substances (R03).	2,855	3.79
Recycling/reclamation of metals and metal compounds (R04).	270	0.36
Recycling/reclamation of other inorganic materials (R05).	60	0.08
Oil refining or other re-uses of oil (R09).	8,342	11.06
Exchange of Wastes for submission (R12).	23	0.03
Storage of wastes (R13).	18,046	23.92
Specially engineering landfill (D05).	561	0.74
Biological treatment (D08).	0	0.00
Physico-chemical treatment (D09).	12,582	16.68
Incineration on land (D10).	14	0.02

Treatment/Disposal Route	Total 2010/2011	
	(Tonnes) ¹	(%)
Blending or Mixing (D13).	9	0.01
Repackaging (D14).	114	0.15
Storage (D15).	5,096	6.76
TOTAL	75,432	100.00

Source: NIEA Hazardous Waste Data for Northern Ireland 2010/2011

Note: 1. Figures rounded to nearest tonne

11.17 As can be observed from Table 11.4, approximately 29% of the hazardous waste generated in Northern Ireland in 2010/2011 was sent for recovery and disposal in Great Britain. Approximately 24% of the hazardous waste generated within Northern Ireland in 2010/2011 was classified for storage subject to been sent for recovery. A further 11% of the waste was subject to oil recovery operations which accounted for the highest proportion of waste recovery. Approximately 16.7% of the waste underwent physico-chemical treatment prior to disposal which accounted for the most popular disposal route.

11.18 In 2010/2011, 21,746 tonnes of hazardous waste were exported to Great Britain. Of this, 10,104 tonnes were sent for disposal and 11,642 tonnes were sent for recovery. The total quantities of waste exported to Great Britain by waste management operation are summarised in Table 11.5.

Table 11.5 Summary of Hazardous Waste Exported to GB by Waste Management Operation in 2010/2011

Treatment/Disposal Route	England	Scotland	Wales	Total	Total
	(Tonnes) ¹	(Tonnes)	(Tonnes)	(Tonnes)	%
Use principally as a fuel to generate energy (R01).	18	0	0	18	0.08
Solvent reclamation/regeneration (R02).	241	0	0	241	1.11
Recycling/reclamation of organic substances (R03).	623	0	0	623	2.87
Recycling/reclamation of metals and metal compounds (R04).	8,339	0	421	8,760	40.28
Recycling/reclamation of other inorganic materials (R05).	2	0	0	2	0.01
Oil refining or other re-uses of oil (R09).	581	25	105	711	3.27
Storage of wastes (R13).	855	308	125	1,288	5.92
Specially engineering landfill (D05).	689	3,238	0	3,927	18.06

Treatment/Disposal Route	England	Scotland	Wales	Total	Total
	(Tonnes) ¹	(Tonnes)	(Tonnes)	(Tonnes)	%
Biological treatment (D08).	0	115	0	115	0.53
Physico-chemical treatment (D09).	3,361	307	0	3,668	16.86
Incineration on land (D10).	552	0	5	557	2.56
Storage (D15).	920	918	0	1,838	8.45
TOTAL	16,180	4,911	655	21,746	100.00

Source: NIEA Hazardous Waste Data for Northern Ireland 2010/2011

Note: 1. Figures rounded to nearest tonne

- 11.19 As can be observed from Table 11.5 approximately 40% of the hazardous waste exported to Great Britain was classified as metal and metal compounds subject to treatment and recycling in an appropriate facility. As can be observed from Table 11.5, approximately 18% of the hazardous waste was subject to disposal via the landfill route and approximately 17% was subject to physico-chemical treatment prior to disposal which accounted for the most popular disposal routes.

Hazardous Waste Facilities in Northern Ireland

- 11.20 The number of facilities in Northern Ireland licensed for the treatment or disposal of hazardous wastes in February 2013 are presented in Table 11.6.

Table 11.6 Number of Facilities in NI Licensed for Hazardous Wastes

Type of Facility	Northern Ireland
	2010/2011 No.
Treatment and Transfer	
Range of hazardous wastes, for acid-alkali neutralisation, oil-water separation and transfer	1
Metal Treatment and Transfer	3
Authorised Treatment Facilities for End of Life Vehicles	65
Recovery of Photographic Wastes	1
Treatment	
Oil recycling/ treatment	3
Steam sterilisation of clinical wastes (including prescription only medicines and sharps)	1
Transfer Stations	

Type of Facility	Northern Ireland
	2010/2011 No.
Covering a range of hazardous wastes	99
Clinical/Healthcare wastes	10
Waste Electrical and Electronic Equipment (WEEE)	11
Chemical Waste storage and transfer	5
Batteries	1
Landfill	
Single cell for asbestos waste	1
Total	200

Source: NIEA License Register 2013.

Hazardous Waste Management Options

11.21 The range of options for handling hazardous waste are summarised below.

Prevention/Reduction

11.22 Hazardous waste prevention and reduction is a priority supported by all the Sub-Regional Groups. The ability to prevent or reduce hazardous waste is dependant on the individual hazardous waste however the NWRWMG aim, wherever possible, to raise awareness of reduction options, such as cleaner technologies, with hazardous waste producers.

Re-use, Recovery and Recycling

11.23 Certain hazardous waste can be re-used, recovered or recycled. The options available are dependent on the nature of the hazardous component of the waste. Table 11.7 provides examples of potential options along with some of the suitable hazardous waste streams.

Table 11.7 Examples of Hazardous Waste Re-use, Recovery and Recycling Options

Option	Suitable Waste Streams
Recovery for use as fuel	<ul style="list-style-type: none"> ▪ Organic solvents (blended to produce secondary liquid fuel) fine chemicals and biocides
Solvent reclamation / regeneration	<ul style="list-style-type: none"> ▪ Organic solvents including halogenated solvents, phenols, ethers, organohalons can be regenerated.
Recycling / reclamation of metals and metal compounds	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ Acids and bases
Recovery / re-refining of used oil	<ul style="list-style-type: none"> ▪ Mineral oils, oil/water and hydrocarbon mixtures

11.24 Approximately 29% of the hazardous waste generated in Northern Ireland in 2010/2011 was sent for recovery and disposal in Great Britain.

Physico-chemical Treatment

11.25 Most physical and chemical treatment methods aim to produce a less hazardous form of the original waste. 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.

11.26 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 11.8.

Table 11.8 Summary of Common Physico-chemical Treatment Technologies

Typical Treatment Methods	Summary
Oxidation/reduction	The processes of oxidation and reduction are considered together. 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 these are converted to metal hydroxides. Therefore 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 the pH; a 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. A variety of re-agents are used to generate metal precipitation thus leaving 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.
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

- 11.27 There is one partially 'integrated' treatment / transfer facility operating in Northern Ireland, which is licensed for acid-alkali neutralisation, oil-water separation and transfer.
- 11.28 It is likely that export will continue to be the only viable option for the smaller quantities of wastes requiring more specialised treatment.

Oil Separation and Treatment

11.29 In Northern Ireland oily wastes are generally treated by processing to Recovered Fuel Oil (RFO). Almost all of the exported oily wastes are machining oils and sludges, some of which require more specialised treatment. The number of processing facilities currently located in Northern Ireland and the Republic of Ireland are considered adequate for pre-processing and recovery. The problem lies more in the continuation of existing markets in the roadstone industry for the RFO.

Energy from Waste

11.30 For environmental and safety reasons, high temperature incineration is considered the most appropriate disposal route for certain hazardous wastes. Such wastes include agrochemical residues, wastes containing PCBs, solvents, halogenated waste, laboratory chemicals and acid tars.

11.31 Three types of thermal treatment for hazardous wastes were identified in Section 2 of Facility Needs for Hazardous Wastes in Northern Ireland – Supporting Report. October 2005:

- Export hazardous wastes to specialised high-temperature incineration (HTI) facilities;
- Blending with organic wastes to produce a 'secondary liquid fuel' SLF, for co-incineration in a cement-kiln; and
- Steam sterilisation of healthcare wastes.

11.32 There is one steam sterilisation plant in Antrim serving the whole of NI under a centralised contract for wastes from the National Health Service. This is discussed in further detail in Section 5.5 Healthcare Waste.

Landfill

11.33 The implementation of the Landfill Directive has had an impact on the type and quantity of hazardous waste landfilled. For certain hazardous waste, landfill is currently, and will remain, the most appropriate disposal route. These wastes include: asbestos, certain treated timber, some contaminated soils and inorganic wastes containing metal compounds.

11.34 In the period 2010/2011, approximately 4,488 tonnes of hazardous wastes were consigned to landfill, of which approximately 12.5% was landfilled within NI and 87.5% was exported to Great Britain for landfill.

Transfer Station

- 11.35 There are currently 99 transfer stations licensed to handle hazardous waste within Northern Ireland (Table 11.6). The majority of these are hazardous waste civic amenity sites developed to service the collection of a range of hazardous wastes.

Future Requirements in Northern Ireland

- 11.36 The Revised Northern Ireland Waste Management Strategy – *Delivering Resource Efficiency*, has stated that the Department are planning to issue a Hazardous Waste Policy Statement by December 2013. It is hoped that this will include information on future facility needs for Northern Ireland.
- 11.37 The NWRWMG remain committed to ensuring a safe and sustainable disposal for hazardous waste arisings within the region will therefore incorporate any information published from this policy statement into the next review of their Waste Management Plan.

Measures and Actions

- 11.38 This section sets out the key actions required by each of the following stakeholders in the hazardous waste stream:
- DOENI;
 - Industrial and commercial producers of hazardous waste;
 - Waste management sector;
 - District Councils; and
 - Members of the Public.

Department of the Environment Northern Ireland (DOENI)

- 11.39 DOENI, through the provision of a Hazardous Waste Policy Statement due to be released by December 2013, should continue to provide advice to all stakeholders on the reduction of hazardous waste and the environmentally sound management of this waste stream.

Industrial and commercial producers of hazardous waste

- 11.40 Industrial and commercial waste producers to identify and prioritise ways in which the quantity of hazardous waste arisings can be reduced and the hazardous nature of the waste minimised.

Waste Management Sector

- 11.41 The waste management industry should provide clear guidance to their clients on what is and is not acceptable in terms of segregation, management and treatment for hazardous waste.

District Councils

- 11.42 District Councils should continue to develop constructive working relationships with NIEA to monitor, and where appropriate detect, deter and disrupt illegal and unlicensed activities.
- 11.43 District Councils in providing trade waste services, should provide clear guidance to their clients on what is and is not acceptable in terms of segregation, management and treatment for hazardous waste.
- 11.44 District Councils should encourage separate collection of household hazardous waste, through the wider dissemination of good practice and the provision of support, as appropriate.
- 11.45 District Councils should continue to provide facilities for the acceptance of household hazardous waste such as WEEE, paints, batteries at appropriate Civic Amenity sites within their District, as part of the wider infrastructure provision for these waste streams.
- 11.46 District Councils should encourage wider public participation in schemes for the separate collection of hazardous household waste. This is to be linked to the wider public awareness campaigns.

Members of the Public

- 11.47 Members of the public need to be aware of their responsibilities and should separate out household hazardous waste (for wastes including batteries, paints, WEEE) and take this waste stream to a local Civic Amenity site for safe disposal.

- 11.48 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.
- 11.49 Any unused medicines should be taken back to the pharmacy from which they came, for safe disposal.

12 Construction, Demolition and Excavation

Introduction

- 12.1 The purpose of this chapter is to outline measures for the future management and control of Construction, Demolition and Excavation (C, D & E) wastes in order to facilitate greater resource efficiency and to comply with relevant policy targets within the NWRWMG.
- 12.2 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, for example, excess materials, off-cuts and damaged materials. Packaging waste typically comprises a significant portion of this stream;
 - **Demolition wastes** – Wastes generated by the demolition of existing structures/buildings rather than opting to refurbish them. This often comprises a number of mixed waste sub-streams which can also contain hazardous substances such as asbestos which were present in the building during demolition or renovation; and
 - **Excavation wastes** – Typically consisting of materials such as soil, made ground and existing foundations removed as a function of design or from excavations for new construction. This can contain contaminated material depending on the previous use of the site.
- 12.3 The Northern Ireland construction sector has typically been a significant contributor in terms of revenue and employment with £3.4 billion generated and 85,000 people employed at its peak¹. There has however been a sizeable reduction in both these figures since the economic downturn in 2008.
- 12.4 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. These sites are often large enough to allow the segregation and storage of substantial quantities of wastes on site and as such facilitating more efficient use of materials and resources; and

1 www.cefnl.co.uk

- **Small build projects** – Typically concerned with the building, repair, maintenance and renovation of individual houses and other small buildings. These are usually under spatial constraints and with small quantities of waste produced it is often uneconomic to sort material which, as a consequence, results in use of single skips for accepting waste on the project.

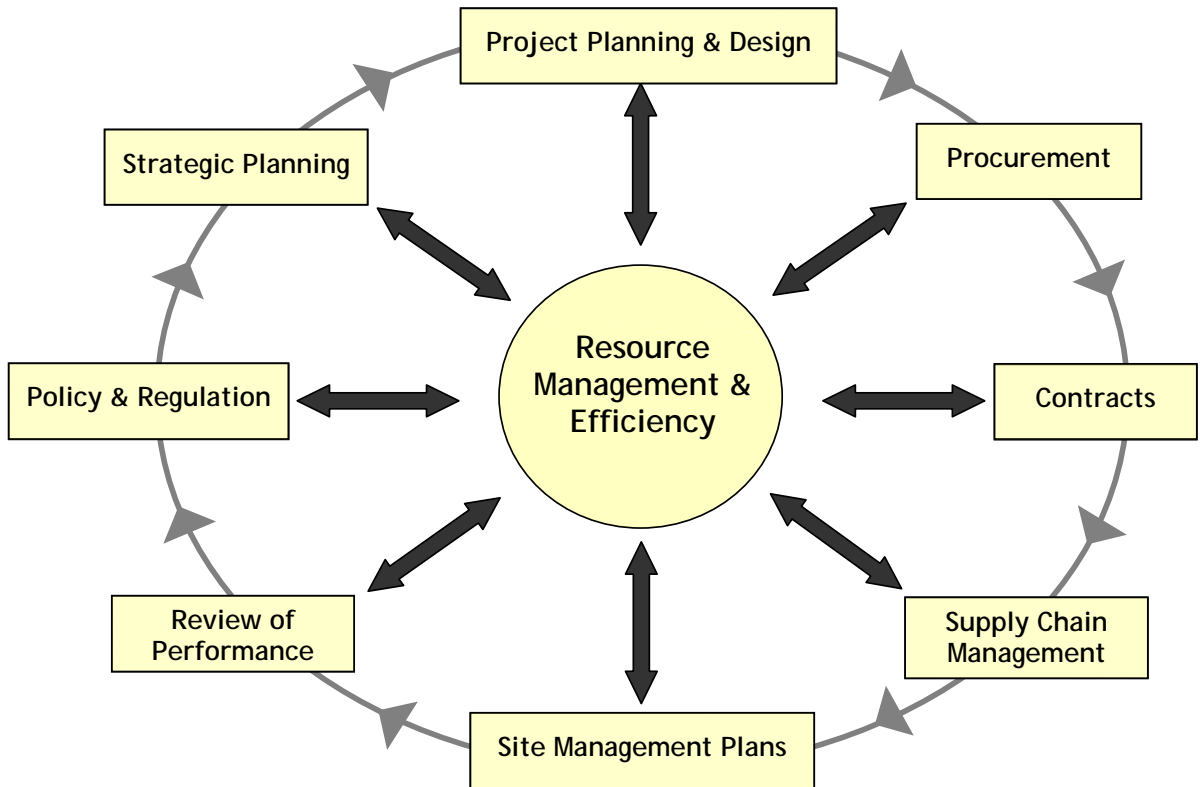
12.5 Although there is a wide range of projects, in terms of size and activity, undertaken within the construction sector identifying the difference in their activities further emphasises the need for strategies to be targeted in order to affect the various participants within the sector for change to be effective.

12.6 Costs continue to be a key driver influencing the management of C, D and E wastes in Northern Ireland with landfill tax having increased significantly over the past 5 years and from April 2014 is £80 per tonne of hazardous and non-hazardous waste disposed. This will further increase pressure on wastes to be separated at source, particularly inert waste such as soil and rock, so as to reduce the potential costs of waste disposal within a project. Inert waste to be disposed of at landfill is currently set at £2.50 per tonne with no scheduled increases to this rate².

12.7 The construction sector takes place within a policy and regulatory framework, which means that there are a range of opportunities to intervene and influence resource planning, management and efficiency within the construction cycle. This is illustrated in Figure 12.1

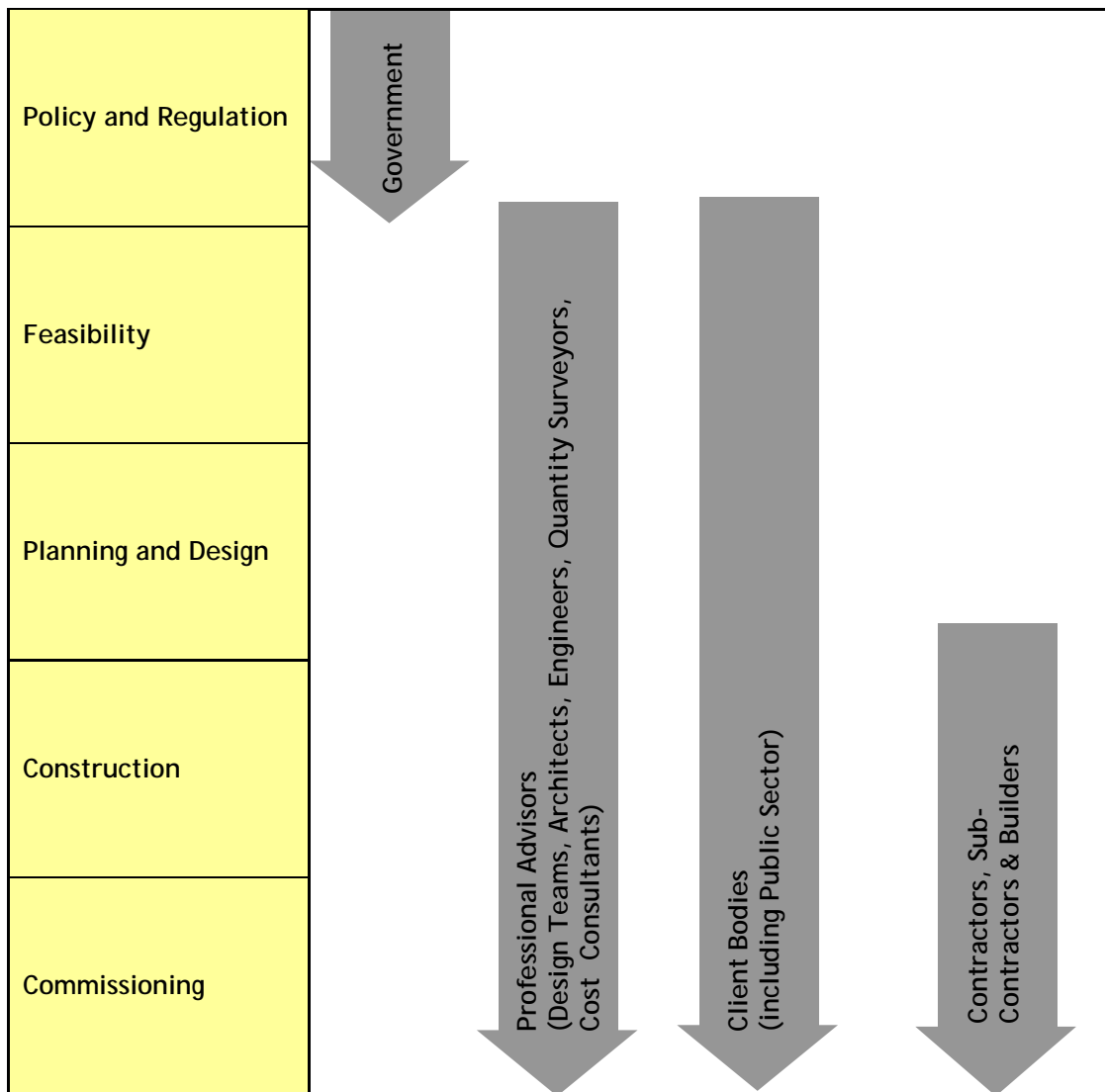
²http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&pageLabel=page_Excise_ShowContent&propertyType=document&id=HMCE_CL_000509

Figure 12.1 Potential Intervention Points to influence Resource Management in the Construction Cycle



12.8 The greatest influence that can be exerted within the construction process is at the early stages of the project with this influence decreasing if it is left to the actual construction stage on site. Figure 12.2 illustrates how the quantities are influenced throughout the life cycle of the project.

Figure 12.2 Influence on C, D & E Waste Generation in a Project Life Cycle



12.9 All participants within the project lifecycle from government through to material re-processors have a role to play with regards to waste. The primary responsibility however lies with clients, designers and specifiers to reduce the quantities of waste that will be produced as well as the general improvement resource management during the project. The influence of contractors and builders upon waste quantities produced is limited to improving site practices.

Definitions

12.10 C, D & E wastes are defined as: ‘waste arising from works of construction or demolition, including waste arising from work preparatory thereto³.’

³ Controlled Waste Regulations (Northern Ireland) 2002

- 12.11 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, non-hazardous or hazardous waste depending on the nature of the particular waste.
- 12.12 Common C, D & E wastes classified under the European Waste Catalogue include:
- Concrete, bricks, tiles and ceramics;
 - Wood, glass and plastic;
 - Bituminous mixtures, coal tar and tarred products;
 - Metals (including their alloys);
 - Soil, stone and dredging spoil;
 - Insulation materials and asbestos containing construction materials;
 - Gypsum based construction materials; and
 - Other construction and demolition wastes.

Management and Control

- 12.13 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 (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland) 1999;
 - The Controlled Waste (Duty of Care) Regulations (Northern Ireland) 2002;
 - Waste Management Licensing Regulations (Northern Ireland) 2003;
 - The Pollution, Prevention and Control Regulations (Northern Ireland) 2003;
 - The Hazardous Waste Regulations (Northern Ireland) 2005;
 - The Waste Regulations (Northern Ireland) 2011;and
 - The Landfill (Amendment) Regulations (Northern Ireland) 2011.
- 12.14 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 outlines criteria for the acceptance of wastes and licensing of sites, requiring landfills to be classified depending on the type of waste they receive. Landfills are classified as:
- Inert;
 - Non-Hazardous; and
 - Hazardous.

- 12.15 The Northern Ireland Waste Management Strategy - *Delivering Resource Efficiency*, sets out a commitment for the introduction of Site Waste Management Plans to be prepared on a project specific basis for developments over £200,000. The Department of Finance and Personnel, and the recently established Sustainable Construction Group, have published a Code of Practice / Guidance the construction process⁴.
- 12.16 Consultation on the implementation of Site Waste Management Plans as legislation in Northern Ireland was held in 2011 however this is currently on hold⁵.
- 12.17 Industry led awards and schemes such as WRAP's Halving Waste to Landfill initiative⁶, as well as CEEQUAL⁷ and BREEAM⁸ awards for sustainable building projects, have been significant contributors, outside of legislative driven initiatives, in reducing waste within construction projects.
- 12.18 The main roles and responsibilities for the management of C, D & E wastes are summarised in Table 12.1.

Table 12.1 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

- 12.19 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 - *Delivering Resource Efficiency*.

4 http://www.dfpni.gov.uk/index/procurement-2/cpd/cpd-policy-and-legislation/content_-_cpd_achieving_sustainability_in_construction_procurement/cpd-site-waste-management-plans/scg_guide_swmp_doc.

5 <http://www.doeni.gov.uk/index/information/foi/recent-releases/publications-details.htm?docid=7867>

6 <http://www.wrap.org.uk/content/what-halving-waste-landfill>

7 <http://www.ceequal.com/>

8 <http://www.breeam.org/>

- 12.20 The Northern Ireland Waste Management Strategy sets the following targets for C, D & E waste:
- 70% of all non-hazardous C, D & E wastes to be recycled or reused by 2020; and
 - A minimum of 10% of the materials value of public sector construction projects should derive from recycled or reused content⁹.
- 12.21 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 are constrained to a minor influence in the form of the quantities of waste produced by improving site practices.

Waste Quantities and Composition

- 12.22 A study carried out by WRAP estimated that C, D & E waste arisings was 3.55 million tonnes in Northern Ireland in 2010¹⁰. 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 1.9 tonnes per person per annum.
- 12.23 C, D & E waste generation is directly linked with the economic growth and the activity of the construction and building sectors. Following the economic downturn in 2008, and the subsequent reduction in the size and quantity of construction projects throughout Northern Ireland, there has been a significant reduction in C, D & E waste arisings. It is forecast that the construction sector will witness a slow recovery and as a result it is difficult to predict waste growth figures for this sector.
- 12.24 Following the creation of the best practice guidelines by the Sustainable Construction Group, and a UK wide emphasis on reducing construction waste as early in the process as possible, a portion of the reduction of waste arising could also be attributed to better waste prevention practices. It is however difficult to estimate the tonnage of waste reduced due to better practice.
- 12.25 A large proportion of asbestos waste generated in Northern Ireland is exported and there is no recognised reporting mechanism for this. A study conducted by SEPA in 2009¹¹ estimated that asbestos waste attributed to 0.3% of C, D and E waste generated in Scotland which would be equivalent to approximately 10,500 tonnes in Northern Ireland.

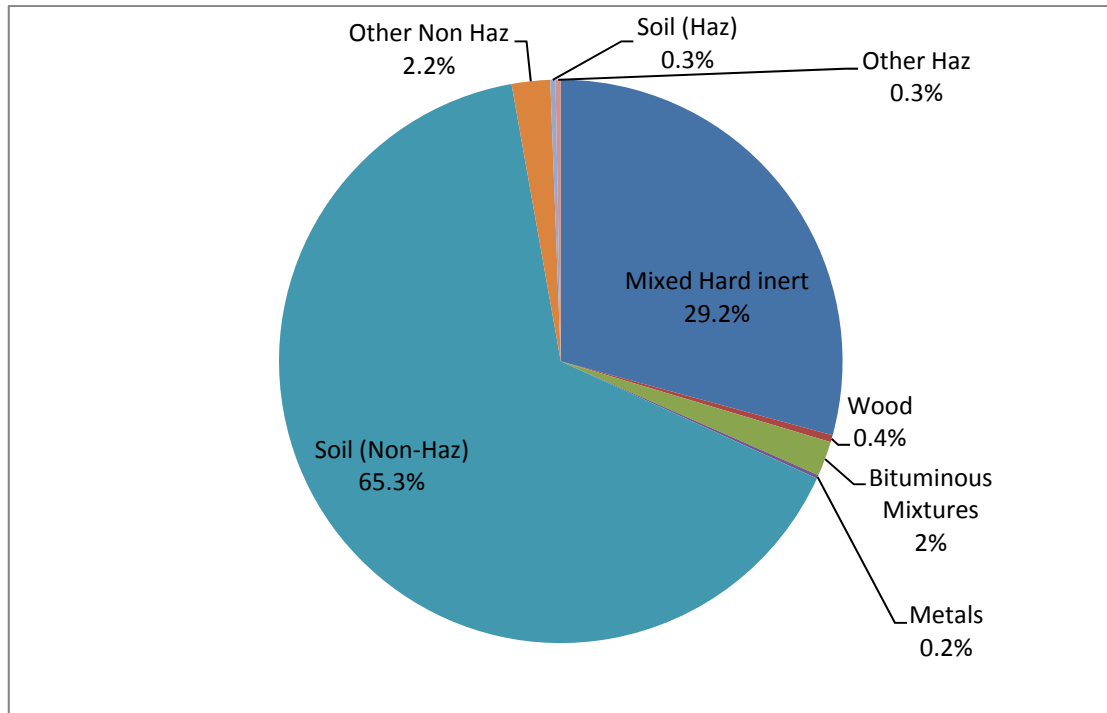
⁹ See footnote 3

¹⁰ *Construction, Demolition and Excavation Waste Arisings, Use and Disposal in Northern Ireland, 2009/10*
WRAP 2011

¹¹ www.sepa.org.uk/waste/waste_data.aspx

12.26 The compositional analysis of the C, D & E waste, from the recent WRAP study of this waste stream, is illustrated in Figure 12.3. The data indicates that over 90% of the C, D & E waste comprises excavated soil, stones, concrete, and bricks with only 0.7% of the waste reported to be wood, metal, glass and plastic. It was estimated that 1 million tonnes of this C, D & E waste was “hard” construction waste suitable for crushing and recycling as aggregate.

Figure 12.3 C, D & E Waste Composition 2010¹²



12.27 Table 12.2 illustrates the total tonnage of each waste category as was reported by the 2010 WRAP survey for C, D & E waste in Northern Ireland in 2010.

12 See footnote 3

Table 12.2 C, D & E Waste Composition 2010¹³

	Waste Type	Estimated Arisings 2009/10 (tonnes)	Proportion of total Arisings (%)
Non Hazardous Waste	Mixed Hard Inert	1,035,069	29.2
	Wood	15,022	0.4
	Glass	1,130	<0.1
	Plastic	1,339	<0.1
	Bituminous Material	71,691	2.0
	Metals	7,907	0.2
	Soil	2,318,275	65.3
	Insulation	917	<0.1
	Gypsum	1,719	<0.1
	Other non-hazardous waste	77,581	2.2
Total Non-Hazardous Waste		3,503,650	99.4
Hazardous	Wood, glass & plastic	7	<0.1
	Metals	102	<0.1
	Soil	9,124	0.3
	Insulation	999	<0.1
	Gypsum	146	<0.1
	Other hazardous waste	9,174	0.3
Total Hazardous Waste		19,545	0.6
Total Waste Arisings		3,550,202	100.0

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

12.29 The results of the recent WRAP C, D & E study estimated that approximately 69.2% of the C, D & E wastes are reused or recycled in some form, whilst the remaining 30.8% is primarily sent to landfill.

¹³ See footnote 4

Current Arrangements for C, D & E Waste

- 12.30 The management of C, D & E wastes is currently going through a period of change, driven by increased regulation and cost considerations. 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 WRAP in 2010, is as follows:
- Reuse and Recycling: 69%; and
 - Landfill: 31%.
- 12.31 As mentioned previously a number of drivers, both legislative and industry led, can be deemed responsible for the significant reduction in C, D & E waste sent to landfill since the publishing of the previous Waste Management Plan in 2006.
- 12.32 Landfilling has taken place at a large number of sites spread out across the Region, many of which traditionally have been unlicensed and unregulated. Exemptions, under the licensing regime, have been used for the deposit of inert wastes for agricultural land improvement purposes.
- 12.33 Landfill Tax of £2.50 per tonne applies to inert wastes, but a higher rate of £80 per tonne since April 2014¹⁴ applies to non-hazardous and hazardous fractions. This will further influence an already strong incentive to separate wastes, particularly inert wastes such as soils and rock, at source and manage each material accordingly.
- 12.34 Reuse and recycling has generally been carried out as or when the opportunity arose on projects. However, the identification of recycling and reuse of waste as a business opportunity has resulted in the creation of licensed C, D & E waste recycling/reprocessing centres in the Region¹⁵.

Proposed Arrangements for the Management of C, D & E Waste

- 12.35 As identified in the Northern Ireland Waste Management Strategy – *Delivering Resource Efficiency* for C, D & E wastes, the priority is waste prevention, followed by materials reuse and recovery. However, there will remain a need for landfill capacity for those wastes that are not recovered or recycled.

¹⁴http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageExcise_ShowContent&propertyType=document&id=HMCE_CL_000509

¹⁵<http://www.doeni.gov.uk/niea/licensed?txtlicno=&txtwmcl=&txtpostcode=&txtCompanyName=&btnSearch=Done&btnSearch=Search&Blank=Start>

- 12.36 The target recycling and reuse rate set out by the Waste Management Strategy is 70%. According to the study carried out by WRAP in 2010, Northern Ireland is currently achieving a recycling rate of 69% with over 1 million tonnes of waste with an 'unknown' fate. If it is assumed that a quantity of this waste is reused or recycled then Northern Ireland is currently achieving its target recycling and re-use rate of 70%.
- 12.37 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 only a proportion of this capacity will need to be provided at licensed C, D & E waste recycling plants.
- 12.38 The location and scale of these facilities vary and is determined by the requirements of the market. These facilities will also be required to be appropriately licensed for the storage, sorting, crushing and reprocessing of C, D & E waste materials¹⁶.

Measures and Actions

- 12.39 The management of C, D & E wastes has witnessed major changes as the construction and building industries respond to the changes brought about by:
- The increasingly stringent regulatory environment;
 - The higher costs of landfill disposal; and
 - Greater client awareness and expectation, for example, green procurement and award schemes such as CEEQUAL and BREEAM.
- 12.40 It is important therefore that all participants in the Construction sector, from government and clients, contractors, builders, materials suppliers, waste contractors and re-processors recognise their roles and responsibilities. This section sets out below, the actions by main stakeholder groupings, 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); and
 - Contractors, Sub-Contractors and Builders (including the waste management sector).

¹⁶<http://www.doeni.gov.uk/niea/licensed?txtlicno=&txtwmcl=&txtpostcode=&txtCompanyName=&btnSearch=Done&btnSearch=Search&Blacnk=Start>

Government

- 12.41 Government's key role is in continuing to encourage and facilitate 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** – continuing to identify and prosecute those who are carrying out this practice;
 - **Raise Awareness and Providing Guidance** – continue to work with the industry, particularly reaching out to small builders and tradesman, to ensure that all are aware of the legislation, and their duties and responsibilities under it; and
 - **Development of Markets** – continue to work with the industry 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.
- 12.42 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. Concerns have been raised at incidents of uncontrolled dumping of C, D & E wastes, and NIEA have responsibility to take appropriate enforcement action, as and when required.
- 12.43 There is a need for better data on the Construction industry. NIEA should consider with its programme of waste surveys, publishing and promoting the data to facilitate better planning within the sector.

Clients and Project Sponsors

- 12.44 The client, who has control over the project budget, is in the most influential position in promoting the reuse and recycling of C, D & E wastes in preference to disposal. The client will generally have a Duty of Care under the legislation, with a responsibility to ensure that C, D & E wastes 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 NIEA for the specific application.
- 12.45 Specific incentives 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;
 - The use of quality and environmental criteria in the appointment of contractors, including performance and practice;

- The use 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; and
- The costs of waste management should be accurately reflected in project budgets so that there is no incentive for illegal management of wastes.

Industry Professionals

- 12.46 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. All bring their perspective, experience and expertise, and many, through their membership of professional institutions have a responsibility to promote Sustainable Development.
- 12.47 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.
- 12.48 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 reuse and recycling on-site and off-site.
- 12.49 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;
 - Working with clients and contractors in developing Site Waste Management Plans; and
 - Promotion of 'Green Procurement' including the inclusion of appropriate quality and environmental criteria in assessing tenders.

Contractors /Sub-Contractors and Builders

- 12.50 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.
- 12.51 The introduction of Site Waste Management Plans (SWMPs) represents both a challenge and an opportunity in improving site waste management practices.
- 12.52 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; and
 - 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.

- 12.53 Data on C, D & E wastes is varied, and needs to be improved. Organisations have a responsibility to take part in future waste arisings surveys, returning questionnaires and providing accurate and reliable data to improve the information currently held on C, D & E waste within Northern Ireland. This information will be of benefit to the construction industry allowing progress towards recycling targets to be assessed and to inform future policy development.

Mining and Quarrying Waste

Introduction

- 12.54 Mining waste arises from the process of extracting materials from the ground that are then used as a saleable product. Commonly mining and quarrying waste arises from mined materials including clay, coal, precious stones, precious metals, metal ores and sand and shingle materials. The actual waste that is generated from the mining process generally consists of solid lumps of rock that the minerals were contained in. There can also be a large amount of sludge like material due to the seepage of groundwater into the mined materials and the application of waste water to cool drilling equipment. Although most of this material will be harmless and inert, some of the waste will need to be deposited carefully as it could contain a large amount of metals¹⁷.
- 12.55 The European Parliament and the Council of the EU adopted Directive 2006/21/EC on the management of waste from extractive industries (the Mining Waste Directive) in March 2006. The Directive is implemented in Northern Ireland through the Planning (Management of Waste from Extractive Industries) Regulations (Northern Ireland) 2010.

Definition

- 12.56 The Regulations define “extractive waste” as “waste produced from an extractive industry and resulting from the winning, working, treatment and storage of minerals”. The Regulations will only cover material directly linked to the extraction and treatment of minerals. This will typically include tailings (i.e. the waste solids or slurries that remain after the treatment of minerals by processing) rock which is weathered, below specification or otherwise unsalable, overburden (i.e. the material moved to access the mineral) and soil.
- 12.57 The definition of extractive waste is intended to cover only natural materials excavated at the site. It excludes any other waste arising at mines or quarries such as that from manufacturing processes (including production of asphalt, concrete or concrete products), construction, service of machinery or other operations.

17 http://www.wasteonline.org.uk/resources/Wasteguide/mn_wastetypes_miningquarrying.html

Waste Arisings

- 12.58 The quantity of mineral waste produced by the extractive industry in the UK fluctuates yearly, depending on the level of activity in the various sectors.
- 12.59 In 2008, total waste generated in the UK was estimated to be 288.6 million tonnes¹⁸. Mining and quarrying waste was considered to make up 29.7% of this total. This equates to 86.0 million tonnes.
- 12.60 There are limited figures available for Northern Ireland. It is estimated that approximately 1.9 million tonnes of mining and quarry waste was produced in the same period in 2008, representing 32% of the total waste generated. This figure is based on the apportioning of the total UK arisings, on a per capita basis.
- 12.61 Table 12.3 below indicates a reduction in the amount of waste being generated between 2004 and 2008. This is considered to be due to a reduction in the levels of mining and quarrying activities within the UK over this period. In total, mining and quarrying wastes decreased by 7.9 million tonnes over this period.

18 http://www.defra.gov.uk/statistics/files/wrfg01_gensec.xls

Table 12.3 Tonnage of Mining and Quarrying Waste in the UK 2004-2008¹⁹

Year	United Kingdom (thousand tonnes)	Northern Ireland (thousand tonnes)
2004	93,883	4,067
2006	86,766	3,699
2008	85,963	1,879

Management and Control

- 12.62 Due to the fact that the Mining Waste Directive is now in force, there is an obligation on Member States to ensure that all mineral waste is managed in accordance with the objectives of the Directive, that is, to prevent or reduce any adverse effects on the environment and human health brought about as a result of the management of extractive waste.
- 12.63 The general position of the Directive is that extractive waste should be reused on site with emphasis on placing the waste back into the excavation void where appropriate as long as this is technically possible, economically feasible and environmentally sound. There are however no definitive statistics available regarding mineral waste management, as individual mines and quarries will manage wastes according to local conditions.
- 12.64 For sound economic reasons, operators may aim to recover the maximum possible amount of economic mineral and any saleable by-products at each site.

¹⁹ http://www.defra.gov.uk/statistics/files/wrfg01_gensec.xls

13 Agricultural Waste

Introduction

- 13.1 Agricultural waste was previously excluded from regulations that controlled the management of household, commercial and industrial waste. The implementation of the Waste Management Regulations (Northern Ireland) 2006 (S.R. No. 280 of 2006), as amended, has however resulted in waste management controls now applying to agricultural waste in accordance with the European Waste Framework and Landfill Directives.
- 13.2 NIEA is the regulatory body with the responsibility for implementing these Regulations.
- 13.3 Under the Regulations, farmers are no longer permitted to burn or bury agricultural waste, or put agricultural waste into the household residual kerbside collection. Agricultural waste is required to be recovered or disposed of without endangering human health and without using processes or methods which could harm the environment.
- 13.4 Individuals, companies or organisations that are operating an agricultural business are required to register activities considered exempt from the waste management licensing regime. Waste exemptions relate to different types of activities and these activities must meet certain guidelines before they can be considered exempt. These rules and limitations can be found in full in the Waste Management Licensing Regulations (Northern Ireland) 2003.

Definitions

- 13.5 Agricultural waste is defined in the Waste Management Regulations (NI) 2006 as: *“waste from premises used for agriculture within the meaning of the Agriculture Act (Northern Ireland) 1949.”*
- 13.6 Agricultural premises are farms used for an activity defined as agriculture in the Agriculture Act (Northern Ireland) 1949 which includes, without prejudice to any other provision of this Act, 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. It also includes woodlands where that use is ancillary to the use of land for other agricultural purposes and arable farming. It should be noted that riding stables, equine centres, farm shops, kennels and animal parks are not classed as agricultural premises and therefore do not produce agricultural waste.

13.7 Types of agriculture waste are as follows¹:

- **Vehicle and machinery waste** - Antifreeze, batteries, brake pads, oil, filters, tyres, redundant vehicles and machinery, hydraulic oils, engine/gear/lubricating oil, waste fuels.
- **Plastic packaging** - Feed bags, animal health, packaging, fertiliser bags, agrochemical containers, seed bags, feed bags, general plastic packaging.
- **Animal health products** - Animal health treatments, swabs and dressings (used and unused), sheep dip, syringes (used and unused).
- **Non-packaging plastic** - Bale twine, net wrap, tree guards, cores for silage sheets, greenhouse and tunnel film, mulch film, crop cover, fleeces, horticultural plastic, silage plastic.
- **Natural farm wastes** - Ditch and waterway dredgings, feathers, wool, silage, plant tissue, manure and slurry, parlour washings, yard washings, poultry, litter, milk, straw, hay, unused (treated) seed.
- **Hazardous waste** - Agrochemical concentrates, antifreeze, asbestos (all forms), batteries, brake fluids, oils, medicines, fluorescent light tubes.
- **Miscellaneous** - Ash, textiles, vegetable washings.
- **Metal, wood, glass, rubber** - Hedge trimmings, tree prunings, oil drums, scrap wood (e.g. fence posts), paint tins, sawdust, wood shavings, pallets, aerosols.
- **Cardboard and paper** - Packaging, feed bags, cores for silage sheets, seed bags.

13.8 Agricultural waste can be natural and non-natural waste. Non-natural agricultural wastes include discarded pesticide containers, plastics, bags and sheets, tyres, batteries, clinical waste, old machinery, oil, packaging waste and much more. The common natural waste includes slurries and manure.

13.9 Manure and slurry may fall outside classification as waste:

- a. If it is used as a soil fertiliser; and
 - that use is part of a lawful practice of spreading; and
 - the spreading takes place on clearly identified parcels of land; and
- b. If its storage is limited to the needs of those spreading operations.
- c. Furthermore, to fall outside classification as waste it is not necessary for livestock effluent used as fertiliser to be spread on land forming part of the same agricultural holding as that which generated the effluent.

1 Code of Good Agricultural Practice (COGAP) DARD 2008

- 13.10 However, other rules and regulations will apply. For example, the storage and spreading of manures and slurries are subject to other controls such as the Nitrate Directive (91/676/EEC) and associated regulations (Nitrates Action Programme and Phosphorous Regulation 2011-2014), and the Silage Slurry and Agricultural Fuel Oil Regulations (SSAFO).
- 13.11 Animal by-products (animal carcasses, parts of carcasses or products of animal origin that are not intended for human consumption) are subject to the Animal By-Products (Enforcement) Regulations (Northern Ireland) 2011 (S.R. No. 124 of 2011) which have been put in place to administer and enforce the EU regulations including Regulation EC 1774/2002 Animal by-products Regulations.
- 13.12 Duty of care now applies to all waste produced on a farm. To comply with Duty of Care a farmer must:
- Ensure the waste is secure and that containers are fit for purpose; and
 - Ensure the waste collector is authorised to take it i.e. registered waste carriers and holders of waste management licences and that a waste transfer note has been completed and kept for two years. Details of registered waste carriers and holders of waste management licences are held on a public register on the NIEA website.²

Management and Control

- 13.13 The main roles and responsibility for the management of agricultural waste are summarised in Table 13.1.

Table 13.1 Summary of main roles and responsibilities

Element	Responsibility
Implementation and enforcement of the regulations	NIEA
Publication of guidance on the regulation including exemptions	DARD NIEA
Development of waste collection system for agricultural waste as appropriate	Waste Management Sector
Duty of care to ensure farm wastes are managed appropriately	Farmers and Agricultural Industry

² http://www.doeni.gov.uk/niea/waste-home/public_reg.htm

- 13.14 Under the regulations individuals, companies or organisations that are operating an agricultural business are required to register activities that are exempt from the need to have a waste management licence. There are 25 exemptions (21 simple and 4 complex exemptions) which may apply to agricultural activities involving waste. An example of simple waste exceptions are³
- Treatment and cleaning of agricultural packaging or agricultural containers so that they can be re-used;
 - Beneficial use of agricultural waste; and
 - Storing agricultural waste intended for recycling or recovery, in a secure place.

An example of a complex waste exception is:

- Spreading of agricultural waste on land for agricultural benefit or ecological improvement.

- 13.15 The Hazardous Waste Regulations (Northern Ireland) 2005 also apply to agriculture wastes examples of hazardous waste produced on farms include: oils, lead acid batteries, antifreeze, fluorescent light tubes and agrochemical concentrates.

- 13.16 Hazardous agricultural waste must not be transported without a consignment note, which is administered by NIEA. A unique code is provided to each particular movement of hazardous waste. This acts as a system of control for dangerous and difficult to handle wastes.

- 13.17 A number of guidance documents have been produced and are available to farmers to assist in the management of farm wastes:

- *Code of Good Agricultural Practice for Water, Air and Soil.*⁴

This code was produced by Countryside Management Branch of DARD to provide good management practice on how to avoid polluting water, air and soil. The code is for farmers, growers, contractors and others involved in agricultural activities and contains practical management advice on how farm wastes such as silage effluent, slurry and manure can be collected, stored and spread with minimum risk to the environment. Those claiming the Single Farm Payment and other direct payments must meet certain conditions known as Cross Compliance where regulations on the environment, public health, animal health, plant health, animal welfare and land maintenance must be followed. These regulations are called the Statutory Management Requirements (SMRs). These are set down in EU legislation Directives and Regulations.

- *Agricultural Waste Guidance NIEA*⁵

This guidance provides detailed information on agricultural waste licence exemptions.

3 Agricultural Waste Guidance NIEA

4 Code of Good Agricultural Practice (COGAP) DARD 2008

5 Northern Ireland Environment Agency

- *Dealing With Farm Wastes*⁶
This booklet provides advice and guidance to assist farmers in the production of a farm nutrient and waste management plan for their farm.
- *Waste Management, The Duty of Care, A Code of Practice for Northern Ireland*
The purpose of the Code of Practice is to provide practical guidance for everyone subject to the Duty of Care.

13.18 Permitted options for the disposal of agricultural waste are as follows:⁷

- **Register a licence exemption** - There are 25 exemptions, 21 simple and 4 complex exemptions.
- **Store the waste for up to 12 months** - Agricultural waste can be stored for 12 months where it is being produced, pending collection. However, this storage must not pose a risk to the environment or human health. Once this timescale has elapsed, the waste must be recovered or disposed of at an appropriately licensed site.
- **Dispose of the waste in an appropriately licensed waste management site off-farm, transported by farm producer:**
 - *Non-hazardous agricultural waste* - The producer of the waste can undertake the transport of the material, except agricultural construction and demolition waste, without the need for a waste carrier's licence.
 - *Agricultural construction and demolition waste* - The producer of the waste can undertake the transport of the material, but a waste carrier's license is required.
 - *Hazardous agricultural waste* - A consignment note from the NIEA is required if the agricultural waste is hazardous.
- **Dispose of the waste to an appropriately licensed waste management site off-farm, transported by anyone other than the farm producer** – A waste carrier's licence is required. If the carrier is only transporting agricultural waste, applying for the licence will be a one off procedure and it is free of charge. If a carrier is transporting all forms of waste the existing registration of carriers system applies.
- **Transfer the waste to a registered waste carrier for recovery or disposal off farm at an appropriately licensed site.**
- **Apply to NIEA for a waste management licence or a landfill permit to recover or dispose of the waste on the farm.**

13.19 Prohibited options for the disposal of agricultural waste are as follows:

- Waste must not be disposed using unlicensed farm tips or by burying waste.
- Waste can no longer be disposed of using a farm dump as a method of disposal unless a Waste Disposal Licence for the site has been received.

6 DARD 2008

7 Code of Good Agricultural Practice (COGAP) DARD 2008

- Waste must not be burned - The unregulated burning of all wastes is no longer permitted. Non-natural farm waste, such as plastic and tyres must not be burned in the open. Natural farm waste like crop residues (from linseed, cereals, oil seed rape, peas and beans), hedge trimmings and other untreated wood can be burned in the open. However, an exemption must be obtained from NIEA.
- Farm waste cannot be disposed of in the household bin.

Tyres

- 13.20 Tyres which no longer have a use are required to be disposed of correctly, as set out below:
- Tyres, which are to be discarded, cannot be stored for a period longer than 12 months.
 - Tyres must be disposed of through an appropriately licensed tyre recovery or disposal company.
 - Tyres must never be burnt or buried on the farm.
 - Farmers can take the tyres themselves to the recovery or disposal company without the need for a waste carrier's licence. However, if someone else transports the waste tyres for the farmer they would require a waste carrier's licence to undertake the operation.
 - Tyre suppliers may take old tyres after fitting new ones to agricultural machinery.
- 13.21 The beneficial reuse of waste tyres, when it requires no further treatment and where the activity does not involve disposal of the waste, will qualify for an exemption from the NIEA for example on top of a silo. The exemption must be renewed every three years.

Farms Plastics

- 13.22 The Waste Management Regulations (Northern Ireland) 2006 are the legal instruments for end of life management of farm plastics.
- 13.23 A Producer Responsibility scheme to increase the collection and recovery of non packaging farm plastics has been developed. The Advisory Group on Farm Plastics (AGFP) was set up in 2007 comprising representatives of Government, the Agencies, producers and importers of non-packaging farm plastics and the farming community. Consultation was undertaken by DEFRA on the introduction of a producer responsibility scheme for non-packaging agricultural plastics (NPAP). Following the consultation process it was decided that no Government intervention through the introduction of a statutory collection scheme was needed as the scheme would cover only a small waste stream and the costs and administrative burden on businesses of any scheme could be disproportionate to the environmental benefits that would be achieved.

- 13.24 All waste, including plastic waste, must now be:
- Taken or sent for recycling; or
 - Taken to a licensed landfill site for disposal.
- 13.25 Plastic waste may be stored on the farm of origin for up to 12 months.

Poultry Litter

- 13.26 Poultry litter is defined in the Nitrates Action Programme Regulations as: “a mixture of bedding material and poultry manure arising from the housing of poultry and with a dry matter content not less than 55%”⁸.
- 13.27 Around 260,000 tonnes of poultry litter are produced per annum in Northern Ireland and this is expected to increase in the future.
- 13.28 At present only 83,000 tonnes of poultry litter is managed sustainably per annum and an alternative use/disposal is required immediately for the remaining poultry litter waste arisings⁹.
- 13.29 The Updated Guidance for Farmers on Requirements for the Storage and Spreading of Poultry Litter to 31 December 2014 provides details of requirements which:
- Require poultry litter field heaps to be notified and authorised by the Northern Ireland Environment Agency (NIEA); and
 - To be sited at increased distances from lakes and other waterways.
- 13.30 Poultry litter, to be spread on land as a fertiliser in accordance with the Nitrates Action Programme Regulations (NI) 2010 is deemed not a waste. However there is a limit of 170 kg organic manure nitrogen/hectare/year that can be applied to agricultural land on any one farm holding. Poultry litter may be stored in a midden prior to field storage or land application, provided that adequate collection facilities are in place to capture all run-off.
- 13.31 The guidance provides information on
- Storage requirements for field heaps;
 - Storage capacity requirements;
 - Application limits;
 - Closed spreading period;
 - Distances poultry litter must not be applied within;

8 Updated Guidance for Farmers on Requirements for the Storage and Spreading of Poultry Litter to 31 December 2014. <http://www.doeni.gov.uk/niea/storageandspreadingofpoultrylitter.pdf>

9 Review of alternative technologies to fluidized bed combustion for poultry litter utilisation/disposal. http://www.dardni.gov.uk/poultry_litter_options_paper_final_-_jan_2012.pdf

- Poultry litter and botulism advice; and
 - Storage of poultry litter when it is not to be used as a fertiliser.
- 13.32 Where Poultry litter is to be put to any other use, it is classified as a waste and is subject to other controls outside of the Nitrates Action Programme Regulations. This is dependent on the location and reason for storage, for example litter stored on site of production prior to recovery or treatment. This may be covered by an exemption, a waste licence or require a PPC permit as the storage area may be considered a landfill site. This is dependent on the duration of storage.
- 13.33 The Department and the Agri-Food & Biosciences Institute (AFBI) were commissioned by the Minister of Agriculture and Rural Development in 2012 to carry out a review of alternative technologies for the management and disposal of poultry litter. This review¹⁰ examined the potential of a range of alternative technologies and options to fluidised bed combustion as a means of utilising/disposing of surplus poultry litter in Northern Ireland.
- 13.34 Options for disposal /utilisation of poultry litter include:
- Land spreading locally;
 - Export for land spreading;
 - Export for processing elsewhere;
 - Mushroom compost production; and
 - Alternative processing technologies including anaerobic digestion (conventional and dry), pyrolysis, gasification, autoclaving and quick wash treatment.
- 13.35 As stated previously, the Nitrates Action Programme Regulations includes a limit of 170 kg organic manure nitrogen/hectare/year that can be applied to agricultural land on any one farm holding. Poultry farms which exceed this limit require the need to export poultry litter to other farms to comply with the Regulations. This is becoming increasingly unavailable as an option as the limit restricts the area available for exporting excess manure from poultry farms and therefore there is an urgent need for an alternative to land spreading.
- 13.36 In addition, the AFBI review concluded that environmental problems and other constraints indicated that land spreading on grassland was not an appropriate disposal route for poultry litter.

¹⁰ Review of alternative technologies to fluidized bed combustion for poultry litter utilisation/disposal. http://www.dardni.gov.uk/poultry_litter_options_paper_final_-_jan_2012.pdf

- 13.37 Alternatives to land spreading and alternative processing technologies were assessed against a set of key criteria. The review concluded that thermal treatment, and in particular gasification, appears to offer potential as an alternative to fluidised bed combustion. Gasification is increasingly being used across Europe as a method for treating municipal waste and the process extracts significant quantities of energy during treatment. However, a number of technical challenges need to be overcome in applying the gasification approach to poultry litter.
- 13.38 Of the other options reviewed, export to Britain for land spreading on arable land also offered some potential, but this option will incur significant and ongoing costs due to high transport costs and the low financial value of poultry litter as a fertiliser.
- 13.39 The two key recommendations from the review are that consideration should be given by the industry to:
- a. Developing a proto-type poultry litter fuelled gasification plant in Northern Ireland; and
 - b. Options to reduce the transport cost of poultry litter for export, for example use of baling, and the logistics of shipping poultry litter outside the north should be further investigated.
- 13.40 Ministers in Northern Ireland have launched a small business research initiative competition designed to find alternative, sustainable ways to use poultry litter that will both meet the requirements of the EU Nitrates and Water Framework Directives and support industry development.

Waste Quantities and Composition

- 13.41 There is currently no specific waste data on agricultural waste arising in Northern Ireland. Data on waste produced by the agriculture, forestry and fishing sectors for the UK¹¹ and Scotland¹² is currently estimated using the Agricultural Waste Estimates Model developed for the Environment Agency. Data from the Agricultural Census are used to produce estimates of waste arisings from farms based on parameters such as crop and livestock production. It is estimated that each year in Northern Ireland some 20 million cubic metres of farm wastes are produced and require storage. Almost all of this is disposed of by land spreading¹³. Manures and slurries are not within the scope of the controlled waste framework.

11 <http://www.ons.gov.uk-tables>

12 http://www.sepa.org.uk/waste/waste_data/commercial__industrial_waste/agriculture,_fishing,_forestry.aspx

13 http://www.dardni.gov.uk/ruralni/index/environment/countrysidemangement/farm_waste_management.htm

- 13.42 An Agricultural Census is undertaken in Northern Ireland annually. Table 10.2 shows the total areas of each crop and total numbers of each type of livestock for 2006 and 2011.

Table 10.2 Crop Areas and Livestock Numbers in Northern Ireland

	2006	2011
Crop Area ('000 ha)		
Cereals	34	38
Potatoes	5	5
Flax	0	0
Hay and Pasture	804	777
Livestock Numbers ('000 head)		
Cattle	1,636	1,590
of which Cows	579	552
Sheep	2,070	1,888
Horses	10	12
Pigs	387	425
Poultry	18,411	19,623

- 13.43 In 2011, rx3 carried out the Irish Recycled Plastic Waste Arisings Study with the aim of understanding waste plastics generated on the island of Ireland, the fate of waste plastics on the island of Ireland, and to investigate potential all-island markets for waste plastics in Ireland. The study was part funded by the Department of the Environment Northern Ireland (DOENI) and the Department of Environment, Community and Local Government (DECLG).
- 13.44 This Study estimated that the tonnage of farm plastics collected in Northern Ireland in 2009/2010 was approximately 428 tonnes.¹⁴

Proposed Arrangements for the Management of Agricultural Waste

- 13.45 From the end of 2013 anyone who normally and regularly carries waste, including a 'specified person' such as a carrier of their own waste, a registered charity, someone carrying animal by-products only or carrying agricultural waste only, will be required to complete a one-off registration with the NIEA¹⁵.

¹⁴ The Irish Recycled Plastic Waste Arisings Study. rx3 2011

¹⁵ The Duty of Care - A Code of Practice. NIEA, 2012

Measures and Actions

- 13.46 Key issues associated with the future management of agricultural waste in Northern Ireland are as follows:

Data Collection

- 13.47 There is currently no specific recent waste data on agricultural waste arising in Northern Ireland. Data on waste produced by the agriculture, forestry and fishing sectors is currently obtained from models. The quality of this data is therefore in need of improvement. Key stakeholders should develop and implement procedures to ensure that relevant agricultural data is available for reporting at a Northern Ireland level and at Waste Management Group level, if possible.

Central Government

- 13.48 Key responsibilities include:
- Implementation of waste management policy and the promotion of a more sustainable approach to dealing with waste in Northern Ireland.
 - Implementation, monitoring and enforcement of the Waste Management Regulations.
 - NIEA are required under the Waste and Contaminated Land (Northern Ireland) Order 1997, to maintain a public register containing certain particulars relating to waste management activities.
 - Maintain close liaison with DARD on issues relating to agricultural waste infrastructure.

District Councils

- 13.49 Councils, through their Recycling Officers and their Education and Awareness campaigns should continue to provide advice to farmers on options available for the management of their wastes, either through council-operated facilities or private sector services, as appropriate to the district.
- 13.50 Councils should continue to support the agricultural sector, DARD, NIEA and the waste management industry, through advice and guidance, in implementing any sector specific initiatives.

Waste Management Sector

- 13.51 The waste management industry should continue to develop and expand the range of services and facilities available to the agricultural sector for the collection, storage and treatment of agricultural wastes.
- 13.52 The waste management sector / technology providers should continue to work with the agriculture sector to bring forward proposals for centralised and on-farm 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.

Agricultural Industry

- 13.53 The agricultural industry should continue to keep up to speed and aware of the requirements of and complying with the Waste Management (Northern Ireland) Regulations, 2006 as Amended and other Regulations that apply to waste arisings from farms.
- 13.54 Ensure to register activities that are Exempt from the need to have a Waste Management Licence as required under the Regulations. Ensure all waste activities have the required permits / licences as required.
- 13.55 Implement best practice measures, as outlined in the published Guidance.
- 13.56 Use of technology, such as advanced slurry spreading equipment, can make a significant contribution to delivering environmental benefits along with increased production efficiency.¹⁶
- 13.57 Avail of schemes, such as the Manure Efficiency Technology Scheme (METS), which funds specific specialised slurry spreading equipment. The scheme provides financial support to farm businesses towards the purchase of slurry tankers.
- 13.58 The agricultural sector, in association with the waste management sector / technology providers, to bring forward proposals for centralised and further on-farm anaerobic digestion plants to produce renewable energy in conjunction with recycling, managing and utilising farm manures and other organic materials within the Region. Renewables Obligation Certificates (NIROCs) are available in Northern Ireland for electricity from anaerobic digestion. Further information on NIROCs available can be found at www.detni.gov.uk.

¹⁶ Strategic Plan 2012-2020, DARD 2012

14 Priority and Other Waste Streams

Introduction

- 14.1 Several EC Directives were identified as 'Priority Waste Streams' in the European Union's Fifth Environmental Action Programme¹ because of growing concerns about their impact on the environment.
- 14.2 Priority Waste Streams have been identified 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 Electronic Equipment (WEEE);
 - End of Life Vehicles;
 - Tyres; and
 - Batteries.
- 14.3 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.
- 14.4 This Chapter 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 are managed in a compliant and sustainable manner.
- 14.5 In addition to the priority waste streams, this chapter considers the measures for the management of a number of other waste streams namely:
- Sewage Sludge; and
 - Clinical Wastes.

1 <http://ec.europa.eu/environment/archives/env-act5/pdf/5eap.pdf>

Waste Electrical and Electronic Equipment (WEEE)

- 14.6 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 as follows:
- 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.
- 14.7 The waste stream is managed through the Waste Electrical and Electronic Equipment (WEEE) Directive which was recast as EU Directive 2012/19/EU². This aims to implement 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.
- 14.8 The Waste Electrical and Electronic Equipment Regulations 2006, and their subsequent amendment in 2007, implement most aspects of the WEEE Directive in the UK. In addition, there are two further sets of Regulations that apply to Northern Ireland. These are as follows:
- The Waste Electrical and Electronic Equipment (Waste Management Licensing) Regulations (Northern Ireland) 2006 came into force in January 2007 and deal with the site licensing requirements and WEEE treatment requirements of the WEEE Directive.
 - The waste Electrical and Electronic Equipment (Charges) Regulations (Northern Ireland) 2006 came into force in January 2007 and prescribe charges to be paid to the Department of the Environment under the WEEE Regulations 2006.

2 http://ec.europa.eu/environment/waste/weee/index_en.htm

- 14.9 In addition to the WEEE Directive, the revised Restriction of Hazardous Substances (RoHS) Directive³ (2011/65/EC), which restricts the use of certain hazardous substances in EEE and aims to protect human health, was implemented to support the WEEE Directive. This revision broadens the scope of products covered and requires all non-compliant products to be removed from the market by 2019.
- 14.10 The recast WEEE Directive has introduced a number of targets with the NI Waste Management Strategy - Towards Resource Efficiency proposing the following targets⁴:
- Collection of 45% of EEE placed on market by 2018 increasing to 65% by 2021;
 - A broadening of the scope of the Directive to include more EEE and a redefinition of the categories;
 - An increase to all recovery and recycling targets for all categories of EEE;
 - The potential to introduce a mandatory reuse target of 5%; and
 - An obligation on distributors to provide for the collection of small WEEE at certain retail shops.
- 14.11 A recast WEEE Directive was published in the Official Journal on 24th July 2012 with a transposition date of 14 February 2014.
- 14.12 Allied to the recast WEEE Directive, a revised EU Restriction of Hazardous Directive (2011/65/EU) came into effect on 2 January 2013. The Directive restricts the use of certain hazardous substances in electrical and electronic equipment (EEE) and aims to protect human health and the environment by minimising the amount of potentially hazardous substances ending up in landfill sites and recycling processes. The restricted substances are lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers. The revised Directive broadens the scope of the products covered; widens the definition of EEE and requires all non-compliant products to be removed from the market by July 2019.
- 14.13 In terms of arisings, the total WEEE collected from households and businesses in Northern Ireland in 2011 was 13,133 tonnes⁵, equivalent to 7.2 kg per person which exceeds the 4kg per person target set within the initial WEEE Directive.
- 14.14 Based on population statistics, within the NWRWVG, these arisings would equate to an estimated 2,402 tonnes of waste WEEE in 2011.

3 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:174:0088:0110:EN:PDF>

4 http://www.doeni.gov.uk/waste_strategy_review.pdf

5 http://www.doeni.gov.uk/northern_ireland_environmental_statistics_report_2012r.pdf

- 14.15 The amount of WEEE placed on the market in the UK has remained steady at approximately 1.5 million tonnes per annum since a peak of 1.7 million tonnes in 2008. Collection quantities have been increasing by between 2% and 7% year on year over the past 4 years with over 517,000 tonnes collected within the UK in 2011⁶. It is expected that this collection figure will continue to increase at this rate, with almost 1 million tonnes estimated to be collected by 2020.
- 14.16 There are currently a number of management routes for components of WEEE that are separately collected by District Councils at household recycling centres and also, in the case of business and industry, by registered waste contractors. These include:
- The collection of white goods for recycling and shredding;
 - The collection of fluorescent tubes for recycling;
 - The collection and bulking up of small WEEE;
 - The collection of Cathode Ray Tubes (television and computer monitors) and subsequent bulking up for recycling; and
 - The collection of domestic fridges and freezers by District Councils for treatment. Commercial units are also collected for treatment.
- 14.17 Table 14.1 illustrates the roles and responsibilities for the effective management of WEEE.

Table 14.1 Roles and Responsibilities for the Management of WEEE

Sector	Roles and Responsibilities
Producers and Importers	<ul style="list-style-type: none"> ▪ Register as a producer / importer with NIEA; ▪ 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	<ul style="list-style-type: none"> ▪ 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; and ▪ Ensure customers are informed of the WEEE take back facilities available to them. Encourage consumer participation in the separate collection of WEEE.
Compliance Schemes	<ul style="list-style-type: none"> ▪ Register with NIEA; and ▪ Provide data returns as required.

6 <http://www.environment-agency.gov.uk/business/topics/waste/111016.aspx>

Sector	Roles and Responsibilities
Central Government	<ul style="list-style-type: none"> ▪ 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; and ▪ Stakeholder education and awareness initiatives.
District Councils	<ul style="list-style-type: none"> ▪ The British Retail Consortium currently funds a take back scheme alongside District Councils as part of their obligation towards the collection network; and ▪ Follow WEEE Producer Responsibility requirements. Further information on these can be found at: http://www.doeni.gov.uk/index/protect_the_environment/waste/waste_electrical_electronic_equipment.htm
Waste Management Sector	<ul style="list-style-type: none"> ▪ Develop and operate WEEE collection and recycling schemes
EEE Users	<ul style="list-style-type: none"> ▪ Do not deposit WEEE items in household bins for disposal; ▪ Participate in WEEE collection schemes; ▪ Exercise purchasing decisions by choosing resource efficient products; and ▪ Commercial users should endeavour, where possible, to include take back as part of their contracts with electrical and electronic equipment suppliers.

End of Life Vehicles (ELVs)

14.18 An End of Life Vehicle (ELV) is one which has been discarded for depollution and dismantling, rather than for repair and re-sale. There are two broad categories of 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.

14.19 The End of Life Vehicles Directive (2000/53/EC) aims to reduce environmental impact of by introducing higher environmental standards for the treatment and dismantling of vehicles when they are scrapped. The principal objectives of the Directive are an increase in the recycling of ELVs and their components and the improved environmental performance of all the economic operators involved in the life cycle of vehicles. The Directive was implemented in Northern Ireland through the End of Life Vehicle Regulations 2003 (Northern Ireland S.R. 2003/493). Key elements of the Directive include the following:

- By 2006, vehicle producers must plan and establish an accessible 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).

14.20 Articles 5 and 7 of the ELV Directive were the subject of the End of Life Vehicles (Producer Responsibility) Regulations 2005, which came into effect on 3rd March 2005. The End of Life Vehicles (Producer Responsibility) (Amendment) Regulations 2010 make amendments to the 2003 and 2005 Regulations.

14.21 DOENI, in conjunction with DEFRA, BIS and the other devolved administrations is currently reviewing the suite of producer responsibility legislation with the aim of developing more coherent Producer Responsibility regimes capable of delivering more effective environmental outcomes and targets at least cost to business. It is planned to issue a public consultation document, impact assessment and draft amending Regulations by April 2013. The review will tie-in with a 'fitness check' of certain EU Producer Responsibility legislation, including the End of Life Vehicles Directive, being carried out by the European Commission. In addition, the DOENI will play an active role in the concurrent review of the Producer Responsibility Initiative Model in Ireland being led by DECLG with the aim of ensuring a higher degree of compatibility between Producer Responsibility regimes in Northern Ireland and the Republic of Ireland and reduce the potential for illegal activity.

14.22 The delivery of a key number of targets included in the ELV Directive is presented in Table 14.2.

Table 14.2 ELV Directive Targets and Implementation

ELV Directive Targets	Initiatives Implemented
By 2006, vehicle producers must plan and establish an adequate network of Authorised Treatment Facilities (ATFs) and collection points to take back their own brands of vehicles.	As of October 2014, there are 71 NIEA licensed Authorised Treatment Facilities in Northern Ireland. There are currently 13 ATFs in the NWRWMG.
From 1 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	Vehicle producers have set up two service providers to facilitate the collection and free take back of their vehicles. The service providers Cartakeback and Autogreen have

ELV Directive Targets	Initiatives Implemented
points.	set up networks of ATFs throughout Northern Ireland.
From 2006 up to 2014, each producer must achieve 85% reuse and recovery of ELVs (80% to be achieved by reuse and recycling).	The figures for 2010 show that Northern Ireland reached an 81.28% recycling, 1.77% reuse and 2.51% energy recovery rate for ELVs.
From 2015 onwards, each producer must achieve 95% reuse and recovery of ELVs (85% to be achieved by reuse and recycling).	Investments are being made now which ensure that the targets are met in 2015.

14.23 The main management routes for ELVs are as follows:

- **Dismantling** - dismantling companies remove valuable parts and components and depollute vehicles (for example, 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 (for example, rubber, plastics) may also be segregated for recycling. About 25% is lightweight shredder fluff which is usually landfilled.

In addition to the above, ELVs may be stockpiled or illegally burned or deposited on land.

14.24 Figures obtained from the Driver and Vehicle Agency in Northern Ireland (DVANI) estimated that the total number of vehicles de-registered and taken off Northern Ireland roads in 2010 was approximately 71,155 vehicles. Of this 36,224 vehicles were scrapped and 34,931 vehicles were exported. In order to estimate future ELV arisings in Northern Ireland it was assumed that the total number of de-registered vehicles that were scrapped is equivalent to the total number of ELV arisings in Northern Ireland.

14.25 The Department for Business, Innovation and Skills (BIS) also provided the following data which was obtained from Certificate's of Destruction (CoDs) reported by ATFs. The CoD is the notice of intent to dispose of the vehicle and informs the Driver and Vehicle Agency of the intention to remove the vehicle from the registration database.

- The total number of End of Life Vehicles reported by ATFs in 2010 was 22,486 vehicles. The disparity between the reported figures from the DVANI and BIS is likely to represent a significant number of vehicles that were de-registered but not subject to immediate scrappage. There may also be a degree of under-reporting by ATFs.
- The total number of End of Life vehicles reported by ATFs in the NWRWVG region was 2,547 vehicles.

14.26 Following a review of the Waste Management Licences Public Register (which is available on the NIEA website) it has been identified that there are currently 71 NIEA licensed Authorised Treatment Facilities in Northern Ireland (as of October 2014). There are currently 13 ATFs in the NWRWMG..

14.27 The roles and responsibilities for the management of ELVs are presented in Table 14.3.

Table 14.3 Roles and Responsibilities for the Management of ELVs

Sector	Roles and Responsibilities
Vehicle Producers – Manufacturers and Importers	<ul style="list-style-type: none"> ▪ 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; and ▪ Promote education and awareness among stakeholders.
Dismantlers / Treatment Facilities	<ul style="list-style-type: none"> ▪ Comply with ELV and other relevant environmental regulations; ▪ Issue certificate of destruction to last owner/holder of the vehicle; and ▪ Treat ELVs to reduce adverse environmental impacts, remove hazardous materials and treating polluting substances.
Central Government	<ul style="list-style-type: none"> ▪ Carry out regulation and enforcement activities; ▪ Collect data on ELV arisings and management routes; and ▪ Stakeholder education and awareness activities.
District Councils	<ul style="list-style-type: none"> ▪ Put in place waste management arrangements for abandoned vehicles; and ▪ Take account of producer networks for ELV collection and treatment in Waste Management Plans which cover all controlled waste streams.
General Public	<ul style="list-style-type: none"> ▪ Ensure ELVs are sent to Authorised Collection and / or Treatment facilities.

Tyres

- 14.28 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.
- 14.29 Management of tyre wastes is primarily regulated by the Landfill Directive (99/31/EC), which has prohibited the disposal of whole tyres to landfill from 2003, with the exception of tyres used as engineering materials, bicycle tyres and tyres with an outside diameter above 1400mm. The Directive has also prohibited the disposal of shredded tyres from 2006 with the exception of bicycle tyres and tyres with an outside diameter above 1400mm. Other primary legislation which provides the regulatory framework for the management of tyre waste includes the following:
- 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;
 - Consumer Protection Act by The Motor Vehicle Tyres (Safety) Regulations, 1994;
 - The Waste and Contaminated Land (Northern Ireland) Order 1997;
 - The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland) 1999;
 - The Controlled Waste (Duty of Care) Regulations Northern Ireland 2002;
 - The Waste Management Licensing Regulations (Northern Ireland) 2003 (as amended);
 - End of Life Vehicles (Producer Responsibility) Regulations 2005; and
 - The End of Life Vehicles (Producer Responsibility) Regulations (as amended) 2010.
- 14.30 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 by 2015.
- 14.31 A Departmental Used Tyres Working Group was established in 2011 to identify the scale of the problem of used tyres in Northern Ireland and to draw up an action plan to tackle the problems associated with this waste stream. The action plan included the commissioning of a survey, on an all-island basis, to identify the scale of the problem and an examination of

the regulatory and enforcement frameworks surrounding the used tyre industry. The Used Tyres Action Plan will be finalised by the DOENI during 2013.

- 14.32 The Northern Ireland Used Tyre Survey, 2000⁷, carried out by DOENI, estimated the total quantity of waste tyres produced annually in Northern Ireland to be 16,100 tonnes or 1,738,100 tyres. Based on an annual increase of 1% identified in the 2000 survey the tyres arisings were predicted to increase to approximately 17,962 tonnes in 2011 and 19,645 in 2020.
- 14.33 The most recent Used Tyre Survey was undertaken by RPS in November 2012⁸ for the Department of Environment Northern Ireland (DOENI) and the Department of the Environment, Community and Local Government (DECLG) in the Republic of Ireland. The main objectives of the survey were to provide improved information on the quantity and management of used tyres on the Island of Ireland.
- 14.34 The Survey carried out in 2012 estimated that there was a total of 18,597 tonnes of used tyres in Northern Ireland in the years 2010/2011 which equated to approximately 1.8 million units of tyres. This accounts for a difference of 35 tonnes or 3.5% between the projected 2011 figure of 17,962 tonnes estimated in the Used Tyre Survey in 2000.
- 14.35 The survey estimated that out of a total of 18,597 tonnes of used tyres in Northern Ireland, 45.2% was collected by registered collectors, 0.7% was illegally disposed of and 54.1% was managed outside the licensed regime.
- 14.36 Table 14.4 below presents information on the management options for used tyres in Northern Ireland, as estimated from the results of the 2012 All Island Used Tyre Survey. Management at recycling and reprocessing facilities is estimated to account for 71.9% of used tyres, of which 7,761 tonnes is estimated to be exported outside of Northern Ireland.

7 Northern Ireland Used Tyre Survey 2000, EHS.
http://www.doeni.gov.uk/niea/execsumma_usedtyresurvey.pdf

8 All Ireland Used Tyre Survey 2012, DOENI and DECLG.

Table 14.4 Management Options for Used Tyres in NI

Management Options	Estimated Tonnage	%
Recycling and Reprocessing Facilities	13,370	71.9
Reuse / Retread	41	0.2
Landfill Engineering	1,116	6.0
Agricultural and Other Temporary Uses	942	5.1
Part Worns	1,365	7.3
Unknown	1,763	9.5
Total	18,597	100%

14.37 The roles and responsibilities for the management of tyres are presented in Table 14.5.

Table 14.5 Roles and Responsibilities for Management of Tyres

Sector	Roles and Responsibilities
Motor Industry	<ul style="list-style-type: none"> ▪ 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; and ▪ Promote education and awareness among stakeholders.
Central Government	<ul style="list-style-type: none"> ▪ Carry out regulation and enforcement activities; ▪ Collect data on waste arisings and management routes; and ▪ Stakeholder education and awareness activities.
Waste Management Sector	<ul style="list-style-type: none"> ▪ 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; and ▪ Support stakeholder education and awareness activities.

Batteries

- 14.38 Battery types vary in their shape and also composition 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 (for example, emergency lighting, computer backup) or traction (for example, electrical vehicles) and many are lead acid or Nickel Cadmium (NiCd);
 - Automotive industrial batteries are almost exclusively lead acid type batteries; and
 - 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.
- 14.39 Management and control of spent batteries is covered by various legislation but is primarily controlled by the EU Directive for Batteries and Accumulators and Waste Batteries and Accumulators (2006/66/EC). Other Regulations which effect the management and control of this waste stream are:
- The Landfill Directive Waste Acceptance Criteria (WAC);
 - The End-Of-Life-Vehicles Directive (2000/53/EC);
 - Waste Batteries and Accumulators Regulations (Northern Ireland) 2009;
 - The Hazardous Waste Regulations (Northern Ireland) 2005; and
 - The Waste Electrical and Electronic Equipment (WEEE) Directive 2011.
- 14.40 The targets that apply to spent batteries come from the EU Batteries Directive, implemented in 2006 and proposed targets of:
- Registration of all producers, for example, manufacturers or importers of batteries;
 - Collection target for waste portable batteries of 45% of average annual sales in the UK by 2016;
 - 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 and a requirement for producers to arrange for the collection and recycling of waste industrial and automotive batteries; and
 - A partial ban on portable NiCd batteries with some limited exceptions, for example, medical equipment.

- 14.41 Data on battery waste arisings is limited as there have not been any surveys directly estimating waste battery arisings within Northern Ireland. However, in the UK in 2010, the National Waste Packaging Database⁹ stated that approximately 45,754 tonnes of batteries were placed on the market by battery compliance scheme members. Using population figures, this would equate to 1,358 tonnes of batteries on the market in Northern Ireland in 2010.
- 14.42 UK Data¹⁰ suggests 0.3kg of battery arisings per person which would translate to 543 tonnes of waste per annum within Northern Ireland. For NWRWMG therefore, based on a 2011 population of 333,635 this would equate to approximately 100 tonnes of batteries per year.
- 14.43 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 Household Recycling Centres, 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.
 - **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. These batteries are collected at garages, scrap metal facilities and many Civic Amenity Sites and Household Recycling Centres; and
 - **Industrial Batteries** – due to their hazardous nature the batteries are collected by specialist hazardous waste contractors.
- 14.44 In terms of future management, there is a need for all stakeholders to work together to meet the requirements of Batteries Directive. As a result of this, the key 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.
- 14.45 Table 14.6 illustrates the roles and responsibilities for the effective management of batteries

9 *National Packaging Waste Database, Summary of Batteries Placed on the Market in 2010*, March 2011

10 http://www.doeni.gov.uk/niea/annex2_2nddraft_screen.pdf

Table 14.6 Roles and Responsibilities for the Management of Batteries

Sector	Roles and Responsibilities
Business and Industry	<ul style="list-style-type: none"> ▪ Comply with legislation; ▪ Implement initiatives for waste prevention and reuse, for example, use rechargeable batteries; ▪ Implement initiatives for recycling of materials, for example, source segregate batteries for separate collection; and ▪ Develop more resource efficient and competitive products and processes.
General Public	<ul style="list-style-type: none"> ▪ Minimise waste, for example, use rechargeable batteries, purchase more resource efficient products; and ▪ Use facilities provided by District Councils and other service providers for separate collection of batteries.
Waste Management Sector	<ul style="list-style-type: none"> ▪ 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; and ▪ Promote education and awareness among stakeholders.

Sewage Sludge

14.46 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.

14.47 Responsibility for the management and control of sewage sludge falls with Northern Ireland Water. Northern Ireland Water 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.

- 14.48 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.
- 14.49 Quantities of sewage sludge produced incrementally increased between 1997 and 2005 due to the additional wastewater treatment capacity coming on stream to comply with the Urban Waste Water Directive.
- 14.50 The estimated volume of sewage sludge produced in Northern Ireland is identified in Table 14.7 below. In 2012, the total dry solids sludge produced in Northern Ireland was 39,000 tonnes.

Table 14.7 Estimated Tonnage of Sewage Sludge

Year	Annual Tonnage (Tonnes)
2008	38,400
2009	38,000
2010	37,900
2011	38,100
2012	39,000

- 14.51 Disposal of sewage sludge in Northern Ireland up to the end of 1998 involved the spreading to agricultural land and dumping at sea from Belfast. However the implication of the EC Urban Wastewater Treatment Directive resulted in an increase in the sewage sludge quantities and the prohibition of a disposal route, dumping at sea.

- 14.52 A sewage sludge disposal strategy was developed in 1994 which recognised the important role for incineration. The Best Practicable Environmental Option (BPEO) principle established by The Twelfth Report of The Royal Commission on Environmental Pollution (1988)¹¹ was applied in the development of the strategy.
- 14.53 The 1994 strategy envisaged an incineration capacity of 24,000 total dry solids (tds) and 28,000 tds was to be disposed of to agricultural land.
- 14.54 In the light of developments which put greater constraints on land disposal, a review of the strategy was undertaken using a revised sludge production of circa. 40,000 tds by 2010. The Strategy recommended an expansion of the incineration disposal route by adding a second stream to the existing incinerator at Belfast's Duncrue Street thus enabling sufficient capacity for all of Northern Ireland's wastewater sludges to be incinerated.
- 14.55 In 2003, the expansion of incineration capacity was identified as a private finance opportunity, and the Sludge Disposal Service identified as a potential long term Public Private Partnership. In 2007, a Public Private Partnership (PPP) contract was awarded - Project Omega. This contract included the delivery of the second stream incinerator and the operation of the disposal service up to 2032.
- 14.56 The second incinerator has been installed with a similar fluidised bed technology as the first incinerator. Both incinerators are operated under a Pollution Prevention and Control Permit issued by NIEA.
- 14.57 The roles and responsibilities for the management of sewage sludge are presented in Table 14.8.

11 <http://webarchive.nationalarchives.gov.uk/20110322143804/http://www.rcep.org.uk/reports/index.htm>

Table 14.8 Roles and Responsibilities for the Management of Sewage Sludge

Sector	Roles and Responsibilities
Northern Ireland Water	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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

- 14.58 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.
- 14.59 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.
- 14.60 An estimate of hospital waste is based on the average available hospital beds within each healthcare trust within the NWRWVG. Estimates of Average Available Beds in the Western and Northern Healthcare trusts are calculated based on the populations of each NWRWVG District Council within the healthcare trust area. Table 14.9 below sets out the estimated average available beds in the NWRWVG Region in 2010/11.

Table 14.9 Average Available Beds by Healthcare Trust in NWRWMG (2010/11)

NWRWMG	
Healthcare Trust	Average Available Beds ¹²
Western HSC Trust	640.6
Northern HSC Trust	268.3
NWRWMG Total	908.9

Source: http://www.dhsspsni.gov.uk/inpatient_hospital_statistics_2010-11.pdf

- 14.61 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 NWRWMG region had an average occupancy rate of 83.7% for 2010/11. In the NMWRWMG Region therefore, this equates to approximately 380 tonnes per annum.
- 14.62 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 190 and 380 tonnes per annum.
- 14.63 Therefore, clinical waste arisings in the Region from hospital and community healthcare facilities are estimated to be in the region of 570 to 760 tonnes per annum.
- 14.64 The management of clinical wastes is primarily controlled by the Hazardous Waste (Northern Ireland) Regulations, 2005.
- 14.65 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.
- 14.66 The roles and responsibilities for the management of clinical waste are presented in Table 14.10.

12 Calculated based on Population Figures (Census 2011) for each District Council in each Health Trust.

Table 14.10 Roles and Responsibilities for the Management of Clinical Wastes

Sector	Roles and Responsibilities
Health Professionals	<ul style="list-style-type: none">▪ 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	<ul style="list-style-type: none">▪ Ensure waste is treated and disposed in appropriately licensed facilities in accordance with legislative requirements.

15 Implementation, Monitoring and Review

Introduction

- 15.1 This Waste Management Plan provides the framework for the management of controlled wastes arising within the North West Region Waste Management Group, setting out the arrangements required, and defining the actions needed to develop a resource efficient management approach. Implementation therefore is key, and the Plan will be subject to a process of ongoing monitoring and review, particularly with respect to Local Authority Collected Municipal Wastes, for which the Councils have statutory responsibility.
- 15.2 The individual District Councils within the Group, in undertaking monitoring and review, are committed to:
- 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.
- 15.3 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;
 - Reviewing the effectiveness of the arrangements;
 - Assessing the impact of policy and legislative developments; and
 - Reviewing and updating the arrangements and actions where necessary.
- 15.4 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 six yearly intervals, involving a full review of the Plan, culminating in the publication of a modified Plan.
- 15.5 In addition to this, the North West Region Waste Management Group will consider management information, collected 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.

Key Performance Indicators

- 15.6 Reliable data, and the use of Key Performance Indicators (KPIs) are essential elements in the ongoing process of monitoring and review. For Local Authority Collected Municipal Waste, WasteDataFlow, a structured online reporting facility is used by Councils across the United Kingdom for data reporting with data returns completed quarterly. One of its functions is to ensure that data collection and management conform to EU reporting requirements.
- 15.7 WasteDataFlow allows direct entry of data on Local Authority Collected Municipal Waste (LACMW). 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 below:
- Waste generated per household (t/hhld/yr)
 - Household Waste Arisings (tonnes)
 - Household Waste Arisings, Growth Rate (%)
 - Household Waste Recovery Rates (%)
 - Household Waste Landfilled (%)
 - LACMW Waste Arisings (tonnes)
 - LACMW Waste Arisings, Growth Rate (%)
 - LACMW Waste Recovery Rates (%)
 - LACMW Waste Landfilled (%)
 - Biodegradable LACMW Landfilled (tonnes)
 - NILAS, Landfill Allowance Allocation (tonnes)
- 15.8 WasteDataFlow is a system for reporting LACMW and household waste 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 LACMW therefore that provides the basis for the evidential approach to performance review and monitoring by the Councils.

15.9 Data on a range of waste streams will be collated and reviewed for the purposes of reviewing the Waste Management Plan, when and as appropriate. These will be obtained from available sources, including for example, waste surveys by DOE / NIEA, and sectoral and industry reports. These waste streams will include:

- Agricultural Waste;
- Batteries;
- Clinical Wastes;
- Commercial and Industrial Waste;
- Construction, Demolition and Excavation (CDE) Waste;
- End of Life Vehicles (ELVs);
- Hazardous Waste;
- Packaging Waste;
- Sewage Sludge;
- Tyres; and
- Waste Electrical and Electronic Equipment.

Annual Review

15.10 An Annual Review will be undertaken by the Group with the specific objectives of:

- Reviewing data on the quantities and nature of waste arisings;
- Reviewing data on the quantity of waste recovered and landfilled;
- Reviewing performance and progress against targets;
- Monitoring the implementation of the measures set out in the Waste Management Plan;
- Review of current waste management infrastructure in operation in the North West Region Waste Management Group (numbers of bins / boxes for recycling and composting, home composting units, CA Sites and Bring Sites);
- Review of current service contracts in operation in the North West Region Waste Management Group;
- Review of landfill capacity in the North West Region Waste Management Group;
- Review of Education and Awareness Initiatives in the North West Region Waste Management Group; and
- Review of Objectives, Targets and Achievements set out in the North West Region Waste Management Group Waste Management Plan.

15.11 Two key aspects of the Annual Review are:

- To monitor progress and therefore the effectiveness of the measures in the Waste Management Plan; and
- To communicate with and inform stakeholders on the performance of the Councils and the Region, by publishing an Annual Report.

- 15.12 The Annual Review will be completed by the end of June with respect to the preceeding data report year, and will be presented in the Annual Report. The report will be published on the Group's website at: <http://www.northwestwaste.org.uk/>

Plan Review

- 15.13 The Waste Management Plan sets the context for managing waste within the North West Region Waste Management Group up to 2020. As such the Plan has assessed the targets set out in the Northern Ireland Waste Management Strategy: *Delivering Resource Efficiency*, to determine the arrangements and actions necessary to meet these requirements. Key measures provide for:
- **Waste Prevention and Minimisation** – to reduce the production of waste.
 - **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** –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; and
 - Secure disposal capacity.
- 15.14 North West Region Waste Management Group also recognises that resource and waste management policy and legislation is continuing to evolve, and 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.
- 15.15 Formal reviews therefore will take place at intervals of not more than six years. North West Region Waste Management Group 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.

SEA Monitoring and Review

- 15.16 It should be noted that a Strategic Environmental Assessment has been undertaken for the review of the Waste Management Plan. As part of this process a Scoping Report was prepared which was submitted for consultation to a number of agencies, such as Northern Ireland Environment Agency (NIEA), Environment Protection Agency (EPA) etc, to provide comments on the scope and level of detail to be considered in the assessment. These comments have been addressed, where appropriate, in the Waste Management Plan and Environmental Report.
- 15.17 The SEA Directive requires that the significant environmental effects of the implementation of the Plan are monitored in order to identify at an early stage unforeseen adverse effects and in order to undertake appropriate remedial action. Table 15.1 sets out the proposed environmental monitoring programme for the Waste Management Plan.

Table 15.1 Environmental Monitoring

SEA Target	SEA Indicators	Potential Responsible Authority	Possible Data Availability, Source and Frequency
No damage to protected sites in the North West Region Waste Management Group (BFF)	Status of EU Protected Habitats and Species and status of national Priority Species and Habitats. Condition of Selection Features in sites designated for nature conservation (SACs, SPAs and ASSIs).	NIEA	UK Report on Implementation of Habitats Directive (every 6 years). Northern Ireland Environmental Statistics Report (Annual). UK Biodiversity Action Plan (every 3 years). Northern Ireland Biodiversity Strategy (every 3 years). Northern Ireland Environmental Statistics Report (Annual)
No damage to or displacement of protected species in the North West Region Waste Management Group (BFF)			
No negative transboundary impacts on biodiversity, flora and fauna (BFF)		NPWS	NPWS Species Action Plan. Status of Protected Sites and Species in Ireland Report (Every 6 years).
Year on year reduction of kerbside collected recyclables contamination levels (P).	Recorded contamination levels of kerbside collected recyclables.	Local Authority / North West Region Waste Management Group	Local Authority / North West Region Waste Management Group contamination studies – As required.
Year on year reduction in waste management costs per head population (P).	Waste management costs per head population.		Local Authority / North West Region Waste Management Group economic studies – As required.
Increase in number of recycling facilities per head population (P).	Recycling facilities available per head population.		North West Region Waste Management Group Waste Management Plan review (every 6 years)
Increase in recycling participation rates (P).	Recycling scheme participation studies.		Local Authority / North West Region Waste Management Group participation studies – As required.
Provide safe waste management sites and working conditions (HH)	Number of accidents associated with waste management activities and facilities	HSENI / Local Authority Environmental Health Department	Data collected as reported. Can be sourced on request.
Prevent nuisance dust and odours emanating from waste facilities and activities (HH)	Health issues and nuisance complaints associated with waste management activities	Local Authority Environmental Health Department / NIEA	Data collected as reported. Can be sourced on request.

SEA Target	SEA Indicators	Potential Responsible Authority	Possible Data Availability, Source and Frequency
No soil contamination due to waste management activities (S)	Area of land contaminated or impacted due to waste activities, and the location of new facilities. Contamination statistics and reports	Local Authority Environmental Health Department / NIEA	Local Authorities collect information of potentially contaminated site within their council areas. Can be sourced on request. Data collected as reported from spills. Can be sourced on request. Northern Ireland Environmental Statistics Report (Annual).
No deterioration of water status up or downstream of North West Region Waste Management Group waste management facilities, due to development or operation (W).	WFD water status of surface and groundwaters in the area.	NIEA	WFD Water Status Reports (2015)
No negative impacts on water supplies (W)		NIEA / NI Water	
No negative impacts on flood defences, floodplains or local flooding characteristics (W).		NIEA / DARD Rivers Agency	
No negative transboundary impacts on water resources (North West Region Waste Management Group within international RBD) (W)		EPA / RoI Local Authorities	
Reduce air emissions from waste management activities	Periodic dust, gas and noise monitoring in the vicinity of waste management facilities.	Local Authority Environmental Health Department / NIEA	Data collected as reported. Can be sourced on request. PPC reporting
Reduce noise emissions from waste management activities			

SEA Target	SEA Indicators	Potential Responsible Authority	Possible Data Availability, Source and Frequency
Reduce greenhouse gas emissions from North West Region Waste Management Group waste management activities	Estimated GHG emissions CO ₂ emissions from energy recovery, eg. landfill flares.	NIEA / North West Region Waste Management Group	GHG Emissions Data Reporting and National (GHG) Inventory Reports
Provide waste management facilities that are adapted to potential climatic change	Facilities designed with potential climatic change taken into consideration.	North West Region Waste Management Group	Planning applications and As-built drawings.
Reduce the quantity of waste produced.	Waste production statistics	Local Authority / North West Region Waste Management Group	WasteDataFlow Reporting
Increase recycling and composting rates.	Material recovery and recycling statistics		
Recovery of residual waste (percentage recovered).			
Reduce the quantity of materials Landfilled.	Landfill statistics		
Avoid damage to any cultural heritage features in development and/or operation of North West Region Waste Management Group waste management facilities.	Number of heritage features restored due to North West Region Waste Management Group activities. Number of new heritage features discovered due to North West Region Waste Management Group activities. Number of heritage features lost or destroyed due to North West Region Waste Management Group activities.	NIEA	NIEA Heritage Datasets and Reporting – Updated on ongoing basis.

SEA Target	SEA Indicators	Potential Responsible Authority	Possible Data Availability, Source and Frequency
No damage to local vistas and landscape in the area of North West Region Waste Management Group waste management facilities.	Significant negative changes in landscape quality and land cover types.		
Enhance the local vistas and landscape where possible, with sensitive and sustainable development practices.	Percentage changes in land cover types in areas with a high sensitivity to change. Changes in landscape character definitions.	NIEA / Local Authorities/ GSNI	Landscape Character Areas. Northern Ireland Countryside Surveys (every 10 years). Landcover Mapping.

BFF: Biodiversity, Flora, Fauna, P: Population, HH: Human Health, S: Soils, W: Water, A: Air Quality, C: Climate, MA: Material Assets, CH: Cultural Heritage, L: Landscape.

16 Landfill Review

Introduction

16.1 This section of the plan reviews the current landfill capacity available in Northern Ireland and in particular the North West Region Waste Management Group. As part of this waste management plan an estimate of the future landfill void capacity in Northern Ireland has been made based on current permitted PPC Permits for developed and undeveloped capacity. A review has also been completed of the implications of Landfill Tax and the potential of a landfill ban.

Applicable Legislation

16.2 The aim of the Landfill Directive (99/31/EC) is to provide measures, procedures and guidance to prevent or reduce as far as possible the negative effects on the environment from landfilling waste. This is to be implemented through changing the way waste is disposed with progress up the waste management hierarchy achieved, through the minimisation of waste being sent to landfill.

16.3 Key objectives of the Landfill Directive include:

- The categorisation of landfills as inert, non-hazardous and hazardous;
- Ban on the co-disposal of hazardous and non-hazardous waste;
- Ban on the disposal of tyres;
- Ban on the landfill of certain types of hazardous wastes such as clinical or infectious;
- 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;
- Practice pre-treatment of waste going to landfill; and
- Reduce the amount of biodegradable waste sent to landfill.

16.4 The requirements of this Directive are implemented in Northern Ireland through the Landfill (Northern Ireland) Regulations, 2003 SR 297 (as amended) and the Landfill (Amendment) Regulations (Northern Ireland), 2011 SR 101.

- 16.5 The development of landfill sites in Northern Ireland must comply with The Landfill (Northern Ireland) Regulations, 2003 (as amended). 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; and
 - Technical standards for the lining and capping of landfills.
- 16.6 The Landfill Regulations have been amended a number of times, however the amendments made in 2011 require that sites closed after the 16 July 2001 must comply with the closure requirements of the Landfill Directive (99/31/EC).
- 16.7 All operational landfill sites are regulated by the Northern Ireland Environment Agency (NIEA) under the Pollution Prevention and Control Regulations (Northern Ireland), 2003. The Pollution Prevention and Control Regulations (Northern Ireland), 2003 establish 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).
- 16.8 The enforcing authority has the powers to review or vary the conditions of the permit issued under the Pollution Prevention and Control Regulations (Northern Ireland) 2003. The regulations also require that the issued permit is reviewed every 4 years from the date of issue.

Current Landfill Capacity

- 16.9 Following a review of the Pollution Prevention and Control Public Register available on the NIEA website, it has been identified that there are currently 12 PPC Permits in operation for non-hazardous landfill sites in Northern Ireland. A further 2 sites have secured the relevant statutory permissions but the sites remain undeveloped. Table 16.1 identifies the sites that currently have the required consents to accept non-hazardous waste.

Table 16.1 Permitted Non-Hazardous Landfill Sites

Name	Group	Operator	Permitted Capacity on Issue of PPC Permit (Tonnes)	Estimated Yearly Permitted Capacity (Tonnes)
Determined				
Craigahulliar	NWRWMG	Council	408,557	90,000
Craigmore	NWRWMG	Private	70,000	200,000
Ballymacombs	NWRWMG	Council	46,875	25,000
Aughnagun	SWaMP2008	Council	900,000	50,000
Drumree	SWaMP2008	Council	470,172	40,000
Magheraglass	SWaMP2008	Council	715,000	70,000 Non-Haz 5,000 Inert
Tullyvar	SWaMP2008	Council	1,013,000	75,000
Lisbane	SWaMP2008	Private	278,574	250,000 Non-Haz 50,000 Inert 20 Asbestos
Aughrim	arc21	Private	3,800,000	250,000
Cottonmount ¹	arc21	Private	2,700,000	325,000 Non-Haz 75,000 Inert
Drumanakelly	arc21	Council	266,300	45,000 Non-Haz 5,000 Inert
Mullaghglass	arc21	Private	1,329,733	200,000
Total			11,998,211	
Determined: to be constructed				
Hightown Landfill	arc21	Private	800,000	100,000
Cam Road	NWRWMG	Private	1,200,000	200,000
Total			3,290,000	

16.10 As can be seen from Table 16.1 the vast majority of non-hazardous landfill sites are Local Authority owned and operated. Due to the declining volume of household waste, a number of the Local Authorities have scheduled their sites for early closure.

¹ This site is currently also an active quarry and blasting takes place ahead of filling of waste. Capacity of future phases is therefore unknown and information must be resubmitted for permission of every phase. The remaining capacity is therefore an estimated quantity and may differ depending on blasting taking place.

Future Landfill Capacity

16.11 As part of this Waste Management Plan a review has been undertaken of the approximate remaining landfill capacity of the sites identified in Table 16.2. This section reviews the estimated remaining landfill capacity based on the annual waste acceptance tonnages, published figures and working knowledge of the landfill sites. The remaining landfill capacity takes into account those landfill sites currently scheduled for early closure.

Table 16.2 Future Landfill Capacity

Name	Group	Operator	Permitted Capacity (Tonnes)	Estimated Remaining Capacity (Tonnes)*	Lifespan
Determined					
Craigahulliar	NWRWMG	Council	90,000	264,569	2.9 years
Craigmore	NWRWMG	Private	200,000	97,961	0.4 years
Ballymacombs	Mid Ulster District Council	Council	25,000	30,300	1.2 years
Aughnagun	SWaMP2008	Council	50,000	80,000	0.5 years
Drumree	SWaMP2008	Council	40,000	234,207	5.9 years
Magheraglass	SWaMP2008	Council	70,000 Non-Haz 5,000 Inert	73,816	1 year**
Tullyvar	SWaMP2008	Council	75,000	784,480	10.5 years
Lisbane	SWaMP2008	Private	250,000 Non-Haz 50,000 Inert 20 Asbestos	180,908	0.6 years
Aughrim	arc21	Private	250,000	3,014,080	12 years
Cottonmount ²	arc21	Private	325,000 Non-Haz 75,000 Inert	2,562,616	6.4 years
Drumanakelly	arc21	Council	45,000 Non-Haz 5,000 Inert	667,114	13.3 years
Mullaghglass	arc21	Private	200,000	1,008,000	5 years
Total				8,998,054	
Determined: to be constructed					
Hightown Landfill	arc21	Private	100,000	800,000	8 years
Cam Road	NWRWMG	Private	200,000	1,200,000	6 years
Total				2,000,000	

* Figures based on 2011 Annual Reports submitted to NIEA. A figure of 0.8t/m³ used as a conversion from remaining void space.

2 This site is currently also an active quarry and blasting takes place ahead of filling of waste. Capacity of future phases is therefore unknown and information must be resubmitted for permission of every phase. The remaining capacity is therefore an estimated quantity and may differ depending on blasting taking place.

** It should be noted, following information from Cookstown DC, that approximately 35,000 tonnes of waste will be landfilled per year at Magheraglass giving a remaining lifespan of 2 years.

NWRWMG Landfill Capacity

- 16.12 The region has 1 landfill that currently accepts Local Authority Collected Municipal Waste (LACMW) for disposal. Craigahulliar (Causeway Coast and Glens Borough Council) is currently the only Council-owned and operated landfill within the NWRWMG.
- 16.13 These landfills are regulated by the Northern Ireland Environment Agency (NIEA) under the Pollution Prevention and Control Regulations (Northern Ireland) 2003, and currently operate under a PPC Permit for the site which is required to be reviewed every 4 years from the date of issue.

Landfill Gates Fees

Historic and Current Gate Fees

- 16.14 Historic landfill gate fees have been reported by WRAP³ since 2008 in their annual gates fee reports. These are presented in Table 16.3 and 16.4.

Table 16.3 Landfill Gate Fees for Northern Ireland (Excluding Tax)

Year	Median	Low	High
2008	£21	£11	£40
2009	£22	£8	£42
2010	£22	£11	£44
2011	£20	£12	£55
2012	£39	£20	£63

- 16.15 The landfilling of waste is not only subject to the operators gate fee but is also subject to Landfill Tax. To discourage the disposal of waste to landfill this activity is subject to a tax. Landfill Tax is applied to each tonne of waste sent to landfill. The Landfill Tax escalator was established to drive a change from the landfilling of waste to the recycling and recovery of waste. The Landfill Tax escalator allows for an £8 per tonne increase in tax per year until 2014.

3 <http://www.wrap.org.uk>

- 16.16 The rate of Landfill Tax post 2014 will not fall below the rate established in 2014 of £80 per tonne. Table 16.4 identifies the Landfill Tax rate per year.

Table 16.4 Landfill Tax Rate

Year	Landfill Tax Rate (£/t)
2011	56
2012	64
2013	72
2014	80
Post 2014	80*

* A commitment has been given to the Landfill Tax escalator until 2014. After 2014 the rate of Landfill Tax will not drop below £80/t, however there is no guarantee that Landfill Tax will not continue to rise.

Landfill Ban

Implementation within the UK

- 16.17 In 2010 WRAP undertook a study on the introduction of landfill bans⁴. The aim of this research was to conduct a feasibility study regarding the impacts of introducing landfill bans in England, Scotland, Wales and Northern Ireland and to discover whether the costs and benefits of specific landfill bans and restrictions⁵ justify their use. Key objectives for the bans / restrictions, shared by DEFRA and the Devolved Administrations (DAs), were to:
1. Reduce the climate change impacts of managing waste; and
 2. Contribute to increases in resource efficiency.
- 16.18 Additional aims of the study included seeking to understand how landfill bans / restrictions could help meet Landfill Directive targets for biodegradable municipal waste (in support of existing policy instruments); increase economic and business opportunities; and increase market certainty regarding the development of collection, reprocessing and treatment infrastructure. Furthermore, the potential health benefits from reduced landfilling were to be explored.

4 Landfill Bans: Feasibility Research 2010 WRAP

5 The term 'restrictions' here refers to legislation to significantly reduce landfill of a specific material, but where it is recognised that it is unlikely that this material will be completely eliminated from waste being disposed in this way.

- 16.19 The research was undertaken by Eunomia Research and Consulting and considered two approaches to landfill bans:
1. A ban on unsorted waste; and
 2. A ban on biodegradable waste.
- 16.20 The key conclusion were:
- Bans or restrictions do have the potential to deliver net benefits (environmental and financial) to society;
 - But blanket bans on landfilling certain materials without a requirement to sort would be unwieldy and probably inefficient to implement;
 - A restriction on unsorted waste – introducing a requirement to sort – would provide the greatest environmental and resource efficiency benefits;
 - There is a strong case for restricting the landfilling of paper or card, textiles, metals and wood; and
 - There is a strong case for restricting the landfilling of food waste.
- 16.21 To date, only Scotland who introduced a Zero Waste Plan in 2010 which includes landfill bans for specific waste types, has set out how this will be achieved.

Northern Ireland

- 16.22 The Department of the Environment issued a consultation paper on 25th June 2010 inviting comments on the possible introduction of further restrictions on the landfilling of certain wastes.
- 16.23 The consultation document set out the policy drivers behind the Department's aim to divert recyclable and biodegradable wastes from landfill. It listed a number of candidate waste types for which the evidence suggests the benefits of diversion from landfill in terms of green house gas and resource efficiency gains could outweigh the costs of diversion. The proposed landfill bans were for a number of candidate wastes and waste categories (paper/card, food, textiles, metals, wood, green (garden) waste, glass, plastics, waste electrical and electronic equipment (WEEE), biodegradable wastes and non-segregated wastes). The consultation also asked for views on the policy options of doing nothing, introducing landfill bans with or without a separate requirement to sort wastes, introducing sorting and pre-treatment of waste and introducing producer responsibility. The Department is still considering the responses received.
- 16.24 The Revised Northern Ireland Waste Management Strategy, Delivering Resource Efficiency, identified that the Department of the Environment proposed to consult on legislative proposals by June 2013 which will give effect to a restriction on landfilling food waste.

- 16.25 In terms of implementation of this ban, the Food Regulations (Northern Ireland) 2015 were published in February 2015. These Regulations will require the following:
- Separate collection of food waste;
 - A ban on mixing separately collected food waste;
 - A ban on landfilling separately collected food waste; and
 - A ban on the non-domestic discharge of food waste into the public sewer network.
- 16.26 Further information on these Regulations can be found in Section 5.
- 16.27 The Department of the Environment will continue to review the potential to introduce further landfill restrictions over time in light of addition research and evidence and in line with the direction of future EU policy.

Scotland

- 16.28 Scotland introduced a Zero Waste Plan in 2010⁶ which includes a ban on the landfilling of specific waste types. The purpose of banning certain waste from landfill is twofold: firstly, to ensure that materials which could have been recycled are not disposed of in landfill; and secondly, to protect the environment from the impacts of waste disposal in landfill. To support the introduction of landfill bans, the Scottish Government will introduce regulations to drive separate collection and treatment of a range of resources in order to maximise their reuse and recycling value, and generate market supply.
- 16.29 The initial focus will be on a separate collection of food waste, in order to recover its material and energy value and avoid contamination of other waste materials.

Wales

- 16.30 The Welsh Assembly Government is seeking powers to introduce landfill bans or restrictions under the Proposed Waste (Wales) Measure 2010. The Welsh Assembly Government is yet to determine how to ensure that businesses producing commercial waste take further steps to reduce the landfilling of biodegradable waste to a level that ensures that Wales meets its share of revised UK targets for 2012-13 and 2019-20. Landfill bans or restrictions on key biodegradable materials, for example food waste, could be a potential instrument, although such bans are unlikely to be introduced until 2015 at the earliest.

6 <http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Waste-1/wastestrategy>

- 16.31 Under the Waste (Wales) Measure 2010 the Welsh Assembly Government has new powers to introduce landfill bans or restrictions. The Welsh Assembly Government is investigating the benefits and practicalities of banning or restricting certain wastes from landfill in accordance with the objectives and policies identified in Towards Zero Waste.

England

- 16.32 DEFRA commenced a consultation process on the 31st of July 2012 with wood recyclers on the ban of sending wood waste to landfill. Following the consultation in 2010 Government have indicated that they were not minded to introduce a landfill ban.

Europe

- 16.33 The European Environmental Agency has undertaken a study *Waste opportunities past and future climate benefits from better EEA, Copenhagen, 2011* looking at municipal waste management in Europe. In this report the scenario of a hypothetical landfill ban which would phase out landfilling of MSW by 2020 on possible future paths for European MSW management was reviewed.
- 16.34 This scenario aims to demonstrate the potential benefits for climate change mitigation if more ambitious waste policies were implemented. In this scenario, recycling would increase to 61% of MSW and incineration to 39 % in 2020. Even if such a ban were implemented however, MSW deposited on landfills before the ban would continue to emit methane for several years. Therefore, the full effect of a landfill ban would only be felt in the medium term.

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. The process has the advantage of producing gas for energy recovery in addition to a useable end product.
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 in Northern Ireland this is assumed to be 64%.
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 Local Authority Collected 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.

Recycling Centres (also called Civic Amenity Sites)	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-mingled materials	Wastes collected in a mixed form (for example a kerbside recycling bin in which householders put glass, cans, plastics, and paper) 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 a trade or business, or for the purposes of sport, recreation or entertainment.
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 useable product that has been sanitised and stabilised.
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.
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.
Hazardous Waste	Hazardous waste is defined by the EU Waste Framework Directive (2008/98/EC) and is described as waste which displays one or more of the hazardous properties listed in Annex 3 to this Directive.
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 (Northern Ireland) 2002.
Household Hazardous Waste	Waste arising within the household waste stream that is classified as Hazardous under EC Directive 2008/98/EC. 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	Is defined in the Waste and Contaminated Land (NI) Order 1997 and Schedule 1 to the Controlled Waste Regulations (NI) 2002 (as amended) and means waste arising from a domestic property or other specified premises.
Humic	Substances which are highly-abundant organic compounds formed in soils and sediments by the decay of dead plants, microbes and animals.
Incineration	Super-stoichiometric combustion, i.e. excess air.
Industrial Waste	Waste from a factory and any premises used for the purposes of: transport services, gas, water, electricity and sewerage services; and postal or telecommunications services.

Inert Waste	Inert waste means waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and / or groundwater.
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.
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, groundwater, 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 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.
Local Authority Collected Municipal Waste (LACMW)	Is defined in the Waste and Emissions Trading Act 2003 (Amendment) Regulations 2011, and means waste that is collected by, or on behalf of, a District Council. 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. 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

	<p>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.</p>
Materials Recycling Facility (MRF)	<p>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.</p>
Mechanical-Biological Treatment (MBT)	<p>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.</p>
Natural Resources	<p>Substances of use to humans that are derived either from the Earth e.g. coal, oil or metal ores or from living things.</p>
NILAS	<p>Northern Ireland Landfill Allowance Scheme.</p>
Organic Waste	<p>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”.</p>
Participation Rate	<p>The participation rate measures which households are making material available for collection. However, not all households that are participating are likely 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.</p>
PPC Permit	<p>Permit issued by the Northern Ireland Environment Agency (NIEA) to regulate and license certain activities, including waste management, to provide protection of the environment and the protection of human, animal and plant life from harm or nuisance from certain industrial activities. These Permits are issued under the Pollution, Prevention and Control Regulations (Northern Ireland), 2003 which will be revoked and replaced in January 2014 by the Pollution, Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) 2012.</p>
Preparing for Reuse	<p>Preparing for Reuse means checking, cleaning or repairing recovery operations, so products or components that have become waste are prepared so that they can be reused without any other pre-processing.</p>
Producer Responsibility Initiatives	<p>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’.</p>
Proximity Principle	<p>The principle that waste should be treated or disposed of as close as practicable to its place of origin.</p>
Putrescibles	<p>Solid wastes which are biodegradable.</p>
Pyrolysis	<p>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.</p>
Quality Assurance Schemes	<p>Are usually non-statutory in nature, and designed to ensure that producers maintain a large degree of control over process management</p>

	<p>and produce a compost product of high quality, which will be easily marketed and profitable in nature.</p>
Mixed Dry Recyclables	<p>Recyclates (glass bottles and containers, plastic bottles and containers and metal tins and cans) not including putrescible wastes.</p>
Recovery	<p>Any operation which results in waste serving a useful purpose in the plant or wider economy. Annex 2 to the Waste Framework Directive (2008/98/EC) sets out a list of recovery operations.</p>
Recyclables	<p>Waste materials that may be subjected to any process or treatment to make it re-useable in whole or in part.</p>
Recycling/Recycled	<p>"Recycled" means materials which have been collected and separated with subsequent reprocessing to produce marketable products. Recycling differs from product reuse 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.</p>
Refuse Derived Fuel (RDF) Combustion	<p>The combustible fraction of Local Authority Collected 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).</p>
Residual Local Authority Collected Municipal Waste	<p>The fraction of Local Authority Collected Municipal Waste remaining after the source separation of waste fractions, such as food and garden waste, packaging, paper and paperboard, metals, glass and is usually unsuitable for high quality recovery or recycling.</p>
Reduction of Waste	<p>A reduction of waste at source involving minimisation of the use of environmentally harmful substances and/or minimising material or energy consumption.</p>
Reuse	<p>Reuse means any operation by which products or components that are not waste are used again for their intended purpose.</p>
Reduction of Hazardous Substance (RoHS)	<p>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).</p>
Separate Collection	<p>The separate collection of certain categories of biodegradable Local Authority Collected 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.</p>
Sewage Sludge	<p>Sewage sludge is the residual sludge from wastewater treatment plants, produced from the treatment of domestic or urban waste waters and from other sewage plants treating waste waters of a composition similar to domestic and urban waste waters. This waste stream also encompasses the residual sludge from septic tanks and other similar installations for the treatment of sewage.</p>
Street Cleaning Waste	<p>Includes waste collected by litter pickers, street sweeper and mechanical sweepers, but excludes gully emptying waste and poop-scoop wastes.</p>

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 energy recovery, 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.
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.
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 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	The primary purpose of the Waste Hierarchy is to minimise adverse environmental effects from waste and to increase resource efficiency in waste management and policy. The Waste Hierarchy describes the way in which some ways of dealing with waste are better for the environment than others. Waste Prevention is the best option followed by Preparing for Reuse , which is included in the Waste Hierarchy above the Recycling with the aim of also improving resource efficiency. Recycling is next in the hierarchy followed by Other Recovery (for example, Energy Recovery) and Disposal as the 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 reuse 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.

Annex A

Legislation and Policy

A Legislation and Policy

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 as well 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: <http://eur-lex.europa.eu/en/index.htm>
- Department of the Environment:
http://www.doeni.gov.uk/index/protect_the_environment/waste.htm
- NetRegs: www.netregs.org.uk

European Union Waste Directives
▪ 2008/98/EC Waste Framework Directive
▪ 1999/31/EC Directive on the Landfill of Waste
▪ 2004/12/EC Directive on Packaging and Packaging Waste
▪ 2012/19/EU Directive on Waste Electrical and Electronic Equipment
▪ 2000/53/EC Directive on the End-of-Life Vehicles (ELVs)
▪ 2006/66/EC Directive on Batteries and Accumulators
▪ 2010/75/EC Industrial Emissions Directive
▪ 2001/42/EC Strategic Environmental Assessment Directive
▪ 91/689/EEC Directive on Hazardous Waste
▪ 97/11/EC Environmental Impact Assessment Directive
▪ 2004/35/EC Environmental Liability Directive
▪ 1986/278/EEC Sewage Sludge Directive
▪ 2006/21/EC Mining Waste Directive
European Union Waste Communication
▪ Thematic Strategy on the Sustainable Use of Natural Resources
▪ Thematic Strategy for Soil Protection
▪ Thematic Strategy on the Prevention and Recycling of Waste

National Legislation and Regulations	
Primary Legislation	
▪	Waste and Contaminated Land (Northern Ireland) Order, 1997 SI 2778 (including Amendments)
▪	Waste and Emissions Trading Act, 2003
▪	Environment (Northern Ireland) Order, 2002 SI 3153 (including Amendments)
▪	Producer Responsibility Obligations (Northern Ireland) Order, 1998 SI 1762 (including Amendments)
▪	Litter (Northern Ireland) Order, 1994
▪	Waste (Amendment) (Northern Ireland) Order, 2007 SI 611
▪	Clean Neighbourhoods and Environment (Northern Ireland) Act 2011
Secondary Legislation	
▪	The Waste Regulations (Northern Ireland) 2011 SR 127
▪	The Landfill Allowances Scheme (Amendment) Regulations (Northern Ireland) 2011
▪	The Landfill (Northern Ireland) Regulations, 2003 SR 297 (as amended)
▪	The Landfill (Amendment) Regulations (Northern Ireland) 2011 SR 101
▪	The Controlled Waste (Duty of Care) Regulations (Northern Ireland), 2002 SR 271 (as amended)
▪	Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland) 1999 SR 362
▪	Waste Management Licensing Regulations (Northern Ireland) 2003 and Amendments
▪	The Producer Responsibility Obligations (Packaging Waste) Regulations (Northern Ireland) 2007 SR 198 (as amended)
▪	The Animal By-Products (Enforcement) Regulations (Northern Ireland) 2011 SR 124 (as amended)
▪	Transfrontier Shipment of Waste Regulations, 2007 SI 1711 (as amended)
▪	The Controlled Waste Regulations (Northern Ireland) 2002 (as amended)
▪	Pollution, Prevention and Control Regulations (Northern Ireland) 2003 SR 46
▪	Pollution, Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) SR 2012 / 453
▪	Landfill Tax Regulations 1996 and Amendments
▪	Hazardous Waste Regulations (Northern Ireland) 2005 SR 300 (as amended)

<ul style="list-style-type: none">▪ End of Life Vehicles Regulations 2003 SI 2635 (as amended)
<ul style="list-style-type: none">▪ End of Life Vehicles (Producer Responsibility) Regulations 2005 SI 263 (as amended)
<ul style="list-style-type: none">▪ The Waste Electrical and Electronic Equipment Regulations 2006 SI 3289 (as amended)
National Waste Management Policy
<ul style="list-style-type: none">▪ Northern Ireland Programme for Government
<ul style="list-style-type: none">▪ Northern Ireland Waste Management Strategy: Delivering Resource Efficiency

Annex B

Waste Flow Modelling

WMP UPDATE (JULY 2015) - ASSUMPTIONS

1	The growth profile for NWRWMG is set out on the 'Growth Profile' tab and is based on the ARIMA +2 model as previously used by the Group.
2	HH waste projections in this model are based on NIEA validated figures for 2011/12.
3	The projected increase in recycling rates are also assumed to follow the same pattern as waste arisings and are also modelled up to 2019/20 using the ARIMA +2 model as set out on the 'Growth Profile' tab.
4	BMW Arisings are assumed to be 64% of the MSW Arisings from 2009/10 onwards, based on the NILAS Amendment Regulations.
5	The portion of waste recycled at CA sites is assumed to be between 13 and 29% of overall HH waste arisings based on 2011/12 NIEA validated figures.
6	Adjustments have been made to reduce the tonnage of glass collected at CA based on results for Strabane DC since the implementation of the new kerbside glass scheme.
7	Tonnage of kerbside MDRs have been assumed to increase by 11% between 2011/12 and 2019/20.
8	Tonnage of kerbside compostables have been assumed to increase by 10% between 2011/12 and 2019/20.
9	Tonnage of CA site Recycling and Composting have been assumed to increase by 10% between 2011/12 and 2019/20.
10	Option 4a - models co-mingled food and garden waste collections, garden waste collections and separate food waste collection numbers increasing as projected by each individual Council in information supplied.
11	Option 4b - models co-mingled food and garden waste collections, garden waste collections and separate food waste collection numbers to increase in order to meet the requirements of the Draft Food Waste Regulations.
12	Following the implementation of Options 1 - 4, Options 5a and 5b are assumed to include all remaining residual waste is subject to residual waste treatment and a recycling rate of 25% has been assumed. Option 5a models the remaining residual waste following the implementation of Option 4a and Option 5b models the remaining residual waste following the implementation of Option 4b.
13	Total MSW diverted is assumed to be 50% of the waste inputted to the Residual Waste Treatment facility.
14	The Summary Option presented models the increase in brown bins based on the projections provided for each Council.
15	Magherfelt has been removed from the model.

SUMMARY OF HOUSEHOLD WASTE BASELINE AND FUTURE OPTIONS

	Baseline - 2011/12			Growth:					
	HH Arisings	HH R & C	% R & C	HH Arisings	HH R & C	% R & C			
	2011/12	2011/12	2011/12	2019/20	2019/20	2019/20			
Ballymoney	13,878	5,019	36.2%	14,526	5,253	36.2%	% Growth	2011/12 Street Sweepings	2011/12 Bulky Waste
Coleraine	31,079	12,363	39.8%	32,530	12,940	39.8%	4.67%	409	224
Derry	49,087	14,149	28.8%	51,379	14,810	28.8%	4.67%	913	0
Limavady	16,275	5,931	36.4%	17,085	6,208	36.4%	4.67%	2,549	1,702
Moyle	8,506	3,507	41.2%	8,903	3,671	41.2%	4.67%	0	153
Strabane	17,325	5,823	33.6%	18,134	6,095	33.6%	4.67%	838	21
136,150	46,792	34.4%	142,508	48,977	34.4%	4.67%	5,367	2,103	
136,150	46,977	34.5%	142,508	48,977	34.4%	4.67%	Total:		

Breakdown of LACMW Arisings										
	HH Kerbside MDR	% of overall R & C	HH Kerbside Composting	% of overall R & C	Total HH R & C	% of overall HH R & C	HH CA R & C	% of overall R & C		
Ballymoney	1,701	33.9%	1,252	24.9%	2,983	59.4%	1,861	13.4%		
Coleraine	3,839	31.1%	0	0.0%	3,839	31.1%	8,294	26.7%		
Derry	6,578	46.5%	0	0.0%	6,578	46.5%	7,300	14.9%		
Limavady	2,084	35.1%	990	15.7%	3,074	50.8%	2,668	16.4%		
Moyle	1,169	13.3%	524	4.5%	1,693	14.9%	1,663	19.6%		
Strabane	2,407	41.3%	0	0.0%	2,407	41.3%	2,947	17.0%		
17,778	38.0%	2,706	5.8%	20,514	43.8%	24,733	18.2%			

Option 1: Improvement in HH MDR - 11% increase between 2011/12 and 2019/20									
	Baseline - 2011/12			Increase:			11%		
	HH MDR	% HH MDR	HH Increase with Glass (tonnes)	% HH Glass Increase	HH MDR (tonnes)	Increase in HH MDR (tonnes)	% HH MDR	% Increase in HH MDR	
Ballymoney	1,701	12.3%	1,701	0.0%	1,976	275	13.6%	1.3%	
Coleraine	3,839	12.4%	3,839	0.0%	4,460	621	13.7%	1.4%	
Derry	6,578	13.4%	6,578	0.0%	7,543	1,065	14.9%	1.5%	
Limavady	2,084	12.8%	2,084	0.0%	2,421	337	14.2%	1.4%	
Moyle	1,169	13.7%	1,169	0.0%	1,358	189	15.3%	1.5%	
Strabane	2,407	13.9%	2,407	0.0%	2,987	580	15.4%	1.5%	
17,778	13.1%	18,458	3.8%	20,655	2,877	14.5%	0.9%		

Option 2: Composting - Improvement in Composting without increasing numbers of composting bins (10% increase between 2011/12 and 2019/20)									
	Baseline - 2011/12			Increase:			10%		
	HH Composting	% HH Composting	HH Composting (Tonnes)	Increase in HH Composting (Tonnes)	% HH Composting	% Increase in HH Composting			
Ballymoney	1,252	9.0%	1,252	190	9.9%	0.9%			
Coleraine	0	0.0%	0	0	0.0%	0.0%			
Derry	0	0.0%	0	0	0.0%	0.0%			
Limavady	930	5.7%	1,071	141	6.3%	0.6%			
Moyle	524	6.2%	603	79	6.8%	0.6%			
Strabane	0	0.0%	0	0	0.0%	0.0%			
2,706	2.0%	3,116	410	0.3%	-1.7%				

Option 3: CA Recycling - Improvement in CA Recycling - 10% increase between 2011/12 and 2019/20									
	Baseline - 2011/12			Increase:			10%		
	CA Recycling (Tonnes)	% CA Recycling	CA Site Reduction due to Glass (Tonnes)	CA Recycling (Tonnes)	Increase in CA Recycling	Total CA Recycling	% CA Recycling	% Increase in R & C	
Ballymoney	1,861	13.4%	1,861	2,143	214	2,075	14.3%	0.9%	
Coleraine	8,294	26.7%	8,294	9,549	955	9,249	28.4%	1.7%	
Derry	7,300	14.9%	7,300	8,405	841	8,141	15.8%	1.0%	
Limavady	2,668	16.4%	2,668	3,072	307	2,975	17.5%	1.1%	
Moyle	1,663	19.6%	1,663	1,915	191	1,854	20.8%	1.3%	
Strabane	2,947	17.0%	2,947	3,162	316	3,263	18.0%	1.0%	
24,733	18.2%	24,532	2,453	28,245	1,870	26,603	18.7%	0.5%	

Option 4a: Brown Bins - Increase the Number of Household Composting Bins - As Projected By Councils										
							Assumptions:		Separate Food Waste Collection Yield:	
									0.078 tonnes / household (1.5 kg / household / week)	
									Garden Waste Only Collection Yield:	
									0.2 tonnes / household	
Planned Roll Outs										
	HH Composting	% HH Composting	Composting Bins	Tonnes / Bin	Households	Increase in Number of Bins / Caddies	Increase in Composting	Total HH Composting	% HH Composting	% Increase in HH Composting
Ballymoney	1,252	9.0%	7,132	0.18	12,173	0	0	1,252	8.6%	-0.4%
Coleraine	0	0.0%	0	0.00	23,508	17,000	1,326	1,326	4.1%	4.1%
Derry	0	0.0%	0	0.00	40,397	49,000	4,676	4,676	9.1%	9.1%
Limavady	930	5.7%	8,966	0.10	17,760	3,794	394	1,334	7.8%	2.1%
Moyle	524	6.2%	5,000	0.10	7,830	8,145	1,045	1,569	17.6%	11.5%
Strabane	0	0.0%	0	0.00	15,444	5,000	641	641	3.5%	3.5%
2,706	2.0%	21,098	0.13	112,112	82,939	8,081	10,787	7.6%	5.6%	
2,706	2.0%	21,098	0.13	112,112	82,939	8,081	10,787	7.6%	5.6%	

Option 5a: Recycling of Residual Waste - Input up to 100% of Residual Waste (Recycling at 25%)										
Recycling: 15%										
	Baseline - 2011/12			Recycling:			15%			
	HH Residual Waste	LACMW Tonnage to Dirty MRF	HH Tonnage to Dirty MRF	LACMW Recycled	HH Recycled	% of HH Recycling	HH Residual Waste (Excluding SS and Bulky)	Adjusted for current Dirty MRF arrangement	Recycling (25%)	Total Residual Recycling
Ballymoney	8,859	847	836	297	293	2.1%	7,931	8,238	1,236	1,770
Coleraine	18,716	6,086	5,553	2,339	2,134	6.9%	15,730	17,964	2,695	3,365
Derry	34,938	14,132	3,471	3,236	3,474	6.6%	25,539	28,026	4,339	7,968
Limavady	10,344	3,324	3,093	1,181	1,096	6.7%	8,960	10,106	1,516	1,988
Moyle	4,999	1,768	1,512	1,070	915	10.8%	3,568	4,526	679	839
Strabane	11,502	3,643	3,366	1,290	1,192	6.9%	9,792	11,039	1,656	2,294
89,358	29,810	27,533	9,648	8,665	8,665	6.5%	71,519	80,799	12,120	18,253
93,531,0608	29,810	27,533	9,648	8,665	8,665	6.5%	72,474	81,754	12,120	18,253

70%				100%			
	Bulky Household Recycling (20%)	Street Sweepings	Recycling (100%)				
2019/20	428	300	234	234	0	0	0
2019/20	958	670	1,781	1,781	0	0	0
2019/20	689	482	0	0	0	0	0
2019/20	875	613	25	25	0	0	0
2019/20	5,618	3,932	2,201	2,201			
2019/20	5,618	2,201	2,201	2,201			

Summary - Percentage Improvement by Option (with Council projected organic collections)												
	HH R & C		% R & C		Increase in HH Recycling		Increase in HH Composting		Increase in CA Recycling		Increase in Composting	
	2019/20	2019/20	2019/20	2019/20	Option 1 - % Increase	Option 2 - % Increase	Option 3 - % Increase	Option 4a - % Increase	Option 5 - 25% recycling	Option 1 - 5	2019/20	
Ballymoney	5,253	36.2%	1.3%	0.9%	0.9%	0.9%	-0.4%	10.1%	12.8%	49.0%		
Coleraine	12,940	39.8%	1.4%	0.0%	1.7%	4.1%	3.5%	10.7%	50.4%			
Derry	14,810	28.8%	1.5%	1.0%	9.1%	9.0%	20.5%	49.3%				
Limavady	6,208	36.4%	1.4%	0.6%	1.1%	2.1%	5.0%	10.1%	46.5%			
Moyle	3,671	41.2%	1.5%	0.6%	1.3%	11.5%	-1.3%	13.5%	54.8%			
Strabane	6,095	33.6%	1.5%	0.0%	1.0%	3.5%	5.8%	11.8%	45.4%			
48,977	34.4%	1.4%	0.2%	0.9%	5.6%	6.3%	14.4%	48.8%				

Option 4b: Brown Bins - Full Roll Out of Brown Bins / Food Waste Collection As Necessary												
										Assumptions:		
										Separate Food Waste Collection Yield:	0.078	tonnes / household
										Garden Waste Only Collection Yield:	0.2	(1.5 kg / household / week)
Baseline - 2011/12												
HH Composting		% HH Composting		Composting Bins		Tonnes / Bin		Households		Full Roll Out of Brown Bins / Food Waste Collection As Necessary		
2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2019/20	2019/20	
Ballymoney	1,252	9.0%	7,132	0.18	12,173	949	2,201	15.2%	6.1%			
Coleraine	0	0.0%	0	0.00	23,508	1,834	1,834	5.6%	5.6%			
Derry	0	0.0%	0	0.00	49,000	4,676	4,676	9.1%	9.1%			
Limavady	930	5.7%	8,966	0.10	32,760	3,794	3,944	7.8%	2.1%			
Moyle	524	6.2%	5,000	0.10	7,830	8,145	1,045	15.6%	11.5%			
Strabane	0	0.0%	0	0.00	15,444	1,456	1,456	8.0%	8.0%			
2,706	2.0%	21,098	0.13	112,112	12,064	10,353	13,059	9.2%	7.2%			

Option 5b: Recycling of Residual Waste - Input up to 100% of Residual Waste (Recycling at 25%)																												
Baseline - 2011/12										Recycling:		70%	100%															
HH Residual Waste		LACMW Tonnage to Dirty MRF		HH Tonnage to Dirty MRF		LACMW Recycled		HH Recycled		% of HH Recycling		HH Residual Waste (Excluding SS and Bulky)		Adjusted for current Dirty MRF arrangement		Recycling (25%)		Total Residual Recycling		% Residual Recycling		% Increase in R & C		Bully Household	Recycling (70%)	Street Sweepings	Recycling (100%)	
2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2011/12	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20	2019/20
Ballymoney	8,859	847	836	297	293	2.1%	6,982	7,288	1093	12.2%	9.1%	428	300	234	234													
Coleraine	18,716	6,086	5,553	2,339	15,222	6.9%	15,222	17,456	3,289	10.1%	3.2%	958	670	0	0													
Derry	34,938	14,132	13,174	3,471	3,236	6.6%	25,539	28,926	4,339	7,988	15.5%	2,668	1,868	1,781	1,781													
Limavady	10,344	3,334	3,093	1,381	1,096	6.7%	8,960	10,106	1,998	11.7%	5.0%	689	482	0	0													
Moyle	4,999	1,768	1,512	1,070	1,568	10.8%	3,568	4,526	679	8.39	9.4%	0	0	160	160													
Strabane	11,502	3,643	3,366	1,290	8,977	6.9%	8,977	10,225	1,534	2,171	12.0%	875	613	25	25													
89,358	29,810	27,533	9,648	8,865	69,248	6.5%	69,248	78,527	11,779	17,913	12.6%	5,618	3,932	2,201	2,201													

Summary - Percentage Improvement by Option (with Full Roll Out of Brown Bins / Food Waste Collection As Necessary)												
	HH R & C		% R & C		Increase in HH Recycling		Increase in HH Composting		Increase in CA Recycling		Increase in Composting	
	2019/20	2019/20	2019/20	2019/20	Option 1 - % Increase	Option 2 - % Increase	Option 3 - % Increase	Option 4a - % Increase	Option 5 - 25% recycling	Option 1 - 5	2019/20	
Ballymoney	5,253	36.2%	1.3%	0.9%	0.9%	0.9%	6.1%	9.1%	18.4%	54.5%		
Coleraine	12,940	39.8%	1.4%	0.0%	1.7%	5.6%	3.2%	12.0%	51.8%			
Derry	14,810	28.8%	1.5%	1.0%	9.1%	9.0%	20.5%	49.3%				
Limavady	6,208	36.4%	1.4%	0.6%	1.1%	2.1%	5.0%	10.1%	46.5%			
Moyle	3,671	41.2%	1.5%	0.6%	1.3%	11.5%	-1.3%	13.5%	54.8%			
Strabane	6,095	33.6%	1.5%	0.0%	1.0%	3.5%	5.1%	15.6%	49.2%			
48,977	34.4%	1.4%	0.2%	0.9%	7.2%	6.1%	15.8%	50.1%				

48,977 34.4%

BMW COMPLIANCE

NILAS Baseline - 2011/12					
	64%				
	MSW Arisings	BMW Arisings	BMW Landfilled	NILAS Allowance	NILAS Surplus
	2011/12	2011/12	2011/12	2011/12	2011/12
Ballymoney	15,720	10,061	5,659	7,992	2,333
Coleraine	35,261	22,567	12,055	15,209	3,154
Derry	55,984	35,830	25,546	29,375	3,829
Limavady	17,255	11,043	5,927	9,536	3,609
Moyle	9,544	6,108	3,431	4,552	1,121
Strabane	18,856	12,068	7,350	10,659	3,309
	152,620	97,677	59,968	77,323	17,355

HH Arisings	% of LACMW Arisings
2011/12	2011/12
13,878	88.3%
31,079	88.1%
49,087	87.7%
16,275	94.3%
8,506	89.1%
17,325	91.9%
136,150	89.2%

NILAS Projections - 2019/20		Option 1 - KS Recycling				Option 2 - KS Composting		Option 3 - CA Recycling		Option 4a - Projected Roll Out of Brown Bins		Option 5 - 25% Residual Recycling			
	NILAS Allowance	BMW Landfilled	78%		100%		69%		100%		50%	66%	BMW Landfilled	NILAS Surplus / Deficit	
	2019/20	2011/12	MSW Diverted	BMW Diverted	MSW Diverted	BMW Diverted	MSW Diverted	BMW Diverted	MSW Diverted	BMW Diverted	MSW Diverted	BMW Diverted	2019/20	2019/20	
Ballymoney	3,894	5,659	312	243	215	215	243	167	0	0	4,666	3,079	1,954	1,940	
Coleraine	7,111	12,055	705	550	0	0	1,083	748	1,504	1,504	10,190	6,726	2,527	4,584	
Derry	13,932	25,546	1214	947	0	0	959	661	5,333	5,333	16,495	10,887	7,718	6,214	
Limavady	4,606	5,927	358	279	149	149	326	225	417	417	5,358	3,536	1,321	3,285	
Moyle	1,500	3,431	212	166	89	89	215	148	1,172	1,172	2,539	1,676	180	1,320	
Strabane	2,570	7,350	424	331	0	0	344	237	698	698	6,007	3,965	2,119	451	
	33,613	59,968	3,225	2,516	459	459	2,750	1,897	9,059	9,059	45,286	29,889	16,148	17,465	

NILAS Projections - 2019/20		Option 1 - KS Recycling				Option 2 - KS Composting		Option 3 - CA Recycling		Option 4b - Full Roll Out of Brown Bins		Option 5 - 25% Residual Recycling			
	NILAS Allowance	BMW Landfilled	78%		100%		69%		100%		50%	66%	BMW Landfilled	NILAS Surplus / Deficit	
	2019/20	2011/12	MSW Diverted	BMW Diverted	MSW Diverted	BMW Diverted	MSW Diverted	BMW Diverted	MSW Diverted	BMW Diverted	MSW Diverted	BMW Diverted	2019/20	2019/20	
Ballymoney	3,894	5,659	312	243	215	215	243	167	1,076	1,076	4,128	2,724	1,234	2,660	
Coleraine	7,111	12,055	705	550	0	0	1,083	748	2,080	2,080	9,902	6,536	2,142	4,969	
Derry	13,932	25,546	1214	947	0	0	959	661	5,333	5,333	16,495	10,887	7,718	6,214	
Limavady	4,606	5,927	358	279	149	149	326	225	417	417	5,358	3,536	1,321	3,285	
Moyle	1,500	3,431	212	166	89	89	215	148	1,172	1,172	2,539	1,676	180	1,320	
Strabane	2,570	7,350	424	331	0	0	344	237	1,585	1,585	5,564	3,672	1,525	1,045	
	33,613	59,968	3,225	2,516	459	459	2,750	1,897	11,606	11,606	44,013	29,049	14,441	19,172	