EXPLANATORY MEMORANDUM TO THE

LANDFILL ALLOWANCES SCHEME (NORTHERN IRELAND)

REGULATIONS 2004 No. 416

1. This explanatory memorandum has been prepared by the Department of the Environment and is laid before Parliament by Command of Her Majesty.

This memorandum contains information for the House of Lords Select Committee on the Merits of Statutory Instruments.

2. Description

2.1 The Landfill Allowances Scheme (Northern Ireland) Regulations 2004 ("the Regulations") provide the detail for the operation of the Northern Ireland Landfill Allowances Scheme ("NILAS"). They include rules for the borrowing and transferral of allowances; responsibilities on district councils and landfill operators for the retention and submission of certain information relating to landfill of waste; a system of penalties; provisions relating to the monitoring of the NILAS and the maintenance of registers.

3. Matters of special interest to the House of Lords Select Committee on the Merits of Statutory Instruments

3.1 None.

4. Legislative Background

4.1 The Regulations are made under the powers conferred upon the Department by sections 6 to 8, 10 to 13, 15, 16 and 26 of the Waste and Emissions Trading Act 2003 ("the WET Act").

4.2 The overall aim of the NILAS is to reduce the amount of biodegradable municipal waste ("BMW") sent to landfill, and thereby meet the EC Landfill Directive (1999/31/EC) targets set for the UK. Part 1 of the WET Act transposed the Landfill Directive and the Regulations implement the means of achieving the targets set in Articles 5(1) and 5(2) of that Directive. A transposition note is attached at Annex A.

4.3 Regulations made under the WET Act are to be laid before Parliament and are subject to negative resolution under paragraph 7(3) of the Schedule to the Northern Ireland Act 2000 during suspension of the Northern Ireland Assembly.

4.4 A separate set of regulations (known as The Landfill (Scheme Year and Maximum Landfill Amount) Regulations 2004) has been made to fix the maximum amounts of BMW allowed to be sent to landfill for the UK as a whole and for England, Scotland, Wales and Northern Ireland individually. Further sets of regulations have also been made by the relevant authorities to establish schemes equivalent to the NILAS in each of the UK's other countries.

4.5 The Regulations are the first use of the WET Act powers to make a Northern Ireland statutory rule.

5. Extent

5.1 The Regulations apply only to Northern Ireland.

6. European Convention on Human Rights

The Department of the Environment has made the following statement regarding Human Rights:

In the view of the Department of the Environment the provisions of The Landfill Allowances Scheme (Northern Ireland) Regulations are compatible with the Convention rights.

7. Policy background

7.1 Articles 5(1) and 5(2) of the Landfill Directive set member states a series of targets for reducing the landfilling of BMW. For the UK, these targets are to reduce the amount of BMW sent to landfill to 75% of 1995 levels by 2010, to 50% of 1995 levels by 2013 and to 35% of 1995 levels by 2020. These target dates take account of the four-year derogation available to member states that landfilled more than 80% of their waste in 1995.

7.2 The WET Act provides for landfill allowances schemes to be set up across the UK: the chosen mechanism through which England, Scotland, Wales and Northern Ireland will meet their respective shares of the overall targets. The schemes will operate by limiting the amount of BMW that local authorities may send to landfill. Each country of the UK has consulted separately on the details of the scheme in its area, resulting in slightly different approaches and timetables being adopted across the UK.

7.3 The Department of the Environment has issued two consultation papers on proposals for meeting the Landfill Directive targets and has held consultative seminars and stakeholder meetings with interested parties from industry and local authorities. The consultations indicated broad support for the aims of the NILAS but met with some resistance to the proposed methods of allocating landfill allowances. These

methods have been revised, and the fine details of the NILAS have been developed in partnership with Northern Ireland's district councils.

7.4 The WET Act requires the Department of the Environment to allocate landfill allowances to district councils. The Regulations establish the rules enabling district councils to borrow allowances from future allocations and to transfer their allowances to and from other district councils. The NILAS facilitates meeting the targets through flexibility of allowance management and permitting a co-operative approach between district councils.

7.5 In addition to establishing these rules, the Regulations:

- Establish the arrangements for the suspension of district councils' landfill allowance accounts;
- Appoint the monitoring authority for the NILAS;
- Require district councils to record and submit information relating to the landfill of BMW;
- Require landfill operators to record and submit information relating to the quantities of BMW received at landfills;
- Make provision for determining the amount of BMW in a tonne of collected municipal waste;
- Set the method for calculating the amount of BMW that each district council has sent to landfill in a scheme year;
- Make provision for a landfill allowances register; and
- Establish a system of penalties for district councils exceeding their allowances and for failing to comply with the requirements of the Regulations

8. Impact

8.1 A Regulatory Impact Assessment is attached to this memorandum at Annex B

9. Contact

Colin Pidgeon at the Department of the Environment (Tel: 028 9054 4590 or e-mail: colin.pidgeon@doeni.gov.uk) can answer any queries regarding the rule.

ANNEX A

THE LANDFILL ALLOWANCES SCHEME (NORTHERN IRELAND) REGULATIONS 2004 416

TRANSPOSITION NOTE

MEMORANDUM SHOWING METHOD OF IMPLEMENTATION AND BODY RESPONSIBLE FOR ARTICLES 5(1) AND (2) OF COUNCIL DIRECTIVE 1999/31/EC ON THE LANDFILL OF WASTE

The Landfill Allowances Scheme (Northern Ireland) Regulations 2004 ("the 2004 Regulations"), together with Part 1 of the Waste and Emissions Trading Act 2003 ("the WET Act"), intend to give legal effect to Articles 5(1) and (2) of Council Directive 1999/31/EC on the landfill of waste ("the Landfill Directive.") The aim of Articles 5(1) and (2) of the Landfill Directive is to reduce the amount of biodegradable waste that is sent to landfills.

The remainder of the Landfill Directive (technical and regulatory aspects) is implemented by The Landfill Regulations (Northern Ireland) 2003, or will be transposed by the 2004 Regulations when they come into force.

Background

Landfilling is the most common form of final waste disposal across Europe. However, differences in technical standards and operating practices between member states have led to numerous incidents of gross land and water pollution. In response, the European Commission has introduced a number of measures to regulate landfill disposal and to establish a common framework that promotes waste prevention, minimisation, re-use and recycling as alternatives to landfill disposal.

The Landfill Directive introduces progressive measures to further prevent or reduce as far as possible the negative effects of landfilling waste on the environment and on human health. One of these measures is to reduce the amount of biodegradable waste sent to landfill. Article 5(2) sets a series of targets for Member States to reduce the amount of biodegradable municipal waste (BMW) sent to landfill based on their 1995 waste arisings. The Directive provides a four-year derogation for those Member States who landfilled more than 80% of their waste in 1995. The UK is making use of this derogation.

An initial proposal (in 1994) for a Council Directive on the landfill of waste lapsed following the European Parliament's (EP) rejection of the Council's Common Position. A revised proposal was put forth by the European Commission in March 1997. This proposal was considered by the Select Committee on European Legislation (Select Committee) on 30th July 1997. It was not cleared.

An amended draft Directive was put forth by the Commission in March 1998. The Select Committee chose not to clear the draft Directive on the grounds that further Explanatory Memorandum on the Common Position text and a Regulatory Impact Assessment were to be submitted to the Select Committee in June 1998.

On 26th March 1999 an Explanatory Memorandum (EM) was submitted to the Select Committee, which highlighted a number of developments. A further revised proposal was then prepared but was not submitted to the Select Committee on European Legislation. On 19th April 1999, the Select Committee received the then Minister's Supplementary Explanatory Memorandum and consequently finally cleared the draft Directive at their meeting on 20th April 1999.

The details of how these requirements have been transposed in NI are discussed in the table below.

Articles	Objectives	Implementation	Responsibility
Article 5 (1)	**Waste and treatment not acceptable in landfills** This Article requires Member States to establish a national strategy for the reduction in the amount of biodegradable waste sent to landfill.	Section 20 of the WET Act 2003 requires the Department of the Environment to have a strategy for reducing the amount of BMW that is sent to landfill in Northern Ireland. The Department launched the Waste Management Strategy (WMS) for NI in 2000 which embodied the Landfill Directive targets for BMW reduction as one of the primary targets for the WMS, backed up by a series of key actions and policy measures to encourage diversion from landfill. The WMS is currently under review. Sections 17, 18 and 19 of the WET Act impose similar obligations on the competent authorities in Great Britain	The Department of the Environment through Part 1 of the WET Act 2003.
Article 5 (2)	**Waste and treatment not acceptable in landfills** This Article sets the targets for the reduction in the amount of BMW sent to landfill.	The Landfill (Scheme Year and Maximum Landfill Amount) Regulations 2004 implement the Article 5(2) targets for the UK and divide these targets between each country of the UK. The Landfill Allowances Scheme (Northern Ireland) Regulations 2004 detail the operation of the Landfill Allowances Scheme that has been designed to deliver Northern Ireland's share of the Article 5(2) targets.	District Councils in Northern Ireland through the Landfill Allowances Scheme (Northern Ireland) Regulations 2004.

ANNEX B

Department of the Environment

Implementing Article 5 of the Landfill Directive on the Landfilling of Biodegradable Municipal Waste in Northern Ireland: *Regulatory Impact Assessment*

December 2003

Reference 0000268.01

Prepared by: Jonathan Samuel, Libby Hirshon

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Introduction

Background

This report details the results of a Regulatory Impact Assessment (RIA) of plans to introduce restrictions on the volumes of biodegradable municipal waste (BMW) going to landfill in Northern Ireland in order the meet the requirements of the EC's Landfill Directive

This RIA follows a partial RIA, conducted in 2002, which informed public debate regarding the options put forward for consultation in October 2002 ('Limiting landfill to meet the EC Landfill Directive targets for reducing the landfill of biodegradable municipal waste') . As a result of the consultation, a preferred option for delivery of the Directive was chosen – an allowances scheme restricting the amount of BMW that district councils can send to any landfill site. The three district council waste management partnerships in Northern Ireland have also published their Waste Management Plans. The plans' proposed investments have been taken as the basis for the cost modelling in this assessment.

This RIA is used to assess the impact, in terms of costs, benefits and risks of the preferred option for meeting the BMW targets set out in Article 5 of the Landfill Directive. Achieving the BMW targets may potentially impact on businesses, charities and councils in Northern Ireland. The RIA will provide a basis by which impacts can be identified in terms of who they impact on and the nature and scale of that impact.

Northern Ireland's Targets

The total quantity (by weight) of BMW that Northern Ireland can send to landfill under the Directive is determined by the data already submitted to EUROSTAT for waste arisings in 1995. The total municipal solid waste (MSW) produced in the UK in 1995 was 29 million tonnes. Of this, NI produced 890,000 tonnes. These data have been accepted by the European Commission and cannot be changed.

The weights for each target year are based on the assumption that 71% of all MSW arisings in NI is biodegradable (source: NI Waste Characterisation Study 2000).

The maximum weight of BMW that NI can send to landfill in each of the Directive target years is:

1995 (Base Year)	631,900 tonnes
2010	473,925 tonnes
2013	315,950 tonnes
2020	221,165 tonnes

Options and Investment Plans

Introduction

The partial RIA that precedes this full one considered the impact of the implementation of the Landfill Directive in two ways: it looked at a number of delivery options and then looked at a number of investment options.

Initial Delivery Options and Selected Delivery Method

A number of delivery options were considered in order to decide which instrument (ban/ allowances etc) should be used to limit the use of landfill in order to meet the requirements of the Landfill Directive and Waste Management Strategy for Northern Ireland. The following delivery options were assessed in the partial RIA:

Option 1: Total Ban On The Landfill of BMW.

Option 2: A Ban On The Landfill of Paper, Card and Putrescible Wastes From Municipal Sources.

Option 3: Allowances Restricting The Amount of BMW Accepted At Any Landfill Site.

Option 4: Allowances Restricting The Amount of BMW Sent To Any Landfill Site.

Details of these options can be found in the Partial RIA, which is presented as Annex F of the Consultation paper issued in October 2002[(1)]. As a result of an assessment of the partial RIA, and following a period of consultation with all key stakeholders, Option 4: Allowances Restricting The Amount of BMW Sent To Any Landfill Site was chosen as the preferred option. This option is therefore used as an accepted part of the costs of implementation for this full RIA.

Plans for Investment

The partial RIA made a preliminary analysis of four investment options, and analysed and costed different ways of “managing” the large amounts of BMW diverted from landfill in order to meet the Landfill Directives targets. However, regional Waste Management Plans have since been published by the three District Council Waste Management Groups:

- Arc21 (For the Eastern Region);
- SWaMP (Southern Waste Management Partnership, for the South of the country); and

(1) " Consultation Paper - EC Directive 1999/31/EC on the Landfill of Waste: Limiting Landfill to Meet the EC Landfill Directive’s Targets for Reducing the Landfill of Biodegradable Municipal Waste," Department of the Environment, October 2002.

- NWRWMG (North West Region Waste Management Group for the Northern part of the country.

Each Waste Management Partnership has developed a short- to medium-term plan to meet the targets in the Northern Ireland Waste Management Strategy, including the Landfill Directive BMW targets. These will be revised at 2005 to develop a strategy for investment further into the future.

The implementation processes and cost assessments in each of the Waste Management Plans have been used as the basis for the cost assessment in this RIA. These have been previously subjected to economic appraisal, and hence it is assumed that they have been set out according to the most cost-effective method of reaching the targets in the NI Waste Management Strategy and the Landfill Directive.

Components of the Waste Management Plans

Each Waste Management Plan has a number of investment components for the collection, treatment and disposal of waste. These include:

- education and awareness programmes for the reduction and reuse of waste;
- bring sites and civic amenity sites for municipal waste collection;
- a system of kerbside collection, including vehicles and bins;
- a network of waste transfer stations as part of the collection system;
- material recovery facilities (MRF) for dry recyclables collected through the kerbside collection system;
- central composting systems for the treatment of compostable wastes, including open windrow and in-vessel systems; and
- the provision of bins and information leaflets for home composting.

The components of these plans are considered more fully in Section 0.

Delivery Mechanism

Allowances Restricting The Amount of BMW Sent To Any Landfill Site

The arrangements for delivering increased diversion of BMW away from landfill are described in the accompanying consultation document and summarized below.

The maximum tonnage of BMW sent to landfill by each District Council will be restricted to the amount for which they hold allowances. Limits on tonnage for landfill will require District Councils to divert increasing amounts of biodegradable wastes to other waste management options (eg recycling, composting, energy recover) over time. Parties will need to be able to judge how much BMW is in mixed municipal waste and the

source of this waste. Monitoring information will be audited at intervals, possibly backed up by checks against information provided by landfill operators on waste accepted at gate from different sources. District Councils could be forced with a duty to comply with corresponding penalties.

Investment Plans

Baseline Situation

The baseline management costs for municipal waste for each region were set out in each of the Waste Management Plans, to the year 2006. The underlying assumptions as given in the plans have been used for this RIA. However, the cost of disposal has been increased as a result of the increase in landfill tax of £1 per tonne per annum to 2004, and of £3 per tonne per annum from 2004 and beyond. This increase has been applied to 2020, however it must be noted that the increase in landfill tax may be stopped at some time before then, resulting in a less expensive total landfill cost than estimated in this RIA.

It is further assumed that all costs presented in the Waste Management Plans are net costs, and that the recycling rate includes composting. These assumptions are set out in Table 0.1.

Table 0.1 *Baseline Assumptions*

	Arc21	SWMP	NWRWMP	Total NI
Number of households – growth rate	1.2%	1.0%	1.0%	1.1%
Municipal Waste arisings – growth rate	2.9%	1.91%	1.91%	2.51%
Recycling (recovery) rate	5.5%	10.1%	2.6%	6.0%
Collection costs of Municipal Waste (£/tonne)	£47.47	£37.87	£35.09	£ 43.03
Landfill Costs include landfill tax of £1 per tonne per annum to 2004, increasing to £3 per tonne per annum beyond 2004. All baseline costs are net costs				

Finally, it has been assumed that these assumptions would hold for projections to 2020, with landfill tax substantially increasing the cost of disposal in the baseline situation.

Total baseline costs

Assuming that 71 percent of the tonnes of municipal waste collected are attributable to the collection of BMW, and 71 percent of municipal waste disposed of is BMW, the total annual cost of the baseline situation is on average £84.2 million (undiscounted), with a net present value of £1,040 million (discounted at 3.5 percent).

Needs and Risk Assessment

The need for and risks of not implementing Article 5 of the Landfill Directive are twofold:

- If Northern Ireland does not implement the legislation, the UK risks being in breach of EC law. Under such a scenario, the UK could be liable for infraction proceedings, possibly with fines of up to £500,000 per day.

- Failure to implement Article 5 will also be a significant blow to the EU, UK and NI objective promoting sustainable development. Specifically, landfilling of waste is major waste of resources, and a significant contributor to detrimental environmental and health impacts. Fugitive landfill gas is also a major contributor to the UK's greenhouse gas emissions, and hence to climate change.

Impact Analysis

Introduction

As previously mentioned, the cost assessment is based upon costs given in the Waste Management Plans of the three different regions. However, these investment costs were considered for municipal waste only, and only up to 2005 or 2006. Further assumptions have therefore been made regarding the proportion of costs associated with BMW, the investment and associated costs to 2020 and the discount rate for the investments to 2020.

General Assumptions

Collection Costs

As shown in Section 1.3.4, the investments required for the collection of municipal waste include bring sites, civic amenity sites, kerbside collection and waste transfer stations, with the remainder of waste being collected as traditional unsorted waste. The costs associated with these investments are assumed to be in proportion to the volume of BMW going through each facility or collection system. These volumes are related to dry recyclables collected in relation to compostables, as shown in Table 0.1. It has been assumed that 40 percent of dry recyclables and 100 percent of compostables collected is BMW.

It is further assumed that the proportion of municipal waste left to traditional waste collection contains 71 percent BMW.

Table 0.1 *Proportion of Dry Recyclables and Compostables in the Collection of Waste*

	Dry Recyclables	Compostables	Notes
Bring sites	100%	0%	Bring sites take dry recyclables only

	Dry Recyclables	Compostables	Notes
Civic amenity sites	34%	66%	According to volume of waste to CA sites in WMPs
Kerbside Collection	57%	43%	According to volume of waste in kerbside collections in the WMPs
Transfer Stations	57%	43%	All waste from kerbside collections are assumed to go through transfer stations

Treatment and Disposal Costs

The investment requirements for the disposal of municipal waste in the Waste Management Plans include material recovery facilities (MRFs), windrow composting facilities, in-vessel composting facilities and home composting facilities, with the remainder of the waste going to landfill. Investment in thermal treatment is not part of the Waste Management Plans to 2005, but is going to be considered as part of reaching the targets to 2020. Assumptions have therefore been made regarding the volume of waste to energy-from-waste facilities and the costs of these facilities. The costs associated with these investments are assumed to be in proportion to the volume of BMW that each facility or collection system will be dealing with. These volumes are related to the amount of dry recyclables collected in relation to compostables as shown in Table 0.2.

As with the collection costs, it has been assumed that 40 percent of dry recyclables and 100 percent of compostables is BMW.

It is further assumed that the proportion of municipal waste remaining to be landfilled contains 71 percent BMW.

Table 0.2 *Proportion of Dry Recyclables and Compostables in the Disposal of Municipal Waste*

	Dry Recyclables	Compostables	Notes
Materials Recovery Facility (MRF)	100%	0%	Dry recyclables from kerbside collections goes through MRFs
Windrow Composting Facility	0%	100%	
In-vessel Composting Facility	0%	100%	

	Dry Recyclables	Compostables	Notes
Home Composting Facility	0%	100%	

Waste Management Plans – Detailed Requirements

Reduction and Reuse

Education and Awareness

All three plans intend to provide education and awareness on waste issues to schools, businesses and communities to encourage and improve waste management strategies.

Collection

Recycling Centres/ Bring Sites and Civic Amenity Sites

The Waste Management Plans include the development of new recycling centres/ bring sites for the collection of dry recyclables. The requirements for these, as set out in the Plans, are shown in Table 0.3

Table 0.3 *Requirements for Bring Sites by 2005*

	Number	Recyclables (tpa)	…of which BMW (tpa)
Arc21	222	20,131	8,052
SWMP	94	5,466	2,186
NWRWMP	41	1,380	552
Total NI	357	26,977	10,791

The development of new civic amenity sites and the extension of some existing civic amenity sites are included in the Waste Management Plans, to encourage high usage and maximise the quantity of recyclables and compostables delivered. These will be for the collection of garden waste, dry recyclables, and some other types of household waste (eg Bulky waste). The proportion of dry recyclables deposited to these sites is 34 percent, while compostables account for 66 percent. The requirements for these, as explained in the Waste Management Plans, are set out in Table 0.4.

Table 0.4 *Requirements for Civic Amenity Sites by 2005*

By 2005	CA Sites (No)	Compostables (tpa)	Dry Recyclables (tpa)	Total (tpa)	…of which BMW (tpa)
Arc21	16	31,059	10,722	41,781	35,348
SWMP	15 (+ 3 extensions)	4,666	4,666	9,332	6,532
NWRWMP	22 (+ 6 extensions)	7,000	6,500	13,447	9,600
Total NI	53 (+ 9 extensions)	42,725	21,888	64,560	51,480
		66%	34%	100%	80%

Kerbside Collection

The plans include the introduction of new kerbside collection schemes, as well as the enhancement and improvement of existing kerbside collection. This will be done through the provision of containers (SWMP), second wheeled bins for recycling and composting (NWRWMG), and (preferably) single co-mingled collection for Arc21. The proportion of dry recyclables collected through these schemes is approximately 57 percent, while compostables account for 43 percent. The numbers of kerbside collection units and vehicles used for collection are set out in Table 0.5.

Table 0.5 *Kerbside Collection Units in the Waste Management Plans.*

By 2005	Vehicles	Collection bins (number)	Collection bins		Collection bins
			Compostables (tpa)	Dry Recyclables (tpa)	…of which BMW (tpa)
Arc21	27	500,000	40,974	42,812	58,099
SWMP	10	114,300	4,600	11,600	9,240
NWRWMP	10	110,100	3,600	11,600	8,240
Total NI	47	724,400	49,174	66,012	75,579

Waste Transfer Stations

Implicit in the SWMP and NWRWMP plans is the development of a network of transfer stations to support the waste management infrastructure, in order to provide an efficient system for the movements of waste. Eight transfer stations are planned in the SWMP region, and seven in the NWRWMG region. Transfer stations are not incorporated in the Arc21 plan. Details of these requirements, as given in the Waste Management Plans, are set out in Table 0.6.

Table 0.6 *Requirements for Waste Transfer Stations in the Waste Management Plans*

To 2005	Number	Capacity (tpa)	…of which BMW (tpa)
Arc21	-	-	-
SWMP	8	28,723	18,847
NWRWMP	7	28,613	18,774
Total NI	15	57,336	37,621

Collection of Traditional Waste to be Disposed
All remaining waste that is not part of the recovery, recycling and composting collection network is assumed to be collected through traditional waste collection methods.

Treatment of Waste

Materials Recycling Facility (MRF)
All three Waste Management Plans intend to build Materials Recovery Facilities (MRFs) in order to process solid wastes to recover commodity grade materials for sale, or onward processing, thereby increasing the profitability and viability of recycling. All dry recyclables from kerbside collection are going to be going to the MRFs. The numbers of MRFs and up to 2005 are shown in Table 0.7.

Table 0.7 *Planned Materials Recovery Facilities (MRFs) in the Regions*

To 2005	MRF (number)	MRF Capacity (tpa)	…of which BMW (tpa)
Arc21	2	42,812	17,125
SWMP	2	11,600	4,640
NWRWMP	2	11,600	4,640
Total NI	6	66,012	26,405

Central Composting
The composting plants needed to deal with organic waste include the mechanical method of open windrow composting as well as in-vessel technology using forced aeration(2). All three Waste Management Plans intend to incorporate both methods in their future waste management strategies, as set out in Table 0.8.

(2) See the regional Waste Management Plans for an explanation of these facilities.

Table 0.8 *In-vessel and Open Windrow Composting Methods Proposed in the Waste Management Plans*

By 2005	In–vessel			Open Windrow		
	Number	Capacity (tpa)	…of which BMW (tpa)	Number	Capacity (tpa)	…of which BMW (tpa)
Arc21	1	40,974	40,974	2	31,059	31,059
SWMP	1	4,600	4,600	2	4,666	4,666
NWRWMP	1	3,600	3,600	2	7,000	7,000
Total NI	3	49,176	49,174	6	42,725	42,725

Home Composting

Home composting is being encouraged in the SWMP and NWRWMP Waste Management Plans in order to avoid the collection and processing of wastes, while helping to achieve recycling/ recovery targets. This waste management option is not considered in the Arc21 plan. The numbers and capacity of home compost bins provided in the SWMP and NWRWMP areas are given in Table 0.9.

Table 0.9 *Home Composting in SWMP and NWRWMP areas*.

By 2005	Number of Bins	Capacity	…of which BMW (tpa)
Arc21	-	-	-
SWMP	38,000	4,293	4293
NWRWMP	22,700	2,600	2600
Total NI	60,700	6,893	6893

Energy from Waste

All three regional Waste Management Plans have excluded thermal treatment from their investment programmes before 2005. However, it is proposed as an important part of the plans after this time, with the waste management groups planning to reassess the capacity needs and cost in 2005. For the purposes of this regulatory impact assessment, it has been assumed that one facility with a total capacity of 350,000 tpa (as suggested in Arc21) will be built and operational prior to 2020. No further new thermal treatment investment has been assumed prior to 2020. It is assumed that approximately 80 percent of the waste to the thermal treatment plants is BMW, based on the assumption that kerbside collection and bring sites are collecting a high proportion of dry recyclables at that time.

Landfill

Despite the implementation of the WMPs and the potential achievement of the targets in the Northern Ireland Waste Management Strategy and those of the Landfill Directive, there is a lack of landfill capacity to deal with the remaining waste arisings that are not diverted to recycling,

composting and thermal treatment. Arc21 requires 2 new landfill sites with a 500,000 tpa capacity by 2005, and another 2 to 3 sites by 2020, with a capacity of over 300,000 tpa. SWMP requires one new landfill site prior to 2005, with the capacity for waste from Fermanagh district(3). This will be for residual wastes post-recycling and composting. Current sites in the NWRWMG region are adequate to meet the needs to 2005, but additional capacity is required here prior to 2010. This additional capacity requirement is not specified in the NWRWMG Plan, and it has been assumed to be approximately 75,000 tpa based on the amount of waste arisings that need to be disposed of.

Cost Assessment

Delivery Arrangements

It is not anticipated that there will be significant costs associated with the delivery of the Northern Ireland Landfill Allowance Scheme (NILAS).

Costs of Reduction and Reuse

Education and Awareness

The costs associated with education and awareness programmes were assessed in the Waste Management Plans and projections to 2020 have been calculated based on the assumption that these programmes will continue to be conducted after 2005, though to a lesser extent as the public becomes more aware of the need to reduce waste. It is assumed that the proportion of these costs attributable to BMW will be 71 percent BMW.

These costs are shown in Table 0.10.

Table 0.10 *Projected Costs for Education and Awareness Programmes*

2005	2010	2015	2020
532,500	213,000	213,000	213,000

Collection Costs

Introduction

The details of the capital and operating costs of collection, as set out in Table 1 in Appendix I, are discussed below.

Recycling Centres/ Bring Sites and Civic Amenity Sites

Capital costs associated with the bring sites and civic amenity sites between 2002 and 2005 relate to investment in new facilities (£1,000 per bring site and approximately £370,000per civic amenity site). It is assumed that the lifetime of bring sites is approximately seven years and civic amenity sites is 15 years. Capital investment in new waste transfer stations after 2005 or before 2020 is replacement costs at the end of the lifetime of the sites.

(3) All of Fermanagh waste is about 133,000 tpa. However, only 35,000 of this is municipal waste. Costs calculated in the SWMP are based on the municipal waste arisings.

Operating costs have been calculated in the Waste Management Plans between 2002 and 2005. The operating costs of bring sites increase to £111,000 by 2005 and for civic amenity sites to £1,200,000. It is assumed that the same per annum operating costs will be associated with each bring site and civic amenity site to the year 2020.

Kerbside Collection
Capital costs associated with kerbside collection between 2002 and 2006 relate to investment in new facilities. It is assumed that the lifetime of vehicles as well as collection bins is approximately 7 years. Costs for new collection units (one vehicles plus bins at £12 to £13 each) are estimated to be approximately £163,000. Capital investment in new collection systems after 2006 or before 2020 are replacement costs at the end of the 7 year lifetime of the vehicles and bins.

Operating costs have been calculated in the Waste Management Plans between 2002 and 2005, estimated to be approximately £63,000 per kerbside collection system per annum. These collections will collect 84,000 tonnes in 2005, rising to 150,000 in 2020. It is assumed that the same per annum operating costs will be associated with each kerbside collection system (vehicles plus bins) to the year 2020.

Waste Transfer Stations
Capital costs associated with waste transfer stations between 2002 and 2005 relate to investment in new facilities, at a cost of approximately £260,000 each. It is assumed that the lifetime of the waste transfer stations is approximately 20 years and that capital investment in new waste transfer stations after 2005 or before 2020 is re-investment or replacement costs.

Operating costs have been calculated in the Waste Management Plans between 2002 and 2005, at a cost of approximately £55,000 per transfer station per annum. It is assumed that the same per annum operating costs will be associated with each transfer station to the year 2020.

Collection Costs of Traditional Waste to be Disposed
All remaining waste that is not part of the recovery, recycling and composting collection network is assumed to be collected through traditional waste collection methods, at a collection cost of £43 per tonne.

Costs Associated with the Treatment and Disposal of Waste
Introduction

The details of the capital and operating costs of treatment and disposal are discussed below.

Materials Recycling Facility (MRF)
Capital costs associated with MRFs between 2002 and 2005 relate to investment in new facilities, which are estimated to cost between £800,000 and £5,000,000. It has also been assumed (as indicated in the Arc21 Waste Management Plan), that a further two MRFs will be built by the year 2020, at the same capital cost per facility. It is assumed that the lifetime of these MRFs is approximately 20 years. Further capital investment in MRFs before 2020 relates to reinvestment and replacement costs at the end of the 15 year lifetime of the MRFs.

Operating costs have been calculated in the Waste Management Plans between 2002 and 2005. It is assumed that the same per annum operating costs will be associated with each MRF to the year 2020, including those associated with the new investments between 2005 and 2010.

Central Composting
Capital costs associated with central composting facilities between 2002 and 2006 relate to investment in new facilities. It has also been assumed (as indicated in the Arc21 Waste Management Plan), that a further two central composting facilities will be built by the year 2010, at the same capital cost per facility. It is assumed that the lifetime of these composting facilities is approximately 15 years. Further capital investment in composting facilities before 2020 relates to reinvestment and replacement costs at the end of the 15 year lifetime of the facilities.

Operating costs have been calculated in the Waste Management Plans between 2002 and 2006. It is assumed that the same per annum operating costs will be associated with each central composting facility to the year 2020, including those associated with the new investments between 2006 and 2010.

Home Composting
Capital costs associated with home composting between 2002 and 2005 relate to investment in new facilities. It is assumed that the lifetime of these bins is approximately 15 years. Further capital investment in home composting before 2020 relates to reinvestment and replacement costs at the end of the 15 year lifetime of each bin.

The Waste Management Plans assume that no operating costs are associated with home composting bins, besides information sharing through one-off visits and information leaflets. These costs are therefore assumed not to continue after 2005.

Energy from Waste
Capital costs have been based on tonne per annum costs of energy from waste facilities calculated in the partial regulatory impact assessment. Using these figures, a 350,000 tonne capacity plant is estimated to cost approximately £93,000,000. The lifetime of the energy from waste facility has been assumed to be thirty years, therefore

capital costs are reinvestment and replacement costs. The residual values of these capital investments are subtracted in year 2020.

Operating costs are based on the same calculations, estimated to cost approximately £5 million per annum, with these costs assumed to continue at the same rate to 2020. As this is likely to be a commercial operation, and costs are assumed to be gross costs, a revenue stream has been included in these calculations, estimated to be £7 million per annum.

Landfill

The capital costs between 2002 and 2005 relate to the new investments in Arc21 and SWMP. Cost estimates were provided for the planned SWMP landfill, and the per tonne capital costs of the site were used to calculate the investment cost for Arc21 according to these numbers and other estimates of the cost of landfill construction. Further capital investment after 2005 relates to two new landfill sites in the Arc21 region and a new site in the NWRWMP area. Reinvestment and replacement costs at the end of the lifetime of each landfill site is added to these. The lifetime of the SWMP and NWRWMG sites is estimated to be between seven and ten years, and the lifetime of the Arc21 sites is assumed to be 10 years. The residual value of these capital investments are subtracted in year 2020.

Total Investment Cost

Detail on investment costs is included in Table 2.11. In summary, the total cost of reaching the targets in Article 5 of the Landfill directive has an NPV of £952 million.

Table 2.11 *Total Investment Costs*

	Total Option Costs (£ millions)	*Net Present Value (£ millions)*	*Cost/tonne (undiscounted)*
2002	65.3	951.7	£76.9
2003	70.8		
2004	73.6		
2005	61.2		
2006	64.9		
2007	72.5		
2008	73.8		
2009	77		
2010	158		
2011	69.7		
2012	72.3		
2013	58.9		
2014	58.2		
2015	64.3		
2016	64.7		
2017	59.2		
2018	61.3		
2019	60.1		
2020	4.5		

Presentation of NPVs

The NPVs of the biodegradable content of waste are presented in Table 0.11].

Table 0.11 *Presentation of Net Present Value, £ Millions*

Assumed Biodegradable Fraction of Municipal Waste	Baseline	Article 5 Implementation
71 percent BMW	£1,040	£952

A comparison of the net present values for the baseline situation and for the investment plans shows that the implementation of the plans in compliance with Article 5 of the Landfill Directive will actually be more cost-effective than continuing with current practices, as shown in Table 0.11. This will result in a savings of £88 million. The main reason for this is the increase in landfill tax that has been assumed to continue to increase by £3 per annum, making the

landfilling of waste economically unattractive. However, it must be noted that this increase in tax may be halted at some time before 2020, which could result in a lower baseline cost than shown in this assessment. It must further be noted that there is limited certainty about investments that are going to made in the three regions after 2005. The results of this assessment must therefore be treated as indicative rather than precise.

Sensitivity Tests

In order to test the robustness of the savings the Article 5 implementation option presents compared with the baseline, two simple sensitivity tests have been undertaken:

- Changes in cost estimates. If costs associated with implementing Article 5 rise by approximately 20 percent across the board (ie including both capital and operating costs), then Article implementation costs broadly equal the existing baseline scenario. Whilst the cost estimation is necessarily approximate at this stage, this provides a reasonable degree of comfort that the savings are robust.

- Landfill tax. We have assumed a continual rise in landfill tax of £3 per annum until 2020, by which time it will be £63 per tonne. As a sensitivity test we have assumed that landfill tax would cease to rise from 2012. Under this sensitivity test, the cost of the baseline scenario falls to £984 million, whilst the cost of the Article 5 implementation scenario falls to £940 million. Thus the savings associated with implementing Article 5 fall from £88 million (when landfill tax rises at £3 per annum indefinitely) to £44 million (when landfill tax stops rising in 2012). This suggests that the savings to Northern Ireland from implementing Article 5 are not dependent upon long-term rises in the landfill tax.

  It can therefore be said that the estimates of savings to Northern Ireland associated with implementing the Article 5 of the Landfill Directive are likely to be achieved.

Employment Impacts

Methodology

Introduction

The assumptions that have been used to generate employment estimates are presented below.

Capital Costs

- For facilities and management options that are not highly capital intensive (such as landfill), £60,000 of investment generates one person year of employment; and

- capital expenditure of £100,000 for energy from waste projects, which are capital intensive, is assumed to generate one person year of construction employment;

Operational Costs

- every one thousand tonnes of waste is assumed to create 1.01 jobs in collection;
- one job is created in Northern Ireland for every 351 tonnes of waste recycled;
- composting creates four jobs for every 10,000 tonnes of waste composted;
- all the energy from waste projects are assumed to create fifty jobs, and these estimates are based on scaled down figures for typical modern MSW incinerators (which employ approximately 100 people per 500,000 tonnes of waste);
- in the years that less than 100,000 tonnes per annum is sent to landfill, there are assumed to be 10 jobs; and
- in the years that over 100,000 tonnes are sent to landfill there are assumed to be 20 jobs; and
- jobs created outside Northern Ireland are not included in this analysis.

These assumptions and their sources are set out in Table 1 in Appendix II

Calculation of Net Employment Impacts

In order to translate gross employment impacts a number of steps are required:

- define gross employment - jobs created by the options;
- leakage - jobs lost to the locale, region or country;
- deadweight - in the case of public sector support, would employment have been secured anyway;
- displacement and substitution - relocation of activity or employment; and
- application of appropriate multipliers.

In this instance, these steps are simple and, having identified gross employment generation, only leakage and multipliers need to be modeled. This is because:

- deadweight will not apply - no investment will take place without public funds being committed as BMW collection and disposal is the responsibility of district councils; and

- displacement is already accounted for as landfill employment is the only area that suffers from diversion of activity (in this instance waste disposal), and the impact of the different options on landfill is included in the model.

With regard to leakage, it seems highly unlikely that significant employment will be lost to the region, with the exception of employment in recycling reprocessing.

With regard to multipliers, we have adopted a multiplier of 1.08, ie for every job created in waste management, a further 0.08 of a job will be created in the broader economy as a result of:

- procurement by waste management operators; and
- expenditure by workers employed in waste management and supplying waste management operators.

This estimate is the mid-range of HM Treasury guidance, as set out in HM Treasury, A Framework for the Evaluation of Regeneration Projects and Programmes (EGRUP) guidance.

Employment Impacts

The number of jobs that are generated under the waste management plans and projected to 2020 are given in Table 0.1.

Table 0.1 *Employment Impacts (Construction and Operational)*

	Total Years of Employment	Total Person Years of Employment	Including Multiplier Effect (1.08)
Collection (including transport)	2,018	202	218
Recycling	6,911	691	746
Composting	1,288	129	139
Thermal Treatment	836	84	90
Landfill	888	89	98
Total	11,941	1,194	1,290

Distributive Analysis – Costs and Benefits

Introduction

As mentioned in Section 0, the implementation of Article 5 of the Landfill Directive will result in a net savings to Northern Ireland. It is not only the waste management industry that is affected by this Article, as it also results in costs and benefits to households, businesses, the public sector and society as a whole.

Issues of Equity and Fairness

The implementation of Article 5 will result in savings in the long run. This is mainly because of the increasing cost of landfill, itself driven largely by increases in the landfill tax. The costs of implementation will initially be high, as the majority of the capital investment will take place in the first five to ten years. The distribution of costs to the industry and to other players will also change. The costs are likely to fall upon:

- District Councils in their role as the collection and disposal authority within their district boundaries. District Councils are likely to bear the great majority of the cost, as it is they who have responsibility for municipal waste management.

- Industry, including the waste management industry and all waste producers that dispose of waste through municipal collections (generally service-type businesses and small firms). However, impacts on this sector will be limited, not least because if costs rise then waste producers will be able to switch to non-municipal service providers. Also, it is likely that the implementation of Article 5 may exert downward pressure on the price of landfill, because demand will be reduced.

- The Environment and Heritage Service in its function as the waste regulation authority. As noted above, these costs are not expected to be major.

Therefore, responsibility for action will rest mainly with the public sector in Northern Ireland and, because the investments will yield substantial savings in landfill tax, will actually save Northern Ireland money.

Who is Likely To Benefit?

The benefits that will arise from the implementation of Article 5 are substantial – not only in economic terms as recycling, composting and the treatment of waste results in savings to waste producers and gains in employment, but also to society as a whole.

The range of benefits to society is extensive, including environmental benefits and benefits to human health through the reduction of risks and the promotion of recycling and recovery. The avoidance of infraction proceedings for non-compliance of the Landfill Directive is a further benefit arising.

Compliance with Article 5 of the Landfill Directive, will help meet UK's target under the Kyoto Protocol. The UK has committed to reducing its emissions of greenhouse gases through its international target of 12.5 percent (and domestic target of 20 percent) over the period 2008-2012. Currently, emissions from waste represent 3 percent of total GHG emissions and 20

percent of methane emissions in the UK. The utilisation of landfill gas for generation of electricity will also reduce the need for electricity generation through other, potentially more polluting, means.

Those most likely to benefit from a significant increase in recycling are waste management contractors (due to increased levels of higher value added recycling business) and the unemployed (due to job creation in waste management). Many of the jobs would be manual in nature, and thus would directly address employment needs amongst unskilled or semi-skilled workers.

One of the main aims of the Landfill Directive is to decrease the negative environmental impacts associated with landfilling, and decrease the effects on human health. A study(4) by the European Commission has evaluated these impacts and quantified the impacts of air, soil and water emissions. A further study(5) by DEFRA has estimated the disamenity costs of landfill in Great Britain, and assigns values to local nuisance costs experienced by households living close to landfill. Defra's study estimated that the disamenity associated with landfilling was equivalent to £1.52 to £2.18 per tonne of waste landfilled. Over the study period to 2020, this could equal a benefit of about £8 million in Northern Ireland.

Finally, there will be significant employment benefits, as presented in Section 3 of this RIA.

Business Sectors Affected

The cost and administrative burden is likely to be borne by the public sector, although businesses may have to pay higher charges to dispose of waste. This will only apply to businesses with waste disposal contracts with district councils, who are more likely to be the service sector and/or small businesses. However, given the opportunity to switch to a commercial supplier, we anticipate that any negative impacts on businesses will be limited.

Small Firms Impact Test

Because the implementation of Article 5 will actually save Northern Ireland money, there will be no negative effects on small (or other firms), unless they are currently engaged in activities relating to landfill. However, the implementation of Article 5 will create a wide range of new, higher value added, opportunities for waste management companies, and hence it can be assumed that very few or no small firms will be adversely impacted.

(4) 'A study on the Economic Valuation of Environmental Externalities from Landfill Disposal and Incineration of Waste' October 2000

(5) 'A Study to Estimate the Disamenity Costs of Landfill in Great Britain' February 2003