Department of the Environment June 2005

Best Practicable Environmental Option for Waste Management in Northern Ireland: Guidance Document

Final Report on Municipal Solid Waste, Commercial & Industrial and Construction Sector Wastes

Environment & Heritage Service
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Foreword

Best Practicable Environmental Option (BPEO) is a core principle of the Northern Ireland Waste Management Strategy. It entails a systematic and balanced assessment of a range of different development options, in order to maximise environmental, economic and social benefits. Essentially the process is about finding the best possible solution for Northern Ireland and this guidance provides a framework to assist everyone involved in decisions on the development of infrastructure.

The Waste Management Strategy, published in 2000, sets out a vision for Northern Ireland as a European centre of excellence in resource and waste management. To manage our resources effectively it was envisaged that recycling would be increased across all controlled waste streams and development of energy from waste (thermal treatment) facilities would be necessary to meet Landfill Directive targets.

District Councils, working in the partnership of three sub-regional Waste Groups, applied the principles of BPEO in the preparation of their Waste Management Plans, adapting previous guidance on the BPEO process prepared by the Department of the Environment. The purpose of this document is to underpin the current review of the Waste Management Strategy and inform Waste Management Plans. This is to ensure that an integrated network of appropriate facilities is developed to meet landfill diversion for each key date: 2010, 2013 and 2020.

Recent reviews of the Northern Ireland Waste Management Strategy by the Northern Ireland Affairs Committee, the Northern Ireland Audit Office and the Waste Management Advisory Board have been critical of the rate of progress on the alternative infrastructure required to replace landfill. These reviews have also called for Northern Ireland to go beyond mere compliance with EU Directives to maximise our resource efficiency and environmental performance.

The Northern Ireland BPEO process has been a central part of the Waste Management Strategy review over the last two years and involved a wide range of stakeholders. The findings reveal that the leading options include challenging but achievable recycling rates; a significant reduction in landfill; and use of a balanced mix of proven technologies to treat residual waste, including biological and thermal treatment. This is consistent with current practices of the best performing countries in Europe, who achieve the lowest levels of landfill through a combination of high recycling & composting and a mix of technologies, including energy from waste.

The purpose of this guidance document is to support progress on planning, procurement and funding for a new waste management infrastructure for Northern Ireland. It is a framework which recognises that the balance of options and capacities to support recycling and recovery at the local level must be flexible to meet local needs. The conclusions reached should not restrict the choice of waste management option, provided that this meets the overall objectives for recycling and landfill diversion.

Acknowledgments

The Department of the Environment would like to acknowledge the significant contribution of stakeholders to the NI BPEO study, including: members of the BPEO Steering Group from the sub-regional Waste Groups and the business and construction sectors; delegates from District Councils who attended the conferences at Cookstown and Galgorm; individual stakeholders from the sub-regional Waste Groups, waste management, business and construction sectors who have provided comments on the outputs of the BPEO study. The detailed technical work of ERM consultants is also gratefully acknowledged.

Summary

The Northern Ireland Best Practicable Environmental Option (NI BPEO) for waste management has been developed by the Department of the Environment in response to feedback from the three sub-regional Waste Groups and other stakeholders requesting more guidance on the infrastructure required to comply with EU Waste Framework and Landfill Directives.

The BPEO study covered the three main waste streams of municipal solid waste (MSW), commercial & industrial waste (C&I) and construction, demolition & excavation waste (CD&E). A broad range of options were considered comprising different combinations of technologies to divert waste from landfill including: recycling, composting, anaerobic digestion, mechanical biological treatment, thermal treatment and advanced thermal treatment (pyrolysis and gasification). These options were assessed against the key decision criteria of feasibility, environmental impact, cost and social impact. The study involved engagement with local government and other stakeholders.

With reference to the long term target year of 2020, the key BPEO results are as follows:

- Target of 75% reuse and recycling of CD&E wastes;
- Target of 60% recycling and composting of C&I wastes, with the remaining waste treated by a balanced mix of alternative technologies (anaerobic digestion, mechanical biological treatment and thermal treatment) and no more than 13% of waste landfilled; and
- Target of 45% source segregated collection of MSW for recycling and composting. No more than 25% of waste directly landfilled. The remaining waste to be treated by a balanced mix of alternative technologies. A combination of anaerobic digestion and mechanical biological treatment is required to achieve 2010 EU Landfill Directive targets. Anaerobic digestion, mechanical biological treatment and thermal treatment are all required to meet 2013 and 2020 targets.

This guidance document provides a summary of the BPEO process and outputs for the three main waste streams. In addition it provides guidance to the Waste Groups on how the NI BPEO framework should be applied at the sub-regional level in Waste Management Plans by a tailored local assessment. It is underpinned by a detailed technical report on the NI BPEO produced by ERM consultants.

Contents

1. The NI BPEO Process

The Northern Ireland Best Practicable Environmental Option (NI BPEO) for waste management has been developed by the Department of the Environment in response to feedback from the sub-regional Waste Groups and other stakeholders requesting more guidance on the infrastructure required to comply with EU Waste Directives and more broadly to meet Northern Ireland's future waste management needs consistent with the principles and objectives of the Northern Ireland Waste Management Strategy.

The NI BPEO study was conducted on the basis of the Department of the Environment's guidance document on the BPEO process published in 2001. The study covered the three main controlled waste streams of municipal solid waste (MSW), commercial & industrial waste (C&I) and construction, demolition & excavation waste (CD&E).

A broad range of options were considered comprising different combinations of technologies to divert waste from landfill including: recycling, open composting, in-vessel composting (IVC), anaerobic digestion (AD), mechanical biological treatment (MBT), thermal treatment and advanced thermal treatment (pyrolysis and gasification). These options were assessed against the four key decision criteria of feasibility, environmental impact, cost and social impact. The study involved engagement with local government and other stakeholders.

Date	Activity
August 2003	Initial workshop with Waste Groups to discuss the proposition of an NI wide BPEO.
November 2003	Presentation to NI Local Government Association.
March 2004	Preparatory workshops with each of the 3 Waste Groups covering BPEO methodology and technology options.
May – December 2004	Four NI BPEO Steering Group meetings with representatives from Waste Groups and industry sectors.
October 2004	BPEO workshop at Cookstown with representatives from 26 District Councils to present current status and assess more subjective elements of the BPEO.
January 2005	Waste Strategy conference at Galgorm with representatives from 26 District Councils to present results for the MSW BPEO.
February 2005	Publication of an interim report on MSW BPEO. A one month period was provided for comments and feedback.
April – May 2005	Individual discussions on the BPEO results with local government and stakeholders in the waste management, C&I and construction sectors.
June 2005	Publication of BPEO Technical Report and BPEO Guidance (this document).

Key messages from stakeholders were as follows:

- Maximise the amount of recycling & composting to levels which are achievable based on the experience of other EU regions;
- Residual waste should be treated with a balanced mix of other technologies and Northern Ireland should not be reliant on a single technology to divert waste away from landfill to meet EU targets; and
- Residual waste should be treated with robust, well-proven and cost-effective technologies.

2. NI BPEO Outcomes

Each of the following sub-sections on the three main waste streams is structured to cover baseline data, options assessed, assessment results, infrastructure required and locations.

2.1 Municipal Solid Waste (MSW)

Baseline data

The starting point for the BPEO assessment was the latest data on MSW arisings and treatment methods for 2003, provided by the 26 District Councils.

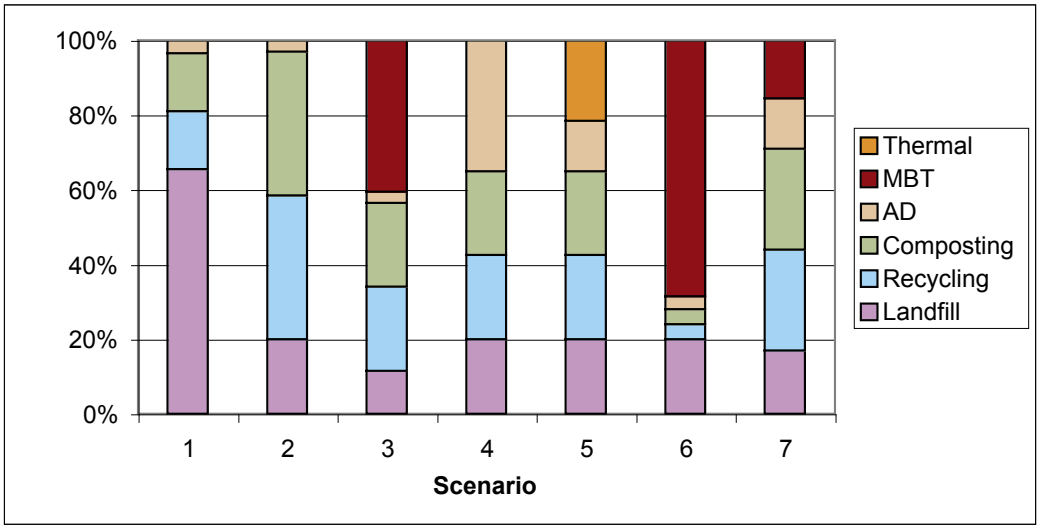
Key parameter	Data
Municipal solid waste 2003	1,027,000 tonnes
- Recycling & composting	12.2% (125,000 tonnes)
- Landfill	87.8% (901,500 tonnes)
Projected waste 2020	1,536,000 tonnes

Projected waste growth rate 2.4% per year

Options

A range of options were considered to meet EU Directive targets to reduce landfill. These range from relying solely on recycling & composting (80%) to using various combinations of the leading technologies (anaerobic digestion (AD), mechanical biological treatment (MBT) and thermal treatment), with recycling & composting at 45% comparable with some of the best performing regions in the EU.

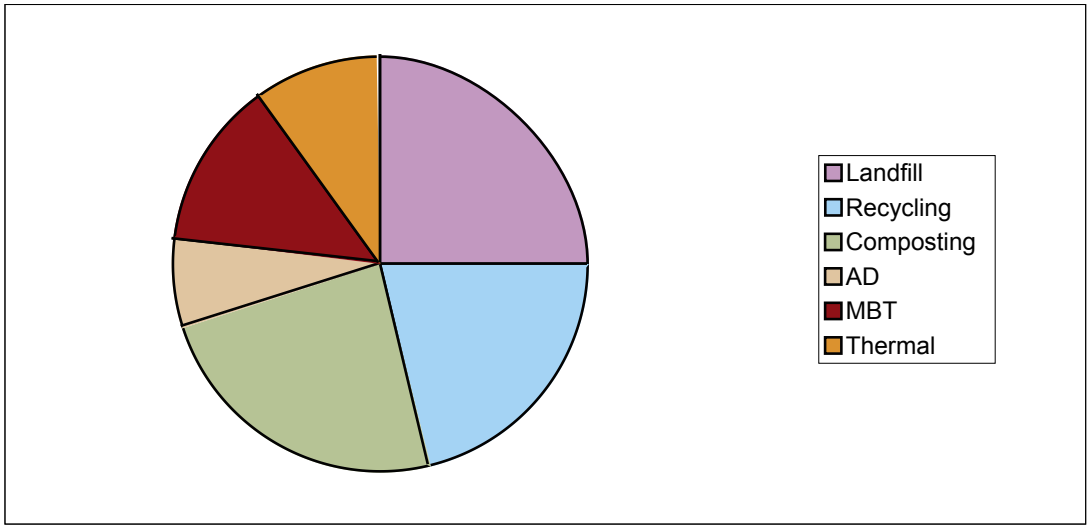
Scenarios for MSW



Assessment Results

These options were assessed using a combination of computer modelling and technical assessment and elicitation of stakeholder views at a workshop with elected representatives in October 2004. Scenarios 5 and 7 were clearly the best performers when assessed against the four decision criteria of feasibility, cost, environmental and social impacts. Further sensitivity studies around these scenarios established that a combination of the two gives the best practicable environmental option, utilising AD, MBT and thermal treatment to deal with residual wastes. This analysis was presented in the interim report on the MSW BPEO in February 2005 and is discussed in detail in the underpinning BPEO technical report.

MSW BPEO for 2020



Required infrastructure for 2020 waste arisings

Technology	Capacity (tonnes)	%
Recycling	325,000	21
Composting	366,000	24
AD	110,000	7
MBT	200,000	13
Thermal	150,000	10
Landfill	385,000	25

Summary of the progressive implementation of changes to waste management to meet EU Directive targets in the years 2010, 2013 and 2020.

BPEO for 2010

- A recycling & composting rate of at least 35%
- A 3 bin system for separate collection of dry recyclables, organic waste and residual waste for all households - where practicable
- A combination of MBT and AD for about 10% of waste in order to meet EU targets
- Only 55% of waste going direct to landfill
- No thermal treatment possible by 2010

BPEO for 2013

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

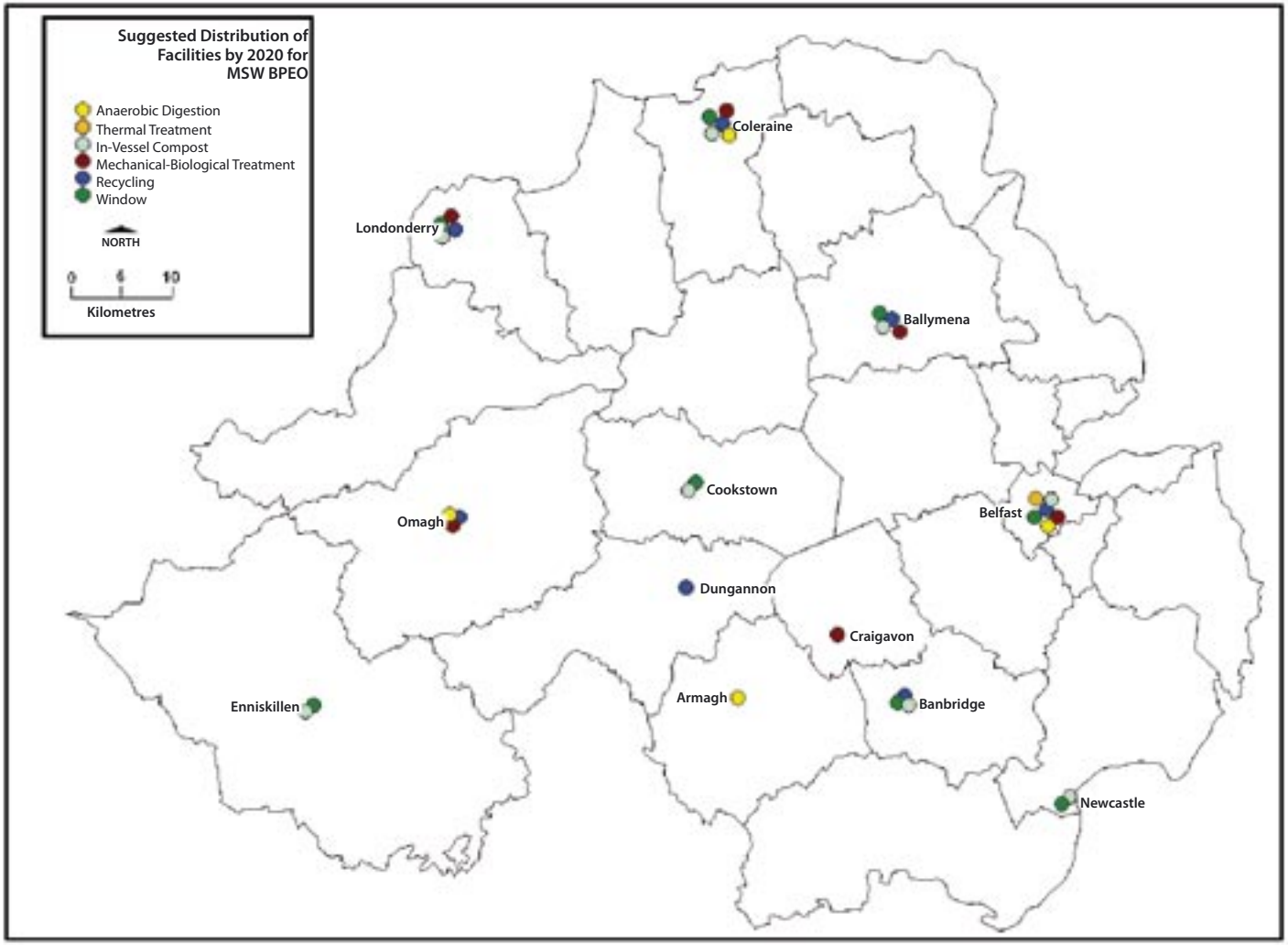
BPEO for 2020

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

Locations

The NI BPEO conducted a simple, high level assessment to identify possible numbers, capacities and locations for the required infrastructure. The latter may be viewed as possible 'areas of search' and a more detailed assessment is required in the sub-regional Waste Management Plans taking into account local factors. Possible areas of search for MSW facilities are illustrated in the map overleaf.

A sensitivity analysis has indicated that a single centralised thermal treatment plant scores better in the BPEO process than a larger number of smaller facilities. Similarly a smaller number of centralised MBT plants scores better than a larger number of small local facilities. This is discussed in more detail in the BPEO technical report.


Suggested Distribution of Facilities by 2020 for MSW BPEO
Anaerobic Digestion
Thermal Treatment
In-Vessel Compost
Mechanical-Biological Treatment
Recycling
Window
NORTH
0
5
10
Kilometres
Coleraine
Londonderry
Ballymena
Cookstown
Omagh
Belfast
Dungannon
Craigavon
Armagh
Banbridge
Enniskillen
Newcastle

2.2 Commercial & Industrial Waste (C&I)

Baseline data

The source of data of waste arisings and treatment methods was the last survey of C&I waste arisings conducted for the Environment and Heritage Service (EHS) in 2002.

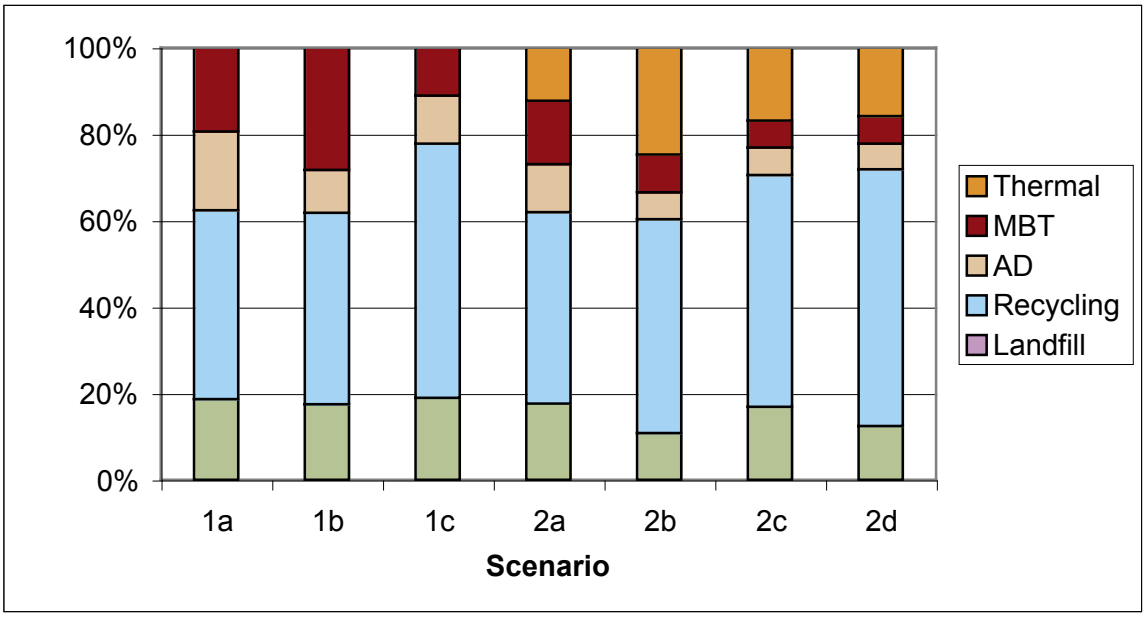
Key parameter	Data
C&I waste 2002	635,000 tonnes
- Reuse, recycling & composting	33% (208,000 tonnes)
- Landfill	40% (252,000 tonnes)
- Other (combustion, landspreading)	27% (175,000 tonnes)
Projected waste 2020	800,000 tonnes

Projected waste growth rate 1% per year

Options

A range of options were developed based on the same technologies that were proposed for dealing with municipal waste. Scenario 1 does not include any thermal treatment while Scenario 2 includes combinations of all three technologies. Under these two main headings, a number of variants were assessed using different levels of recycling and proportions of the main technologies.

Scenarios for C&I Waste

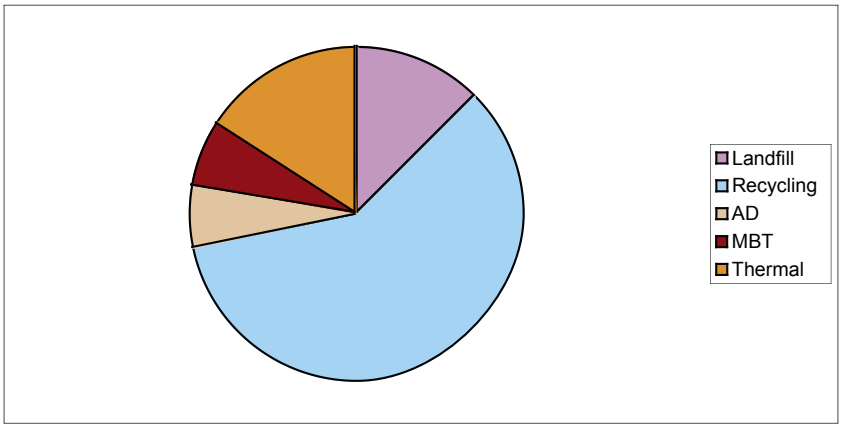


Assessment Results

In general the options under Scenario 2 scored better than the options under Scenario 1, particularly on feasibility. Overall Scenario 2d achieves the highest score, as the combination of a high level of recycling and proven thermal treatment technology scores well on the criteria of environment, cost and feasibility.

As with MSW, it is envisaged that recycling levels would progressively increase from the current level of 33% to around 40% by 2010, 50% by 2013, with a long term target of 60% by 2020. Biological treatments would provide an alternative to landfill by 2010 with thermal treatment being available by 2013. These results are discussed in more detail in the BPEO technical report.

C&I BPEO for 2020



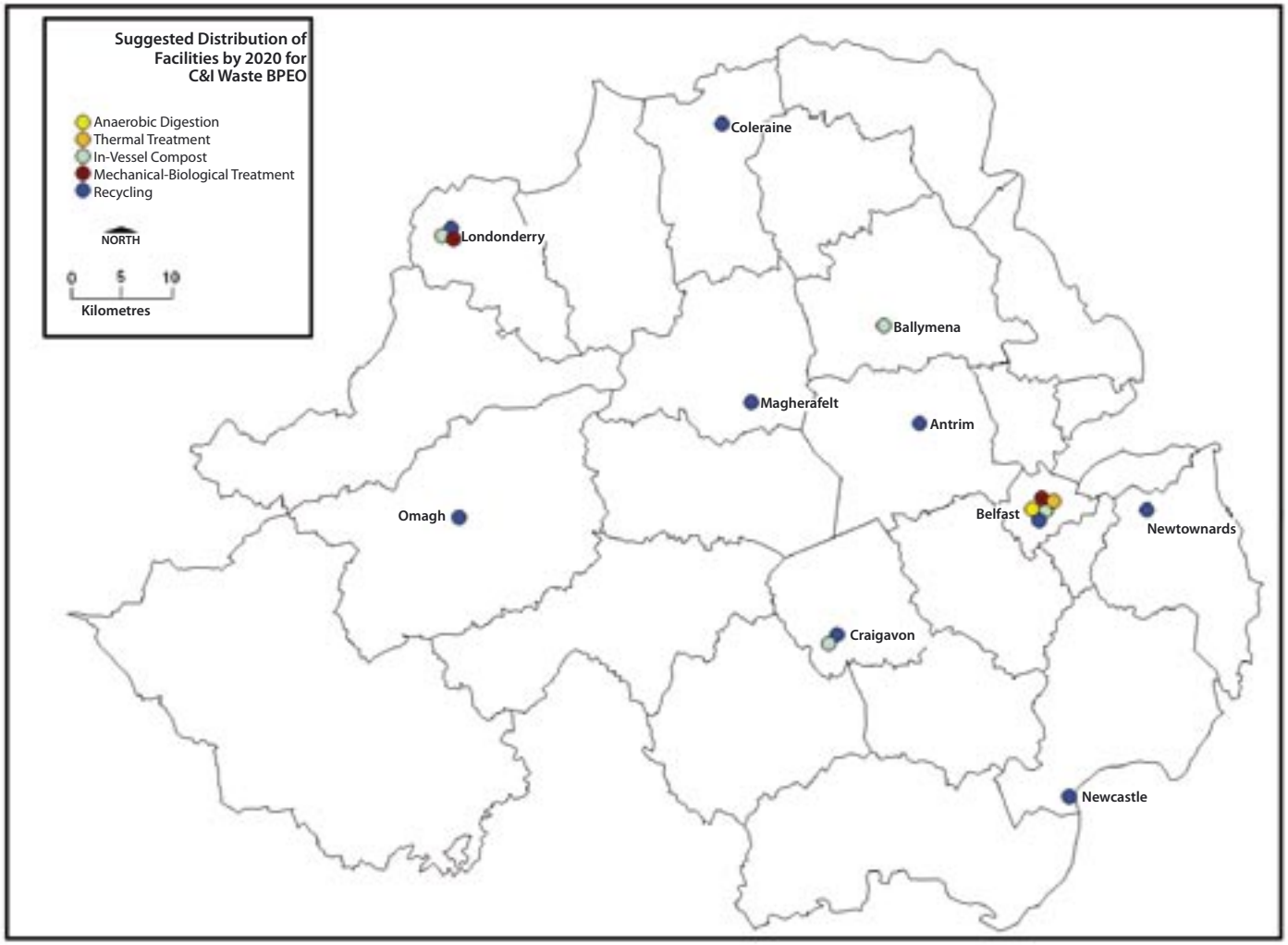
Required infrastructure for 2020 waste arisings

Technology	Capacity (tonnes)	%
Recycling & composting	480,000	60
AD	40,000	5
MBT	50,000	6
Thermal	130,000	16
Landfill	100,000	13

Locations

As with MSW, the BPEO assessment included a simple analysis to identify possible numbers, capacities and locations for the required infrastructure for C&I waste. Possible areas of search for the required facilities are illustrated in the map overleaf.
This is provided to inform a more detailed analysis in the sub-regional Waste Management Plans.

Locations Possible areas of search for C&I facilities required for 2020



2.3 Construction, Demolition & Excavation Waste (CD&E)

Baseline data

The BPEO Steering Group recommended the Symonds report for HM Customs & Excise on the Northern Ireland aggregates sector as the best estimate of current waste arisings. This yields a per capita figure around two tonnes per person, in a similar range to the latest data from Wales and England. The last CD&E survey for EHS was used as the best available source of information on current waste treatment methods and waste composition.

Key parameter	Data
CD&E waste 2003	3,750,000 tonnes
- Reuse, recycling & composting	34% (1,285,000 tonnes)
- Landfill	66% (2,465,000 tonnes)
Projected waste 2020	4,500,000 tonnes

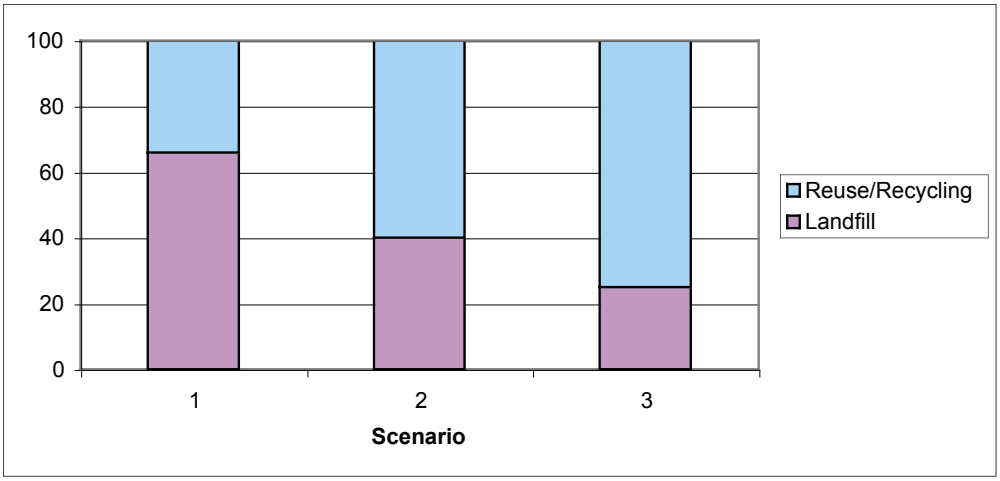
Projected waste growth rate 1% per year

There is limited scope for co-ordination with the MSW and C&I waste streams as CD&E waste composition data indicate that over 90% of the waste is excavated soil, stones, concrete, bricks and tars. Only 2.4% of the waste is wood, metal, glass and plastic.

Options

Options for the management of CD&E waste are more limited compared to the other waste streams as the main alternative to landfill is reuse & recycling, while technologies such as MBT and thermal are not really applicable. Three scenarios were investigated with different levels of reuse/recycling, ranging from the current situation of 34% to a target of 75% by 2020.

Scenarios for CD&E Waste



Assessment Results

Scenario 3 achieves the highest score overall, being the best option against the criteria of cost, environment and social issues. Scenario 2 performs well against the feasibility criteria and scored second overall. The current situation (Scenario 1) performs very poorly in the BPEO assessment. These results are discussed in more detail in the BPEO technical report.

Required infrastructure by 2020 waste arisings

Technology	Capacity (tonnes)	%
Reuse & Recycling	3,375,000	75
Landfill	1,125,000	25

Based on the experience of other EU regions, the bulk of the 75% target can be achieved by better project planning and more effective reuse of excavated materials on-site, especially in major infrastructure projects.

Locations

The BPEO Steering Group recommended the development of a network of CD&E reprocessing and recycling facilities around the main urban centres.

Existing or disused quarry sites would be ideal locations for such facilities. This would be cost-effective and yield environmental benefits as vehicles could deliver waste for recycling and leave with aggregate reducing overall transport impacts. Developing infrastructure at such sites is in line with the Regional Development Strategy and Planning Policy PPS 11. Such developments would also assist the quarrying sector meet the Aggregates Levy Credit Scheme target of 5% aggregate production by recycling CD&E waste by 2011 (equivalent to about 1 million tonnes).

Increased provision of mobile facilities for on-site recycling of aggregates on suitable large scale projects is also supported.

2.4 Combination of MSW and C&I Requirements

One of the key aims of the NI BPEO was to identify and promote any potential synergy between the major waste streams. The analysis has suggested there is limited scope for co-ordination with the CD&E waste stream. However, similar treatment technologies are proposed for MSW and C&I wastes and these are combined in the table below to yield overall capacity requirements for Northern Ireland.

Technology	MSW	C&I	Total (tonnes)	%
Recycling	325,000	480,000	805,000	34
Composting	366,000		366,000	16
AD	110,000	40,000	150,000	6
MBT	200,000	50,000	250,000	11
Thermal	150,000	130,000	280,000	12
Landfill	385,000	100,000	485,000	21

The above figures are based on a direct combination of the MSW and C&I waste stream requirements.

- For some technologies (eg, thermal) this is an appropriate approach where the economies of scale make sense to have a single facility which can serve both municipal and commercial customers.
- For other technologies, the required technology capacities may vary from those indicated above, eg, due to provision of more, smaller scale, local facilities.
- For biological wastes in particular, the potential synergy with agricultural waste treatment (currently not controlled waste) may mean that additional treatment capacity will be required in the future.

3. Guidance for Waste Management Plans

3.1 Assessment Required

The NI BPEO provides a framework for the management of MSW, C&I and CD&E waste streams up to 2020. In particular, it identifies the necessary infrastructure and capacities for MSW to comply with EU landfill diversion targets.

Waste Groups should include a technical assessment to translate this regional framework into a more refined and detailed implementation plan at the sub-regional level. A separate sub-regional BPEO is not required. This is based on the premise that the Waste Management Plan will be consistent with the NI BPEO, recognising the need for a degree of flexibility (see section 3.2). The technical assessment should be at an appropriate level of detail to demonstrate that the planned infrastructure is sufficient to deal with the projected future needs of the Waste Group.

The scope of the technical assessment should include:

- **Principles** – including those relating to NI BPEO and other key Waste Strategy principles;
- **Parameters and supporting data** – with particular emphasis on local information and conditions;
- **Process** – including rationale for any variations within the scope of the NI BPEO. Stakeholder consultation consistent with all legal and regulatory requirements; and
- **Findings and sensitivity analysis**.

The technical assessment should also include consideration of the decision criteria which it was not appropriate to address at the Northern Ireland level, ie local amenity, natural heritage, cultural heritage and the impact on the local economy.

3.2 Flexibility within the NI BPEO framework for MSW

It is recognised that some flexibility is required to enable Waste Groups to deliver the basic elements of the NI BPEO whilst also obtaining best value in the market place. Waste Groups need to be alert to any potential opportunities and overcome any real constraints due to local conditions. However, significant deviations from the NI BPEO and/or divergent approaches by the three sub-regional Waste Groups could result in Northern Ireland collectively failing to meet EU landfill diversion targets. Waste Management Plans which are not consistent with the NI BPEO framework could lead to failure to deliver the required infrastructure through the planning process.

The following guidelines apply to municipal waste and relate to the proportions of the different technologies at 2020.

Application of the framework should focus on the preferred mix of recycling & composting, technologies for the treatment of residual waste and landfill requirements at 2020. For interim milestone years, Waste Groups should clearly set out their projected levels for the contribution of each element to demonstrate progressive improvement towards statutory targets.

The preferred scenario summarises the progressive implementation of changes to waste management practices expected to meet EU Landfill Directive targets at 2010, 2013 and 2020. However detailed assessment may indicate different combinations in progressing towards a preferred option at the local level, particularly in the earlier target years. Interim targets need to be flexible to allow Waste Groups to reflect community decisions and provide assurance on meeting statutory Landfill Directive targets. The overall goal should be to maximise the contribution of recycling and composting by 2020 in accordance with the preferred level of 45%.

Waste Management Plans should focus on measures to achieve the preferred contribution for recycling & composting and drivers to effect behavioural change by 2020, recognising that this may take some time to establish.

Within the overall target of 45% recycling and composting by 2020 for Northern Ireland, Waste Groups may adjust projected levels to allow for differences in achievable rates arising from local demographics.

A recent review of international recycling experience by the Resource Recovery Forum has noted significant variations in the level of recycling achievable between different areas, such as urban versus rural areas. Even in countries with overall high recycling rates such as Holland, certain urban areas perform relatively poorly. Therefore it may not be possible for every District Council to achieve a rate of 45%. However, this should be compensated by above target performance in the best performing areas, so that overall the Department of the Environment is reasonably assured that 45% is achievable for Northern Ireland as a whole.

The preferred scenario is based on collection as source segregated materials, either by kerbside collections or at bring sites or at household recycling centres (civic amenity sites). Recycling of materials and/or composting of waste following separation at a materials recovery facility may form part of the overall recycling & composting target, provided that it is clear how this maximises recycling effort.

Waste Management Plans should include discussion and proposals for provision of a limited amount of additional waste treatment capacity as an alternative to landfill as a contingency measure for lower than projected recycling rates. This analysis should be on the basis of the projected performance of specific District Councils rather than the Waste Group as a whole.

Waste Groups that exceed 45% recycling and composting have the flexibility to reduce the contribution of the other technologies.

For example, if a recycling & composting rate of 55% can be achieved, the Waste Group could implement a pro rata reduction across all of the technologies (AD, MBT, thermal, landfill) or just one of these technologies could be significantly reduced or eliminated.

Any of the alternative technologies can be increased to further reduce the amount of waste going directly to landfill below the 25% level envisaged in the NI BPEO.

Landfill disposal of 25% of municipal waste is just sufficient to meet the landfill diversion target. Any further reduction in the amount of landfill disposal below this level using any alternative technology would be a positive improvement, consistent with the waste hierarchy and the overall aims of the Waste Management Strategy.

For example, Waste Groups could decide to pre-treat most or all of the waste destined for landfill with some form of MBT prior to disposal to further reduce its mass, volume and biodegradability. Use of thermal treatment to divert waste from landfill is also consistent with the waste hierarchy. This could be justified on the basis of a strategic approach to protect existing landfill capacity for as long as possible.

Waste Groups may vary the relative proportions of biological and thermal treatment technologies for residual waste as required to meet local needs.

The scenario assessed as BPEO for municipal waste in this study comprised 20% of the biological treatment processes (AD and MBT) and 10% thermal treatment. The approach taken was to select a balanced mix of technologies but the precise values are indicative not definitive. Therefore, it would be consistent with the NI BPEO framework if the relative proportions of these technologies were varied as required to meet local needs.

The key issue is that Northern Ireland is not reliant on a single technology to meet EU Landfill Directive targets.

Waste Groups should take into account the most up to date information available on local waste growth rates.

The NI BPEO assumes a constant waste growth rate of 2.4% up to 2020. Waste Groups should take account of the most recent information available on local growth rates and conditions (eg, housing projections) and vary accordingly the proportions and capacities of the waste infrastructure required. For example, planned increases in community composting or home composting should be factored in.

Waste Groups can combine the technologies IVC, AD and MBT under the more general heading of Biological Waste Treatment.

This approach will facilitate a more flexible approach to contract negotiations with potential technology suppliers and enable Waste Groups to seek the most attractive package of biological technologies from suppliers in the market. So, for example, some of the source separated organic waste nominally earmarked for 'composting' in the BPEO could be utilised for AD instead.

Waste Groups that intend to collect only garden waste have the flexibility to assign this portion of waste to open composting rather than IVC.

The NI BPEO assumes open composting is phased out by 2010 to be replaced by IVC. This is based on the assumption that most source separated organic waste will include kitchen and garden wastes and will require IVC to comply with animal by-product regulations. However, where Waste Groups intend to collect significant quantities of garden waste only (eg, at civic amenity sites or council park wastes), then their Waste Management Plans can assign this portion of waste to open composting rather than IVC.

Waste Groups have the flexibility to include additional thermal capacity in their plans to treat refuse derived fuel from MBT.

MBT technology is a key component of the BPEO solution for MSW and C&I waste streams. A recent comprehensive study of MBT by Juniper consultants has confirmed that MBT can make a significant contribution to meeting landfill reduction targets. This report also noted the ongoing uncertainty with regard to sustainable markets for the outputs of MBT, which are low grade compost and refuse derived fuel.

The NI BPEO study has assumed that markets for MBT outputs can be found outwith waste management infrastructure. These outlets could include, for example, cement kilns, existing coal-fired power stations or new wood-burning combined heat and power plants. Waste Groups may feel it is prudent to include additional thermal capacity in their plans to treat refuse derived fuel generated by their MBT plants. This would be an additional contingency measure to ensure delivery of EU Landfill Directive targets and would be consistent with the NI BPEO framework.

The NI BPEO study has included sensitivity studies which indicate that, although not the preferred route, a proportion of the MBT output could be landfilled and the scenario remains the best option. The Department of the Environment's interim report on the MSW BPEO in February 2005 noted the ongoing Environment Agency consultation on the measurement of the reduction of biodegradability achieved by MBT. The results of this consultation are currently not available and Waste Management Plan reviews should consider the Environment Agency's conclusions and recommendations when these are published.

Waste Groups should co-ordinate their approach, so that one group may increase the relative proportion of a particular technology while another group may decrease the contribution of that technology.

It is not necessary for the relative amount of each technology in the NI BPEO to be rigidly applied at the sub-regional level. A flexible approach should be adopted which allows Waste Groups to co-ordinate their approach, so that one group may increase the relative proportion of a particular technology in their plan while another group may reduce the contribution of that technology due to local preferences. This is consistent with the NI BPEO framework provided the relative mix of technologies at the Northern Ireland level remains robust and balanced.

Where a centralised facility is located in one Waste Group area, it is imperative that all three Waste Groups regularly liaise with each other as the Waste Management Plans are developed so that any modifications in plant capacities are shared between all parties and the Department of the Environment.

The NI BPEO assumes that all the waste generated in Northern Ireland is dealt with within the region. Some Waste Groups may want to work in partnership with other local authorities in the UK or Republic of Ireland, which could result in treatment in fewer centralised regional facilities. Movements between Northern Ireland and Republic of Ireland must take account of the Transfrontier Shipment Regulations which currently do not permit the movement of waste for disposal. They must also be in accord with the UK Management Plan on the Export and Import of Wastes. Northern Ireland is currently working with DEFRA to ensure that this Plan reflects the potential for all-island solutions for both recovery and disposal operations to be implemented, where these are in accord with the sub-regional Waste Management Plans.

The Department of the Environment expects that these variations will be reasonably modest. Based on the key Strategy principles of self sufficiency and the proximity principle, Waste Management Plans should not be overly reliant on waste infrastructure in another jurisdiction to meet their landfill diversion targets.

Within the bounds of the flexibility described above, the Department of the Environment believes that the overall combination of the three sub-regional Waste Management Plans should still be broadly in line with the results of the NI BPEO as described in this document. Any significant deviations should be driven by higher than projected recycling rates and/or lower than projected landfilling rates.

3.3 Flexibility within the NI BPEO framework for other controlled waste streams

The flexibility described in the previous section for municipal waste also applies to C&I waste, in terms of issues such as: above target recycling; below target landfill; the relative proportions of biological and thermal treatment for residual wastes; local waste growth rates; additional thermal as contingency for MBT outputs; and transfrontier shipment of waste. The application of flexibility to CD&E wastes is more limited as there are fewer components to the BPEO option. However, where relevant the guidelines on flexibility should be applied.

Waste Management Plans in particular should consider synergies between different sectors, and look to maximise the opportunities for co-operation with any developments of waste treatment facilities proposed or planned by the commercial or construction sectors. For example, a regional facility for the treatment of organic wastes from the food processing sector, could also provide a service for other C&I waste streams (eg, catering sector) and municipal wastes.

3.4 Locations

The NI BPEO provides an initial, high level assessment of the required numbers, capacities and locations of facilities for both MSW and C&I waste streams. These represent possible 'areas of search' and are based on a limited study aimed at minimising overall transport distances. The assessment is not site-specific and does not account for local issues, existing facilities, quality of road network, etc.

Waste Management Plans should develop this location information further to identify possible locations for the infrastructure required to meet projected Waste Group needs up to 2020. This assessment should take account of relevant local issues and the best available current information.

Waste Management Plans should seek to make maximum use of existing waste management sites and council owned land. This is consistent with the Regional Development Strategy and Planning Policy PPS11. An example could be locating IVC or MBT plants on existing landfill sites, which could significantly reduce the amount of waste being landfilled at that site. Plans should also demonstrate engagement with other public sector bodies (such as the Department for Agriculture and Rural Development, Department of Regional Development and Invest Northern Ireland) over suitable available land, if that will help the prompt and cost effective delivery of the necessary infrastructure.

Where possible and appropriate, Waste Management Plans should identify specific sites for facilities where this will enable timely progress through the planning system and efficient delivery of the necessary infrastructure. Identification of potential sites will also provide reassurance that there are viable locations where the necessary infrastructure can be built.

Summary of Ni BPEO Framework

	Assessment	Locations
Department of the Environment	NI BPEO	Projected numbers and capacities of facilities. Broad areas of search.
Waste Groups	Waste Management Plan including a technical assessment applying NI BPEO to sub-regional level. Particular focus on local issues and information, within the framework of the NI BPEO utilising flexibility as required.	Refine numbers, capacities & locations of facilities to meet local needs. Specific locations where appropriate. Possible candidate sites as potential options.
Service suppliers	Site assessment which demonstrates how proposal supports delivery of the Waste Management Plan. Endorsement from the Waste Group fulfils PPS11 requirement for BPEO.	Site specific planning application. Plant capacities guided by Waste Management Plan and commercial considerations.

4. Conclusion

The NI BPEO is a key supporting document for the new Waste Management Strategy. It will inform the new Strategy, which will be submitted for public consultation in Autumn 2005 and finalised for publication in early 2006.

The guidance provides a non-statutory framework for all decision makers and for the review of sub-regional Waste Management Plans. Waste Groups should use the NI BPEO to inform the development of infrastructure provision in their Waste Management Plans. The guidance is a material consideration in the land use planning system and also for the Department of the Environment's review of the Waste Management Plans.

It is the Department of the Environment's intention to periodically review and update this guidance to take account of any significant changes in waste data or waste technology.

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Environment & Heritage Service
www.ehsni.gov.uk

Our aim is to protect and conserve the natural and built environment and to promote its appreciation for the benefit of present and future generations.

Environment & Heritage Service
Commonwealth House
35 Castle Street
Belfast BT1 1GU
Tel: (028) 9054 6565
Email: info@ehsni.gov.uk

www.ehsni.gov.uk

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