

Hazardous Waste in Northern Ireland

*An Action Plan for its
Environmentally Sound
Management*

Northern Ireland Hazardous Waste Forum, June 2004



Executive Summary

The Waste Management Strategy for Northern Ireland, published in March 2000, identified the need to minimise the quantity of hazardous waste that is produced and reduce the hazardous nature of wastes. The three sub-regional Waste Management Plans, adopted by the District Councils in January 2003, proposed that a working group be established to identify the preferred hazardous waste management solutions for the longer term. The Environment and Heritage Service, in support of this proposal, agreed to facilitate the establishment of a Hazardous Waste Forum in Northern Ireland, bringing together key stakeholders to advise on a way forward for hazardous waste reduction, recovery and management.

The operation of the Hazardous Waste Forum is an inclusive process associated with a constructive examination and exploration of hazardous waste management in Northern Ireland. Initially the Forum has concentrated on identifying the issues that must be addressed to achieve a way forward on the management of hazardous waste. The Forum has met seven times since June 2003, establishing five sub-groups to look at legislation and regulations; communication and awareness; encouraging hazardous waste reduction, reuse and recycling; capacity needs and household hazardous waste.

This Action Plan sets out the key issues and relevant background information and recommends actions to be taken by stakeholders.

The Forum will monitor the implementation of the recommendations through an Implementation Plan, due to be issued in Autumn 2004, which will identify lead organisations for each of the recommended actions and set out timescales specifying how progress will be monitored.

It is envisaged the forum will continue its work at least until some months after the implementation of the new Hazardous Waste Regulations.

Summary of Objectives, Recommendations and Actions

Objective 1: To provide a clear and robust regulatory system for hazardous waste management consistent with EU, international and national legislation. This must provide both the clarity of unambiguous legislative requirements and the certainty of consistent and transparent implementation, inspection and enforcement.

Recommended Actions

1.1A-D The Department should provide clarity as soon as possible on the extent, timing and application of forthcoming changes to legislation governing the management of hazardous waste. This should apply in particular to the Landfill Directive Waste Acceptance Criteria, to the proposed changes to the Special Waste regime and the introduction of the new Hazardous Waste List, and to the ELV and WEEE regulations. Details should be included in an implementation plan to accompany this Action Plan, which should be issued by Autumn 2004, and reviewed and updated on a regular basis.

1.1E Although the Department should ensure the unique requirements of Northern Ireland are met, they should strive, with the other Administrations, for a consistent approach to implementation and enforcement of regulations across the UK: the aim should be to avoid market distortion, as far as possible.

1.1F *Imports and exports of waste.* The Forum advocates the implementation of the recommendations in the draft review of the *UK Management Plan on the Export and Import of Waste*, to enable all island solutions for both recovery and disposal operations to be implemented, where these are in accordance with the sub-regional Waste Management Plans.

1.2A The Forum recommends that the Environment and Heritage Service (EHS) should keep under review its regulatory effort on hazardous waste and apply it in a proportionate and risk-based manner. Additional resources are likely to be required in the transitional period immediately following the end of co-disposal, given the lack of hazardous waste landfill sites in Northern Ireland, and the introduction of the new control regime.

1.2B Enforcement is a vital part of the overall control system and should be used on a consistent basis. The Forum recommends that the courts be encouraged to ensure that the penalties are such that the cost of non-compliance is greater than the cost of compliance.

1.3A-C The Environment and Heritage Service must ensure a 'level playing field', by applying effective control of hazardous wastes fairly and consistently to all the 'links' in the waste management 'chain', from 'cradle' to the 'grave', thus eliminating illegal activities. Particular attention is needed on hazardous waste producers, brokers and transfer stations.

1.3D The Environment and Heritage Service and District Councils should continue to develop constructive working relationships to monitor, and where appropriate, detect, deter and disrupt illegal and unlicensed activities, particularly in the transitional periods following both the end of co-disposal and the implementation of the new hazardous waste regulations.

Objective 2: To raise awareness of the issues surrounding hazardous waste management in business and industry.

Recommended Actions

- 2.1A An information and awareness programme on hazardous waste management for business and industry should be developed and implemented as soon as possible. Co-ordinated by the EHS and actively involving other stakeholders, the programme should focus on the requirements and obligations of the new hazardous waste management control system, and its practical and financial impacts. Adequate funding and resources are required.
- 2.1B A single point of contact needs to be established as soon as possible, to provide practical information on all aspects of hazardous waste management. This focal point needs to be clearly sign-posted, so that its user community can find it easily and quickly.
- 2.1C The waste management industry (including District Council trade waste services) should seek to provide clear guidance to their clients on what is and is not acceptable in terms of segregation, management and treatment for hazardous waste.
- 2.2 Separate collection of household hazardous waste should be encouraged through the wider dissemination of good practice, the provision of appropriate funding, and the possible use of supporting policy measures.

Objective 3: To minimise the quantities and degree of hazardous wastes being produced, and to encourage their reuse and recycling.

Recommended Actions

- 3.1 An adequately resourced and funded technical assistance programme, to disseminate legislative requirements, good practice and to encourage innovation in hazardous waste prevention, reduction, reuse and recycling, should be established as soon as possible. Active participation by industry, relevant trade associations, as well as Invest NI and EHS, is vital to its success.
- 3.2 The Forum recommends that a more balanced set of policy and economic instruments, including 'carrots' as well as 'sticks', is required to encourage hazardous waste producers to act more responsibly. Government should carry out further work, with the aim of developing economic and similar instruments that act as incentives to minimise hazardous waste production, increase reuse, recycling and recovery and/or adopt environmentally sound management.
- 3.3 Consideration of the use of targets for hazardous waste reduction is an important means of driving and monitoring progress. However, the information required to set realistic targets and achievable targets is not currently available. Once the information is available, the Forum will recommend where and how specific targets might be introduced.

Objective 4: To ensure the provision of the hazardous waste management facilities required to meet the new legislative requirements. A particular concern is to ensure that adequate capacity is available in the short to medium term, during the initial transitional period following the end of co-disposal and the introduction of newly defined hazardous wastes.

Recommended Actions

4.1 An authoritative 'statement of facility needs' for the management of Northern Ireland's hazardous wastes is required as a matter of urgency. This should address the three parallel issues of the facilities/capacity which need to be developed urgently within Northern Ireland; the requirements for continued export to GB; and co-operation within the island of Ireland. The information to underpin this statement has been prepared for the Hazardous Waste Forum and can be found in Annex 2.

4.2A Careful monitoring and proactive management of the situation is required immediately before, and in the months following, the end of co-disposal in July 2004, to ensure that any shortfall in capacity does not either disrupt industry or lead to uncontrolled disposal. EHS as the regulator will, of necessity, form the 'front line', but they should be supported by a small task group, who should meet regularly to keep the evolving situation under review.

4.2B Government, district councils and industry should work together to facilitate the development of separate cells for stable non-reactive hazardous wastes on one or more non-hazardous waste landfill sites within Northern Ireland.

4.2C Government to liaise with authorities in GB to ensure that the export of NI's hazardous wastes to GB continues smoothly after the end of co-disposal.

4.2D Government to liaise with authorities in the Republic of Ireland to ensure the provision of the best all-island solutions for hazardous waste management.

4.2E *Priority waste streams (asbestos and waste oils)*. Government should work closely with the affected industry sectors to ensure that forthcoming changes in disposal patterns do not adversely affect these two priority waste streams in particular.

4.3A The planning and permitting systems need to be more responsive to the urgent need for additional treatment and disposal capacity for hazardous wastes. As part of its continuing review of Planning and Waste Management, the Department of the Environment should consider the particular needs of the hazardous waste sector, and the urgent need to replace landfill facilities which will cease to accept hazardous waste from 16 July 2004.

4.3B Best Practicable Environmental Option (BPEO) should be established for hazardous wastes.

4.3C The Department should consider ways of better informing the public about hazardous waste management issues and addressing their concerns.

4.4 All stakeholders should work together with the aim of improving the quality, reliability and consistency of the available data for improved planning and management of hazardous waste.

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Introduction

1. Just over 47,000 tonnes¹ of special waste² was consigned in Northern Ireland in 2002. 32% of the waste arising came from the oil and oil/water mixtures category. 11% was disposed of to landfill in Northern Ireland (almost half of which was construction & demolition waste and asbestos) and 47% was exported to Great Britain. The way in which hazardous waste is managed will change significantly over the next few years, driven by a series of European Directives affecting both resource use and waste management (see Annex 1). Among other impacts, these Directives will direct hazardous waste away from landfill, impose more stringent requirements for waste treatment and incineration and increase the number of types of waste defined as hazardous. These new treatment requirements and the significant reduction in landfill capacity are likely to increase the costs of waste management.
2. The Waste Management Strategy for Northern Ireland³ identified the need to minimise the quantity of hazardous waste that is produced and reduce the hazardous nature of wastes. These principles have also been endorsed by the three sub-regional Waste Management Plans produced by the Councils^{4,5,6}. These plans proposed that a working group should be established to identify the preferred hazardous waste management solutions for both the short and longer term. The Department of the Environment supported this proposal and agreed to facilitate the establishment of a Forum on Hazardous Waste encompassing central and local government, waste producers, the waste management industry and non-government organisations (NGOs), to advise on a way forward for safe hazardous waste reduction, recovery and management.
3. The establishment of this Forum in June 2003, was timely given the developments of similar groups in adjoining administrations. In England and Wales, the Department of Environment Food and Rural Affairs (DEFRA) established a Hazardous Waste Forum, as recommended by the House of Commons Environment, Food and Rural Affairs Committee and have produced a similar action plan⁷. The Republic of Ireland set up a National Hazardous Waste Management Plan Implementation Committee chaired by the Environmental Protection Agency. The Northern Ireland Hazardous Waste Forum (NIHWF) will continue to liaise with these bodies as appropriate.
4. The Forum comprises stakeholders from: central government, local government, waste producers, the waste management industry and non-government organisations (see below for details). The operation of the NIHWF is foreseen as an inclusive process associated with a constructive examination and exploration of hazardous waste management in Northern Ireland (see Terms of Reference for the Forum below).

¹ EHS special waste database

² Special Waste Regulations (Northern Ireland) 1998

³ Waste Management Strategy for Northern Ireland March 2000, www.ehsni.gov.uk

⁴ arc 21 www.arc21.com

⁵ NWRWMPG www.northwestwasteplan.org.uk

⁶ SWaMP www.swampni.org.uk

⁷ www.defra.gov.uk

5. This Action Plan makes a number of recommendations for action and is the beginning of a process to change the way in which hazardous waste is managed. The Forum will continue to meet to consider the issues raised in this document, and to make further recommendations, if necessary. Following on from the Action Plan the Forum will consider opportunities to reduce the production of hazardous waste and the recovery of that which is produced, the content and dissemination of Government advice, and the provision of a better basis for forward planning through improved data collection.
6. A major issue considered by the Forum was the lack of available information on facilities currently used for hazardous waste management, and on the implications of both the ban on co-disposal from July 2004 and the introduction of newly defined hazardous wastes and the implications. A capacity needs study was carried out and the results can be found in Annex 2 of this document.
7. Whilst the Forum has considered the issue of hazardous waste in a Northern Ireland context and focused on legislative impacts and changes required in Northern Ireland, it is mindful that almost half the hazardous waste produced in Northern Ireland is exported to Great Britain and the Forum will continue to liaise with the DEFRA Hazardous Waste Forum in this respect. The Forum will also continue to invite representatives from the Republic of Ireland's respective Committee in order to promote the provision of all island solutions for hazardous waste management, where possible.
8. The remainder of this Action Plan sets out the specific objectives and recommended actions by stakeholders, together with the specific issues and relevant background information in relation to each of the recommended actions. The Forum will monitor the implementation of these recommendations through an Implementation Plan, due to be issued by Autumn 2004, which will identify lead organisations for each of the recommended actions and set out timescales specifying how progress will be measured.

Northern Ireland Hazardous Waste Forum: Membership

Arc21

Chemical Industries Association

Confederation of British Industry

Construction Employers Federation Ltd

Department of Health and Social Services, Health Estates

Department of the Environment, Environmental Policy Division

Environment and Heritage Service

Federation of Small Businesses

Invest Northern Ireland

Northern Ireland Demolition Association

Northern Ireland Environment Link

North West Region Waste Management Group

Planning Service

Southern Waste Management Partnership

UK Oil Recycling Association

3 Main Hazardous Waste Management Companies:

Irish Waste Environmental Services, McQuillan Envirocare,

Wilson Waste Management

Northern Ireland Hazardous Waste Forum: Terms of Reference

- A] To produce within 6 months advice on the way ahead in Northern Ireland, for both the short and medium terms, to achieve hazardous waste reduction and environmentally sound management of such wastes, including advice on key decisions to be made and, the timing of those decisions. The aim of the advice will be to identify the actions that must be taken by each group of stakeholders, in order to ensure the timely provision of authoritative guidance on the implementation of hazardous waste legislation, and to achieve its sound environmental management.
- B] To consider the impacts of existing and forthcoming legislation pertaining to hazardous waste, and advise on the content and dissemination of Government advice and guidance to waste generators and waste managers about that legislation.
- C] To identify opportunities to reduce the generation of hazardous waste and promote the recovery of that which is generated, utilising where appropriate the recommendations of the DEFRA Forum and adapting where relevant to meet the needs and circumstances of Northern Ireland. In particular, to consider policy measures and financial incentives to encourage reduction of hazardous wastes by industry in Northern Ireland.
- D] To identify the facilities to be used in the short-term, and to recommend and support the development of an adequate network of future facilities, to ensure the environmentally sound management of hazardous waste. The recommendations will need to distinguish between those facilities which can practically be provided within Northern Ireland, those which need to be planned/ provided on an all island basis, and those which need to be planned/ provided on a Great Britain/ Ireland basis.
- E] To provide a better basis for forward planning by providing up to date and reliable data on hazardous waste generation and management, and make any relevant recommendations about how data collection and analysis could be improved.
- F] To inform the forthcoming reviews of the Waste Management Strategy and the sub-regional Waste Management Plans, in terms of how best to integrate requirements for the environmentally sound management of hazardous wastes in Northern Ireland.

1 The Regulatory System

<p>Overall Objective 1:</p>	<p><i>To provide a clear and robust regulatory system for hazardous waste management consistent with EU, international and national legislation. This must provide both:</i></p> <ul style="list-style-type: none"> • <i>the clarity of unambiguous legislative requirements; and</i> • <i>the certainty of consistent and transparent implementation, inspection and enforcement.</i>
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1 The Regulatory System		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 1.1:</p> <p>Provide clarity of legislative requirements</p>	<p>1.1A The Department should provide clarity as soon as possible on the extent, timing and application of forthcoming changes to legislation governing the management of hazardous waste.</p> <p>Details should be included in an implementation plan to accompany this Action Plan, which should be issued in Autumn 2004. This should be reviewed and updated by the Hazardous Waste Forum on a regular basis.</p>	<ul style="list-style-type: none"> • Investment by waste producers and waste managers requires clarity on legislation, its interpretation and timing. • However, all new regulations are subject to consultation and scrutiny, which may affect the timing. • The supporting documentation to this Action Plan will set out the current implementation plan, including the dates for consultation, where known, on the various forthcoming regulations and the anticipated dates for making regulations. • The HWF is an appropriate mechanism for ensuring that the implementation plan is kept up to date and available to all parties.

1 The Regulatory System		
Specific Objectives	Recommended Actions	Comments and Specific Issues
	<p>1.1B The Landfill Directive Waste Acceptance Criteria (WAC).</p> <p>The Department should confirm as soon as possible the date for the implementation of WAC: finalise the regulatory procedure for the interim year, if WAC is only to be introduced in July 2005; and confirm details of the application of the new landfill regime.</p> <p>The Department needs to clarify requirements for the deposit of stable non-reactive hazardous wastes in separate cells at non-hazardous landfill sites which have previously received non-hazardous wastes.</p> <p>The Environment and Heritage Service should, as soon as possible, develop, consult on, and implement, criteria for the acceptance of stable hazardous wastes in cells on non-hazardous waste landfill sites.</p>	<ul style="list-style-type: none"> • Co-disposal will end on 16th July 2004. • Post 16th July 2004, all hazardous waste requires treatment before landfill. • The Landfill Directive WAC was agreed by the EU in December 2002, presenting options for implementation between 16th July 2004, to coincide with the ending of co-disposal, and 16th July 2005. • The Directive WAC must be applied by 16th July 2005 at latest • The Department consulted on a range of issues in relation to WAC, and the consultation ended on 27th February 2004. An outcomes paper can be found on the Departmental Policy Division's website : www.doeni.gov.uk/epd • Present understanding is that none of the landfill sites currently accepting hazardous waste will continue to do so after July 2004; therefore WAC issues will only affect cells for non-reactive hazardous waste in non-hazardous sites. • Need to ensure consistency with the Republic of Ireland to discourage illegal movements. • The Landfill (amendment) Regulations (Northern Ireland) 2004 will be made by 16th July 2004 to introduce WAC • Non-hazardous waste sites may contain separate cells for stable non-reactive hazardous wastes. Clarification is required on whether new hazardous waste cells may be tipped over former co-disposed or non-hazardous wastes and any other requirements should be verified. • Both criteria and guidance need to be established under the WAC. This is important if the waste industry is to make investment decisions in stabilisation facilities. This will be one of the important options for wastes which can no longer be co-disposed in landfill after 16th July 2004 and which will require pre-treatment prior to landfill. • NI guidance will build on that due to be consulted on in England in July 2004.

1 The Regulatory System		
Specific Objectives	Recommended Actions	Comments and Specific Issues
	<p>1.1C The Hazardous Waste Regulations (HWR) The Department should consult on the proposed changes to the Special Waste regime, to coincide with implementation of the revised Hazardous Waste List, as soon as possible.</p>	<ul style="list-style-type: none"> The Special Waste Regulations (Northern Ireland) 1998 need to be revised. Changes are required to satisfy the European Commission that the requirements of the Hazardous Waste Directive are fully implemented and the revision of the list of hazardous waste, incorporated into the European Waste Catalogue must be transposed into national legislation. The extension of the EU Hazardous Waste List means that there will be a large number of 'new' hazardous waste producers. Waste managers and producers need to know exactly what the new controls will be.
	<p>1.1D Producer Responsibility Directives Department to maintain a co-ordinated joined up approach to ELV and WEEE implementation.</p>	<ul style="list-style-type: none"> Some Waste Electrical and Electronic Equipment (WEEE) and un-depolluted End of Life Vehicles (ELVs) are newly classified as hazardous wastes. Clarity on the implementation of the WEEE and ELV Directives, is required
	<p>1.1E Although the Department should ensure the unique requirements of Northern Ireland are met, they should strive, with the other Administrations, for a consistent approach to implementation and enforcement of regulations across the UK: the aim should be to avoid market distortion, as far as possible.</p>	<ul style="list-style-type: none"> Hazardous waste will often tend to travel to the cheapest legal option. The market for hazardous waste treatment is UK wide (and for recoverable hazardous waste is international, within the OECD). Distortions in the market should be minimised, as far as possible Whilst each Administration needs to be free to tailor the control system to achieve the common goal in the most effective and efficient manner, appropriate to their own local needs and requirements, within the constraints of EU legislation, they should strive for an approach consistent with the other Administrations.
	<p>1.1F Imports and exports of waste. The Forum advocates the implementation of the recommendations in the draft review of the UK Management Plan on the Export and Import of Waste to enable all island solutions for both recovery and disposal operations to be implemented, where these are in accordance with the sub-regional Waste Management Plans</p>	<ul style="list-style-type: none"> A key barrier to progressing any preferred all island solutions involving a disposal operation is the UK Management Plan on the Export and Import of Waste and it will be necessary to amend this to implement any all Island developments The draft review, published in March 2000, proposed that transboundary movements of waste between Northern Ireland and the Republic of Ireland could proceed provided they were in accordance with the sub-regional Waste Management Plans.

1 The Regulatory System

Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 1.2:</p> <p>Effective implementation, inspection and enforcement of the regulatory controls on movements of hazardous waste.</p>	<p>1.2A The Forum recommends that the Environment and Heritage Service should keep under review its regulatory effort on hazardous waste and apply it in a proportionate and risk-based manner. Additional resources are likely to be required in the transitional period immediately following the end of co-disposal, given the lack of hazardous waste landfill sites in Northern Ireland, and the introduction of the new control regime.</p> <p>1.2B Enforcement is a vital part of the overall control system and should be used on a consistent basis. The Forum recommends that the courts be encouraged to ensure that the penalties are such that the cost of non-compliance is greater than the cost of compliance.</p>	<ul style="list-style-type: none"> • The new Hazardous Waste Regulations will bring many 'new' hazardous waste producers within the regulatory control regime for the first time. • The end of co-disposal will inevitably lead to rising costs of hazardous waste management, there will be no landfill sites accepting hazardous waste in Northern Ireland, with only the possibility of separate cells for stable hazardous wastes being provided. This could encourage unscrupulous operators to circumvent the controls, through mis-description and mis-routing of wastes (e.g. classifying hazardous waste as non-hazardous) and an increase in fly-tipping. • This process started with the closure of the largest co-disposal site at the end of March 2004 • Robust and consistent enforcement is needed to ensure smooth implementation of the new Hazardous Waste Regulations. It is vital that the regulators should be visible 'in the field'. • The Forum recognises that additional regulatory effort is likely to be required, for effective implementation of the new regulations. • The Republic of Ireland has recently introduced a new section within the Environmental Protection Agency called the Office of Environmental Enforcement
		<ul style="list-style-type: none"> • The regulators should seek to educate, inform and encourage, hazardous waste producers and management companies to comply with their regulatory responsibilities, offering guidance and advice as appropriate. • However, it is important that those who choose not to comply should feel the full force of enforcement action. • The penalties must be such that possible prosecution should not be seen as a cheap alternative to full compliance with the law

1 The Regulatory System		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 1.3:</p> <p>Ensure a 'level playing field', by applying effective control of hazardous wastes fairly and consistently to all the 'links' in the waste management chain from the 'cradle' to the 'grave', thus eliminating illegal activities.</p>	<p>1.3A Hazardous waste producers should continue to be subject to inspection and enforcement.</p> <p>1.3B The Environment and Heritage Service should ensure that waste brokers, carriers, transfer stations, treatment and disposal sites are subject to proportionate, risk-based inspection and regulation.</p>	<ul style="list-style-type: none"> • Changes to the Hazardous Waste List mean that there will be a large number of new hazardous waste producers. • The Hazardous Waste Directive, as implemented by the present Special Waste Regulations (Northern Ireland) 1998, requires that hazardous waste producers be inspected by the competent authorities. • The waste producer is key to safe, secure and environmentally sound waste management practice. The Environment and Heritage Service believes that the inspection of producers is essential to achieving overall control in a cost effective manner and will continue with their programme of inspections. These inspections of hazardous waste producers are also an important way to educate and advise producers and encourage their compliance. <ul style="list-style-type: none"> • Regulation of all (hazardous) waste management facilities should be consistent with EU law; "gold plating" of the controls should be avoided. • Need to use existing powers to regulate carriers and transfer stations more effectively and waste brokers when they become subject to the requirements of the Waste Management Licensing Regulations (Northern Ireland) 2003 in August 2004. • Investors need confidence that all operators will be regulated on a firm and fair basis. • Robust but consistent and effective regulation and enforcement is required, which concentrates on environmental outcomes. • The effectiveness of these measures should be kept under review. If they are not seen to be working then consideration should be given to strengthening the legislative framework, e.g. by extending 'cradle to grave' control to the eventual destination of the waste rather than to a transfer station. • The EHS should seek to ensure that inspection frequencies in the field are linked to the degree of risk posed by the facility and any fees and charges should be pro rata.

1 The Regulatory System		
Specific Objectives	Recommended Actions	Comments and Specific Issues
	<p>1.3C An assessment should be made by the Environment and Heritage Service of the extent and risk of subversion of the hazardous waste controls, both through mixing, blending and dilution, and through the abuse of trade effluent consents.</p> <p>1.3D The Environment and Heritage Service and District Councils should continue to develop constructive working relationships to monitor, and where appropriate, detect, deter and disrupt illegal and unlicensed activities, particularly in the transitional periods following both the end of co-disposal and the implementation of the new hazardous waste regulations.</p>	<ul style="list-style-type: none"> • It is recognised that mixing, blending and dilution of wastes, at transfer stations or elsewhere, could prove a significant means of circumventing the new hazardous waste controls. Tight regulation and enforcement will be essential. • The new HWFR will fully implement the requirements that, where technically and economically feasible, separation of waste must be effected (Article 2.4 of HWD) • The inappropriate and potentially illegal use of trade effluent discharge consents (e.g. at disused industrial premises) has been reported as a way of circumventing the present hazardous waste controls. • Such illegal activities may increase with the new regulations and the associated increased costs (see under recommendation 1.2A above). • The EHS already liaise with Councils, as both organisations have responsibilities and powers in relation to fly tipping. An intensification of these efforts will be required while the new controls are being implemented. As a matter of priority the EHS and Councils should endeavour to clarify and agree their respective roles and responsibilities in respect of fly-tipping.

2 Communication and Awareness Raising

Overall Objective 2:	To raise awareness of the issues surrounding hazardous waste management in business and industry.
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2 Communication and Awareness Raising		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>2.1:</p> <p>Waste producers to have straightforward access to information on all aspects of hazardous waste management and associated legislative requirements.</p>	<p>2.1A An information and awareness programme on hazardous waste management for business and industry should be developed and implemented as soon as possible. Co-ordinated by the EHS and actively involving other stakeholders, the programme should focus on the requirements and obligations of the new hazardous waste management control system, and its practical and financial impacts. Adequate funding and resources are required.</p>	<ul style="list-style-type: none"> • Current awareness of hazardous wastes by (particularly smaller and 'new') producers is low. • The financial costs are set to rise, but there are opportunities to reduce these costs through waste prevention and reduction. • Given the 'step change' in management required with the extension of the Hazardous Waste List and the ending of co-disposal, a major information and awareness campaign is required. The "Wake up to Waste" programme could be extended, specifically targeting hazardous waste under a unique umbrella as in the case of the Duty of Care publicity. Taking this example forward, a similar initiative to the Duty of Care road show focussing on hazardous wastes could be considered. • Agricultural waste is expected to become a controlled waste in 2005. Many farms will then also become hazardous waste producers for the first time. Specific information and advice campaigns for the agricultural industry will be needed at the appropriate time. • Both the regulators and the waste management industry also have important complementary roles in education and informing waste producers. • A possible extension to the basic information and awareness campaign would be to provide more formal 'hazardous waste awareness' training for waste producers. This could build on the experience of CIWM's general waste awareness certificate for waste producers. This would need to be properly funded and resourced, and rigorously marketed.

2 Communication and Awareness Raising

Specific Objectives	Recommended Actions	Comments and Specific Issues
	<p>2.1B A single point of contact needs to be established, to provide easy access to practical information on all aspects of hazardous waste management. This focal point needs to be clearly sign-posted, so that its user community can find it easily and quickly.</p> <p>The stakeholders need to agree on the identity, terms of reference, resources and funding arrangements for this single point of contact, which needs to be operational as soon as possible. Clearly the main current candidates are the relevant regulator, INI, Envirowise or NetRegs.</p>	<ul style="list-style-type: none"> • One point of contact will provide the clarity that is needed on where to go for assistance. • Government funding of the single point of contact is required to allow a free advice and support service to be provided (up to a maximum time input per inquiry). • A well developed and easy to use web site is an essential part of the service required. • The point of contact could potentially be provided by Envirowise, Invest NI or EHS. A panel of independent experts could be compiled. • An important element of advice would be on the recommended options for specific types of hazardous wastes. • However, it is critical that the advice should be focused on advising on options, and on listing operators offering those services – any recommendation of a specific commercial operator (as opposed to a competitor offering an equivalent service) MUST be avoided. • Additional, sector specific, guidance materials should be developed in collaboration with the relevant trade associations. • Both the EHS through its inspections of hazardous waste producers, the waste management industry through its clients, and trade associations through their members, will all have important roles to play in educating and advising producers, and sign-posting the focal point for further information.

2 Communication and Awareness Raising

Specific Objectives	Recommended Actions	Comments and Specific Issues
	<p>2.1C The waste management industry (including District Council trade waste services) should seek to provide clear guidance to their clients on what is and is not acceptable in terms of segregation, management and treatment for hazardous waste.</p>	<ul style="list-style-type: none"> • Guidance from the waste management industry is sought by many waste producers. • Certain waste companies offer a value added service for their clients by educating and informing them of changes to legislation; advising on what is and is not acceptable at particular treatment facilities. • Producers will become more aware of separation and segregation at an early stage and in turn save finances and resources in disposing of mis-consigned hazardous and non-hazardous wastes.

2 Communication and Awareness Raising

Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 2.2</p> <p>Encourage greater levels of segregation and separate collection of household hazardous wastes (HHW).</p>	<p>2.2 Separate collection of HHW should be encouraged through the wider dissemination of good practice, the provision of appropriate funding, and the possible use of supporting policy measures.</p> <p>The HWF should consider HHW further in its next phase of work, focusing in particular on:</p> <ol style="list-style-type: none"> 1. Policy measures to reduce the hazardous content of consumer products through better design and to promote retailer take-back. The initial focus is likely to include identifying priority candidates for voluntary agreements. 2. Encouraging wider public participation. This needs to be linked to any wider public awareness campaign. 3. The Department and District Councils should seek to agree a joint initiative on production of guidance on safe disposal of household asbestos waste. 4. Provision of adequate infrastructure. 	<ul style="list-style-type: none"> • Many District Councils provide separate collection services for HHW including Civic Amenity (CA) sites. • Drivers for better collection and segregation of HHW are needed to reduce contamination of both materials for recycling and residual municipal wastes; legislative requirements such as retailer take-back; or to meet targets for separate collection. • Major barriers include the high costs involved and the shortage of suitable treatment capacity. It is important that controls on the permitting of operations, and movements, involving HHW are proportionate to the risks, and not set to such a level to discourage separate collection. • A number of schemes exist to target specific waste streams such as Community Re-Paint, and the Oil Care Campaign. • Promotion of the segregation and separate collection of HHW will have resource implications, and the Department should consider the introduction of appropriate measures. • Take-back requirements are already envisaged under the WEEE Directive, and other waste streams could be subject to such a system. • The Department and the relevant stakeholders should identify specific agreements which would increase the recycling of waste consumer batteries, some of which can be hazardous. This could be extended to other HHW streams, for example waste oil, household paint, garden pesticides • Public participation is essential to the success of any separation scheme for HHW. Pressure should be put on manufacturers and retailers to reduce the hazardous content of consumer products.

3 Encouraging Hazardous Waste Reduction, Reuse, Recycling

Overall Objective 3:	To minimise the quantities and degree of hazardous wastes being produced, and to encourage their reuse and recycling
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3 Encouraging Hazardous Waste Reduction, Reuse, Recycling and recovery		
Specific Objectives	Recommended Actions	Comments and Specific Issues
3.1: To disseminate good practice, and to encourage innovation, in waste prevention, reduction, reuse and recycling.	<p>3.1 An adequately resourced and funded technical assistance programme, to disseminate legislative requirements, good practice and to encourage innovation in hazardous waste prevention, reduction, reuse and recycling, should be established as soon as possible. Active participation by industry, relevant trade associations, as well as INI and EHS, is vital to its success.</p> <p>This could be a specifically funded and earmarked extension to the terms of reference of Envirowise or other schemes / initiatives supported through Invest NI.</p>	<ul style="list-style-type: none"> • The revised Hazardous Waste List (HML) and the inclusion of agricultural waste as controlled waste will bring many new producers into the control scheme, while the end of co-disposal may result in a steep increase in costs for existing producers. The best solution, for industry, the environment and NI plc, is to minimise waste quantities. • To achieve this win-win solution, producers need both information (see recommendation 2.1) and technical assistance in the short-term. Similar programmes exist or have existed in most other EU countries. • Envirowise provide a similar programme on general environmental issues to SMEs. The programme here needs to have funds specifically ear-marked for hazardous wastes, and needs to be available to a wider audience than just SMEs. • It should also cover awareness raising of new legislation. • While strong Government involvement (and funding) is needed, the participation of industry and trade associations is also vital. If both Government and industry co-funding can be mobilised, then matching funding through the EC LIFE programme may be forthcoming (a bid has been prepared by the Environment Agency (EA) and EHS will buy into this). • Landfill tax credit scheme funding is one option to be explored further.

3 Encouraging Hazardous Waste Reduction, Reuse, Recycling and recovery		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 3.2:</p> <p>To provide an integrated set of policy instruments, to encourage waste producers to reduce, re-use, recycle and recover their hazardous wastes and to adopt environmentally sound management.</p>	<p>3.2</p> <p>The Forum recommends that a more balanced set of policy and economic instruments, including 'carrots' as well as 'sticks', is required to encourage hazardous waste producers to act more responsibly.</p> <p>Government should carry out further work, with the aim of developing economic and similar instruments that act as incentives to minimise hazardous waste production, increase reuse, recycling and recovery and/or adopt environmentally sound management.</p> <p>Examples could include, e.g.:</p> <ul style="list-style-type: none"> • Use of landfill tax credit scheme to provide incentives for hazardous waste prevention and reduction; • Financial assistance/ support towards investment in hazardous waste prevention and reduction. • Low-interest loans/ enhanced capital allowances for investment in hazardous waste prevention and reduction. • Further use of producer responsibility, either on the basis of voluntary agreements with industry sectors and/or with statutory backing. • Current possible future use of excise duty and/or product charges, e.g. to provide an incentive to regenerate waste oils. 	<ul style="list-style-type: none"> • Other EU countries have strong legislative frameworks, rigorously implemented and enforced, which are complemented by an integrated package of other policy instruments, to encourage compliance by waste producers • The existing economic mechanisms, which might encourage hazardous waste minimisation, rely on 'punitive' instruments ('sticks'), such as landfill tax and PPC charging. • A complementary system of economic 'carrots' (e.g. grants, interest free loans, enhanced capital allowances) is used in many other EU countries. • Key factors in considering the alternatives include present and future regulatory requirements, the existence of markets for any recovered products and BPEO • Producer responsibility is already embodied in EU Directives applying to 'new' hazardous waste streams (e.g. WEEE, ELV's, batteries). It is an integral part of future EU policy and may be expanded further. Hazardous wastes to which producer responsibility could be extended include solvents used for industrial cleaning and oils used for lubrication. • The primary focus here is on encouragement of hazardous waste prevention and reduction. Similar mechanisms may also be used to encourage hazardous waste reuse and recycling, and/or environmentally sound management. • EHS will continue to participate in the DEFFRA Hazardous Waste Forum, providing a conduit between the two Forums and adapting outputs were relevant. In particular, EHS will track closely the work of the proposed DEFFRA HMF task group on strengthening the policy framework. <p>Note:</p> <p>The Netherlands pioneered a series of voluntary agreements with industry, for some 29 priority waste streams (of which 12 were classified as hazardous). This was subsequently underpinned by the Memorandum on Prevention and Recycling of Waste, which set waste reduction/ recycling targets, both in general and for all 29 waste streams.</p>

3 Encouraging Hazardous Waste Reduction, Reuse, Recycling and recovery		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 3.3:</p> <p>To establish, and move towards the achievement of, specific targets for hazardous waste reduction, re-use and recycling, for example through promoting producer responsibility for hazardous wastes</p>	<p>3.3 Consideration of the use of targets for hazardous waste reduction is an important means of driving and monitoring progress. However, the information required to set realistic and achievable targets is not currently available. Once the information is available, the Forum will recommend where and how specific targets might be introduced.</p>	<ul style="list-style-type: none"> • The use of targets is one obvious way to drive forward waste reduction. Targets are set on the basis of what is considered achievable, and then used to monitor / drive implementation to ensure their achievement. • Targets require measurement and thus require good data which is currently unavailable. • Establishing realistic targets for hazardous waste reduction also requires information on what is achievable, on BPEO and on any incentives to be made available. • There are numbers of options as to how targets could be applied, e.g. on specific waste streams, as a global percentage, on a collective industry basis, wrapped into PPC permits etc. • There are also a number of possible mechanisms for implementing such targets, e.g. extended producer responsibility, mandatory vs voluntary agreements, or through the PPC regime. • The Chemical Industries Association (CIA) already has a voluntary agreement in place (as part of its Responsible Care programme), to reduce the amount of hazardous wastes produced collectively by its members by 25% between 2000-2010.

4 Ensuring Provision of Recycling, Recovery, Treatment and Disposal Capacity

Overall Objective 4:	<i>To ensure the provision of the hazardous waste management facilities required to meet the new legislative requirements. A particular concern is to ensure that adequate capacity is available in the short to medium term, during the initial transitional period following the end of co disposal and the introduction of newly defined hazardous wastes.</i>
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4 Ensuring Provision of Recycling, Recovery, Treatment and Disposal Capacity		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 4.1:</p> <p>Provide clarity on the likely scope of new infrastructure that will be required in order to meet the new legislative requirements for hazardous wastes and prepare for any likely shortfall in treatment capacity post July 2004.</p>	<p>4.1 An authoritative 'statement of facility needs' for the management of Northern Ireland's hazardous wastes is required as a matter of urgency. This should address the three parallel issues of the facilities/ capacity which need to be developed urgently within Northern Ireland, the requirements for continued export to GB and co-operation within the island of Ireland.</p> <p>The information to underpin this statement has been prepared for the Hazardous Waste Forum and is available in Annex 2.</p>	<ul style="list-style-type: none"> • Around 25,000 tonnes per annum (approximately 50% of the total arisings) of hazardous wastes are currently managed in Northern Ireland (including about 15,000 tonnes of waste oils processed to recovered fuel oil (RFO) and 5,000 tonnes co-disposed in landfill), with the remaining 50% exported to GB. With the end of co-disposal in NI and GB on 16 July 2004, and with questions over the future markets of RFO (see recommendation 4.2.E below), the majority of NI's hazardous wastes may need to find alternative outlets. • Providing an appropriate climate to encourage investor confidence, so that the waste management industry can invest in such facilities, requires legislative and regulatory certainty (see the detail under recommendation 1 above). • A parallel requirement is for an authoritative 'statement of facility needs' (or 'NI plan') as proposed here. This will provide planners, planning inspectors and the public with a framework for judging planning applications. The statement will also underpin the business case for any investment in new facilities. • Consideration should be given to the best form for issuing this statement. • The statement should focus in particular on those options which can be delivered in the short-term, and should include both currently co-disposed wastes and 'new' hazardous wastes (e.g. WEEE and ELY).

4 Ensuring Provision of Recycling, Recovery, Treatment and Disposal Capacity		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 4.2:</p> <p>Monitor and manage the situation proactively, to ensure that any shortfall in capacity post July 2004 does not either disrupt industry or lead to uncontrolled disposal.</p>	<p>4.2A Careful monitoring and proactive management of the situation is required immediately before and in the months following the end of co-disposal in July 2004. EHS as the regulator will, of necessity, form the 'front line', but they should be supported by a small task group, who should meet regularly to keep the evolving situation under review.</p>	<ul style="list-style-type: none"> Given the end of co-disposal in July 2004, and the closure of all sites for landfill of hazardous waste in NI, proactive action is required to prevent 'another fridge crisis'. This means both preventing fly-tipping (see recommendations 1.2 and 1.3D), and helping to ensure that alternative facilities are available. Particular (medium term) actions to be undertaken are detailed in the following sub-actions
	<p>4.2B Government, district councils and industry should work together to facilitate the development of separate cells for stable non-reactive hazardous wastes on one or more non-hazardous landfill sites within Northern Ireland.</p>	<ul style="list-style-type: none"> There will be no hazardous waste landfill sites in Northern Ireland after July 2004. However the Landfill Directive does permit the landfilling of stable non-reactive hazardous waste in designated cells in non-hazardous landfill sites provided certain criteria are met. The creation of such cells would provide much needed capacity. Preliminary work has shown such cells within Northern Ireland to be BPEO for asbestos wastes (see recommendation 4.3B below). EHS to provide guidance/ clarity on the regulatory requirements (recommendation 1.1B).
	<p>4.2C Government to liaise with authorities in GB to ensure that the export of NI's hazardous wastes to GB continues smoothly after the end of co-disposal.</p>	<ul style="list-style-type: none"> EHS is a member of the Board for the DEFRA Landfill and Hazardous Waste Implementation Programme (LHIP), which has been set up for the purpose of recommendation 4.2A in England. Information on licensed sites for hazardous wastes in England and Wales is available on the EA website.
	<p>4.2D Government to liaise with authorities in the Republic of Ireland to ensure the provision of the best all-island solutions for hazardous waste management.</p>	<ul style="list-style-type: none"> DOENI and DOEHLG should work together to provide the best all island solutions – building on the all island fridges contract. May need amendment to the UK import-export plan (see recommendation 1.1F)

4 Ensuring Provision of Recycling, Recovery, Treatment and Disposal Capacity		
Specific Objectives	Recommended Actions	Comments and Specific Issues
	<p>4.2E Priority waste streams (asbestos and waste oils). Government should work closely with the affected industry sectors to ensure that forthcoming changes in disposal patterns do not adversely affect these two priority waste streams in particular.</p>	<ul style="list-style-type: none"> A workshop focusing on the disposal problems facing the asbestos removal industry was organised by the HWF in association with HSE at Cookstown on 10 March 2004. The juxtaposition of the end of co-disposal with the Control of Asbestos at Work Regulations (Northern Ireland) 2003, which are expected to lead to a short-term increase in the removal of asbestos from buildings, makes this a particularly sensitive issue. Waste oil in Northern Ireland is currently collected free of charge and processed to recovered fuel oil (RFO), which is sold to roadstone burners. It is currently unclear whether or not the UK roadstone industry in general will be able to adapt its processes to meet the requirements of the Waste Incineration Directive (which they would need to do by 31st December 2004 in order to continue burning RFO); and also whether this would be economic for the relatively small quarries in Northern Ireland. Alternative market outlets are currently being investigated by the RFO industry, but these would require a long lead-in time, and a charge would likely be made for acceptance of RFO (as opposed to the current positive price paid for RFO), which in turn would give a cause for concern that fly-tipping could be a problem, at least in the short-term. Contaminated land/soils may become a priority waste stream in the future with its inclusion in the hazardous waste list and will be taken up by the Forum in its next phase of work.

4 Ensuring Provision of Recycling, Recovery, Treatment and Disposal Capacity		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 4.3:</p> <p>Make the planning and permitting systems responsive to the urgent need for additional treatment and disposal capacity.</p>	<p>4.3A As part of its continuing review of Planning and Waste Management, the Department of the Environment should consider the particular needs of the hazardous waste sector, and the urgent need to replace landfill facilities which will cease to accept hazardous waste from 16 July 2004.</p> <p>4.3B BPEO should be established for hazardous wastes.</p> <p>4.3C The Department should consider ways of better informing the public about hazardous waste management issues and addressing their concerns.</p>	<ul style="list-style-type: none"> • The experience of the waste industry in developing new facilities in Northern Ireland is one of long delays in the planning system. This is currently being addressed in the review of the Waste Management Strategy. • Hazardous waste facilities tend to be controversial, and proper engagement of local politicians and the public, including adequate time for public consultation, is essential. • However, it is also essential that the planning system can be speeded up, if essential short-term capacity is to be provided. • Two key factors in achieving this are the 'national statement of needs' (hazardous waste plan) – (see recommendation 4.1 above); and being able to demonstrate that the proposed facility represents BPEO (see recommendation 4.3B below). • The DEFRA HWF Action Plan has recommended a study to establish BPEO for hazardous wastes. • EHS will buy into the DEFRA study, and then build on the results to establish BPEO for NI (taking into account the possibility of all-island co-operation). • In the short-term, EHS will commission interim BPEO studies for particular hazardous waste streams as required, (eg asbestos, which has already been completed, and WEEE). • Hazardous wastes arise primarily as a by-product of the consumer purchasing decisions we all make on a day-to-day basis. Proper engagement of the public is essential, both to reduce hazardous waste arisings in the long term, and, in a local context, to enable productive dialogue on the need for, and siting of, the infrastructure required to deal with society's hazardous wastes.

4 Ensuring Provision of Recycling, Recovery, Treatment and Disposal Capacity		
Specific Objectives	Recommended Actions	Comments and Specific Issues
<p>Specific Objective 4.4:</p> <p>Good quality, reliable and consistent data to be available on a regular basis, to form a basis for the better planning for, and management of, hazardous wastes.</p>	<p>4.4 All stakeholders should work together with the aim of improving the quality, reliability and consistency of the available data for improved planning and management of hazardous waste.</p>	<ul style="list-style-type: none"> • There is a recognised need for good data for proper control and management. • Such data are essential both to establish the BPEO and to underpin planning for the future infrastructure which is required for the environmentally sound management of hazardous waste. • The EHS database only records movements of consigned waste within Northern Ireland. When special waste leaves Northern Ireland to Great Britain, the present Special Waste Regulations Northern Ireland 1998 only permits the recording of waste leaving Northern Ireland by a port and not the destined recovery/disposal site information. In order to plan for the future this information is essential and the implementation of the Hazardous Waste Regulations provides an opportunity to record this data by amending the consignment note procedure to allow one note to be used for movements throughout UK.

GLOSSARY OF TERMS / ABBREVIATIONS

ARC21	Eastern Region Waste Management Group
BCA	British Cement Association
BPEO	Best Practicable Environmental Option
C&D	Construction and Demolition
CA	Civic amenity site
CIA	Chemical Industries Association
CIWM	Chartered Institution of Wastes Management
CRT	Cathode ray tubes
DEFRA	Department for Environment, Food and Rural Affairs
DOEHLG	Department of the Environment Health and Local Government
DOENI	Department of the Environment for Northern Ireland
EA	Environment Agency
EC	European Commission
EHS	Environment and Heritage Service
ELV	End-of-Life Vehicle(s)
Envirowise	A UK-wide Government programme to help companies become more competitive and profitable by reducing waste
ESA	Environmental Services Association
EU	European Union
EWG HWL	European waste catalogue Hazardous Waste List
EWG	European waste catalogue
GB	Great Britain
HHW	Household hazardous waste
HTI	High treatment incineration
HWD	Hazardous Waste Directive
HWF	Hazardous Waste Forum
HWL	Hazardous Waste List

HWR	Hazardous Waste Regulations
INI	Invest Northern Ireland
IPPC	Integrated pollution prevention control
LHIP	Landfill and hazardous waste implementation programme
NetRegs	A web-based scheme to help small businesses understand their environmental obligations
NGO	Non Governmental Organisations
NI	Northern Ireland
NIHWF	Northern Ireland Hazardous Waste Forum
NWRWMG	North West Region Waste Management Group
ODS	Ozone depleting substances
OECD	Organisation for Economic Co-operation and Development
PBB	Poly-Brominated Biphenyls
PBDE	Poly-Brominated Diphenyl Ethers
PCB	Polychlorinated Biphenyls
PPC	Pollution prevention control
R&D	Research and development
RFO	Recovered fuel oil
RoHS	Restriction of use of certain Hazardous Substances
SED	Solvent Emissions Directive
SEPA	Scottish Environment Protection Agency
SME	Small to medium sized enterprise
SWaMP	Southern Waste Management Partnership
UK	United Kingdom
VOC	Volatile Organic Compounds
WAC	Waste Acceptance Criteria
WEEE	Waste electrical and electronic equipment
WID	Waste Incineration Directive
WOD	Waste Oil Directive
WWT	Waste Water Treatment

Annex 1

Factors affecting future Hazardous Waste Management in Northern Ireland

The way in which hazardous waste is managed will change significantly over the next few years, driven by a series of European Directives affecting both resource use and waste management. Among other impacts, these Directives will direct hazardous waste away from landfill, impose more stringent requirements for waste treatment and incineration and increase the number of types of waste defined as hazardous.

Classification of Hazardous Waste

The replacement of the term 'special' with 'hazardous' and the associated classification of such wastes against the European Waste Catalogue Hazardous Waste List (2000/532/EC)(EWC HWL) will result in an increased range of potentially hazardous wastes being generated in Northern Ireland.

The problems caused by changes to waste classification schemes are not restricted to the UK. Research across Europe has shown that a range of hazardous waste classification schemes have been used historically, with only a handful of member states fully adopting the HWL following its introduction in 1994. As a result, it has been difficult to draw any meaningful conclusions about trends in hazardous waste production across Europe.

Hazardous Waste Producers

As a result of the way in which hazardous wastes are classified, with many mirror entries in the EWC HWL, it is not possible to accurately predict exactly how many hazardous waste producers will be active as the new classification system takes effect.

Legislative Drivers

The EC Landfill Directive

The Landfill Directive (99/31/EC) will deliver significant changes in the market through the imposition of controls on what has historically been the primary disposal option for hazardous wastes generated in Northern Ireland. Key issues include the banning of liquid disposal to landfill and an end to the co-disposal of hazardous and non-hazardous wastes (implemented in Northern Ireland by the Landfill Regulations (Northern Ireland) 2003).

There are concerns that landfills solely for hazardous waste disposal may require very long-term management and monitoring. This type of landfill is relatively new to the UK. A priority will be the period from the ending of co-disposal and requirement for treatment in July 2004.

The broad requirements of the Landfill Directive are likely to lead to hazardous waste management costs increasing in the medium to long-term. This will place economic pressure on process industry waste producers and should encourage them to increase emphasis on unit cost reduction through waste minimisation and recycling activities.

The Proposed Hazardous Waste Regulations and Waste Classification Changes

Since 1996 the Hazardous Waste List (94/904/EC)(HWL) has been recast and incorporated within the European Waste Catalogue (EWC). Classification of wastes against the EWC HWL will introduce a number of new waste streams as potentially hazardous, e.g. cathode ray tubes from televisions and personal computers. However, it is unclear to what extent the new classification will result in an overall increase in quantities of waste consigned as hazardous. Monitoring will reveal this as the changes take place.

Pollution Prevention and Control (PPC)

IPPC operates under the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These Regulations have been made under the Environment (Northern Ireland) Order Part II 2002 and will eventually replace the Industrial Pollution Control (Northern Ireland) Order 1997. They implement EC Directive 96/61 on IPPC in so far as it relates to installations in Northern Ireland. Separate systems have been introduced to apply the IPPC Directive to Scotland, England and Wales and the offshore oil and gas industries. The Directive required member states to implement by 2007.

The PPC Regulations apply to Specified Waste Management Activities (as detailed in the regulations). They make provision for the permits to include waste minimisation and opportunities for re-use on site. This should lead to a reduction in the quantities of hazardous waste generated.

For those waste handling companies operating facilities covered by PPC, the rigorous permitting process and associated cost implications (through increased process management and engineering), will result in some re-evaluation of the economic benefits of running such facilities. In a market where margins are low, this may lead to a contraction in capacity at a time when a net increase is required.

Waste Electrical and Electronic Equipment Directive (WEEE)

The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) seeks to promote the separate collection, re-use or recycling of electronic waste. The WEEE Directive requires producers to recover 75% of goods taken back for disposal and to re-use 70% of those goods. A target for the separate collection of 4kg of WEEE per inhabitant per year is to be achieved by the end of 2006.

The final text of the Directive was ratified by the European Parliament on 18 December 2002 and entered onto the EU statute book in February 2003. Member States have 18 months to transpose the Directive into national law, with producer responsibility due to start in around March 2005.

Producer responsibility legislation such as WEEE will require increased segregation of wastes, and is likely to result in an increase in quantities of material managed as hazardous. There will be a subsequent requirement for new facilities for materials recovery and to treat and dispose of the hazardous wastes arising from that recovery.

Restriction of Hazardous Substances Directive (RoHS)

The Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment Directive (2002/95/EC) is meant to complement the WEEE Directive by banning the use of certain hazardous substances in new electrical equipment.

The RoHS Directive will deliver a phased reduction in certain hazardous materials (lead, cadmium, mercury, hexavalent chromium, brominated flame retardants and PBB/PBDE) in the waste stream beyond 2007.

End of Life Vehicles (ELV) Directive

The End of Life Vehicles (ELV) Directive (2000/53/EC) has the objective of preventing waste from ELVs and improving levels of recycling and re-use. It aims to minimise the impact of such vehicles on the environment, e.g. by reducing the amount of waste going to landfill from vehicles reaching the end of their life by:

- Introducing controls on the 'scrapping' of ELVs (by restricting treatment to authorised facilities);
- Implementing new environmental treatment standards; and
- Setting rising re-use, recycling and recovery targets.

The targets require 85% of ELVs to be re-used or recovered (80% re-used or recycled) by January 2006, and 95% of all ELVs to be re-used or recovered (85% re-used or recycled) by 2015.

The ELV Directive will encourage the limitation of hazardous materials in new vehicles in order to reduce the amount of hazardous waste eventually produced and to ease recycling. It will divert hazardous elements from mixed waste management disposal to targeted recycling and treatment.

Manufacturers are already seeking to utilise materials that are easier to recycle and there will be a long-term downward trend in unit quantities of hazardous material being used in new vehicles and consequently arising in ELVs.

Batteries Directive

The European Commission has drawn up a proposal (latest draft issued March 2003) which will require the collection and recycling of all types of batteries. The Batteries Directive will result in an increase in the number of battery waste streams and the quantities segregated for treatment/disposal. The new Directive would ban the use of mercury in batteries immediately and all batteries containing more than 5ppm of cadmium by weight are scheduled to be banned by January 2008.

Waste Incineration Directive (WID)

The Waste Incineration Directive (2000/76/EC) (WID) updates the requirements of the 1989 Municipal Waste Incineration Directives and, merging them with the 1994 Hazardous Waste Incineration Directive, consolidates new and existing incineration controls into a single piece of European legislation. It is implemented in Northern Ireland by the Waste Incineration Regulations (Northern Ireland) 2003.

The WID also upgrades technical requirements to reflect technological advances, and broadens the scope of the waste incineration regime to cover wastes that were not previously regulated. The WID is likely to require expensive upgrading of some incinerators and plants burning wastes as fuel. The impact of the regime on market economics may inhibit some plants from burning wastes such as waste oil, raising the possibility of an increase in the illegal disposal of waste. With limited incentives for oil recycling, the impact of the Directive is likely to be an increase in the amount of waste oil entering the waste management system, at the same time as reducing the number of disposal sites. Off site treatment options for waste oils, other than recycling, include blending to make cement kiln or power station fuels. Combustion in roadstone coating plants is also a treatment option. The plants are used to dry limestone before coating it with bitumen. As a result of the Directive virgin fuel sources may replace waste oils. This will result in waste oil being primarily used when firing up coal fired power stations (where financially viable) and cement kilns. Producers of waste oil may in the future have to pay for its disposal, where as at present it has a positive value.

Waste Oil Directive (WOD)

Most waste oil is currently burnt as replacement fuel in the UK. However, the European Waste Oil Directive (75/439/EEC) requires that member states give priority to the processing of waste oils by regeneration where technical, economic and organizational constraints so allow.

Solvent Emissions Directive (SED)

The Solvent Emissions Directive (1999/13/EC) (SED) limits the emissions of VOC's due to the use of organic solvents by certain sectors. The aim is to play a part in reducing the release of more harmful VOCs and reducing ozone pollution in the EU. The Directive has been implemented in Northern Ireland by the Solvent Emissions Regulations (Northern Ireland) 2004. Levels of organic solvents used will drop in the period 2003 – 2007, the extent will depend on how producers respond to the pressures on VOC emissions brought about by the SED.

Annex 2

Quantifying Hazardous Waste Capacity Needs

Northern Ireland Hazardous Waste Forum: Capacity Sub-Group

1. Quantifying Hazardous Waste Capacity Needs

An assessment of future capacity needs has been undertaken. The approach was as follows:

1. **Collate Information:** In order to assess future capacity needs a range of information requires to be collated:

- Arisings (base categories on EWC 4 digit code) from information provided by EHS. In order to reduce the impact of any double counting, resulting from the transferring of waste and the export to Great Britain, arisings will be considered by treatment/disposal routes;
- Predict likely future arisings as a result of the change in definition and the additional treatment required as a result of the Landfill Directive and other relevant new legislation;
- Define best estimate and probable range for both present and likely future arisings;
- Define best estimate with ranges for the current treatment and disposal routes used for Northern Ireland's hazardous wastes. This will include assessing:
 - a. any in house treatment/disposal facilities used within Northern Ireland;
 - b. licensed facilities in NI;
 - c. treatment and disposal routes/destinations within the UK for hazardous waste arising in Northern Ireland by working with EHS, and with EA and SEPA as appropriate;
- In assessing the current treatment and disposal routes consider the likely future availability of the treatment/disposal facilities presently used for Northern Ireland's hazardous wastes. This will include an assessment of the future availability of facilities on an all-island and GB basis.

2. **Assessment of Future Capacity Needs:** Using the information collated, a matrix will be developed of the waste management options available. The estimated future arisings will be assigned between the various options to provide a best estimate of future capacity need along with a number of sensitivity analyses. The matrix and the assignment of arisings will be agreed with both the EHS and sub-group of the NI Hazardous Waste Forum. The capacity needs will then be compared against the treatment and disposal routes potentially available in the future, to determine the potential short fall in capacity.

2. Northern Ireland Arisings by Consignee Site 2002

The Special Waste arisings in 2002 have been broken down by treatment/disposal route and summarised in Table 1.

Table 1: Summary of Special Waste Arisings by Treatment/ Disposal Route in 2002

Route	Quantity (Tonnes)
Export (to Great Britain)	22,049
Incineration	1
Landfill	5,283
Sewage Treatment	2,072
Treatment	18,027
Transfer	10,797

To avoid double counting, waste consigned to transfer stations needs to be excluded from the total, as this waste will be consigned to one of the other treatment routes (both within Northern Ireland and exported to Great Britain). **Therefore the total arising in 2002 was approximately 47,430 tonnes** (excluding transfer stations).

A breakdown of the arisings by generic type (EWC Chapter Headings), excluding the waste consigned from transfer stations, is summarised in Table 2.

Table 2: Breakdown of Special Waste Arisings by EWC Chapter Headings for 1999/00 and 2002 (excluding waste consigned to transfer stations)

Waste Description	Special Waste Arisings	
	1999/00 ^a	2002
Mining and minerals (01)	-	6
Agriculture, food production (02)	19	156
Wood and paper production (03)	35	69
Leather and textile production (04)	-	-
Petrol, gas and coal refining/treatment (05)	-	-
Inorganic chemical processes (06)	8,326	9,099
Organic chemical processes (07)	4,845	3,594
Paints, varnish, adhesive & inks (08)	1,586	1,939
Photographic industry (09)	146	495
Thermal processes waste (inorganic) (10)	974	129
Metal treatment & coating processes (11)	3,432	2,438
Shaping/treatment of metals & plastics (12)	416	5,368
Oil and oil/water mixtures (13)	15,621	15,139
Solvents (organic) (14)	443	388
Packaging, cloths, filter materials (15)	5	303
Not otherwise specified (16)	2,508	1,914
C&D waste & asbestos (17)	1,485	2,566
Healthcare (18)	363	1,059
Waste/water treatment & water industry (19)	2,959	2,645
Municipal & similar commercial (20)	587	17
Unspecified (99)	604	107
Totals	44,353	47,432
^a arc21 Waste Management Plan		

3. Special Waste Exported to Great Britain

The quantities of special waste exported to Great Britain by generic type (EWC Chapter Headings) is summarised in Table 3

Table 3: Summary of special waste exported by generic type

Waste Description	Special Waste Arisings 2002 (tonnes)	
	Total	Exported to GB
Mining and minerals (01)	6	6
Agriculture, food production (02)	156	1
Wood and paper production (03)	69	5
Leather and textile production (04)	-	-
Petrol, gas and coal refining/treatment (05)	-	-
Inorganic chemical processes (06)	9,099	6,553
Organic chemical processes (07)	3,594	3,299
Paints, varnish, adhesive & inks (08)	1,939	1,463
Photographic industry (09)	495	485
Thermal processes waste (inorganic) (10)	129	77
Metal treatment & coating processes (11)	2,438	994
Shaping/treatment of metals & plastics (12)	5,368	4,148
Oil and oil/water mixtures (13)	15,139	321
Solvents (organic) (14)	388	383
Packaging, cloths, filter materials (15)	303	108
Not otherwise specified (16)	1,914	1,169
C&D waste & asbestos (17)	2,566	102
Healthcare (18)	1,059	299
Waste/water treatment & water industry (19)	2,645	2,619
Municipal & similar commercial (20)	17	4
Unspecified (99)	107	12
Totals	47,432	22,049

The waste management route of the exported waste has been assessed based on information provided by EHS (based on information from both producers and consignees), the Environment Agency and SEPA. These sources have allowed the fate of approximately 20,300 tonnes (over 90%) of the exported waste to be identified. The fate of the remaining waste has been allocated to a route based on the type of waste. Table 4 summarises the fate of the waste exported in 2002.

Table 4: Waste Management Route of Special Waste Exported from Northern Ireland to Great Britain in 2002

Route	Quantity 2002 (Tonnes)
Incineration	1,190
Landfill	8,380
Long Term Storage	130
Recovery	4,290
Transfer	170
Treatment	7,890
Total	22,050
Note: Figures rounded to nearest 10 tonnes	

In order to assess future capacity needs, the special waste landfilled has been broken down to the 4 digit EWC code and this is summarised in Table 5.

Table 5: Special Waste Exported from Northern Ireland to Landfill in Great Britain by Type in 2002

EWC 4 Digit Code	Sub-Chapter Heading	Quantity 2002 (Tonnes) ^a	
		In GB	In NI ^b
0201	Primary production waste	-	<10
0203	Wastes from fruit, vegetables, cereals, edible oils etc	-	150
0207	Wastes from the production of alcoholic/non alcoholic beverages	-	<10
0302	Wood preservation waste	-	40
0601	Waste acidic solutions	<10	-
0602	Alkaline solutions	<10	20
0603	Waste salts and their solutions	-	10
0604	Metal containing wastes	5,410	150
0605	Sludges from on site effluent treatment	-	20
0701	Waste from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals	10	<10
0702	Waste from the MFSU of plastics, synthetic rubber and man-made fibres	<10	<10
0703	Waste from the MFSU of organic dyes and pigments	-	<10
0705	Waste from the MFSU of pharmaceuticals	-	250
0706	Waste from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics	-	10
0707	Waste from the MFSU of fine chemicals and chemical products not otherwise specified	<10	-
0801	Wastes from MFSU of paint and varnish	10	410
0802	Wastes from MFSU of other coatings	<10	-
0803	Waste from MFSU of printing inks	-	40
0804	Wastes from MFSU of adhesives and sealants	<10	30
0901	Wastes from photographic industry	-	10
1001	Waste from power station and other combustion plants	-	<10
1003	Wastes from aluminium thermal metallurgy	-	10
1005	Wastes from zinc thermal metallurgy	<10	-
1013	Wastes from manufacture of cement, lime and plaster and articles and products made from them	-	<10
1101	Liquid wastes and sludges from metal treatment and coating of metals	-	20
1104	Other inorganic wastes with metals not otherwise specified	-	20
1201	Wastes from shaping	2,130	-
1202	Wastes from mechanical surface treatment processes	60	120
1303	Waste insulating and heat transmission oils and other liquids	-	<10
1305	Oil/water separator contents	-	150
1306	Oil waste not otherwise specified	90	1,030
1501	Packaging	<10	<10
1502	Absorbents, filter materials, wiping cloths and protective clothing	90	140
1602	Discarded equipment and shredder residues	30	<10
1606	Batteries and accumulators	20	<10
1607	Waste from transport and storage tank cleaning	-	50
1701	Concrete, bricks, tiles, ceramics and gypsum based materials	-	1730
1705	Soil and dredging spoil	-	<10
1706	Insulation materials	-	690
1801	Waste from natal care, diagnosis, treatment or prevention of disease in humans	-	<10
1802	Waste from research, diagnosis, treatment or prevention of disease involving animals	-	<10
1901	Wastes from incineration or pyrolysis of municipal and similar commercials, industrial and institutional wastes	<10	<10
1902	Wastes from specific physico/chemical treatments of industrial wastes	470	-
1908	Wastes from water treatment plants not otherwise specified	50	-
2001	Separately collected fractions	-	10
99	Unclassified	-	70
	Landfill Total	8,380	5,280
^a Figures rounded to nearest 10 tonnes ^b NI figures for comparison			

4. Fate of Northern Ireland Special Waste Arisings

By drawing together the information on the special waste recovered, treated and disposed of in Northern Ireland with that managed in Great Britain allows the waste management routes for the special waste arising in Northern Ireland to be estimated. The routes and quantities are summarised in Table 6.

Table 6: Estimated Waste Management Routes for All Northern Ireland Special Waste Arisings

Route	Managed in NI	Managed in GB	Total
	Quantity in 2002 (Tonnes)		
Incineration	1	1,190	1,190
Landfill	5,280	8,380	13,660
Sewage Treatment	2,070	-	2,070
Recovery	-	4,290	4,290
Treatment	18,030	7,890	25,920
Transfer/ Long Term Storage in GB	N/a	300	300
Total	25,380	22,050	47,430
Note: Figures rounded to nearest 10 tonnes			

5. Currently Landfilled Special Waste Requiring Alternative Treatment Capacity

The special wastes currently landfilled in Northern Ireland have been quantified using information from the EHS. This data indicates that approximately 5,280 tonnes of special waste was landfilled in Northern Ireland in 2002. A further 8,380 tonnes were exported to Great Britain for landfill, however it is likely that this capacity will not be available in the future or only available at significantly higher cost. This is because it is anticipated that there will be a limited number of hazardous waste landfill sites in Great Britain. Current estimates indicate that there will be between 10 and 12 hazardous waste landfill sites in Great Britain by July 2004, with capacity well below the levels of hazardous waste currently landfilled in Great Britain.

The most likely alternative treatment routes for these special wastes has been assessed by EWC codes (6-digit code), to provide a capacity by treatment route (to 4-digit code level). Wastes were allocated to the different treatment routes by drawing together information from:

- EA R&D Technical Report P1-484/TR – Hazardous Waste Management Market Pressures and Opportunities: Background Paper;

- The Agencies: Guidance on the Waste Treatment Requirements of Article 6(a) of the Landfill Directive¹;
- EC Waste Acceptance Criteria
- Information gathered by ESA from its members; and
- Information supplied by the British Cement Association (BCA) on the wastes that could be utilised by cement companies either as a fuel or as a raw material substitute. A paper has been produced, but as this could be a critical treatment option further clarification on waste types and quantities is to be sought.
- Professional judgement and discussion with the industry

If it is assumed that all the special wastes landfilled at present is sent to alternative treatments, the capacity by generic treatment route is summarised in Table 7. The table contains two scenarios:

- The base assumption that no waste streams can be landfilled without treatment; and
- An assumption that 50% of asbestos waste can be landfilled without treatment and can be landfilled directly.

In addition, as it is assumed that stabilisation/solidification will increase the weight of waste by a factor of 2, this has a significant impact on the resultant landfill capacity and so sensitivity analyses have been undertaken to illustrate the impact of:

- Sensitivity 1: stabilisation/solidification increasing the weight of waste by a factor of 1.5; and
- Sensitivity 2: stabilisation/solidification increasing the weight of waste by a factor of 3 (although this would an extreme case).

The impact on the resultant hazardous waste landfill required for residues/outputs from treatment process is also shown in Table 7.

¹ Environment Agencies (EA and SEPA); Guidance on the Waste Treatment of Article 6(A) of the Landfill Directive, Version 2.1, Draft For External Consultation.

Table 7: Summary of Generic Treatment Route Capacity for Special Waste Currently Landfilled (tonnes per annum)

Generic Treatment Route	Estimated Treatment Capacity Need for Special Waste Currently Landfilled ^{a, b}		Resultant Hazardous Waste Landfill Required for Residues/ Outputs from Treatment Process		
	Base Assumption	50% Asbestos Directly Landfilled	Base Assumption	S1 ^(d)	S2 ^(e)
Stabilisation/ Solidification	9,310	8,100	18,620 ^{(c)(ii)}	13,960	27,930
Physico-chemical	1,760	1,760	1,320 ^{(c)(ii)}	1,320	1,320
WWT	340	340	n/a	n/a	n/a
HTI/Co-incineration	1,650	1,650	n/a	n/a	n/a
Total	13,060	11,850	19,940	15,280	29,250

^a Figures rounded to nearest 10 tonnes

^b ~600 tonnes of special waste currently landfilled would be classified as non-hazardous under EWC2002. This is because the under certain Sub-Chapters of the EWC2002 there are no hazardous entries identified (e.g. 0202 to 0207).

^c Resultant landfill capacity for treated wastes assuming:

- i. Stabilisation/solidification will increase the weight of waste by a factor of 2 and all stabilised/solidified waste remains hazardous; and
- ii. Physico-chemical treatment will produce a residue requiring landfill equivalent to 75% of the waste input by weight and the residues are hazardous waste.

^d Sensitivity 1: stabilisation/solidification increasing the weight of waste by a factor of 1.5 with the base assumption that no waste streams can be landfilled without treatment.

^e Sensitivity 2: stabilisation/solidification increasing the weight of waste by a factor of 3 (although this would an extreme case) with the base assumption that no waste streams can be landfilled without treatment.

6. Potential Impacts of Change in Definition from Special Waste to Hazardous Waste

The change in definition from special waste to hazardous waste is likely to result in a greater quantity of waste being managed as hazardous waste than is currently managed as special waste. There are three main reasons for this:

1. Under the Special Waste Regulations, the assessment of “ecotoxic” was limited to those wastes on the Hazardous Waste List. On the EWC 2002, many of these wastes are covered by “mirror entries” and therefore need to be assessed against all fourteen hazardous properties including ecotoxic. This is highlighted by contaminated soils (17 05) which will need to be evaluated against ecotoxic criteria. This is likely to increase the quantity of contaminated soils that are classified as hazardous because many heavy metals and their compounds will have lower threshold concentrations than at present. Other wastes containing heavy metals and their compounds will also have lower threshold concentrations, which will result in more waste being classified as hazardous. Categories affected could include; inorganic chemical processes (06), thermal process waste (inorganic) (10), metal treatment & coating processes (11), shaping/treatment of metals & plastics (12) and waste from incineration (19 01).

2. There are a number of new hazardous entries on the EWC not previously classified as special waste, these include:
 - End-of-life vehicles (16 01 04*): this entry covers all end-of-life vehicles that have not been de-polluted.
 - Waste containing Cathode Ray Tubes (CRTs) and activated glass (16 02 13*): This covers televisions and computer monitors.

3. There are a number of wastes that are now covered by “absolute entries” which are hazardous regardless of the concentration of “dangerous substances” within the waste, when previously they would have been assessed against the threshold concentrations. These include:
 - All oils (excluding edible oils) (Chapter 13)
 - The majority of wood preservatives (03 02)
 - Many acids and alkalis; and
 - All photographic chemicals

Appendix 1 summarises the potential hazardous properties wastes may possess (by 4 digit code) and assesses the potential change in arisings. Table 8 summarises the estimated changes in arisings from Appendix 1.

Table 8: Summary of Estimated Changes due to Change in Definition

EWC Code	Description	Comments	Potential Change due to Definition	Estimated Additional Arisings ^a
02	Wastes From Agriculture etc.	Agricultural wastes are due to be brought under the definition of controlled waste. This will result in an increase in hazardous waste mainly in relation to agrochemical, asbestos and oils	Not considered in this assessment	–
0604	Metal containing wastes	There could be some metal containing wastes which will be caught by lower thresholds for H10/H14.	Assume a 5% increase in metal containing wastes	300 tpa
07	Organic chemical processes waste	There could be some wastes which will be caught by absolute entries or lower thresholds for ecotoxic.	Assume 10% increase in the hazardous waste currently landfilled. There may also be a need for some additional physico-chemical treatment capacity	30 tpa
1101	Liquid wastes and sludges from metal treatment and coating of metals	There could be some metal containing wastes which will be caught by lower thresholds for H10/H14.	Assume a 5% increase	100 tpa
1104	Other inorganic wastes with metals not otherwise specified			
1201	Wastes from shaping	There could be some metal containing wastes which will be caught by lower thresholds for H10/H14.	Assume a 5% increase	300 tpa
1202	Wastes from mechanical surface treatment processes			
1601	End of life vehicles	All un-depolluted ELVs will be hazardous, although new and existing facilities will be developed as a result of the requirements of the ELV Directive.	Will be dependant on when an ELV is deemed to be waste. However they are likely to be managed through existing routes, although there may be greater permit controls	N/A
1602	Discarded equipment and shredder residues	Capacity for refrigeration equipment being developed as a result of ODS Regulations. Extent of other hazardous WEEE unclear, although potential for 50k to 100k tpa of CRT containing equipment across UK, capacity likely to develop as a result of the requirements of the WEEE Directive	Assume 5,000 tpa of Hazardous WEEE	5,000 tpa
17	C&D waste & asbestos	The requirement to assess certain Chapter 17 wastes (e.g. contaminated soils) against ecotoxic could significantly increase the quantities classified as hazardous	Expect increase in the quantity of contaminated soils. Very little consigned in 2002 therefore difficult to apply a % increase. Across UK, Chapter 17 waste accounts for 25% of special waste arisings. Therefore assume an additional 10,000 tpa	10,000 tpa

^a Rounded to nearest 100 tonnes

These estimates would result in an additional 15,730 tonnes per annum of hazardous waste mainly from contaminated soils and hazardous WEEE. In addition, it should be noted that there will be additional hazardous waste under Chapter 19 but this has been assessed in the Capacity Needs Spreadsheet.

Assuming that these additional wastes are currently landfilled, the additional treatment and resultant hazardous waste landfill capacity required for residues/outputs from treatment process is summarised in Table 9. The base assumption used is that no waste streams can be landfilled without treatment and a scenario where 50% of contaminated soil waste can be landfilled directly without treatment is also provided.

Table 9: Summary of Generic Treatment Route Capacity for Additional Hazardous Wastes (tonnes per annum)

Generic Treatment Route	Estimated Treatment Capacity Need for Additional Waste ^{a, b}		Resultant Hazardous Waste Landfill Required for Residues/ Outputs from Treatment Process
	Base Assumption	50% Soils Directly Landfilled	Base Assumption
Stabilisation/ Solidification	9,230	5,880	18,450 ^{(c)(i)}
Physico-chemical	1,620	1,620	1,220 ^{(c)(ii)}
WWT	40	40	n/a
HTI/Co-incineration	1,480	1,480	n/a
Total	12,370	9,020	19,670

^a Figures rounded to nearest 10 tonnes

^b ~600 tonnes of special waste currently landfilled would be classified as non-hazardous under EWC2002. This is because the under certain Sub-Chapters of the EWC2002 there are no hazardous entries identified (e.g. 0202 to 0207).

^c Resultant landfill capacity for treated wastes assuming:

- i. Stabilisation/solidification will increase the weight of waste by a factor of 2 and all stabilised/solidified waste remains hazardous; and
- ii. Physico-chemical treatment will produce a residue requiring landfill equivalent to 75% of the waste input by weight and the residues are hazardous waste.

7. Assessment of an all-island capacity need

To assess the all-island capacity need, an assessment of the arisings and disposal routes in the Republic of Ireland has been made.

7.1 Hazardous Waste Arisings in Republic of Ireland

The most recently reported data for the Republic of Ireland is in the National Waste Database Report published in 2003. Information is provided on the generation and destination of hazardous waste in 2001, based on facility record. However the information is by generic waste types and EWC codes are not given. To allow

comparison with the Northern Ireland arisings EWC codes have been assigned to the generic waste types (See Appendix 2). Table 10 summarises the arisings in the Republic of Ireland by EWC Chapter Headings for 2001 and Table 11 provides a combined total of Northern Ireland and Republic of Ireland arisings.

Table 10: Summary of Republic of Ireland Hazardous Waste Arisings by EWC Chapter Headings for 2001 (tonnes)

EWC Chap	On Site (in-house)	Off Site	Exported	Reported	Unreported	Total hazardous waste
02	0	0	21	21	19,350	19,371
06	30,523	8,441	2,753	41,717	0	41,717
07	9,573	3,870	15,135	28,578	0	28,578
08	11	836	1,351	2,198	0	2,198
09	0	173	393	567	0	567
10	0	475	746	1,221	0	1,221
13	742	29,085	674	30,499	2,349	33,048
14	37,075	12,351	81,893	131,319	42	131,361
15	0	51	429	480	7,912	8,392
16	21	1,265	9,186	10,473	10,261	20,734
17	0	8,661	160,765	169,426	0	169,426
18	0	5,492	341	5,833	467	6,300
19	41	1,158	1,570	2,769	0	2,769
20	0	86	43	129	8,021	8,151
99	17,581	448	7	18,036	0	18,036
Total	95,567	72,392	275,307	443,266	48,402	491,869

Table 11: Combined Arisings for Northern Ireland and the Republic of Ireland by EWC Chapter Headings

Waste Description	NI Arisings 2002	RoI Arisings 2001 ^(a)	Indicative "all-island" Total
Mining and minerals (01)	6	-	-
Agriculture ^(b) , food production (02)	156	19,371	19,500
Wood and paper production (03)	69	-	100
Leather and textile production (04)	-	-	-
Petrol, gas and coal refining/treatment (05)	-	-	-
Inorganic chemical processes (06)	9,099	41,717	50,800
Organic chemical processes (07)	3,594	28,578	32,200
Paints, varnish, adhesive & inks (08)	1,939	2,198	4,100
Photographic industry (09)	495	567	1,100
Thermal processes waste (inorganic) (10)	129	1,221	1,400
Metal treatment & coating processes (11)	2,438	-	2,400
Shaping/treatment of metals & plastics (12)	5,368	-	5,400
Oil and oil/water mixtures (13)	15,139	33,048	48,200
Solvents (organic) (14)	388	131,361	131,700
Packaging, cloths, filter materials (15)	303	8,392	8,700
Not otherwise specified (16)	1,914	20,734	22,600
C&D waste & asbestos (17)	2,566	169,426	172,000
Healthcare (18)	1,059	6,300	7,400
Waste/water treatment & water industry (19)	2,645	2,769	5,400
Municipal & similar commercial (20)	17	8,151	8,200
Unspecified (99)	107	18,036	18,100
Totals	47,432	491,869	539,300
^a Includes unreported wastes ^b Agricultural waste is not controlled waste in UK			

7.2 Republic of Ireland Treatment/Disposal Capacity

In terms of treatment and disposal capacity, as within Northern Ireland, the Republic of Ireland does not currently have enough treatment/disposal capacity to handle its hazardous waste arisings. Over 60% of the reported arisings are exported for either treatment or disposal.

Just over 70,000 tonnes of waste are managed at merchant facilities (i.e. off-site facilities) in the Republic of Ireland in 2001, this includes:

- 23,000 tonnes of used oil re-refining or reuse of waste oil (R9);
- 17,000 tonnes of physico-chemical treatment (D9);
- 11,000 tonnes of solvent reclamation/regeneration (R2); and
- 8,500 tonnes of recycling/reclamation of inorganic materials (R5).

From the information available, it would appear that these are the maximum capacities of treatment facilities as significant quantities are exported to the same type of activities.

In addition there are a number of new and proposed facilities in the Republic of Ireland for handling or disposing of hazardous waste:

- The KTK Landfill in County Kildare, which is permitted to accept 3,000 tpa of asbestos waste;
- Indaver's proposed hazardous waste incinerator in County Cork (Ringaskiddy), which has a proposed capacity of 100,000 tpa for hazardous and non-hazardous industrial and commercial waste. It is understood that there are planning constraints on this facility which limits waste input to those arising in the region; and
- Indaver's proposed solvent blending plant in Dublin, which has a proposed capacity of 20,000 tpa.

8. Conclusions

There are a wide range of factors that will have an effect on the future capacity needs for hazardous wastes in Northern Ireland. This assessment has made a series of assumptions about these different factors to produce an estimate of the potential capacity required to manage the hazardous waste produced in Northern Ireland. Table 12 summarises the estimated treatment and resultant hazardous waste landfill capacity need for both existing special wastes and additional wastes that may be classified as hazardous.

**Table 12: Summary of Generic Treatment Route Capacity Needs
(tonnes per annum)**

Generic Treatment Route	Estimated Treatment Capacity Need for			Resultant Hazardous Waste Landfill Capacity Required for Residues/Outputs from Treatment Process		
	Special Waste Currently Landfilled	Additional Wastes	Total	Special Waste Currently Landfilled	Additional Wastes	Total
Stabilisation/ Solidification	9,310	9,230	18,540	18,620	18,450	37,070
Physico-chemical	1,760	1,620	3,380	1,320	1,220	2,540
WWT	340	40	380	n/a	n/a	n/a
HTI/Co-incineration	1,650	1,480	3,130	n/a	n/a	n/a
Total	13,060	12,370	25,430	19,940	19,670	39,610
NOTE: THIS TABLE MUST BE READ IN CONJUNCTION WITH THE ASSUMPTIONS SET OUT THROUGH THE REPORT						

The indicative "all-island" arisings of just over 0.5 million tonnes per annum, of which 300,000 tonnes is exported for treatment or disposal, shows there are sufficient arisings to justify the development of capacity on an "all-island" basis.

APPENDIX 1 – Assessment of Potential Changes

EWC Code	Description	Total NI Arisings	Potential Hazardous Properties											Comments	Potential change in waste arisings due to definition				
			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11			H12	H13	H14	
0101	waste from mineral excavation	6										X						No entries under 01 were on HML, however the majority are likely to be covered by the second part of special waste definition, most likely impact will be on H10 and H14.	No significant change expected
0201	primary production waste	2									X	X						Only relevant entry under 02 is agrochemicals, which were on HML therefore all 14 hazardous should be considered at present. Potential increase when agricultural waste becomes controlled waste.	No significant change expected
0203	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee and tobacco preparation, processing; conserve product	148																	
0207	wastes from the production of alcoholic and non alcoholic beverages (excluding coffee, tea and cocoa)	6																	
0302	wood preservation waste	67				X				X	X							Majority should be covered under special waste definition, therefore no significant change in quantity consigned expected.	No significant change expected
0303	wastes from pulp, paper and cardboard production and processing	2			X	X			X	X	X	X						No hazardous entries in 0303.	No significant change expected
0601	waste acidic solutions	1,262		X		X			X	X	X								
0602	alkaline solutions	2,223				X			X	X	X								
0603	waste salts and their solutions	28				X			X	X	X	X							
0604	metal containing wastes	5,570				X			X	X	X	X							
0605	sludges from on site effluent treatment	15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
0613	wastes from other inorganic chemical processes	2				X			X	X	X	X							

EWC Code	Description	Total NI Arisings	Potential Hazardous Properties											Comments	Potential change in waste arisings due to definition			
			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11			H12	H13	H14
0701	waste from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals	351	X	X	X	X	X	X	X	X	X	X	X	X	X	X	No significant change expected, as the majority of the wastes were on the HWL or covered by the second part of special waste definition. Although there could be some wastes which will be caught by absolute entries or lower thresholds for ecotoxic.	Assume 10% increase in the hazardous waste currently landfilled. There may also be a need for some additional physico-chemical treatment capacity
0702	waste from the MFSU of plastics, synthetic rubber and man-made fibres	1,289	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Key wastes could be aqueous washing liquids and mother liquors (07XX01*) and sludges from on-site effluent treatment containing dangerous substances (07 XX 11*). Past discussion with industry indicated that 07XX01* wastes are normally treated on site or via discharge consent and if sent off site they would normally be consigned and 07XX11* wastes are normally consigned.	
0703	waste from the MFSU of organic dyes and pigments (excluding 06 11 00)	45	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
0704	wastes from the MFSU of organic pesticides (except 02 01 05)	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
0705	waste from the MFSU of pharmaceuticals	1,849	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
0706	waste from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics	46	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
0707	waste from the MFSU of fine chemicals and chemical products not otherwise specified	14	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
0801	wastes from MFSU of paint and varnish	947			X	X	X	X	X	X	X	X	X	X	X	X		No significant change expected
0802	wastes from MFSU of other coating (including ceramic materials)	16			X	X	X	X	X	X	X	X	X	X	X	X		The main hazards associated with wastes in Chapter 8 are highly flammable, flammable, harmful and irritant which would be covered by the second part of special waste definition and as the majority are 'mirror entries' no significant change expected
0803	waste from MFSU of printing inks	858			X	X	X	X	X	X	X	X	X	X	X	X		
0804	wastes from MFSU of adhesives and sealants (including waterproofing products)	118			X	X	X	X	X	X	X	X	X	X	X	X		

EWC Code	Description	Total NI Arisings	Potential Hazardous Properties											Comments	Potential change in waste arisings due to definition			
			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11			H12	H13	H14
0901	wastes from photographic industry	495					X	X	X	X	X	X		X			Majority of wastes in Chapter 9 are already consigned as special waste, therefore no significant change in quantity consigned expected	No significant change expected
1001	waste from power station and other combustion plants (except 19 00 00)	66			X	X	X	X	X	X	X	X			X		Many wastes on the HWL or covered by the second part of special waste definition (H4-H8). Although some wastes could be caught by absolute entries or lower thresholds for H10/H14.	No significant change expected in Northern Ireland
1003	wastes from aluminium thermal metallurgy	54			X	X	X	X	X	X	X	X		X			Would expect most to be covered by second part of special waste definition (H4-H8). However industry association indicated hazardous arisings of approx 100,000 tpa in the UK (including spent lining now under 1611)	No significant change expected in Northern Ireland
1005	wastes from zinc thermal metallurgy	1				X	X	X	X	X	X	X			X		Majority expected to be covered under special waste definition, therefore no significant change in quantity consigned expected	No significant change expected
1011	wastes from manufacturing of glass and glass products	3					X	X	X	X	X	X			X			
1013	wastes from manufacture of cement, lime and plaster and articles and products made from them	4								X	X	X			X			
1101	liquid wastes and sludges from metal treatment and coating of metals (e.g. galvanic processes, etching, phosphatizing, alkaline degreasing, anodising)	2,417				X	X	X	X	X	X	X			X		Would expect most to be covered by second part of special waste definition (H4-H8). Although there could be some metal containing wastes which will be caught by lower thresholds for H10/H14.	Assume a 5% increase
1104	other inorganic wastes with metals not otherwise specified	21				X	X	X	X	X	X	X						

EWC Code	Description	Total NI Arisings	Potential Hazardous Properties											Comments	Potential change in waste arisings due to definition			
			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11			H12	H13	H14
1201	wastes from shaping (including forging, welding, pressing, drawing, turning, cutting and filing)	5,183	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Would expect most to be covered by second part of special waste definition (H4-H8). Although there could be some metal containing wastes which will be caught by lower thresholds for H10/H14.	Assume a 5% increase
1202	wastes from mechanical surface treatment processes (blasting, grinding, honing, lapping and polishing)	185																
1301	waste hydraulic oils and brake fluids	12															Majority of oil containing wastes are already consigned, therefore no significant change in quantity consigned expected.	No significant change expected
1302	waste engine, gear and lubricating oils	6							X									
1303	waste insulating and heat transmission oils and other liquids	22							X									
1304	bilge oils	3,557							X									
1305	oil/water separator contents	2,185							X									
1306	oil waste not otherwise specified	9,356							X									
1401	wastes from metal degreasing and machinery maintenance	77			X	X	X	X		X							Now all under 1406, majority of wastes in Chapter 14 are already consigned as special waste, therefore no significant change in quantity consigned expected, except refrigerants although treatment routes exist as a result of ODS Regulations	No significant change expected
1402	wastes from textile cleaning and degreasing of natural products	44			X	X	X	X		X								
1403	wastes from the electronic industry	265			X	X	X	X		X								
1404	wastes from coolants, foam/aerosol propellents	1			X	X	X	X		X								
1501	packaging	33	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Many covered by second part of special waste definition (H4-H8). Although the inclusion of the other hazardous properties increase could the quantities consigned under these 'mirror entries'.	No significant change expected
1502	absorbents, filter materials, wiping cloths and protective clothing	271	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

EWC Code	Description	Total NI Arisings	Potential Hazardous Properties														Comments	Potential change in waste arisings due to definition	
			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14			
1601	end of life vehicles	3	X		X	X	X	X	X	X	X	X	X	X	X	X	X	All un-depolluted ELVs will be hazardous, although new and existing facilities will be developed as a result of the requirements of the ELV Directive.	Will be dependant on when a ELV is deemed to be waste. However they are likely to be managed through existing routes
1602	discarded equipment and shredder residues	39	X		X	X	X	X	X	X	X	X	X	X	X	X	X	Capacity for refrigeration equipment being developed as a result of ODS Regulations. Extent of other hazardous WEEE unclear, although potential for 100k tpa of CRT containing equipment across UK, capacity likely to develop as a result of the requirements of the WEEE Directive	Assume 5,000 tpa of Hazardous WEEE
1603	off-specification batches	20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	No significant change expected, as the majority of the wastes were on the HWL or covered by the second part of special waste definition. Although separate collection of batteries would increase treatment needs.	No significant change expected
1605	chemicals and gases in containers	16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
1606	batteries and accumulators	1,211						X	X	X	X	X	X	X	X	X	X		
1607	waste from transport and storage tank cleaning	625	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Many covered by second part of special waste definition (H4-H8). Although the inclusion of the other hazardous properties increase could the quantities consigned under these 'mirror entries'.	No significant change expected
1701	concrete, bricks, tiles, ceramics and gypsum based materials	1,864				X	X	X	X	X	X	X	X	X	X	X	X	The requirement to assess certain Chapter 17 wastes (e.g. contaminated soils) against ecotoxic could significantly increase the quantities classified as hazardous	Expect increase in the quantity of contaminated soils. Very little consigned in 2002 therefore difficult to apply a % increase. Across UK, Chapter 17 waste accounts for 25% of special waste arisings. Therefore assume an additional 10,000 tpa
1703	asphalt, tar and tarred products	1			X	X	X	X	X	X	X	X	X	X	X	X	X		
1705	soil and dredging spoil	3				X	X	X	X	X	X	X	X	X	X	X	X		
1706	insulation materials	698					X	X	X	X	X	X	X	X	X	X	X		

EWC Code	Description	Total NI Arisings	Potential Hazardous Properties														Comments	Potential change in waste arisings due to definition
			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14		
1801	waste from natal care, diagnosis, treatment or prevention of disease in humans	1,059					X			X			X			X	Although greater quantity will be classified as hazardous - existing routes should continue to handle wastes but re-classification of the facilities may be required	No significant change expected
1802	waste from research, diagnosis, treatment or prevention of disease involving animals	0					X			X						X		
1901	wastes from incineration or pyrolysis of municipal and similar commercials, industrial and institutional wastes	6				X			X						X		Additional treatment to meet Landfill Directive requirements will increase the quantity of waste from these sources	Potential changes accounted for in Capacity Needs Spreadsheet
1902	wastes from specific physico/chemical treatments of industrial wastes	2,487	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
1908	wastes from water treatment plants not otherwise specified	152																
2001	separately collected fractions	17			X	X	X	X	X	X	X	X	X	X	X	X	Impact dependant on policies related to segregation of hazardous household wastes. Welsh Strategy composition indicates 0.5% potential hazardous.	No significant change expected at this time
99	Unclassified	107															Likely to remain hazardous but identified under correct code in future	No significant change expected

APPENDIX 2 – Republic of Ireland National Waste Database Data with Assigned EWC Codes

National Waste Database Report 2001							Assigned EWC Codes	
Hazardous Waste Type	On Site	Off Site	Exported	Reported	Un-reported	Total hazardous waste	EWC Chap	EWC 4-Digit Code
Contaminated soil		8,636	159,943	168,579		168,579	17	1705
Organic and organic chlorinated solvents	37,075	12,351	81,893	131,319	42	131,361	14	1406
Saltcake/salts	27,554	8	1,460	29,022		29,022	06	0603
Waste oil	76	23,343	579	23,997		23,997	13	1301
Washing liquids and mother liquors	4,646	3,278	10,722	18,646		18,646	07	0701
Other hazardous wastes	17,581	448	7	18,036		18,036	99	9999
Sheep dip				0	18,000	18,000	02	0201
Lead acid batteries		152	7,479	7,631	7,146	14,777	16	1606
Acid/alkali waste	2,969	7,645	1,238	11,852		11,852	06	0601
Oily sludges	666	5,739	74	6,479	2,349	8,828	13	1308
Paint and ink packaging		1		1	7,912	7,913	15	1501
Other household hazardous waste			9	9	7,178	7,188	20	2001
Clinical waste		5,492	341	5,833		5,833	18	1801
Still bottoms and reaction residues	4,927	3	341	5,271		5,271	07	0705
Other pharmaceutical waste		589	4,072	4,661		4,661	07	0705
Small batteries		3	120	123	2,303	2,426	16	1606
Laboratory and general chemical waste	21	527	1,554	2,103		2,103	16	1603
Filter cakes and metal containing sludges	18	506	1,180	1,704		1,704	19	1908
Paint/ink/varnish liquid waste	8	404	1,081	1,493		1,493	08	0801
Pesticides (agricultural)			21	21	1,350	1,371	02	0201
Oil filters		482	33	515	812	1,327	16	1601
Dross from metallurgy		468	746	1,214		1,214	10	1008
Metal hydroxide sludges/ion exchanges resins		612	390	1,002		1,002	19	1902
Asbestos waste		25	822	847		847	17	1706
Heavy metal containing waste		786	54	840		840	06	0604
Fluorescent tubes		86	34	120	552	672	20	2001
Photographic waste		173	393	567	0	567	09	0901
Contaminated packaging or packaging containing residues		50	429	479		479	15	1501
Veterinary medicines				0	467	467	18	1802
Paint/ink/varnish sludges		382		382		382	08	0801
Adhesive waste	3	50	270	323		323	08	0804
General office waste				0	291	291	20	2001
PCB waste		3	21	23		223	13	1301
Waste catalysts		101		101		101	16	1608
Thermal treatment residues	23	40		63		63	19	1901
Boiler dust		6		6		6	10	1001
Mercury containing waste		2	1	3		3	06	0604
Gold solutions		1		1		1	10	1007
Total	95,567	72,392	275,307	443,266	48,402	491,869		

