National Hazardous Waste Management Plan 2008-2012

Implementation Report 2011

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1 EXECUTIVE SUMMARY

The National Hazardous Waste Management Plan (2008-2012) was published by the EPA in September 2008 in accordance with Section 26 of the Waste Management Acts 1996 to 2008. This Plan replaced the first such plan in the Republic of Ireland which was published in 2001. The replacement Plan was developed following extensive research as well as consultation with all stakeholders and the general public. During its development, the Plan was subjected to the requirements of the Strategic Environmental Assessment (SEA) Regulations. Accordingly, an Environmental Report was published with the draft Plan and an SEA Statement (providing required information on decision-making) was published with the final Plan.

The Plan is a strategic level document designed to provide overall direction to decision and policy makers involved in the prevention and management of hazardous waste. Recommendations are made for a number of public organisations, who were consulted during the preparation of the Plan, for them to implement. Objectives, Indicators and Targets for the Plan and SEA purposes are identified. Local authorities are obliged to take these recommendations into account when they review their operational regional and local area waste management plans.

This interim report reviews the Plan and SEA objectives and identifies progress made in implementing its recommendations since its publication in 2008 up to mid-2011 as follows:

- Chapter 2 considers progress made in relation to the Plan's four principal objectives.
- Chapter 3 reports on progress made in relation to implementing each of the 29 recommendations insofar as information is available to the EPA. These recommendations were addressed to a variety of mainly public bodies (Appendix 1).
- Chapter 4 looks at the 9 Plan Targets and Indicators that were developed and progress on each of these is discussed where information is available (Appendix 2).
- Chapter 5 examines the 13 SEA Environmental Targets and Indicators included in the Plan and progress made in relation to each of these issues is provided where information is available (Appendix 3). This includes a review of emission breaches and complaints arising from licensed facilities involved with hazardous waste.
- Chapter 6 discusses some conclusions and next steps in relation to hazardous waste management.

It should be noted that due to the overlapping nature of the various recommendations, Plan/SEA objectives, targets and indicators, that some repetition is inevitable in the different report chapters.

To support the assessment of progress, Appendix 4 provides extensive hazardous waste information updated to include 2008 and 2009 data, where available. This appendix presents the data in the same order as they originally appeared in the Plan for ease of reference. Some of this

data is also published in the annual EPA National Waste Reports. As 2009 is the most recent year for which data is available (including the 2008 biennial industrial waste survey), it will only be when the 2010 and 2012 data becomes available that progress can be more fully assessed.

All of the Plan recommendations are designed to reduce the environmental impact of hazardous waste. While the EPA can promote best practice and engage in a variety of projects to promote the Plan's objectives, much responsibility rests with the holders and producers of hazardous waste. Similarly, the EPA provides data and reports periodically in relation to hazardous waste and its correct management. However, the actual provision of hazardous waste treatment facilities is driven primarily by economic and specific policy decisions outside of its control. As an independent environmental regulator, the EPA has itself no function in the provision of either services or physical infrastructure for the management of hazardous waste.

The programme to reduce the generation of hazardous waste generally has been integrated into the wide range of projects within the EPA National Waste Prevention Programme (see the 6th NWPP Annual Report, 2010). Relevant projects include the Green Business, Green Hospitality Programme, Local Authority Prevention Network, Green Healthcare, Green Retail, Packaging Prevention and Green Home programmes.

A number of the Plan recommendations and projects are aimed specifically at reducing the levels of unreported hazardous waste where possible by promoting more accessible collection points. The continued implementation of existing statutory Producer Responsibility Initiatives (such as Waste Electrical & Electronic Equipment/Restriction of Hazardous Substances (RoHS), Batteries, Packaging Essential Requirements, Solvents, Deco-paints, REACH and End-of-Life Vehicles) should reduce the hazardous components of specified products and also assist with the collection/reduction of unreported hazardous waste. Similarly, implementation of regulations in relation to Persistent Organic Pollutants (POPs) and Polychlorinated Bi-phenyls (PCBs) will increasingly eliminate these hazardous substances and wastes. Additional financial and logistical resources to implement hazardous waste collections may become available from a range of recommended new national Producer Responsibility Initiatives, if introduced (see Appendix 5).

Other projects pursued by the EPA in relation to unreported hazardous waste include the Farm Hazardous Waste Study, publication of the Garages Best Practice Guidance and the ongoing development of a Code of Practice for Civic Amenity Sites dealing with the correct management of hazardous waste. Contact is made on a continuing basis with relevant stakeholders to promote the implementation of the findings from these projects.

Striving for more self-sufficiency nationally in the management of Ireland's hazardous waste, where technically and economically feasible, is a guiding principle behind many of the Plan's recommendations. Projects pursued in this regard by the EPA include completing the study on a National Difficult Waste Facility (incorporating hazardous waste landfill) and the Economic Study of Solvent Recycling and Treatment in the Pharmachem sector in Ireland.

One of its purposes of this report is to monitor (in accordance with the SEA Regulations) if any significant environmental effects have arisen from implementation of the Plan to enable remedial action to be taken early where unforeseen adverse environmental effects occur. Chapter 2 provides some conclusions in relation to the four principal Plan objectives. Overall, the amount of hazardous waste is static or declining, unreported hazardous waste is very likely to have decreased (economic downturn, WEEE, Batteries, ELV, Civic Amenity Sites (CAS) and other initiatives have assisted here), emissions/complaints arising from licensed facilities do not appear excessive and, while treatment in Ireland is slowly declining, segregation is improving. Based on this assessment, it may be stated no unforeseen adverse effects on the environment have become evident arising from implementation of the Plan. This is supported in that all Plan recommendations are aimed at positively reducing the impact on the environment from hazardous waste.

Finally, the following tables provide colour coded assessments of progress made in relation to implementing the Plan. They try to answer the following questions based on an interpretation of the information provided in each of the relevant chapters:

- Executive Summary Table 1: Are the principal Plan objectives being achieved? (Chapter 2)
- Executive Summary Table 2: Are the Plan recommendations being implemented? (Chapter 3)
- Executive Summary Table 3: Are the Plan targets being achieved? (Chapter 4)
- Executive Summary Table 4: Are the SEA environmental targets being achieved? (Chapter 5)

Executive Summary Table 1: Are the principal Plan objectives being achieved?

Objective	Comments
1. To reduce the generation of hazardous waste by industry and society generally	Amounts of hazardous waste generally and in industry are static or declining.
2. To minimise unreported hazardous waste with a view to reducing the environmental impact of this unregulated waste stream	Levels of unreported hazardous waste are likely to have declined due to impact of economic downturn, WEEE, Batteries, ELV regulations and CAS, garages and farm initiatives. New estimates needed to confirm this trend.
3. To strive for increased self-sufficiency in the management of hazardous waste and to reduce hazardous waste export	Levels of exported waste have stayed steady while the proportion of hazardous waste being treated in Ireland is slowly declining.
4. To minimise the environmental, social and economic impacts of hazardous waste generation and management	EPA licensing/enforcement is minimising emissions in relation to licensed sites. Waste segregation and CAS collections have increased, as has the collection of batteries, ELV and WEEE waste. However, data on the direct impacts of hazardous wastes are not readily available

Colour key:

Objective is being achieved
Objective is not being achieved
Objective is being partly achieved, or no change
Only indirect (input) data on the objective is available

Executive Summary Table 2: Are the Plan recommendations being implemented?

Implementation Status	Number of Recommendations	Percentage of 29 Recommendations
Recommendation is being implemented	**18**	**62%**
Recommendation implementation is in progress	**6**	**21%**
Only limited information on the implementation of the recommendation is available	**4**	**14%**
Recommendation has not yet been implemented	**1**	**3%**

Executive Summary Table 3: Are the Plan targets being achieved?

Target	Comments
1. Initiate and implement hazardous waste prevention projects	Incorporated into the National Waste Prevention Programme (NWPP)
2. Reduce the generation of hazardous waste relative to production at targeted, participating or reporting organisations or sectors	Incorporated into NWPP
3. Minimise the generation of unreported hazardous waste	Updated data on unreported hazardous waste is not currently available
4. Increase the deposit of household and small business hazardous waste at civic amenity sites; other static collection points; and mobile services.	Data suggests increase in household hazardous waste is being collected including WEEE, Batteries and at CAS
5. Establish new producer responsibility obligations	Not yet progressed due to Department of the Environment's resources being directed at implementing WEEE, Batteries, ELVs and other existing schemes. The programme for government states that consideration will be given to the extension of producer responsibility Initiatives.
6. Increase on-site treatment of hazardous waste generated at IPPC-licensed facilities	The evidence is that manufacturers prefer to let specialist external companies deal with hazardous waste
7. Increase off-site treatment of hazardous waste in Ireland	Hazardous waste volume treated off-site in 2009 up 48% compared to 2006
8. Reduce export of hazardous waste	While volume exported is fairly stable, the proportion of hazardous arisings has increased from 48% in 2006 to 52% in 2009
9. Identify, assess and remediate as necessary all sites where hazardous waste to a significant extent was disposed of in the past	Identification and assessment process has been started, but completing remediation will be lengthy and expensive

Colour key:

Target is being achieved
Target is not being achieved
Target is being partly achieved, or no change
Only indirect (input) data on the target is available

Executive Summary Table 4: Are the SEA environmental targets being achieved?

Target	Comments
1. Minimise exceedances of emission limits to water and air from licensed hazardous waste facilities	Between 2008 and 2011, 31 ELV exceedances were noted among 15 IPPC/Waste licensees (handling significant amounts of hazardous waste) whose files were examined. 13 other licensees had no ELV exceedances noted.
2. Legacy hazardous waste disposal sites to be managed in accordance with Code of Practice	Code of Practice published and Tier 1 Risk Assessments are underway.
3. In the vicinity of hazardous waste incinerators, no increase in dioxin levels in ambient environment	All samples well below EU action and limit values.
4. Maximise the generation of energy from renewable sources	Amounts of hazardous waste used for energy recovery (R1) increasing but half of this is via export.
5. Minimise distance travelled by hazardous waste	Data on tonnes-kilometres is not available to determine whether target actually achieved. However, export figures are fairly stable.
6. Minimise export of hazardous waste and move towards self-sufficiency	Levels of exported waste have stayed fairly steady while the proportion of hazardous waste being treated in Ireland is slowly declining.
7. Minimise the generation of unreported hazardous waste	Updated data on unreported hazardous waste is not currently available.
8. Increase the *in situ* treatment of contaminated soil	Nine IPPC companies are treating historically contaminated sites *in-situ*, However, there are no estimates of the volumes of soil involved.
9. Increase the treatment of contaminated soil in Ireland	Large quantities generated 2004 and 2008 were largely exported for treatment.
10. Develop any new hazardous waste facilities on previously used land or brownfield sites	No specific information is available in relation to this target.
11. Avoid loss or damage to designated sites from siting of hazardous waste facilities	No specific information is available in relation to this target.
12. Minimise major incidents of unauthorised disposal of hazardous waste	Apart from occasional reports of diesel laundering residue, no other major incidents have been identified.
13. Minimise complaints relating to hazardous waste facilities	Between 2008 and 2011, 74 complaints were made against 15 IPPC/Waste licensees (handling significant quantities of hazardous waste) whose files were examined. 13 other licensees received no complaints.

Target is being achieved
Target is not being achieved
Target is being partly achieved, or no change
Only indirect (input) data on the target is available

2 REVIEW OF PLAN OBJECTIVES

Section 26 of the Waste Management Acts sets out the overarching objectives for the National Hazardous Waste Management Plan. Having regard to these objectives, the Plan set four key objectives for the period 2008-2012. The table below notes the objectives and assigns a colour coded assessment on progress to date based on the information assembled in this chapter.

Objective	Comments
1. To reduce the generation of hazardous waste by industry and society generally	Amounts of hazardous waste generally and in industry are static or declining.
2. To minimise unreported hazardous waste with a view to reducing the environmental impact of this unregulated waste stream	Levels of unreported hazardous waste are likely to have declined due to impact of economic downturn, WEEE, Batteries, ELV regulations and CAS, garages and farm initiatives. New estimates needed to confirm this trend.
3. To strive for increased self-sufficiency in the management of hazardous waste and to reduce hazardous waste export	Levels of exported waste have stayed steady while the proportion of hazardous waste being treated in Ireland is slowly declining.
4. To minimise the environmental, social and economic impacts of hazardous waste generation and management	EPA licensing/enforcement is minimising emissions in relation to licensed sites. Waste segregation and CAS collections have increased, as has the collection of batteries and WEEE waste. However, data on the direct impacts of hazardous wastes are not readily available

Colour key:

Objective is being achieved
Objective is not being achieved
Objective is being partly achieved, or no change
Only indirect (input) data on the objective is available

This chapter considers the progress, if any, being made in relation to each of these high level objectives in the Republic of Ireland.

2.1 Generation of Hazardous Waste

Since the National Hazardous Waste Management Plan was published, additional waste statistics have become available on the management of hazardous waste (Appendix 4.2). The Plan noted that 284,000 tonnes of hazardous waste were generated in 2006 and estimates for 2007, 2008 and 2009 have shown that little change has occurred since in that level of generation. Some reduction has occurred in 2009 relative to the peak level of hazardous waste generated in 2008. Overall, the 2009 figure is just 2 per cent above the 2006 level of generation.

In 2008, just over 319,000 tonnes of hazardous waste was managed with over 75 per cent, or 250,000 tonnes, being generated by industry (see Appendix 4.9). This represents an 8 per cent decrease on 2006 levels of industrial hazardous waste. The trend in industrial hazardous waste production is flat or declining having peaked in 2006 at 272,000 tonnes (Appendix 4.10).

So, at a macroeconomic level, it may be concluded that hazardous waste generation is static or declining in Ireland. However, this may be more to do with the economic recession and changing macroeconomic patterns of production/consumption than any impact the Plan could reasonably be expected to have.

2.2 Unreported Hazardous Waste

Hazardous wastes estimated as being unreported in 2006 amounted to almost 30,000 tonnes (Appendix 4.1). These wastes included paint/ink packaging, batteries, sheep dip, fluorescent lamps, agricultural and other household wastes. By definition, unreported hazardous waste is an unknown quantity and so can only be estimated using statistical techniques and market product supply data.

No newer estimates are available to update those made in 2006 however; new estimates are planned for 2012. Implementation of the Waste Electrical & Electronic Equipment and Batteries Regulations are likely to have reduced quantities of these materials (some of which are hazardous) going to landfill. For example, in 2009 over 45,000 tonnes of WEEE was collected including almost 9 kg of household WEEE per person in Ireland.

Overall, in the absence of new data it is not possible to know if unreported hazardous waste quantities have changed significantly. However, given that hazardous waste levels are static or declining generally and with the new initiatives noted above, it would be reasonable to expect that unreported hazardous waste is declining also.

2.3 Increased Self Sufficiency

The total reported quantity of hazardous waste treated in Ireland in 2009 was almost 165,000 tonnes, a decrease of 11% since 2008 while exports fell by over 4 per cent (Appendix 4.2). Levels of exports of hazardous wastes during the Plan period have stayed relatively stable. The treatment of hazardous waste off site at commercial facilities in 2009 in Ireland decreased by a significant 21 per cent to less than 90,000 tonnes which is more in line with the 2007 data. However, this still represents an almost 48 per cent increase on the amount treated in 2006. The decrease in off-site treatment in 2009 was largely attributable to a decrease in the treatment of waste oil, oily sludges and asbestos waste at commercial hazardous waste treatment facilities in Ireland. There was also a decrease in the total solvent treated at off-site treatment facilities in Ireland in 2009. Over 25,000 tonnes of waste solvent was blended at licensed hazardous waste treatment facilities in Ireland in 2009, prior to being exported as a waste for use as fuel in cement kilns or incinerators as well as incineration abroad. Full details of imports and export (including destinations) of various hazardous wastes are included in Appendices 4.3, 4.5 and 4.7.

While off-site treatment of hazardous waste decreased in 2009, the quantity of hazardous wastes recovered or disposed on-site at IPPC-licensed facilities increased marginally to almost 75,000 tonnes in 2009 from 72,000 tonnes in 2008 (Appendices 4.2 and 4.24). However, this is 16 per cent on the amount treated in 2006.

The rate of export of hazardous waste shows a slow increase from 47 to 52 per cent between 2006 and 2009 (Appendix 4.6). The inverse of this trend is that the rate of treatment *in* Ireland has been declining. So overall, Ireland is becoming slowly ***less*** self sufficient in relation to managing its hazardous wastes.

2.4 Minimising Impacts of Hazardous Waste

Following prevention, key activities necessary to achieve the minimisation of environmental impacts are the environmentally sound segregation, collection and management of hazardous wastes when they arise. Minimisation of unreported hazardous waste should reduce this "hidden" impact generation where such waste ends up in municipal landfills not designed to cater for them. Transports impact may be reduced by treating waste either on-site of generation or within Ireland as noted above.

Progress is being made in relation to the segregation of wastes. The EPA *Municipal Solid Waste Pre-treatment & Residuals Management* guidance was published in 2009. Subsequently, the EPA has reviewed all landfill licences to incorporate the appropriate pre-treatment targets, monitoring, measuring and reporting protocols. The requirement for pre-treatment increases the likelihood that hazardous components of the municipal solid waste stream will be segregated prior to final treatment. Further post treatment analysis of RDF will determine if this segregation is effective and should give an understanding of the residual hazardous components of municipal waste.

As noted above, producer responsibility initiatives dealing with WEEE and Batteries are leading to increased collections of these materials some of which are hazardous. The number of civic amenity sites has continued to increase especially in counties with dispersed populations (Table 5). The number of CAS accepting hazardous waste and the amounts collected are increasing (Appendices 4.12, 4.13 & 4.14). In 2006, 687 tonnes (0.16 Kg per capita) was collected compared to 1,320 tonnes (0.3 Kg per capita) in 2009.
The percentage of the population being serviced by general waste collection services in 2009 was 81 per cent of which 72 per cent had a two bin service and a further 24 per cent had a 3 bin collection service. The increasing percentage of three bin collections improves the conditions for additional segregation of household hazardous wastes.

Table 5 - Civic amenity sites, 2005–2009

	2005	2006	2007	2008	2009
Number of civic amenity sites	79	86	90	96	107

(Source: National Waste Report 2009 local authority surveys)

As noted in Chapter 5, EPA IPPC and Waste licensing and enforcement is aimed at preventing environmental impacts from sites handling hazardous wastes. While some emission limit breaches have been identified from time to time for correction, in general, the impact of these activities may be considered small. Similarly, the regulatory regime provides for a system for complaints to be managed and any necessary corrective actions to be taken promptly by the licensee.

All of the above information would seem to indicate that, overall, the impact of hazardous waste is being minimised. Information reflecting the direct impact of hazardous waste on the environment is inherently difficult to identify. However, any existing impacts can be further reduced by continuing to implement the prevention, minimisation and best treatment options recommended in the Plan.

3 PROGRESS ON IMPLEMENTING PLAN RECOMMENDATIONS

The 29 recommendations made in the National Hazardous Waste Management Plan (NHWMP) are presented in Appendix 1. A colour coded summary assessment on implementation progress is reproduced in the table below.

Implementation Status	Number of Recommendations	Percentage of 29 Recommendations
Recommendation is being implemented	**18**	**62%**
Recommendation implementation is in progress	**6**	**21%**
Only limited information on the implementation of the recommendation is available	**4**	**14%**
Recommendation has not yet been implemented	**1**	**3%**

Each individual recommendation is reproduced below in this chapter with a brief update on progress made on each one, insofar as information is available to the EPA.

Administrative arrangements

1. **Affirm the role of the National Waste Prevention Committee (NWPC) in 2008 to act as the principal stakeholder oversight body for the Plan's implementation.**

   Responsible: Department of the Environment, Heritage and Local Government

   This action was commenced by the Chair at the meeting of the National Waste Prevention Committee held on 12 March 2009. Draft Minutes included reference to the Department's verbal affirmation and these were approved at the NWPC meeting held 6th October 2009.

   Recommendation is being implemented

2. **Nominate the Environmental Protection Agency in 2008 for co-ordinating the Plan's implementation, with responsibility for promoting, monitoring, reporting and, where necessary, guiding the implementation activities of other responsible authorities.**

   Responsible: Department of the Environment, Heritage and Local Government

   Completed by actions noted under recommendation 1 above.

   Recommendation is being implemented

3. **Nominate local authorities and other public bodies in 2008 for specific tasks as identified in the Plan.**

   Responsible: Department of the Environment, Heritage and Local Government

   Completed, in part, by actions taken under Recommendations 1 and 2 above. The Department of the Environment, Heritage and Local Government (DoEHLG) also issued a Circular Letter (No. WPRR 07/09) to all local authorities in September 2009. Specific letters were sent by them also to relevant Government Departments in relation to recommendations arising from the publication of the plan.

   Recommendation is being implemented

4. **Local authorities should, in accordance with Section 26 of the Waste Management Acts 1996 to 2008, take relevant recommendations of this Plan into account in their implementation and revision of regional and local waste management plans, as well as regional planning guidelines and regional and area development plans.**

   Responsible: Local authorities

   This recommendation reiterates the legal obligation on local authorities in connection with the implementation of recommendations of the NHWMP. All local authorities were consulted during the plan development and notified by the EPA when the plan was published. The DoEHLG issued each local authority with a circular letter as noted at Recommendation 3 above. A number of regional waste management plans are due for review in 2011 and drafts of these plans will be considered for comment during their consultation periods. Any progress reported in these plans will be taken into consideration in developing the next iteration of the National Hazardous Waste Management Plan.

   Recommendation is expected to be implemented whenever plans are revised

5. **Public bodies should, generally, be cognisant of this Plan and, where appropriate, take its provisions and recommendations into account in the execution of their environmental protection, industrial development and other functions, with the objective of improving their own hazardous waste management and that of their clients, customers or other stakeholders.**

   Responsible: All public bodies

This general Recommendation is an enabling one seeking the support of all public bodies generally in the implementation of the NHWMP.

Enabling recommendation

Prevention

6. **Develop a hazardous waste prevention programme in 2008, under the auspices of the existing National Waste Prevention Programme (NWPP), to be implemented over the five-year period of the Plan.**

Responsible: Environmental Protection Agency

The EPA NWPP Prevention Plan 2009-2012 takes account of the NHWMP recommendations and integrates these within all relevant prevention projects. These projects include the Green Business, Green Hospitality Programme, Local Authority Prevention Network, Green Healthcare, Green Retail, Packaging Prevention and Green Home programmes (see the 6th NWPP Annual Report, 2010). Specific projects in connection with recommendations of the NHWMP are incorporated into the annual NWPP Budgets and Work Programmes of the EPA Resource Use Unit which manages the EPA NWPP.

As each prevention project works with relevant target organisations, a Resource Efficiency Assessment or Waste Audit is generally conducted at the outset. This identifies which resource (waste, water or energy) has the greatest scope for savings. In addition, any wastes requiring special attention are identified including hazardous waste and biodegradable waste. When the main prevention issues have been identified by this assessment, a prevention plan can be devised with the organisation for them to implement. At a minimum, resource use needs to be tracked and wastes assigned for appropriate re-use, recycling or disposal. A follow up Resource Efficiency Assessment after the implementation of the prevention plan may be used to quantify actual savings made. Businesses are encouraged through the EPA STRIVE Cleaner, Greener Production Programme (now funded by NWPP) to produce products and services by substituting less environmentally harmful substances and processes. Aggregate savings made through each of the prevention programmes are noted in the NWPP Annual Reports. There appears to be good potential to reduce hazardous waste especially in the pharmachemical

sector which are being pursued through the prevention programmes with relevant organisations. There also appears to be some potential to reduce hazardous waste generation in the healthcare sector. The Clean Technology Centre has carried out a review of hazardous laboratory waste management at one large hospital. The HSE's has recently entered into a contract for hazardous waste services (excluding healthcare risk waste) that requires the waste contractor to seek hazardous waste minimisation opportunities. New prevention projects are being developed with the Defence Forces and retail sector from 2010.

In 2010, the remit of the Green Home programme, which is run by An Taisce and sponsored by EPA NWPP, was extended to include provision of advice to householders on preventing household hazardous waste. This has involved incorporating elements of relevant guidance developed by the Local Authority Prevention Network (see Section 7 below) into www.greenhome.ie.

A number of additional NWPP projects specifically related to hazardous waste have been progressed by the EPA by appointing contractors and holding stakeholder meetings during 2009/10 as noted elsewhere in this report. These projects include farm hazardous wastes, garages, Civic Amenity Site's Code of Practice development, Pharmachem solvents study and the national difficult waste facility study.

Recommendation is being implemented

7. **Designate trained prevention officers by 2010, either alone or as regional groupings, such that each local authority area is covered, making use of any funding available through the Local Authority Prevention Network, to, *inter alia*, work with local businesses and communities towards achieving hazardous waste prevention, accessible and cost-effective collection services, and better compliance with regulation.**

Responsible: Local authorities

EPA NWPP sponsored the Local Authority Prevention Demonstration (LAPD) programme which ran from 2006 to 2009 with 14 local authorities participating. LAPD successfully demonstrated that local authorities could design and implement effective local prevention projects. Arising from this, the Local Authority Prevention Network (LAPN) was set up with 12 local authorities funded for prevention programmes including hazardous waste. Accredited prevention training is on offer to any local authority officer (26 people have completed this course to date). The network seeks to support all local authorities with their prevention work in relation to resource use including hazardous waste as appropriate. Funding is expected to be available in 2011 on a project or programme basis depending on the staff resources that a local authority has available for prevention. To date, 27 different local authority staff (from 16 of the 34 local authorities) have been involved in the prevention projects at different times.

Outputs from LAPD/N include a farm waste prevention guide (including hazardous waste), a household guide to hazardous waste prevention, a prevention guide for publicans and e-guides to waste prevention at www.managewaste.ie. More details on these programmes are included in the 6th Annual 2010 report on the EPA NWPP and at www.localprevention.ie. Other projects noted below will also require local authority co-operation and input over time.

Recommendation is being implemented by 16 out of 34 local authorities

8. **Specify a policy for green procurement and provide guidelines for the substitution or reduction in use of hazardous materials in public procurement.**

Responsible: Department of the Environment, Heritage and Local Government

DoEHLG are currently holding public consultations on a Green Public Procurement Action Plan. A number of submissions have been made by EPA NWPP in relation to this recommendation as well as noting that green public procurement must at a minimum ensure suppliers are compliant with environmental legislation relating to the product/service being purchased. This is particularly the case where products have statutory restrictions on hazardous materials (e.g. electrical/electronic, batteries, packaging, paint, refrigerants and vehicles). It is recommended that all public and private procurers of hospitality or catering services should give appropriate weighting in their tenders and contracts to businesses that have achieved Green Hospitality Award status.

Progress on Green Public Procurement may also be achieved through the work of the Market Development Group (now rebranded as RX3). RX3 are seeking to develop sustainable domestic market outlets for recyclable materials and increase the proportion of recyclable materials incorporated into products manufactured in Ireland. Eco-design of products may also be used as a mechanism to promote reductions in the hazardous materials component of products and services. The EPA STRIVE and NWPP seek to promote eco-design through the Cleaner Greener Production Programme (www.cleanerproduction.ie) and other research projects.

Recommendation implementation is in progress

Collection of hazardous waste

9. **Provide adequate resources to local authorities, commencing in 2008, to provide in each local authority area by 2012 adequate hazardous waste collection facilities for households and small businesses and provide for the expansion of existing facilities and services and/or construction of new facilities.**

Responsible: Department of the Environment, Heritage and Local Government

The DoEHLG operates a Waste Recycling Capital Grants Scheme whereby local authorities may receive grant-aid up to 75% for waste recycling facilities. This includes provision of hazardous waste facilities at Civic Amenity Sites for the public or small businesses.

Once the various projects on Civic Amenity Site Guidance and other Producer Responsibility Initiatives come to fruition, local authority facilities will in many cases be at the frontline in the collection of various streams of hazardous waste. It is important that adequate resources (both physical, financial and staffing) are made available to local authorities to improve hazardous waste collection rates throughout the country. Resources to accomplish this in a sustainable way could be made available from Producer Responsibility Initiatives or collection gate fees.

There is scope for the compliance schemes (e.g. WEEE Ireland, ERP, Irish Farm Films Producer Group) to co-operate together with local authorities to hold open days for the public (or sectors such as farming, garages etc) in order to collect a wider range of hazardous wastes together e.g. WEEE, Batteries, florescent light bulbs, waste oils etc.

Recommendation implementation is in progress

10. **Complete a programme by 2012 of providing drop-off facilities at appropriate civic amenity sites and/or other suitable locations (including mobile collections) for use by householders and small business, and consider the use of collective tendering for waste contractor services with other local authorities with a view to reducing costs.**

Responsible: Local authorities

This recommendation will be facilitated by the guidance output of Recommendation 11 below but also needs resources (physical, financial and staffing) per Recommendation 9 above. Assistance to local authorities for their collective tendering is under consideration also. The number of civic amenity sites has continued to increase from 86 in 2006 to 107 in 2009. Appendix 4.12 provides data on numbers of Civic Amenity Sites providing for different hazardous wastes in 2009. Comparing these data to the 2007 data provided in Figure 8 in the Plan shows that more sites now accept waste paint.

It is encouraging to note that the quantities of hazardous waste collected at Civic Amenity Sites increased from 687 tonnes in 2006 to 1,205 tonnes in 2008, a 75% increase (Appendix 4.14 and Table 9 in the Plan). A further increase to 1,320 tonnes collected at CAS was recorded for 2009 indicating that the increased number of facilities is having a positive impact on the segregated collection of hazardous wastes. However, there was a reduction in household hazardous waste collected from 224 tonnes in 2008 to 80 tonnes in 2009. Overall, it is calculated that the benchmark performance level set in the Plan of 0.3 Kg per capita by 2010 had been achieved in 2009.

In 2008, Civic Amenity Sites also collected 21,520 tonnes of WEEE (some of which is hazardous) on behalf of the Compliance Schemes. This represented a 23 per cent increase on the 17,473 tonnes collected in 2006. However, in the context of the current economic climate there was a small drop off in WEEE collections at CAS in 2009 to 19,884 tonnes. In 2008, 890 tonnes of batteries were collected at these sites compared to 1,426 tonnes in 2006. It is not known why such a significant drop occurred but other return outlets may have been used based on the economic price available for lead/metals. In 2009, 906 tonnes of batteries was collected at CAS. Further growth in batteries collection overall is expected during the term of the Plan as the new Batteries Regulations came into effect in September 2008. However, not all of this increased collection may occur through CAS as retail returns are expected to be significant especially for small batteries.

Recommendation is being implemented

11. **Prepare a code of practice by 2009 for civic amenity sites where hazardous waste is accepted. Sponsor the development of a training course for initial rollout in 2010 for local authority and private sector operators of civic amenity sites where hazardous waste is accepted.**

Responsible: Environmental Protection Agency

A study to underpin an EPA Code of Practice was undertaken in 2009 which included consultation with relevant stakeholders and input from experienced Civic Amenity Site operators. The Code of Practice has been drafted and is currently in further development. Additionally, a training course has been developed for operators of Civic Amenity Sites where hazardous waste is managed. The training course deals with the correct acceptance, handling and storage of hazardous waste at Civic Amenity sites. A pilot version of the course was run in 2009 and a further four courses were run in 2010. Sixty staff members from local authorities, and from private companies operating Civic Amenity Sites on behalf of local authorities, have completed the training.

Recommendation is being implemented

12. **Conduct local or regional awareness and information campaigns, with preparatory work commencing in 2009, to pro-actively inform individuals and businesses of available hazardous waste collection services, and their obligations. General guidance on common topics such as 'obligations' could be developed nationally in co-operation with national authorities such as the Department of the Environment, Heritage and Local Government and the Environmental Protection Agency.**

Responsible: Local authorities

Much public information is provided nationally by the WEEE and Batteries Compliance Schemes (WEEE Ireland and ERP) in relation to collection facilities available for these waste streams including fluorescent bulbs/compact fluorescent lamps. The compliance schemes frequently run local collection days throughout the country and these are extensively advertised in advance. Jointly advertised collections for all farm wastes including plastics, oils, batteries and WEEE are being promoted by EPA in consultation with the relevant compliance schemes. Similar initiatives may be usefully directed at the garages and other appropriate sectors. Where new Civic Amenity Site (CAS) hazardous waste collection facilities are made available e.g. Farm or SME chemical containers, batteries, fluorescent lamps, paints, oils etc this should be used as an opportunity for the local authorities to further publicise these outlets locally.

In 2010, the remit of the Green Home programme, which is run by An Taisce and sponsored by EPA NWPP, was extended to include provision of advice to householders on preventing household hazardous waste. This has involved incorporating elements of relevant guidance developed by the Local Authority Prevention Network into www.greenhome.ie.

Recommendation is being implemented

13. Undertake a pilot audit scheme, commencing in 2008, to examine the merits of ongoing and long-term regulation of the vehicle servicing and garage sector using accredited inspection contractors.

Responsible: Environmental Protection Agency

Best Practice Guidance Notes for Garages were developed by the EPA in 2009 following consultation with the sector. Pilot audits of five selected garages were also conducted. In 2010, the guidance was published and widely disseminated to garages through the Society of the Irish Motor Industry (SIMI) and other channels. A visual guide/prompt message in poster format and video has also been developed for garages. A recommendation has been made that an Accredited Inspection Contractor scheme should be applied to this sector through legislation.

Recommendation is being implemented

14. Develop in 2009, in partnership with local authorities, a national information and awareness campaign for garages, with a particular focus on waste oils and their combustion in space heaters.

Responsible: Environmental Protection Agency

EPA published national advertisements in 2008 to highlight the issue of illegal burning of waste oils and operators have been notified directly that this activity requires a Waste Licence complying with the Waste Incineration Directive. The EPA Environmental Licensing Unit has been actively advising that this activity requires a licence. As noted at 13 above, contacts are ongoing with SIMI in relation to disseminating the Best Practice Guidance for Garages which identifies correct procedures in relation to all garage wastes including oils. Work is ongoing in relation to conducting further pilot Resource Efficiency Assessments on selected garages in order to build up information on the hazardous wastes arising. A number of case studies are in preparation and will be published in 2011.

This recommendation is being implemented

15. **Commence a programme of local and/or concerted enforcement actions in 2009 with regard to the management of hazardous waste at several categories of small business, including garages, mini-labs, construction sites, industrial, healthcare and others. Enforcement actions should ensure that all generators of hazardous waste are managing hazardous waste in accordance with their statutory obligations and should be repeated periodically during the period of the Plan. The Environmental Enforcement Network may be an appropriate means of co-ordinating concerted actions, procedures and protocols. Recommendations for supporting mechanisms for hazardous waste sectoral enforcement should be made via the environmental enforcement network.**

Responsible: Local authorities

The DoEHLG provides funding annually for 120 enforcement officers located all around the State within local authorities. The enforcement priorities for local authorities are considered each year in the context of the EU's Recommendation on Minimum Criteria for Environmental Inspections and in consultation with the Office of Environmental Enforcement's Environmental Enforcement Network. In 2009, local authorities reported that 48,056 waste inspections were conducted (up from 46,036 in 2008). Of these, 289 (367 in 2008) related specifically to small businesses handling hazardous materials, 1,872 (2,079 in 2008) related to permitted facilities and 766 (99 in 2008) related to Transfrontier Shipment of waste. In addition in 2009, 703 inspections (495 in 2008) were completed on Vehicle Refinishers and 423 inspections (315 in 2008) on Dry Cleaning operators. The Environmental Enforcement Network held meetings in November 2009 and in January 2011 to further develop the regulatory efforts in relation to both the solvents and decopaints regulation.

This recommendation is being implemented

16. **Commence a hazardous waste producer responsibility project in 2008 and implement the project over the five-year period of the Plan. Assessments of**

potential new producer responsibility obligations, including the need for legislation or management bodies, on foot of detailed studies into priority waste streams, should be made during the project.

Responsible: Department of the Environment, Heritage and Local Government

EPA held introductory meetings with the DoEHLG officials and the household/professional paint suppliers in 2009 in relation to a possible PRI in that sector. Other PRIs are under consideration by producers following meetings with the EPA in relation to farm chemical plastic containers and waste animal medicines (see Appendix 5). However, priority public sector resources are necessary to correctly implement mandatory PRIs already arising from EU Directives (WEEE, Batteries, ELVs etc) making the development of new national PRIs a longer term project. Enforcement of PRIs is increasingly challenging given the ongoing reductions in Public Service staffing levels. The programme for government states that consideration will be given to the extension of producer responsibility Initiatives.

Implementation of this recommendation has not yet commenced

17. **Investigate the potential, commencing in 2008, for developing a national contract or other means for the cost effective collection of waste laboratory chemicals from schools.**

Responsible: Department of Education and Science

The Department of Education & Skills has considered the issues in relation to this recommendation and they have stated that the scale and nature of curricular activities in school laboratories do not give rise to an accumulation of chemical wastes. Where specific "once off" national issues are identified then the Department will take necessary actions to assist schools. In this regard they have advised that they have undertaken pilot projects for the collection of unsealed radioactive material from seven post primary schools in consultation with the Radiological Protection Institute of Ireland, Dublin City Council and the EPA. They have also commissioned City of Dublin VEC to carry out a project in relation to disposal of chromium compounds from post primary schools.

Implementation of this recommendation is in progress

18. **Commence development of a programme in 2008 to ensure very small-scale healthcare waste arisings, including used, unused and out-of-date medical supplies from public health nurses and self-administering patients, is collected for proper disposal.**

Responsible: Health Service Executive

This recommendation was discussed with Health Service Executive (HSE) in June 2009 and, while they did not feel this was their area of direct responsibility, they would support a Producer Responsibility Initiative in this area. This recommendation might be best pursued

with healthcare suppliers who might be prepared to engage with the issue as a service to patients (e.g. Baxter Healthcare provides some take back for patients using their products). Therefore, this issue could perhaps best be pursued along with recommendation 16 above. Some local authority Civic Amenity Sites appear to be taking back household hazardous wastes including some medicines.

The Dispose of Unused Medicines Properly (DUMP) scheme is organised by the HSE in certain regions and is operated by pharmacists. This is a free service for the return of unused or out of date medicines designed as a suicide prevention measure but also ensures the correct disposal of these wastes. The Pharmaceutical Society of Ireland has published Guidelines on Sourcing, Storage and Disposal of Medicinal Products (www.thepsi.ie). The Plan recommends that public funding, with contributions from major suppliers (based on market share), may be appropriate to fund a country-wide take-back scheme. This issue should also be pursued under recommendation 16 above.

As part of the Green Healthcare project, the Clean Technology Centre is researching the flow of waste materials from community healthcare settings to an acute hospital in Donegal. This research may be expanded to other geographical areas and the data from this research will inform the best way of tackling this issue.

Implementation of this recommendation is in progress

19. Develop guidance or take alternative appropriate steps, commencing in 2008, to assist vessel owners, harbour officials and competent authorities to plan for and manage ship-generated waste in accordance with relevant legislation.

Responsible: Department of Transport and Marine

There are 17 ports/harbours, 13 areas covered by local authorities, 10 marinas and 6 major fisheries harbours around Ireland where these wastes can arise. The Department of Transport's Maritime Transport Division (Ship-source Pollution Prevention Section) has advised that EU law and the MARPOL Convention already address this recommendation. There are clear provisions for ships to report and manage the discharge of waste and cargo residues, and for ports/harbours to provide for ships' needs in this regard. Each port is required to have a 3-year plan addressing oil, chemicals (bulk or packaged), sewage, waste and emissions to air. Annual reports are required by the Department of Transport in relation to these plans.

This recommendation is being implemented

Infrastructure and self-sufficiency

20. **Commission a study in 2009 to clarify the technical and economic aspects of providing hazardous waste landfill capacity.**

Responsible: Environmental Protection Agency

A study, commissioned by the EPA, was completed in 2010 in relation to the Technical and Economic Aspects of Developing a National Difficult Waste Facility (incorporating a hazardous waste landfill). This work looked at a range of hazardous and difficult wastes – not suitable for incineration - including out of date unexploded marine distress flares and unused ordnance as well as radioactive sources. A range of management options were examined for this material including landfill technical containment and operational requirements. Site selection criteria, potential for co-location, all-island perspectives and environmental issues arising were examined also. An economic appraisal and socio-economic assessment was conducted. This study has now been published for the information of policy and decision-makers in relation to the development of suitable facilities where technically and economically feasible. A recommendation on the necessary hazardous waste landfill capacity in Ireland has also been prepared (see Appendix 4.21).

This recommendation is being implemented

21. **Keep under review the provision of hazardous waste landfill capacity, and, taking into account any recommendations that may be made in the EPA study (see recommendation 20 above), consider the use of appropriate economic or other instruments to ensure such capacity is provided, whether by the private or public sector, by 2012.**

Responsible: Department of the Environment, Heritage and Local Government

The study noted above has now been published for the information of policy and decision-makers in relation to the development of suitable hazardous waste facilities where technically and economically feasible. A recommendation on the necessary hazardous waste landfill capacity in Ireland has been prepared (see Appendix 4.21).

This recommendation is being implemented

22. **Commission a study in 2009 on the treatment of waste solvents with particular regard to the potential for solvent recycling.**

Responsible: Environmental Protection Agency

An Economic Study of Solvent Recycling and Treatment in Ireland was commissioned by the EPA and completed in 2009. This identified a range of issues for the EPA to clarify in relation to the classification of recovery and disposal options and IPPC licensee requirements. These matters have been considered by the EPA and proposed decisions approved by the Board. A long-term project is underway to engage with the relevant licensees to promote the potential to

prevent, treat and re-use waste solvents domestically, either on-site of generation or in Ireland, in preference to export.

This recommendation is being implemented

23. Ensure that all-island considerations are taken into account in the implementation of recommendations 20 to 22.

Responsible: Environmental Protection Agency and Department of the Environment, Heritage and Local Government

This recommendation was included in the work packages for recommendations 20, 21 and 22.

This recommendation is being implemented

24. Commission a benchmarking and actions study for farm hazardous waste for completion by 2010 examining the initiatives currently underway by stakeholders and future needs and recommendations with regard to the generation, management, collection and treatment of farm hazardous waste.

Responsible: Environmental Protection Agency

A study on Farm Hazardous Waste was completed in 2009 and a guidance document "Farming the Environment" was published by the LAPD Monaghan project. In 2010, the Irish Farm Film Producers Group proposed a scheme for the safe return of farm plastic chemical containers. With EPA input, the DoEHLG issued a circular to local authorities (No WP16.10 dated 19 May 2010). This outlined the conditions under which such a scheme might operate. The EPA also met with the waste collection permitting authorities' representatives to further clarify how the proposals might work in practice.

Jointly advertised collections for all farm wastes including plastics, oils, batteries and WEEE are being promoted by EPA in consultation with the relevant compliance schemes.

Both the Animal & Plant Health Association and the National Association of Veterinary Wholesalers have been formally invited by EPA to propose a PRI scheme for waste animal medicines to the DoEHLG for consideration in relation to existing or new regulations (as per Recommendation 16 above).

This recommendation is being implemented

25. **Provide for, in regional planning guidelines and local area and county development plans, the co-ordinated management of contaminated soil where these plans include the redevelopment of docklands or other brownfield sites. Plans should, where technically and economically feasible and environmentally favourable, provide for the co-ordinated management of contaminated soil from the area as a whole from the perspective of preferentially treating the soil *in situ* or at authorised facilities in Ireland, in preference to export, thus allowing for the use of treated soil in Ireland.**

Responsible: Local authorities, regional authorities, An Bord Pleanála and other planning authorities

Notification was issued to each planning authority as part of dissemination of the Plan. Responses from the EPA to relevant Strategic Environmental Assessment (SEA) consultations will alert the relevant plan/programme makers to this issue also. With the sharp decline in construction activity, the amount of contaminated soil being generated has declined exponentially.

Only limited information on the implementation of this recommendation is available

Regulatory

26. **Keep under review the need to consolidate and reform existing regulations and make provision for new hazardous waste regulations where the need becomes apparent during implementation of this Plan.**

Responsible: Department of the Environment, Heritage and Local Government

The DoEHLG is currently looking at revising the regulations governing the movement of hazardous wastes within Ireland and is, as part of this consideration, looking at replacing the current paper based system for hazardous waste consignment notes (C1 Forms) with a web based system. This has the potential to improve the level of information on the generation, movement and management of hazardous wastes in Ireland and may indicate additional actions that can be taken to improve self sufficiency in Ireland. Consideration of this planned system will be undertaken as part of the further review of the NHWMP at the end of 2012.

In November 2010, the Department of the Environment, Heritage & Local Government held a consultation period for the proposed transposing regulations for the new EU Waste Framework Directive (2008/98/EC). The new regulations have since been published as S.I. No. 126 of 2011.

This recommendation is being implemented

Old disposal sites, ports and harbours

27. Develop by 2010 a programme for the systematic identification, assessment and action planning for potentially contaminated harbour, port and marina sediments.

Responsible: Department of Transport and Marine

Following the Foreshore and Dumping at Sea (Amendment) Act 2009, the EPA was designated the competent authority for permitting Dumping at Sea from 15th February 2010. This function involves assessing applications for the offshore dumping of dredged material from ports and harbours. Dumping is only allowable where suitable alternative methods of re-use, treatment or disposal of the dredged material are not available. Before a Dumping at Sea Permit will be granted by the EPA, dredged material must be well characterised and sediment samples analysed for a range of parameters as described in the First Schedule to the Dumping at Sea Acts. In accordance with guidelines issued by the OSPAR and London Conventions, Ireland has established upper and lower action levels for a range of contaminants (metals, PCBs, PAHs, organochlorine pesticides, organotins). This data is used in a weight-of-evidence assessment to determine the suitability of dredged material for disposal at sea. Dredged material with contaminant concentrations exceeding the relevant upper action levels are classed as heavily contaminated and generally regarded as unsuitable for unconfined dumping at sea. A national database showing contaminant levels in Irish ports and harbours will be developed using the sediment chemistry data submitted as part of applications for Dumping at Sea Permits.

This recommendation is being implemented by the EPA

28. Identify, assess and, where necessary, remediate sites where hazardous waste was to a significant extent disposed of in the past. This action should conform to the Code of Practice prepared by the EPA's Office of Environmental Enforcement. Make new regulations to properly and effectively regulate this sector and bring these sites into compliance with the Waste Framework Directive.

Responsible: Local authorities and Department of the Environment, Heritage and Local Government

The Code of Practice for the Environmental Risk Assessment for Unregulated Waste Disposal Sites was published by the EPA in 2007. A web based system for local authorities to provide registers for such sites (under Sections 22 and 26 of the Waste Management Act 1996) has been rolled out by the EPA and updated in 2009. The Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations were enacted in 2008 requiring the identification and registration of local authority operated unlicensed sites by end-June 2009. This is to be followed by site risk assessments and regularisation via an EPA authorisation system. More details on results are recorded in Chapter 4 of this report.

Implementation of this recommendation is in progress

North-south initiatives

29. **Explore, from 2008, with the appropriate Northern Ireland authorities the possible terms of reference of an informal North-South working group on hazardous waste that will identify barriers to co-operative approaches identified in the Plan and make recommendations to overcome those barriers.**

Responsible: Department of the Environment, Heritage and Local Government

The DoEHLG will build on the previous work of the Northern Ireland Hazardous Waste Forum and other cross-border initiatives.

Only limited information on the implementation of this recommendation is available

4 PROGRESS ON PLAN TARGETS AND INDICATORS

The National Hazardous Waste Management Plan (2008-2012) contained nine targets and indicators intended to enable Plan implementation effectiveness to be monitored (see Appendix 2). Each of the individual targets and indicators is reproduced in this chapter with a brief commentary on currently available information on progress made to date. The table below provides a colour coded assessment of progress made to date based on the information compiled in this chapter.

Target	Comments
1. Initiate and implement hazardous waste prevention projects	Incorporated into the National Waste Prevention Programme (NWPP)
2. Reduce the generation of hazardous waste relative to production at targeted, participating or reporting organisations or sectors	Incorporated into NWPP
3. Minimise the generation of unreported hazardous waste	Updated data on unreported hazardous waste is not currently available
4. Increase the deposit of household and small business hazardous waste at civic amenity sites; other static collection points; and mobile services.	Data suggests increase in household hazardous waste is being collected including WEEE, Batteries and at CAS
5. Establish new producer responsibility obligations	Not yet progressed due to Department of the Environment's resources being directed at implementing WEEE, Batteries, ELVs and other existing schemes. The programme for government states that consideration will be given to the extension of producer responsibility Initiatives.
6. Increase on-site treatment of hazardous waste generated at IPPC-licensed facilities	The evidence is that manufacturers prefer to let specialist external companies deal with hazardous waste
7. Increase off-site treatment of hazardous waste in Ireland	Hazardous waste volume treated off-site in 2009 up 48% compared to 2006
8. Reduce export of hazardous waste	While volume exported is fairly stable, the proportion of hazardous arisings has increased from 48% in 2006 to 52% in 2009
9. Identify, assess and remediate as necessary all sites where hazardous waste to a significant extent was disposed of in the past	Identification and assessment process has been started, but completing remediation will be lengthy and expensive

Colour key:

Target is being achieved
Target is not being achieved
Target is being partly achieved, or no change
Only indirect (input) data on the target is available

1. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Initiate and implement hazardous waste prevention projects	Scoping, commencement and progress reports for individual projects	EPA – National Waste Prevention Programme (EPA NWPP)	Annual

The EPA *National Waste Prevention Programme Prevention Plan 2009-2012* takes account of the Plan recommendations and integrates them within all relevant prevention projects. These projects include the Green Business, Green Hospitality Award, Local Authority Prevention Network, Green Healthcare, Green Retail, Packaging Prevention and Green Home programmes (see the 6th NWPP Annual Report, 2010). Specific projects in connection with recommendations of the NHWMP are incorporated in the NWPP Budget and in the Work Programmes of the EPA Resource Use Unit which manages the NWPP.

As each prevention project works with relevant organisations, a Resource Efficiency Assessment or Waste Audit is generally conducted at the outset. This identifies which resources (waste, water or energy) require priority attention. In addition, wastes requiring special attention are identified including hazardous waste and biodegradable waste. With the main prevention issues identified by this assessment, a prevention plan can be devised for the organisation to implement. At a minimum, resource use needs to be tracked and wastes assigned for appropriate re-use, recycling or disposal. A subsequent Resource Efficiency Assessment, following implementation of the prevention plan, may be used to quantify actual savings made. Aggregate savings made through each of the prevention projects are noted in the NWPP Annual Reports. Separate reporting on hazardous wastes prevented is difficult. However, there appears to be good potential to reduce hazardous waste especially in the healthcare and pharmachemical sectors which are being pursued through the prevention programmes with the relevant organisations. New prevention projects are in development with the Defence Forces and the SME supermarket sector in 2011.

In 2010, the remit of the Green Home programme, which is run by An Taisce and sponsored by EPA NWPP, was extended to include provision of advice to householders on preventing household hazardous waste. This has involved incorporating elements of relevant guidance developed by the Limerick/Clare/Kerry participants in the Local Authority Prevention Network into www.greenhome.ie.

A number of additional projects specifically related to hazardous waste were advanced by the EPA NWPP team by appointing contractors and holding stakeholder meetings during 2009/10 as noted elsewhere in this report. These projects include a study of farm hazardous wastes, garages

guidance, Code of Practice for Civic Amenity Sites, pharmachemical solvents research and the difficult waste facility study.

2. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Reduce the generation of hazardous waste relative to production at targeted, participating or reporting organisations or sectors	Reduction in hazardous waste generation relative to production at relevant, participating or targeted organisations or sectors	EPA - all prevention projects will have built-in quantitative and qualitative indicators	Annual

In 2009, almost 290,000 tonnes of hazardous waste was managed representing a nine per cent decline compared to 2008 (see Appendix 4.2). In 2008, over 78 per cent of hazardous waste arisings, or 250,000 tonnes, was generated by industry (see Appendix 4.9). This represents an 8 per cent decrease on 2006 levels of industrial hazardous waste (which is estimated every second year). The trend in industrial hazardous waste production is flat or declining having peaked in 2006 at 272,000 tonnes (see Appendix 4.10). Reductions in wastes arising from all sectors of society have been observed in the EPA National Waste Report 2009 due to the economic downturn and sharp reductions in personal consumption levels. In 2008, the Pharmachemical sector produced almost 59 per cent of all hazardous industrial waste or 147,000 tonnes – mainly solvents (see Appendix 4.9).

An Economic Study of Solvent Recycling and Treatment in Ireland was commissioned by the EPA and completed in 2009. This identified a range of issues for the EPA to clarify in relation to the classification of recovery and disposal options and IPPC licensee requirements. These matters have been considered by the EPA and decisions have been approved by the Board. A long-term project is underway to engage with the relevant licensees to promote the potential to treat and re-use waste solvents domestically, preferably on-site of generation or at least within Ireland, rather than exporting the material.

The 6th NWPP Annual Report shows that the Local Authority Prevention Demonstration project resulted in the prevention of 2,300 tonnes of waste recurring per annum, at least some of which would have been hazardous. Similarly, the Green Hospitality programme in a survey of 120 member properties showed a recurring annual reduction of 6,000 tonnes of waste. The Green Business programme is directed at SMEs including many who are subject to EPA IPPC licensing. Case studies are developed on an ongoing basis and presented on the web site at www.greenbusiness.ie. It is expected that a good proportion of the potential waste savings in the Green Healthcare programme will relate to healthcare risk waste reductions as well as food waste. Each prevention project also results in significant annual recurring reductions in water and energy consumption leading to consequential reductions in chemicals and fuel usage by upstream supplying organisations.

3. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Minimise the generation of unreported hazardous waste	Estimation of unreported hazardous waste	EPA - estimation will be made every two years for the national waste report	Every 2 years

Appendix 4.1 provides estimates of the scale of unreported hazardous waste in 2006. These are statistically derived data and can provide only an order of magnitude value for the different waste streams. The estimates remain valid for subsequent years however a newer estimation methodology is currently under consideration for 2010 data. Many of the categories of unreported hazardous wastes now have regulations or ongoing management initiatives in place to try to reduce the amounts ***not*** being managed. These measures include nation-wide take-back provided for in the WEEE Regulations for fluorescent lamps/other hazardous waste electrical/electronic products and the Batteries Regulations for small and lead-acid batteries. Waste oils and filters are being targeted as part of the EPA garages and Civic Amenity Sites' Code of Practice projects. Management of solvents arising from SMEs are covered by the Solvent Regulations and the Deco-paint Regulations EPA guidance documents. Agricultural hazardous waste is considered in the EPA commissioned study completed on such wastes and the LAPN *Farming the Environment* guidance. Guidance on the prevention of household hazardous waste is now included in the Green Home programme (www.greenhome.ie).

4. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Increase the deposit of household and small business hazardous waste at - **civic amenity sites;** - **other static collection points; and** - **mobile services.**	Quantity of household and small business hazardous waste deposited at static facilities Availability of collection/deposit services	EPA - national waste report	Annual

The number of civic amenity sites has continued to increase from 86 in 2006 to 107 in 2009. Appendix 4.12 provides data on numbers of Civic Amenity Sites providing for different hazardous wastes in 2008. Comparing these data to the 2007 data provided in Figure 8 in the Plan shows that more sites now accept waste paint.

It is encouraging to note that the quantities of hazardous waste collected at Civic Amenity Sites increased from 687 tonnes in 2006 to 1,205 tonnes in 2008, a 75% increase (Appendix

4.14 and Table 9 in the Plan). A further increase to 1,320 tonnes collected at CAS was recorded for 2009 indicating that the increased number of facilities is having a positive impact on the segregated collection of hazardous wastes. However, there was a reduction in categorised household hazardous waste collected from 224 tonnes in 2008 to 80 tonnes in 2009. Overall, it is calculated that the benchmark performance level set in the Plan of 0.3 Kg per capita by 2010 had been achieved in 2009.

In 2008, Civic Amenity Sites also collected 21,520 tonnes of WEEE (some of which is hazardous) on behalf of the Compliance Schemes. This represented a 23 per cent increase on the 17,473 tonnes collected in 2006. However, in the context of the current economic climate there was a small drop off in WEEE collections at CAS in 2009 to 19,884 tonnes. This represented almost 44 per cent of the 45,327 tonnes of WEEE collected nationally in that year compared to 41 per cent in 2008. In 2008, 890 tonnes of batteries were collected at these sites compared to 1,426 tonnes in 2006. It is not known why such a significant drop occurred but other return outlets may have been used based on the economic price available for lead/metals. In 2009, 906 tonnes of batteries was collected at CAS. Further growth in batteries collection overall is expected during the term of the Plan as the new Batteries Regulations came into effect in September 2008. However, not all of this increased collection may occur through CAS as retail level returns are expected to be significant especially for small batteries.

5. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Establish new producer responsibility obligations	Development of new producer responsibility obligations Quantity of (hazardous) waste collected on foot of producer responsibility obligations	Department of Environment, Heritage and Local Government EPA – national waste report	Annual

EPA held introductory meetings with Department of the Environment staff and the household/professional Paint suppliers in 2009 in relation to a possible Producer Responsibility Initiative (PRI) in that sector. Other PRIs are under consideration by producers following meetings with the EPA in relation to farm chemical containers and waste animal medicines (see Appendix 5). However, priority public sector resources are necessary to correctly implement mandatory PRIs already arising from EU Directives making the development of new national PRIs a longer term project. As a small open economy, Ireland imports much of its products making the viability of any national PRI more problematic while trying to not distort trade competition. Even enforcement of existing PRIs is an ongoing challenge for public authorities especially as staff and financial resources become scarcer. The programme for government states that consideration will be given to the extension of producer responsibility Initiatives.

6. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Increase on-site treatment of hazardous waste generated at IPPC-licensed facilities	Quantity of hazardous waste treated at IPPC-licensed facilities	EPA - national waste report	Annual

Treatment of hazardous wastes on-site of generation at IPPC sites increased marginally from 72,083 tonnes in 2008 (23% of total hazardous waste) to 74,668 tonnes in 2009 (26% of total - see Appendix 4.2). The 2009 figure is almost 16 per cent down on the level of on-site treatment in 2006. The type and volume of hazardous waste, along with the treatment operation used in 2009, is listed by IPPC facility at Appendix 4.24.

It is clear that there is a long-term trend *away* from on-site treatment and *towards* either treatment off-site in Ireland or abroad (almost 52% of total was exported in 2009 – see Appendices 4.2, 4.3, 4.4 and 4.23). It appears that many manufacturing companies, as a matter of policy, prefer *not* to deal with their own waste as this is not deemed to be their "core business". The preference instead is to leave their waste with commercial entities which specialise in dealing with hazardous materials. This issue is generally also driven by economic and logistical considerations. Indeed, companies cannot be compelled to treat their own waste provided it is dealt with instead in an appropriate legal manner by other contracted parties having regard to the waste hierarchy provided in the Waste Framework Directive.

An Economic Study of Solvent Recycling and Treatment in Ireland was commissioned by the EPA and completed in 2009. This addresses the issues (barriers and opportunities) around the largest single hazardous industrial waste stream in Ireland. The study identified a range of issues for the EPA to clarify in relation to the classification of recovery and disposal options and licensee requirements. These matters have been considered by the EPA and recommendations have been approved by the Board. A long-term project is underway to engage with the relevant licensees to promote the potential to treat and re-use waste solvents either on-site of generation or in Ireland in preference to export.

7. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Increase off-site treatment of hazardous waste in Ireland	Quantity of hazardous waste treated or landfilled at merchant facilities in Republic of Ireland	EPA - national waste report	Annual

Off-site treatment of hazardous waste in Ireland (not including contaminated soil) declined by 21 per cent between 2008 and 2009 (from 113,839 to 89,992 tonnes or 31% of total – see Appendix

4.2). Notwithstanding the drop off from the spike seen in 2008, there does appear to be a long-term trend of increasing volumes of hazardous waste being treated *in* Ireland with the tonnage treated up almost 50 per cent since 2006 (see Appendices 4.4 and 4.23). The type and volume of hazardous waste, along with the treatment operation used in 2009, is listed by domestic permitted/licensed facility at Appendix 4.25. A full category listing of all hazardous waste managed and its treatment location in 2009 is provided in Appendix 4.3. Clearly, volumes of waste solvents from the pharmaceutical and chemical industries are dominant.

A list of disposal and recovery methodologies used for all managed hazardous waste in 2009 is provided at Appendix 4.5. Irish hazardous waste was treated by a wide variety of technologies, both domestically and abroad, between 2005 and 2009 (see Appendix 4.15). A listing of dominant hazardous waste streams exported for a variety of treatment options between 2004 and 2009 has been compiled (see Appendix 4.16 and 4.17). Much hazardous waste was treated using incineration with heat/energy recovery (see Appendix 4.18). The quantity of hazardous waste potentially available for incineration is identified in Appendix 4.19 (11,419 tonnes in 2009). In 2009, several types of hazardous waste, including asbestos, were exported for landfilling (see Appendix 4.20). From the study on the National Difficult Waste Facility, recommended capacities for hazardous waste landfill facilities in Ireland were estimated (see Appendices 4.21(i) and 4.21(ii)).

In 2009, less than 13,000 tonnes of contaminated soil was reported as being generated in Ireland and less than four per cent was exported (see Appendices 4.11 and 4.26). This is a significant fall from over 493 thousand tonnes reported as being generated in 2008 no doubt due to the sharp contraction construction sector activity. However, the quantity of this waste generated has varied from year to year depending on the degree to which brownfield sites are in development in Ireland. In 2008, less than nine per cent of the total contaminated soil was managed in Ireland (43,531 tonnes) with the balance (449,574 tonnes) exported for treatment abroad (see Appendix 4.22). A limited number of technologies were used to treat the contaminated soils in 2009 (see Appendix 4.26). In the context of current economic conditions it is unlikely that large volumes of contaminated soils will arise as wastes in the short to medium term.

The EPA NWPP publishes this detailed data on hazardous wastes arising and the various treatment options available as part of the annual National Waste Report. This is intended to inform businesses and policy makers who might consider investing in the development of treatment operations in Ireland in order to minimise exports, insofar as is economically and technically possible.

8. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Reduce export of hazardous waste	Quantity of hazardous waste exported Quantity of contaminated soil exported	EPA - national waste report	Annual

Export of hazardous waste (excluding contaminated soil) decreased by nine per cent between 2008 and 2009 to over 150,000 tonnes (almost 52% of total - see Appendix 4.2). There appears to be a long-term trend of undulating volumes of export although this rate is reduced somewhat by the impact of increasing volumes treated off-site in Ireland as noted above (see Appendix 4.6). In 2009, the main destination countries for Ireland's hazardous waste were the United Kingdom (36%), Belgium (26%) and Germany (22%) – see Appendix 4.7. The destination and recovery/disposal technologies applied to this waste are detailed in Appendix 4.8. Significant volumes of a variety of hazardous waste streams were exported between 2004 and 2008 especially solvents from the Pharmachemical industry (see Appendix 4.17). As noted above, many of the solvents have potential for economical re-use in Ireland. The EPA NWPP is working closely with the sector to promote this option where economically and technically feasible. A listing of dominant hazardous waste streams exported for a variety of treatment options between 2004 and 2009 has been compiled (see Appendix 4.16).

In 2009, less than 13,000 tonnes of contaminated soil was reported as being generated in Ireland and less than four per cent was exported (see Appendices 4.11 and 4.26). This is a significant fall from over 493,000 tonnes reported as being generated in 2008 no doubt due to the collapse of the construction sector. However, the quantity of this waste generated has varied from year to year depending on the degree to which brownfield sites are in development in Ireland. In 2008, less than nine per cent of the total contaminated soil was managed in Ireland (43,531 tonnes) with the balance (449,574 tonnes) exported for treatment abroad (see Appendix 4.22). A limited number of technologies were used to treat the contaminated soils in 2009 (see Appendix 4.26). In the context of current economic conditions it is unlikely that large volumes of contaminated soils will arise as wastes in the short to medium term.

The EPA NWPP publishes this detailed data on hazardous wastes arising and the various treatment options available as part of the annual National Waste Report. This is to encourage businesses and policy makers to consider investing in the development of treatment operations in Ireland in order to minimise exports insofar as is economically and technically possible. Ultimately, such decisions rest with the producers and holders of hazardous waste.

9. Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Identify, assess and remediate as necessary all sites where hazardous waste to a significant extent was disposed of in the past	Number of sites identified, assessed and remedial actions undertaken	EPA OEE – Code of Practice implementation records	Every 2 years

The Code of Practice for the Environmental Risk Assessment for Unregulated Waste Disposal Sites was published by the EPA in 2007. A web based system for local authorities to provide registers for such sites (under Sections 22 and 26 of the Waste Management Act 1996) has been rolled out by the EPA and updated in 2009. The Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations (S.I. No. 524 of 2008) require the identification and registration of local authority operated unlicensed sites by end-June 2009. This is to be followed by site risk assessments and regularisation via an EPA authorisation system. Once an application is made, the EPA will assess the adequacy of the risk assessment carried out. A Certificate of Authorisation would then issue in due course identifying if any additional measures, additional to those identified by the risk assessment, need to be addressed. This would be with a view to protecting human health and the environment in line with the waste and groundwater directives.

To date, the following historic unlicensed landfill sites have been subjected to Tier 1 Risk Assessment and their risk level identified:

Table 6 – Progress with risk assessment of historic unlicensed landfill sites

	Total No. Of Sites	High Risk	Medium Risk	Low Risk
Illegal Sites	32	1	3	17
Local Authority Sites	296	53	92	122
Pre 1977 Sites	64	2	2	36
Private Sites	97	9	6	20
All Sites	489	65	103	195

Twenty sites have been identified as containing significant amounts of hazardous waste. Of these, 16 are local authority sites, 3 are privately owned and one is a pre-1977 site. The extent to which other landfill sites may have been used to dispose of hazardous waste to a significant extent in the past will only become apparent during more invasive risk assessment exercises. At time of writing, two applications for Certificates of Authorisation are being considered by the EPA. It will require considerable financial resources, over a long period of time, to apply full risk assessment and complete any necessary remedial actions to these sites.

5 PROGRESS ON SEA ENVIRONMENTAL TARGETS AND INDICATORS

The National Hazardous Waste Management Plan (2008-2012) included 13 Strategic Environmental Assessment (SEA) Environmental Targets and Indicators. These are intended to enable any significant environmental effects arising from the implementation of the plan to be monitored (see Appendix 3). One of the purposes of this report is to monitor (in accordance with the SEA Regulations) if any significant environmental effects have arisen from implementation of the Plan to enable remedial action to be taken early where unforeseen adverse effects occur.

Chapter 2 provided some overarching conclusions in relation to the four principal Plan objectives. Overall, the amount of hazardous waste in the Republic of Ireland is static or declining, unreported hazardous waste is likely to have declined (economic downturn, WEEE, Batteries, ELV, CAS and other initiatives have all impacted), emissions/complaints arising from licensed facilities do not appear to be excessive and, while treatment within Ireland is slowly declining, segregation is improving. Based on this assessment, it may be stated that no unforeseen adverse effects on the environment have become evident arising from implementation of the Plan. This is supported by the fact that all Plan recommendations are all aimed at positively reducing the impact on the environment from hazardous waste. In this regard, it is important to stress that the Plan is a strategic level document designed to provide overall direction for any decision and policy makers involved in the prevention and management of hazardous waste generally.

The table below provides a colour coded assessment of progress made to date based on the information compiled in this chapter.

Progress on SEA Environmental Targets and Indicators

Target	Comments
1. Minimise exceedances of emission limits to water and air from licensed hazardous waste facilities	Between 2008 and 2011, 31 ELV exceedances were noted among 15 IPPC/Waste licensees (handling significant amounts of hazardous waste) whose files were examined. 13 other licensees had no ELV exceedances noted.
2. Legacy hazardous waste disposal sites to be managed in accordance with Code of Practice	Code of Practice published and Tier 1 Risk Assessments are underway.
3. In the vicinity of hazardous waste incinerators, no increase in dioxin levels in ambient environment	All samples well below EU action and limit values.
4. Maximise the generation of energy from renewable sources	Amounts of hazardous waste used for energy recovery (R1) increasing but half of this is via export.
5. Minimise distance travelled by hazardous waste	Data on tonnes-kilometres is not available to determine whether target actually achieved. However, export figures are fairly stable.
6. Minimise export of hazardous waste and move towards self-sufficiency	Levels of exported waste have stayed fairly steady while the proportion of hazardous waste being treated in Ireland is slowly declining.
7. Minimise the generation of unreported hazardous waste	Updated data on unreported hazardous waste is not currently available.
8. Increase the *in situ* treatment of contaminated soil	Nine IPPC companies are treating historically contaminated sites *in-situ*, However, there are no estimates of the volumes of soil involved.
9. Increase the treatment of contaminated soil in Ireland	Large quantities generated 2004 and 2008 were largely exported for treatment.
10. Develop any new hazardous waste facilities on previously used land or brownfield sites	No specific information is available in relation to this target.
11. Avoid loss or damage to designated sites from siting of hazardous waste facilities	No specific information is available in relation to this target.
12. Minimise major incidents of unauthorised disposal of hazardous waste	Apart from occasional reports of diesel laundering residue, no other major incidents have been identified.
13. Minimise complaints relating to hazardous waste facilities	Between 2008 and 2011, 74 complaints were made against 15 IPPC/Waste licensees (handling significant quantities of hazardous waste) whose files were examined. 13 other licensees received no complaints.

Colour key:

Target is being achieved
Target is not being achieved
Target is being partly achieved, or no change
Only indirect (input) data on the target is available

Each of the 13 individual targets and indicators is reproduced below with a brief commentary on currently available information on progress made to date.

1. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Minimise exceedances of emission limits to water and air from licensed hazardous waste facilities	Water Air	Number of hazardous waste facilities in breach of emission limits to surface water, groundwater and air	EPA OEE – licence enforcement files	Every 2 years

The Annual Environmental Reports and the Office of Environmental Enforcement files in relation to the following 13 EPA hazardous waste licensed sites active between 2008 and 2011 were reviewed:

EPA Waste Licence Number	Company Name and Location
W0036-02	Indaver Ireland Ltd, Tolka Quay Road, Dublin Port, Co. Dublin.
W0041-01	Enva Ireland Ltd. – (formerly Shannon Environmental Services Ltd., Shannon, Co. Clare.
W0050-02	Veolia Environmental Services (formerly AVR Safeway Ltd), Fermoy, Co. Cork.
W0054-02	Eco-Safe Systems Ltd, Ballyfermot, Co. Dublin.
W0055-02	Sterile Technologies Ireland Ltd, Naas Road, Co. Dublin.
W0099-01	Safety Kleen Ireland Ltd, Tallaght, Co. Dublin.
W0115-01	Soltec (Irl) Ltd, Mullingar Business Park, Co. Westmeath.
W0122-01	Guardian Silver Lining Ltd. (Guardian Environmental Services Ltd), Tallaght, Co. Dublin.
W0145-02	Enva Ireland Ltd. Monkstown, Co.Cork.
W0184-01	Enva Ireland Ltd (formerly Atlas), Clonminan Industrial Estate, Portlaoise , Co. Laois.
W0185-01	Immark (formerly Cedar & Rilta Environmental Ltd), Rathcoole, Co. Dublin.
W0192-02	Rilta Environmental Ltd. (formerly SITA Environmental Ltd.), Rathcoole, Co. Dublin.
W0196-01	Enva Ireland Ltd (formerly MacAnulty Specialist Underground Services Ltd.), Naas Road, Co. Dublin.

Fifteen instances of emission limit values (ELV) being exceeded between 2008 and 2011 were identified as follows:

Number of Exceedances	ELV Type	EPA Waste Licence Number
3	Surface Water	W0036-02; W0050-02
7	Groundwater	W0036-02; W0041-01; W0050-02; W0099-01; W0145-02; W0192-02
5	Air	W0050-02; W0055-02; W0148-01; W0192-02

Non-compliances with waste licences are followed through by the inspectors of the Office of Environmental Enforcement with the relevant licensee as appropriate. Enforcement is undertaken on a risk basis. Ideally, no non-compliances or emission exceedances should be observed. Indeed, the objective of the waste licences is to ensure that such events are prevented as far as possible. Where such events do occur, the licensee must take all reasonable measures to rectify the matter and prevent a recurrence.

One prosecution was taken in the period under review. This was in 2009, when the EPA prosecuted Rilta Environmental Ltd for breaches of waste licence No. W0192-02. The company admitted breaching a condition of their licence by processing waste in a manner other than provided for in the licence. A conviction was recorded, a fine of €1,000 was imposed and EPA costs of €3,536 were awarded against the company.

The surface water and air issues were generally not of significance at these hazardous waste facilities but this is being monitored on an ongoing basis. Some of the groundwater issues being monitored under the licences may be of historical origin and again these are being monitored over time. In general, the EPA waste licensing regime has greatly improved operational standards in the hazardous waste sector where housekeeping on-site would not have been traditionally very strong. Improved order on-site lends itself to better prevention of environmental incidents. During 2009, the companies listed treated almost 84,000 tonnes of hazardous waste (Appendix 4.25).

The Annual Environmental Reports and the Office of Environmental Enforcement files in relation to the following 15 EPA IPPC licensed sites (which handle significant quantities of hazardous waste) active between 2008 and 2011 were reviewed:

EPA IPPC Licence No.	Company Name and Location
P0004-03	Smithkline Beecham (Cork) Ltd, Currabinny, Carrigaline, Co Cork
P0006-03	Novartis Ringaskiddy Ltd, Ringaskiddy, Co Cork
P0009-03	Eli Lilly S.A. Irish Branch, Dunderrow, Kinsale, Co Cork
P0010-04	Hovione Ltd, Loughbeg, Ringaskiddy, Co Cork
P0011-04	Merck Sharp Dohme (Ireland) Ltd, Ballydine, Kilsheelan, Clonmel, Co Tipperary
P0013-04	Pfizer Ireland Pharmaceuticals Ltd, Ballintaggart, Ringaskiddy, Co Cork
P0015-04	Schering-Plough (Avondale) Ltd, Rathdrum, Co Wicklow
P0035-04	Aughinish Alumina Ltd, Askeaton, Co Limerick
P0050-02	Mallincrodt Medical Imaging Ltd, Damastown, Mulhuddart, Dublin 15
P0088-02	Anglo American Lisheen Mining Ltd, Co Tipperary
P0136-03	Pfizer Ireland Pharmaceuticals Ltd, Wallingstown, Little Island, Co Cork
P0297-02	Proctor & Gamble (Manufacturing) Ireland Ltd, Green Road, Newbridge, Co Kildare
P0355-01	Earraí Coillte Chonacht Teoranta, Corr na Móna, Co Galway
P0552-02	Swords Laboratories T/a Bristol Myers Squibb Cruiserath Ltd, Cruiserath Road, Mulhuddart, Dublin 15
P0818-02	Johnson & Johnson Vision Care T/a Vistakon Ireland Ltd, National Technology Park, Plassey, Limerick

Sixteen instances of emission limit values (ELV) being exceeded between 2008 and 2011 were identified as follows:

Number of Exceedances	ELV Type	EPA IPPC Licence Number
1	Surface Water	P0010-04
7	Groundwater	P0009-03; P0136-03; P0050-02; P0552-02
8	Air	P0004-03; P0006-03; P0009-03; P0010-04

Non-compliances with IPPC licences are followed through by the inspectors of the Office of Environmental Enforcement with the relevant licensee as appropriate. Ideally, no non-compliances or emission exceedances should be observed. The objective of the IPPC licences is to ensure that such events are prevented as far as possible. Where such events do occur, the

licensee must take all reasonable measures to rectify the matter and prevent a recurrence. However, it is a matter for the OEE to determine if pollution of any significance has occurred or if further enforcement action is needed in any given case. All IPPC licensees are obliged to follow through whenever deviations from the licence conditions are identified by them or by audit. They must put in place any necessary measures to comply with their licence.

One prosecution was taken in the period under review. This was in 2011, when the EPA prosecuted Swords Laboratories for breaches of IPPC licence No. P0014-04. The company admitted to failure to notify the EPA of two incidents, failure to correctly label waste and utilising an unauthorised waste contractor. A conviction was recorded, a fine of €5,000 was imposed and EPA costs of €5,213 were awarded against the company.

In general, surface water is not a significant issue for the sector and groundwater issues tend to arise from historical sources. With air emissions, the relevant sector operators need to minimise by-pass events and other emissions from thermal treatment equipment. Overall, given the scale of the listed IPPC operations, the environmental impacts of their hazardous waste activities may be considered small.

2. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Legacy hazardous waste disposal sites to be managed in accordance with Code of Practice	Water Soil	Number of legacy disposal sites to which Code of Practice is applied	EPA OEE – Code of Practice implementation records	Every 2 years

Details on progress made in relation to this target are provided in Chapter 4 (page 41) of this report.

3. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
In the vicinity of hazardous waste incinerators, no increase in dioxin levels in ambient environment	Air Human health	Dioxin in cow's milk	EPA – monitoring of cow's milk	When available

Seven monitoring reports on dioxin levels in the Irish environment have been published by the EPA commencing in 1995 (www.epa.ie). The most recently published report was in relation to

samples of cow's milk taken in the summer of 2009. Cows' milk is considered to be a particularly suitable material to measure dioxins in the environment as the animals graze over a wide area. Any dioxins deposited on the grazed lands will tend to concentrate in the fat of the cows' milk. Twenty four background (Type A) samples and 13 potential impact area (Type B) samples were analysed. Analysis provided levels of dioxins, PCBs and dioxins & PCBs.

All samples were well below the EU action and limit values. A number of the Type B samples were taken in the vicinity of IPPC sites which are permitted to incinerate wastes and others were near major power stations. A higher value was noted at one these sites compared to Type A background samples (0.897 versus EU limit of 6.0). The location was at Swords/Mulhuddart, Co Dublin. However, the result is in line with those found internationally for a typical semi-urban environment. All other results were well below the limits specified often by an order of magnitude. The trend over the seven different surveys conducted shows stable low levels of dioxins are detected generally and always well below results reported internationally and within the EU limits. There appears to be no evidence of any causal increase in ambient dioxin levels in the vicinity of hazardous waste thermal treatment facilities.

4. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Maximise the generation of energy from renewable sources	Climate	Quantity of hazardous waste managed via energy recovery (R1)	EPA – national waste report	Annual

In 2009, almost 52,000 tonnes of hazardous waste was recorded as being treated as "Use as Fuel" (R1) (see Appendix 4.18). This is a 51 per cent increase compared to 2008. However, in 2009, 45 per cent or over 23,000 tonnes of this waste was exported for use as fuel. In addition, over 32,000 tonnes of hazardous waste was exported for incineration most of which consisted of solvents which may have potential for recycling or use as fuel in Ireland (see Appendix 4.19).

An Economic Study of Solvent Recycling and Treatment in the Pharmachemical sector in Ireland was commissioned by the EPA and completed in 2009. This identified a range of issues for the EPA to clarify in relation to the classification of recovery and disposal options and IPPC licensee requirements. These matters have since been considered by the EPA and recommendations approved by the Board. A long-term project is underway to engage with the relevant licensees to promote the potential to prevent, treat and re-use waste solvents either on-site of generation or in Ireland in preference to export.

5. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Minimise distance travelled by hazardous waste	Climate Transport	Tonne-kilometres travelled by road and sea	EPA – to be calculated from best available records (e.g. facility records, 'new C1', TFS) (data not currently collected)	Every 2 years

Export of hazardous waste (excluding contaminated soil) decreased by nine per cent between 2008 and 2009 to over 150,000 tonnes (almost 52% of total - see Appendix 4.2). There appears to be a long-term trend of undulating volumes of export although this rate is reduced by the impact of increasing volumes treated off-site in Ireland as noted above (see Appendix 4.6). In 2009, the main destination countries for Ireland's hazardous waste were the United Kingdom (36%), Belgium (26%) and Germany (22%) – see Appendix 4.7. Also in 2009, less than 13,000 tonnes of contaminated soil was reported as being generated in Ireland and less than four per cent was exported (see Appendices 4.11 and 4.26). This is a significant fall from over 493,000 tonnes reported as being generated in 2008. Less than nine per cent of this contaminated soil was managed in Ireland (43,531 tonnes) with the balance (449,574 tonnes) exported for treatment abroad (see Appendix 4.11).

A short study was commissioned to identify if suitable data was available to assess progress in relation to this indicator. The study examined local authority data on Hazardous Waste Movement Consignment Notes (C1 Forms) for movement distances within Ireland. The study also examined Transfrontier Shipment of Waste (TFS) data from the TFS Office in Dublin. This was to estimate the distance travelled by Irish hazardous waste once it had been exported. However, it did not prove possible to assemble coherent data from diverse sources to estimate tonne-kilometers.

The C1 system is due to migrate to a national electronic system. The TFS Office was newly set up in 2008 and electronic systems are being put in place. In time, these developments may provide more robust data to inform this particular indicator.

In the interim, any actions by decision makers to encourage domestic prevention and treatment of hazardous waste will minimise the tonnes/Km figures however difficult these may be to quantify in practice.

6. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Minimise export of hazardous waste and move towards self-sufficiency	Transport Material assets	Quantity of hazardous waste exported	EPA – national waste report	Annual

Export of hazardous waste is dealt with in Chapter 4 (Plan Target and Indicator No. 8).

7. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Minimise the generation of unreported hazardous waste	Human health Soil	Estimation of unreported hazardous waste	EPA - estimation will be made every two years for the national waste report	Every 2 years

Unreported hazardous waste is dealt with in Chapter 4 (Plan Target and Indicator No. 3).

8. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Increase the *in situ* treatment of contaminated soil	Soil	Quantity of contaminated soil treated *in situ* as a proportion of the total	EPA – licence enforcement files (data not currently collected)	Every 2 years

A number of IPPC companies are reported to have engaged with *in situ* soil or groundwater remediation projects and a number of examples are noted below. Millipore Ltd, Cork (Reg. No. P0571-03) have used oxidant injection into soil bores and groundwater wells to remediate solvent contamination in soil and groundwater. C&F Automotive Ltd, Collinstown, Co. Westmeath (Reg. No. P0690-01) treated a chlorinated solvent (TCE) contaminated site with permanganate injection. A process of injecting a substrate into contaminated soils has been deployed by Pfizer Ltd, Dun Laoghaire, Co. Dublin (Reg. No. P0019-02) and SR Technics Ltd (Reg. No. P0480-02). Cold Chon (Galway) Ltd, Oranmore, Co. Galway (P00056-01), a major user of bitumen, is pumping groundwater with weathered hydrocarbon globules and potassium permanganate as *in-situ* remediation. The Ship Company Ltd, Macroom, Co. Cork (Reg. No. P0255-01) has planned to use electrokinetic remediation. A number of activities are applying Monitored Natural

Attenuation on their sites including Elan Ltd, Athlone, Co Westmeath (P0100-02); Arran Chemicals Ltd, Athlone, Co Westmeath (P0110-01) and Basta Parsons, Tubbercurry, Co Sligo (P0269-01).

However, at this time, no estimates are available of the total quantity of soil under remediation.

9. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Increase the treatment of contaminated soil in Ireland	Soil Material assets	Quantity of contaminated soil treated in Ireland as a proportion of the total	EPA – national waste report and licence enforcement files	Every 2 years

In 2009, less than 13,000 tonnes of contaminated soil was reported as being generated in Ireland and less than four per cent was exported (see Appendices 4.11 and 4.26). This is a significant fall from over 493,000 tonnes reported as being generated in 2008 no doubt due to the contraction of construction sector output. However, the quantity of this waste generated has varied widely from year to year depending on the degree to which brownfield sites are in development in Ireland. In 2008, less than nine per cent of the total contaminated soil was managed in Ireland (43,531 tonnes) with the balance (449,574 tonnes) exported for treatment abroad (see Appendix 4.22). A limited number of technologies were used to treat the contaminated soils in 2009 (see Appendix 4.26). In the context of current economic conditions it is unlikely that large volumes of contaminated soils will arise as wastes in the short to medium term.

10. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Develop any new hazardous waste facilities on previously used land or brownfield sites	Material assets	Area of new hazardous waste facilities on greenfield and brownfield sites	EPA – licensing files (data not currently collected)	Every 2 years

No records were identified of any hazardous waste facility being developed on a brownfield site.

11. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Avoid loss or damage to designated sites from siting of hazardous waste facilities	Bio-diversity	Area of designated sites used by or proposed for development of hazardous waste facilities	EPA – licensing files	Every 2 years

No records were identified of any hazardous waste facility being developed on a designated site in Ireland.

12. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Minimise major incidents of unauthorised disposal of hazardous waste	Human health	Reports of large scale illegal disposal involving hazardous waste (not including relatively small-scale fly-tipping)	EPA – unauthorised waste activities reports	Every 2 years

There are no records identified of any recent major incidents of unauthorised disposal of hazardous waste. However, the dioxin in pork products incident which occurred in Ireland in 2008 is an example of the extent of economic damage that can occur where hazardous wastes – in this case PCB contaminated waste oils – are not dealt with appropriately.

In 2005, the EPA published a report on the nature and Extent of Unauthorised Waste Activity in Ireland. This identified that hazardous waste, in the main, is dealt with appropriately. A wide range of actions have been taken nationally in the last number of years to reduce unauthorised waste activities considerably. However, the report notes that diesel laundering sometimes results in the illegal dumping of significant quantities of acid wash which has to be dealt with by the waste, security and defence authorities. No other large scale illegal disposal of hazardous waste has been identified.

13. Target for lifetime of plan (i.e. end 2012)	Ref to environmental objective	Indicator	Data availability and source	Frequency
Minimise complaints relating to hazardous waste facilities	Human health	Number of complaints received relating to hazardous waste facilities	EPA – licence enforcement files	Every 2 years

The Annual Environmental Reports and the Office of Environmental Enforcement files in relation to the 13 EPA hazardous waste licensed sites and 15 IPPC licensed sites (which handle significant quantities of hazardous waste) active between 2008 and 2011 were reviewed. These sites are listed in section one of this chapter above. In the review period, five of the hazardous waste sites received a total of 16 complaints in relation to odour. In the same period, ten IPPC sites received a total of 58 complaints (32 for odour, 21 for noise and 5 for other issues).

Non-compliances with waste licences are followed through by the inspectors of the Office of Environmental Enforcement with the relevant licensee as appropriate. Ideally, no non-compliances, complaints or emission exceedances should be observed. Indeed, the objective of the waste and IPPC licences is to ensure that such events are prevented as far as possible. Where such events do occur, the licensee must take all reasonable measures to rectify the matter and prevent a recurrence.

6 CONCLUSIONS

In conclusion, this interim report tries to identify progress made in implementing the National Hazardous Waste Management Plan since its publication in 2008 up to mid-2011. One of the report's purposes is to monitor (in accordance with the SEA Regulations) if any significant effects have arisen from implementation of the Plan to enable remedial action to be taken early where unforeseen adverse effects occur. To this end, the report outlines progress in relation to objectives, targets and indicators for the Plan and arising from the SEA process. From this review, no unforeseen adverse effects have come to light as a result of the implementation of the Plan.

The programme to reduce the generation of hazardous waste generally has been integrated into the wide range of projects within the EPA National Waste Prevention Programme (see the 6th NWPP Annual Report, 2010). Relevant projects include the Green Business, Green Hospitality Award, Local Authority Prevention Network, Green Healthcare, Packaging Prevention and Green Home programmes. Ecodesign including substitution of hazardous components and cleaner production will be important components of this endeavour. Chemicals legislation such as REACH will have additional impacts on the supply chain in time. It is increasingly recognised that all economic players in the production/supply chain, including consumers, have a role to play in reducing hazardous waste.

A number of the plan recommendations and projects are aimed specifically at reducing the levels of unreported hazardous waste where possible by promoting more accessible collection points. Resources to implement these collections may become available from a range of recommended new Producer Responsibility Initiatives, if introduced (see Appendix 5). In tandem, the continued implementation of existing statutory Producer Responsibility Initiatives (such as Waste Electrical & Electronic Equipment/Restriction of Hazardous Substances, Batteries, Packaging Essential Requirements, Solvents, Deco-paints and End-of-Life Vehicles) should help reduce the hazardous components of specified products and also assist with the collection/reduction of unreported hazardous waste. Similarly, implementation of regulations in relation to Persistent Organic Pollutants (POPs) and Polychlorinated Bi-phenyls (PCBs) will increasingly eliminate these hazardous substances and wastes. The co-operation of all relevant economic players is important if this objective of the Plan is to be accomplished.

Other projects pursued by the EPA in relation to unreported hazardous waste include the Farm Hazardous Waste Study, dissemination of the Garages Best Practice Guidance and the Code of Practice for Civic Amenity Sites. Contact is made on a continuing basis with all relevant stakeholders to promote the implementation of the findings from these projects.

Striving for more self-sufficiency nationally in the management of Ireland's hazardous waste, where technically and economically feasible, is a guiding principal behind many of the Plan's recommendations. Projects pursued by the EPA to promote greater self-sufficiency include completing the National Difficult Waste Facility (incorporating hazardous waste landfill) study and

the Economic Study of Solvent Recycling and Treatment in the Pharmachemical sector in Ireland.

While the EPA can promote best practice and engage in a variety of projects to promote the Plan and SEA objectives, much responsibility rests with the producers and holders of hazardous waste. Many of their decisions will, ultimately, be driven by economic considerations. Similarly, while the EPA can provide data and reports in relation to hazardous waste, the provision of indigenous hazardous waste treatment facilities and service is driven primarily by economic and specific policy decisions outside its control. As an environmental regulator, the EPA has itself no function in the provision of either services or physical infrastructure for hazardous waste. It is important to stress that the Plan is a strategic level document designed to provide overall direction for any decision and policy makers involved in the prevention and management of hazardous waste.

In the next period, the EPA will gather additional data on hazardous waste and continue to pursue outstanding recommendations where possible. Along with this report, this additional information will be used to inform the development of the next Plan due to commence in 2013. It is envisaged that a draft replacement Plan will be developed early in 2012 for public consultation in line with the new Waste Framework Directive and associated Irish Regulations.

APPENDIX 1: SUMMARY OF RECOMMENDED ACTIONS, RESPONSIBILITIES AND SCHEDULE

(Section 8.1 page 83 from the Plan)

Administrative arrangements

1. Affirm the role of the National Waste Prevention Committee in 2008 to act as the principal stakeholder oversight body for the Plan's implementation.

   Responsible: Department of the Environment, Heritage and Local Government

2. Nominate the Environmental Protection Agency in 2008 for co-ordinating the Plan's implementation, with responsibility for promoting, monitoring, reporting and, where necessary, guiding the implementation activities of other responsible authorities.

   Responsible: Department of the Environment, Heritage and Local Government

3. Nominate local authorities and other public bodies in 2008 for specific tasks as identified in the Plan.

   Responsible: Department of the Environment, Heritage and Local Government

4. Local authorities should, in accordance with section 26 of the Waste Management Acts 1996 to 2008, take relevant recommendations of this Plan into account in their implementation and revision of regional and local waste management plans, as well as regional planning guidelines and regional and area development plans.

   Responsible: Local authorities

5. Public bodies should, generally, be cognisant of this Plan and, where appropriate, take its provisions and recommendations into account in the execution of their environmental protection, industrial development and other functions, with the objective of improving their own hazardous waste management and that of their clients, customers or other stakeholders.

   Responsible: All public bodies

Prevention

6. Develop a hazardous waste prevention programme in 2008, under the auspices of the existing National Waste Prevention Programme, to be implemented over the five-year period of the Plan.

   Responsible: Environmental Protection Agency

7. Designate trained[1] prevention officers by 2010, either alone or as regional groupings, such that each local authority area is covered, making use of any funding available through the Local Authority Prevention Network, to, *inter alia*, work with local businesses and communities towards achieving hazardous waste prevention, accessible and cost-effective collection services, and better compliance with regulation.

Responsible: Local authorities

8. Specify a policy for green procurement and provide guidelines for the substitution or reduction in use of hazardous materials in public procurement.

Responsible: Department of the Environment, Heritage and Local Government

Collection of hazardous waste

9. Provide adequate resources to local authorities, commencing in 2008, to provide in each local authority area by 2012 adequate hazardous waste collection facilities for households and small businesses and provide for the expansion of existing facilities and services and/or construction of new facilities.

Responsible: Department of the Environment, Heritage and Local Government

10. Complete a programme by 2012 of providing drop-off facilities at appropriate civic amenity sites and/or other suitable locations (including mobile collections) for use by householders and small business, and consider the use of collective tendering for waste contractor services with other local authorities with a view to reducing costs.

Responsible: Local authorities

11. Prepare a code of practice by 2009 for civic amenity sites where hazardous waste is accepted. Sponsor the development of a training course for initial rollout in 2010 for local authority and private sector operators of civic amenity sites where hazardous waste is accepted.

Responsible: Environmental Protection Agency

12. Conduct local or regional awareness and information campaigns, with preparatory work commencing in 2009, to pro-actively inform individuals and businesses of available hazardous waste collection services, and their obligations. General guidance on common topics such as 'obligations' could be developed nationally in co-operation with national authorities such as the Department of the Environment, Heritage and Local Government and the Environmental Protection Agency.

Responsible: Local authorities

13. Undertake a pilot audit scheme, commencing in 2008, to examine the merits of ongoing and long-term regulation of the vehicle servicing and garage sector using accredited inspection contractors.

Responsible: Environmental Protection Agency

14. Develop in 2009, in partnership with local authorities, a national information and awareness campaign for garages, with a particular focus on waste oils and their combustion in space heaters.

Responsible: Environmental Protection Agency

15. Commence a programme of local and/or concerted enforcement actions in 2009 with regard to the management of hazardous waste at several categories of small business, including garages, mini-labs, construction sites, industrial, healthcare and others. Enforcement actions should ensure that all generators of hazardous waste are managing hazardous waste in accordance with their statutory obligations and should be repeated periodically during the period of the Plan. The Environmental Enforcement Network may be an appropriate means of co-ordinating concerted actions, procedures and protocols. Recommendations for supporting mechanisms for hazardous waste sectoral enforcement should be made via the environmental enforcement network.

Responsible: Local authorities

16. Commence a hazardous waste producer responsibility project in 2008 and implement the project over the five-year period of the Plan. Assessments of potential new producer responsibility obligations, including the need for legislation or management bodies, on foot of detailed studies into priority waste streams, should be made during the project.

Responsible: Department of the Environment, Heritage and Local Government

17. Investigate the potential, commencing in 2008, for developing a national contract or other means for the cost effective collection of waste laboratory chemicals from schools.

Responsible: Department of Education and Science

18. Commence development of a programme in 2008 to ensure very small-scale healthcare waste arisings, including used, unused and out-of-date medical supplies from public health nurses and self-administering patients, is collected for proper disposal.

Responsible: Health Service Executive

19. Develop guidance or take alternative appropriate steps, commencing in 2008, to assist vessel owners, harbour officials and competent authorities to plan for and manage ship-generated waste in accordance with relevant legislation.

Responsible: Department of Transport and Marine

Infrastructure and self-sufficiency

20. Commission a study in 2009 to clarify the technical and economic aspects of providing hazardous waste landfill capacity.

Responsible: Environmental Protection Agency

21. Keep under review the provision of hazardous waste landfill capacity, and, taking into account any recommendations that may be made in the EPA study (see recommendation 20 above), consider the use of appropriate economic or other instruments to ensure such capacity is provided, whether by the private or public sector, by 2012.

Responsible: Department of the Environment, Heritage and Local Government

22. Commission a study in 2009 on the treatment of waste solvents with particular regard to the potential for solvent recycling.

Responsible: Environmental Protection Agency

23. Ensure that all-island considerations are taken into account in the implementation of recommendations 20 to 22.

Responsible: Environmental Protection Agency and Department of the Environment, Heritage and Local Government

24. Commission a benchmarking and actions study for farm hazardous waste for completion by 2010 examining the initiatives currently underway by stakeholders and future needs and recommendations with regard to the generation, management, collection and treatment of farm hazardous waste.

Responsible: Environmental Protection Agency

25. Provide for, in regional planning guidelines and local area and county development plans, the co-ordinated management of contaminated soil where these plans include the redevelopment of docklands or other brownfield sites. Plans should, where technically and economically feasible and environmentally favourable, provide for the co-ordinated

management of contaminated soil from the area as a whole from the perspective of preferentially treating the soil *in situ* or at authorised facilities in Ireland, in preference to export, thus allowing for the use of treated soil in Ireland.

Responsible: Local authorities, regional authorities, An Bord Pleanála and other planning authorities

Regulatory

26. Keep under review the need to consolidate and reform existing regulations and make provision for new hazardous waste regulations where the need becomes apparent during implementation of this Plan.

Responsible: Department of the Environment, Heritage and Local Government

Old disposal sites, ports and harbours

27. Develop by 2010 a programme for the systematic identification, assessment and action planning for potentially contaminated harbour, port and marina sediments.

Responsible: Department of Transport and Marine

28. Identify, assess and, where necessary, remediate sites where hazardous waste was to a significant extent disposed of in the past. This action should conform with the Code of Practice prepared by the EPA's Office of Environmental Enforcement. Make new regulations to properly and effectively regulate this sector and bring these sites into compliance with the Waste Framework Directive.

Responsible: Local authorities and Department of the Environment, Heritage and Local Government

North-south initiatives

29. Explore, from 2008, with the appropriate Northern Ireland authorities the possible terms of reference of an informal North-South working group on hazardous waste that will identify barriers to co-operative approaches identified in the Plan and make recommendations to overcome those barriers.

Responsible: Department of the Environment, Heritage and Local Government

APPENDIX 2: PLAN TARGETS AND INDICATORS

(Table 21 page 90 from the Plan)

Target for lifetime of plan (i.e. end 2012)	Indicator	Data availability and source	Frequency
Initiate and implement hazardous waste prevention projects	Scoping, commencement and progress reports for individual projects	EPA – National Waste Prevention Programme	Annual
Reduce the generation of hazardous waste relative to production at targeted, participating or reporting organisations or sectors	Reduction in hazardous waste generation relative to production at relevant, participating or targeted organisations or sectors	EPA - all prevention projects will have built-in quantitative and qualitative indicators	Annual
Minimise the generation of unreported hazardous waste	Estimation of unreported hazardous waste	EPA - estimation will be made every two years for the national waste report	Every 2 years
Increase the deposit of household and small business hazardous waste at - civic amenity sites; - other static collection points; and - mobile services.	Quantity of household and small business hazardous waste deposited at static facilities Availability of collection/deposit services	EPA - national waste report	Annual
Establish new producer responsibility obligations	Development of new producer responsibility obligations Quantity of (hazardous) waste collected on foot of producer responsibility obligations	Department of Environment, Heritage and Local Government EPA – national waste report	Annual
Increase on-site treatment of hazardous waste generated at IPPC-licensed facilities	Quantity of hazardous waste treated at IPPC-licensed facilities	EPA - national waste report	Annual
Increase off-site treatment of hazardous waste in Ireland	Quantity of hazardous waste treated or landfilled at merchant facilities in Republic of Ireland	EPA - national waste report	Annual
Reduce export of hazardous waste	Quantity of hazardous waste exported Quantity of contaminated soil exported	EPA - national waste report	Annual
Identify, assess and remediate as necessary all sites where hazardous waste to a significant extent was disposed of	Number of sites identified, assessed and remedial actions undertaken	EPA OEE – Code of Practice implementation records	Every 2 years

APPENDIX 3: SEA ENVIRONMENTAL TARGETS AND INDICATORS

(Table 22 page 91 from the Plan)

Target for lifetime of plan (i.e. end 2012)	Ref to environ objective)	Indicator	Data availability and source	Frequency
Minimise exceedances of emission limits to water and air from licensed hazardous waste facilities	Water Air	Number of hazardous waste facilities in breach of emission limits to surface water, groundwater and air	EPA OEE – licence enforcement files	Every 2 years
Legacy hazardous waste disposal sites to be managed in accordance with Code of Practice	Water Soil	Number of legacy disposal sites to which Code of Practice is applied	EPA OEE – Code of Practice implementation records	Every 2 years
In the vicinity of hazardous waste incinerators, no increase in dioxin levels in ambient environment	Air Human health	Dioxin in cow's milk	EPA – monitoring of cow's milk	When available
Maximise the generation of energy from renewable sources	Climate	Quantity of hazardous waste managed via energy recovery (R1)	EPA – national waste report	Annual
Minimise distance travelled by hazardous waste	Climate Transport	Tonne-kilometres travelled by road and sea	EPA – to be calculated from best available records (e.g. facility records, 'new C1', TFS) (data not currently collected)	Every 2 years
Minimise export of hazardous waste and move towards self-sufficiency	Transport Material assets	Quantity of hazardous waste exported	EPA – national waste report	Annual
Minimise the generation of unreported hazardous waste	Human health Soil	Estimation of unreported hazardous waste	EPA - estimation will be made every two years for the national waste report	Every 2 years
Increase the *in situ* treatment of contaminated soil	Soil	Quantity of contaminated soil treated *in situ* as a proportion of the total	EPA – licence enforcement files (data not currently collected)	Every 2 years
Increase the treatment of contaminated soil in Ireland	Soil Material assets	Quantity of contaminated soil treated in Ireland as a proportion of the total	EPA – national waste report and licence enforcement files	Every 2 years

Target for lifetime of plan (i.e. end 2012)	Ref to environ objective)	Indicator	Data availability and source	Frequency
Develop any new hazardous waste facilities on previously used land or brownfield sites	Material assets	Area of new hazardous waste facilities on greenfield and brownfield sites	EPA – licensing files (data not currently collected)	Every 2 years
Avoid loss or damage to designated sites from siting of hazardous waste facilities	Bio-diversity	Area of designated sites used by or proposed for development of hazardous waste facilities	EPA – licensing files	Every 2 years
Minimise major incidents of unauthorised disposal of hazardous waste	Human health	Reports of large scale illegal disposal involving hazardous waste (not including relatively small-scale fly-tipping)	EPA – unauthorised waste activities report	Every 2 years
Minimise complaints relating to hazardous waste facilities	Human health	Number of complaints received relating to hazardous waste facilities	EPA – licence enforcement files	Every 2 years

APPENDIX 4: HAZARDOUS WASTE DATA

Note: This appendix presents the data in the same page order as they originally appeared in the Plan for ease of reference.

Appendix 4.1	Characteristics and Estimated Scale of Unreported Hazardous Waste in 2006 (Table 2 page 18 in the Plan)
Appendix 4.2	Summary of Hazardous Waste Management, 2001 – 2009, excluding Contaminated Soil (update to Table 4 page 21 of the Plan)
Appendix 4.3 (i)	Location of Treatment of Reported Hazardous Waste in Ireland (excluding contaminated soil) in 2009 (update to Table 3 page 20 in the Plan)
Appendix 4.3 (ii)	Categories of Reported exports of Hazardous Waste (excluding contaminated soil) in 2009 (update to Table 3 page 20 in the Plan)
Appendix 4.4	The Location of Hazardous Waste Treatment – excluding Contaminated Soil, 1996 - 2009 (update of Figure 4 page 21 from the Plan)
Appendix 4.5(i)	Recovery and Disposal of Hazardous Waste in Ireland in 2009 – excluding Contaminated Soil (update of Table 5 page 22 from the Plan)
Appendix 4.5(ii)	Recovery and Disposal of reported exported Hazardous Waste in 2009 – excluding Contaminated Soil (update of Table 5 page 22 from the Plan)
Appendix 4.6	Rate of Export of Hazardous Waste, 2001 - 2009 (update of Figure 5 page 24 from the Plan)
Appendix 4.7	Destination of Exported Hazardous Waste 2009 (update of Figure 6 page 24 from the Plan)
Appendix 4.8	Destination of and Fate of Notified Hazardous Waste Exports in 2009 – excluding Contaminated Soil (update of Table 6 page 25 from the Plan)
Appendix 4.9	Generation of Hazardous Waste by Industry, 2008 (update of Table 7 page 26 from the Plan)
Appendix 4.10	Trends in Industrial Hazardous Waste Generation, 1996 - 2008 (update of Figure 7 page 27 from the Plan)
Appendix 4.11	Management of Contaminated Soil, 2001 – 2009 (update of Table 8 page 28 in the Plan)

Appendix 4.12	Number of LA's who reported acceptance of Hazardous Waste at Civic Amenity Sites (Recycling Centres) in their functional area in 2009 (update of Figure 8 page 30 in the Plan)
Appendix 4.13	Collection of Hazardous Waste at Civic Amenity Sites in 2009, including WEEE and Batteries
Appendix 4.14	Collection of Hazardous Waste at Civic Amenity Sites in 2008 and 2009, not including WEEE and Batteries (update of Table 9 page 37 in the Plan)
Appendix 4.15	Comparison of Treatment Technologies employed for Irish Hazardous Waste, 2004 – 2009 (update of Table 14 page 57 in the Plan)
Appendix 4.16	List of Dominant Waste Streams Exported for various Treatment Techniques, 2004 - 2009 (update of Table 15 page 58 in the Plan)
Appendix 4.17	Export of some Major Hazardous Waste Streams, 1998 – 2009 (update of Figure 11 page 60 in the Plan)
Appendix 4.18	Reported Thermal Treatment of Waste Solvents and other Hazardous Waste, 2004 – 2009 (update of Table 16 page 63 in the Plan)
Appendix 4.19	Calculation of Quantity of Hazardous Waste Potentially Available for Incineration in Ireland, 2004 – 2009 (update of Table 17 page 66 in the Plan)
Appendix 4.20	Reported Commercial Landfilling of Irish Hazardous Waste, 2004 – 2009 (update of Table 18 page 68 in the Plan)
Appendix 4.21(i)	Recommended Capacity for Hazardous Waste Landfill facilities (update of Table 19 page 70 in the Plan)
Appendix 4.21(ii)	Hazardous Waste Arisings Potentially Suitable for Landfill, Ireland and Northern Ireland, Aggregated on 6 year basis, 2008-2025.
Appendix 4.22	Reported off site management of contaminated soil, 2001-2009 (update of Figure 12 page 77 from the Plan)
Appendix 4.23	Indicators for Hazardous Waste Generation and Management, 1996-2009 (update of Table 23 page 117 from the Plan)

Appendix 4.24	Treatment of Hazardous Waste On-site of Generation at IPPC Facilities in 2009, excluding contaminated soil (update of Table 24 page 119 in the Plan)
Appendix 4.25	EPA Licensed and Permitted Facilities for Hazardous Waste Treatment and Transfer in 2009 (update of Appendix C – Hazardous Waste Facilities, Table 25 page 121 in the Plan)
Appendix 4.26	Management of Contaminated Soil as Reported in 2009

Appendix 4.1 Characteristics and Estimated Scale of Unreported Hazardous Waste in 2006 (Table 2 page 18 in the Plan)

Hazardous waste category	Characteristics	Estimated unreported in 2006* (tonnes)
Paint and ink packaging	Unused or surplus paint and ink from households, trade and industry. A poor collection infrastructure for householders and the trade contributes to the problem.	7,513
Small batteries	Certain portable (consumer) batteries and button cells are hazardous waste, such as nickel-cadmium batteries and mercury cells. These are usually mixed in with non-hazardous batteries such as alkaline batteries, so the mixtures are classified as hazardous. Very little separate collection of batteries takes place.	5,361
Sheep dip	Organophosphate sheep dip, while declining, is still in substantial use. Spent dip is landspread and a code of practice is provided in REPS guidance.	3,600
Fluorescent lamps	Tubes and compact fluorescent lamps (CFLs – low energy bulbs). Fluorescent lamps contain mercury.	2,267
Waste oils	Used engine and machine lubrication oil from garages, industry, DIY, maintenance etc.	2,000
Oil filters	Vehicle oil filters from the servicing of road vehicles.	362
Solvents	From dry cleaners and other small scale commercial users.	220
Lead acid batteries	Lead is recovered from lead acid batteries for its market value, though not always at authorised outlets. Arising through unauthorised collection from garages or DIY.	177
Dental amalgam	Dental amalgam contains mercury.	0.5
Other household hazardous waste	A range of hazardous wastes are put in the bin and end up in landfill. For example, household chemicals, garden chemicals, cleaning agents, medicines and other materials.	4,890
Other agricultural hazardous waste	Comprising oily wastes, animal medicines and contaminated containers and others. Waste oils and other wastes are included in estimates above.	3,218
Other office and commercial waste	A wide range of product wastes, batteries, fluorescent lamps, printer inks and toner, cleaning agents, and other wastes.	280
Total estimated generation of unreported hazardous waste*		**29,888**

***These are statistically derived data and can only provide an estimated order of magnitude value for the different waste streams. The estimates remain valid for subsequent years however a newer estimation methodology is under consideration for 2010 data.**

Appendix 4.2 Summary of Hazardous Waste Management, 2001 – 2009, excluding Contaminated Soil (update to Table 4 page 21 of the Plan)

Category	2001	2002	2003	2004	2005	2006	2007	2008	2009
[2]On-site at industry (t)	95,566			86,328		88,409	82,732	72,038	74,668
[3]Off-site in Ireland (t)	48,013			55,952		60,872	91,240	113,839	89,992
Exported (t)	115,366	109,545	170,678	165,498	146,811	134,904	147,542	157,207	150,395
Total (t)	**258,945**			**307,778**		**284,184**	**304,941**	**319,098**	[4] **289,910**

Source: Table 29, 2009 National Waste Report, Page 45

[2] On-site at industry' refers to hazardous waste recovered or disposed on-site at the industrial facility where it was generated.

[3] 'Off-site in Ireland' refers to waste sent to commercial hazardous waste treatment facilities in Ireland for recovery or disposal.

[4] To avoid double counting due to the treatment of waste solvents in Ireland, followed by their export as waste for use as a fuel, the 2007 total has been discounted by 16,573 t, the 2008 total has been discounted by 23,986 t, the 2009 total has been discounted by 25,145 t – see the footnote to Table 29 of National Waste Report 2009 for further details.

Appendix 4.3(i) Location of Treatment of Reported Hazardous Waste in Ireland, 2009 (excluding contaminated soil) (update to Table 3 page 20 in the Plan)

Category	[5]On-site at industry (t)	[6]Off-site in Ireland (t)	Total (t)
Solvents	47,809	18,543	66,352
Industrial hazardous waste (other)	3,276	5,762	9,038
Oil waste (mineral oil)	180	27,124	27,304
Solvents (halogenated, where specified)	5,787	112	5,899
Oily sludges		9,241	9,241
Equipment (electrical, electronic, mechanical)		5,874	5,874
Salts and saltcake	15,238		15,238
Healthcare risk waste		9,475	9,475
Aqueous washing liquids and mother liquors (07 __ 01*)	1,998	6,921	8,919
Sludges and filter cakes	6	1,006	1,013
Paint, ink and varnish waste (including packaging)	6	985	990
Acid and alkali waste		2,171	2,171
Chemical waste (other)		150	150
Solid wastes from MFSU of pharmaceuticals (07 05 13*)	299	2	300
Packaging (contaminated or containing residues)	40	1,859	1,899
Absorbents, wiping cloths etc. (EWC 15 02 02*)	21	8	29
Photographic chemical waste		140	140
Thermal treatment and other combustion residues		286	286
Fluorescent lamps		297	297
Laboratory and general chemical waste	8	20	28
Construction and demolition waste (hazardous)		6	6
Metal- and heavy metal-containing waste		2	2
Municipal hazardous waste (other)		8	8
Totals	**74,668**	**89,992**	**164,661**

Source: Table 30, 2009 National Waste Report, Page 46.

[5] 'On-site at industry' refers to hazardous waste recovered or disposed on-site at the industrial facility where it was generated, under IPPC licence.

[6] 'Off-site in Ireland' refers to waste sent to commercial hazardous waste treatment facilities in Ireland for recovery or disposal, under EPA waste licence.

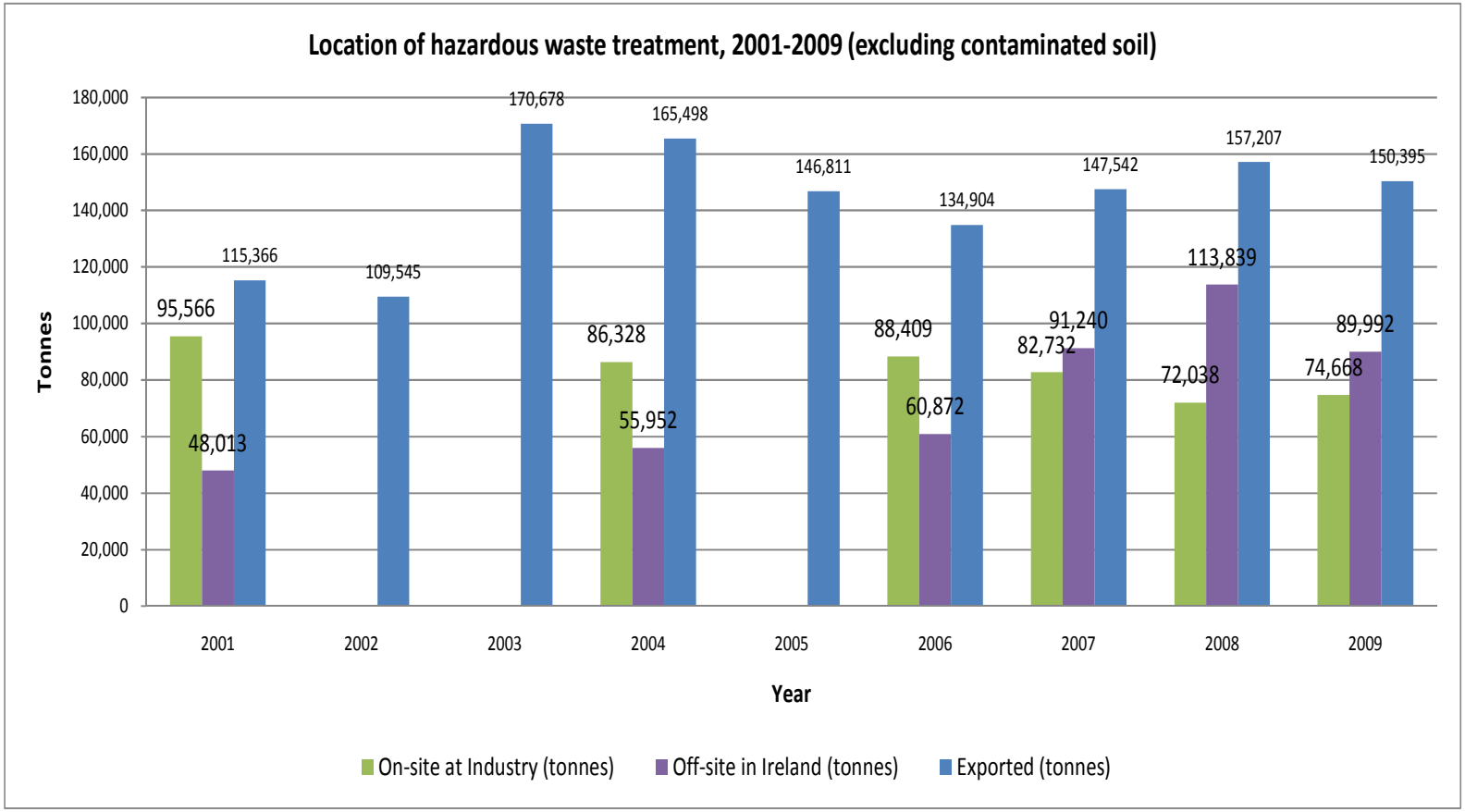
Appendix 4.3(ii) Categories of reported exports of hazardous waste, 2009

Category	Exported (tonnes) 2009
Solvents	52,370
Solvents (halogenated, where specified)	4,540
Oil waste (mineral oil)	2,443
Industrial hazardous waste (other)	[7]11,927
Healthcare risk waste	734
Oily sludges	94
Lead-acid batteries	11,832
Equipment (electrical, electronic, mechanical)	8,410
Chemical waste (other)	[7]3,701
Paint, ink and varnish waste (including packaging)	4,834
Acid and alkali waste	2,578
Asbestos waste	14,068
Aqueous washing liquids and mother liquors (07 __ 01*)	[7]10,647
Solid wastes from MFSU of pharmaceuticals (07 05 13*)	1,956
Sludges and filter cakes	3,834
Batteries (small, non-lead acid)	223
Packaging (contaminated or containing residues)	[7]664
Photographic chemical waste	432
Oil filters	741
Construction and demolition waste (hazardous)	12,892
Metal- and heavy metal-containing waste	69
Agricultural hazardous waste	72
Absorbents, wiping cloths etc. (EWC 15 02 02*)	661
Fluorescent lamps	74
Pesticides, herbicides	56
Laboratory and general chemical waste	485
Thermal treatment and combustion residues	59
Medicines	See footnote #7
Municipal hazardous waste (other)	
Polychlorinated biphenyls	1
Total	**150,395**

Source: Modification of Table 32 of National Waste Report, 2009, Page 48.

[7] 8 t of obsolete medicines were exported to Indaver, Belgium and AVG, Germany for incineration in 2009. This 8 t was exported in six separate consignments in the 2009 TFS dataset and appears under the following categories: Industrial hazardous waste (other), Chemical waste, Aqueous washing liquids and mother liquors (07 __ 01*) and Packaging (contaminated or containing residues) as above.

Appendix 4.4 The Location of Hazardous Waste Treatment – excluding Contaminated Soil, 1996 - 2009 (update of Figure 4 page 21 from the Plan)



Appendix 4.5 (i) Recovery and Disposal of Hazardous Waste in Ireland in 2009 – excluding Contaminated Soil (update of Table 5 page 22 from the Plan)

Recovery/ Disposal code	Disposal or recovery activity	[8]On-site at industry (t)	[9]Off-site in Ireland (t)	Total (t)
D1	Landfill	15,238		15,238
D5	Engineered landfill		126	126
D8	Biological treatment	1,808		1,808
D9	Physico-chemical treatment	119	21,536	21,654
D10	Incineration	21,378		21,378
D12	Permanent storage	1		1
D13	Blending or mixing		186[10]	186
	Sub-total disposal	**38,544**	**21,848**	**60,392**
R1	Use as fuel	10,599	17,745[11]	28.344
R2	Solvent recovery	25,047	7,547[12]	32,594
R3	Organic substance recovery	297	2	299
R4	Metal recovery		1,551	1,551
R5	Inorganic substance recovery		5,874	5,874
R4/R5	Combination of R4 and R5		297	297
R9	Oil recovery	180	23,912	24,092
R9/D9	Combination of R9 and D9		11,218[13]	11,218
	Sub-total recovery	**36,124**	**68,145**	**104,269**
	Total	**74,668**	**89,992**	**164,661**

(Source: Table 31, National Waste Report 2009, Page 47)

[8] 'On-site at industry' refers to hazardous waste recovered or disposed on-site at the industrial facility where it was generated.

[9] 'Off-site in Ireland' refers to waste sent to commercial hazardous waste treatment facilities in Ireland for recovery or disposal.

[10] 186 t (163 t of non halogenated solvent and 22 t of aqueous washing liquids and mother liquors) represents the blending of waste solvents in Ireland prior to their export as waste for incineration.

[11] 17,745 t of solvent waste was blended prior to its export as waste for use as fuel in cement kilns or incinerators.

[12] 7,214 t of the 7,547 t was reported as waste solvent which was blended at commercial hazardous waste treatment facilities prior to its export as waste for use as fuel in cement kilns and incinerators abroad.

[13] The treatment of interceptor sludges and coolants by Rilta Environmental Ltd (Reg. No. W0192-02) was reported as a combination of R9 and D9 in 2009.

Appendix 4.5 (ii) Recovery and Disposal of reported exported Hazardous Waste in 2009 – excluding Contaminated Soil (update of Table 5 page 22 from the Plan)

Disposal (D) or recovery (R) code	Exported (t)
D1	14,989
D10	34,079
D12	87
D13	622
D14	51
D15	28
D5	126
D8	1,084
D8/D9[14]	657
D9	621
Sub-total hazardous waste exported for disposal	**52,345**
R1	23,157
R1/R3	93
R1/R3/R4	2,279
R1/R3/R5	242
R1/R4	494
R1/R4/R5	1,168
R1/R5	524
R1/R9	2,096
R10	70
R11	137
R12	1,299
R13	354
R2	18,953
R2/R3	3,666
R2/R3/R4	258
R3	15,702
R3/R4	3,345
R4	18,923
R4/R11	42
R4/R5	127
R5	3,157
R6	1,441
R7	38
R8	5
R9	478
Sub-total hazardous waste exported for recovery	**98,049**
Total hazardous waste exported for treatment	**150,395**

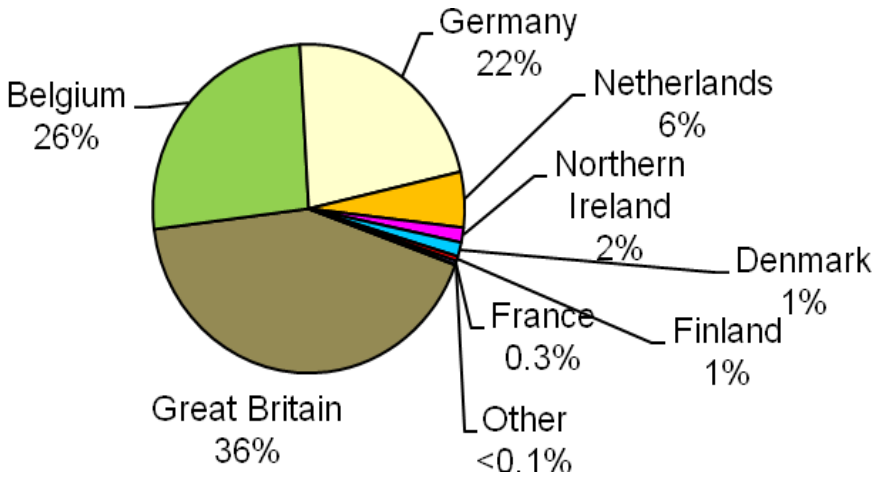
(Source: Table 33, National Waste Report 2009, Page 49)

[14] In order for the TransFrontierShipment (TFS) notification to reflect the entire treatment process, or to show there is more than one type of treatment, then multiple codes were reported as per Table above.

Appendix 4.6 Rate of Export of Hazardous Waste, 2001 - 2009 (update of Figure 5 page 24 from the Plan)

Expressed as a ratio of exports against treatment in Ireland – not including unreported hazardous waste or contaminated soil

Appendix 4.7 Destination of Exported Hazardous Waste 2009 (updates of Figure 6 page 24 from the Plan)



Destination of exported hazardous waste, 2009 (excluding contaminated soil)

Appendix 4.8 Destination of and Fate of Notified Hazardous Waste Exports in 2009 – excluding Contaminated Soil (update of Table 6 page 25 from the Plan)

Destination	Disposal		Recovery		Total Exports
	D Code	(tonnes)	R Code	(tonnes)	(tonnes) 2009
Belgium	D10	7,834	R1	22,404	30,238
	D8	886	R1/R3/R5	242	1,128
	D9	228	R1/R4/R5	333	561
			R1/R9	2,096	2,096
			R12	675	675
			R13	11	11
			R2	250	250
			R4	3,756	3,756
			R4/R5	127	127
			R5	25	25
			R6	375	375
Belgium Total		**8,948**		**30,295**	**39,243**
Germany	D1	14,890	R1	360	15,251
	D10	12,981	R1/R4	84	13,065
	D12	87	R1/R4/R5	834	922
	D13	622	R1/R5	524	1,146
	D15	28	R10	70	99
	D5	126	R12	69	196
	D9	304	R13	333	637
			R2	301	301
			R2/R3/R4	258	258
			R3	477	477
			R3/R4	198	198
			R4	630	630
			R5	348	348
Germany Total		**29,039**		**4,487**	**33,527**
Denmark	D10	2,111			2,111
Denmark Total		**2,111**			**2,111**
Finland	D10	669	R4/R11	42	711
Finland Total		**669**		**42**	**711**
France	D10	192	R11	137	329
			R12	88	88
			R2	18	18
			R4	90	90
France Total		**192**		**333**	**525**
Great Britain - England, Scotland & Wales	D10	9,958	R2	18,366	28,324
			R2/R3	3,666	3,666
			R3	13,582	13,582
			R3/R4	2,482	2,482
			R4	13,203	13,203
			R5	998	998
			R6	1,065	1,065
			R7	38	38
			R9	478	478
Great Britain Total		**9,958**		**53,877**	**63,836**
Italy			R8	5	5
Italy Total				**5**	**5**
Northern Ireland	D1	99	R2	18	117
			R3	92	92
			R4	1181	1,181
			R5	798	798
Northern Ireland Total		**99**		**2,090**	**2,189**
Netherlands	D10	334	R1	393	727
	D14	51	R1/R3	93	144
	D8	198	R1/R3/R4	2,279	2,478
	D8/D9	657	R1/R4	410	1,067
	D9	89	R12	468	557
			R13	11	11
			R3	1,552	1,552
			R3/R4	665	665
			R4	15	15
			R5	988	988
Netherlands Total		**1,330**		**6,872**	**8,201**
Poland			R4	24	24
Poland Total				**24**	**24**
Sweden	D10	0			0
Sweden Total		**0**			**0**
USA			R4	24	24
USA Total				**24**	**24**
TOTAL:		**52,345**		**98,049**	**150,395**

Source: Table 35 of National Waste Report, 2009, Page 52.

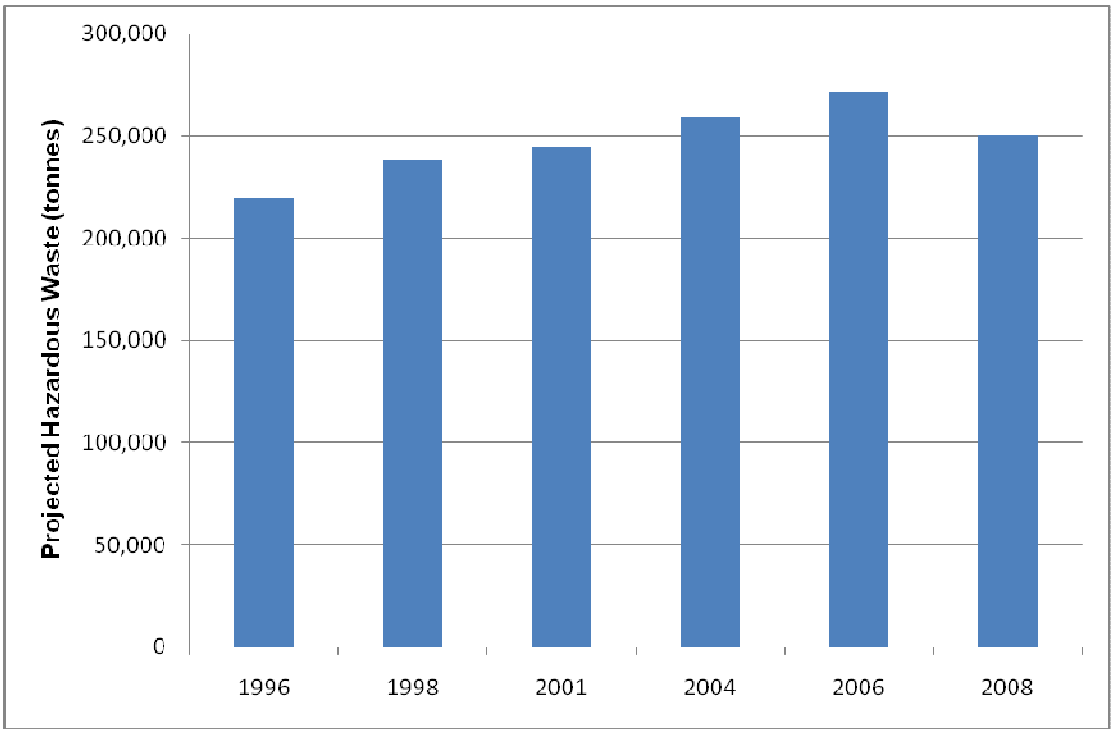
Appendix 4.9 Generation of Hazardous Waste by Industry, 2008 (update of Table 7 page 26 from the Plan)

Sector	NACE code [1]	Tonnes of hazardous waste generated in 2008 (projected [2])
Manufacturing		
Food products, beverages and tobacco	C 10-C 12	2,657
Textiles, wearing apparel, leather	C 13-C 15	47
Wood and paper products	C 16-C 17	702
Printing	C18	1,879
Petroleum, chemical and chemical products	C 19-C 20	11,257
Pharmaceutical products	C 21	146,930
Rubber and plastic products	C 22	1,577
Non-metallic mineral products	C 23	23,940
Basic metals and structural metal products	C 24-C 25	33,367
Computer, electronic and optical products	C 26	3,295
Other electrical equipment	C 27	81
Machinery and equipment n.e.c.	C 28	1,255
Motor vehicles	C 29	677
Other manufacturing	C 30-C 32	16,066
Repair and installation of equipment	C 33	1,142
Sub-total manufacturing	**244,873**	
Mining and quarrying	B 05 - B 09	3,683
Electricity generation	D 35.11	[3] 1,755
Total	**250,311**	

[1] Codes are NACE Rev. 2. Note that the National Waste Report 2006 used NACE Rev 1.1 codes.
[2] Projected means a total estimated generation of hazardous waste within a sector, based on data reported by companies within that sector, scaled up on the basis of a factor describing hazardous waste generated per employee in the sector as a whole.
[3] Projected quantity same as reported quantity, as all power stations are IPPC-licensed.

Source: Table 32, 2008 National Waste Report, Page 33

Appendix 4.10 Trends in Industrial Hazardous Waste Generation, 1996 - 2008 (update of Figure 7 page 27 from the Plan)

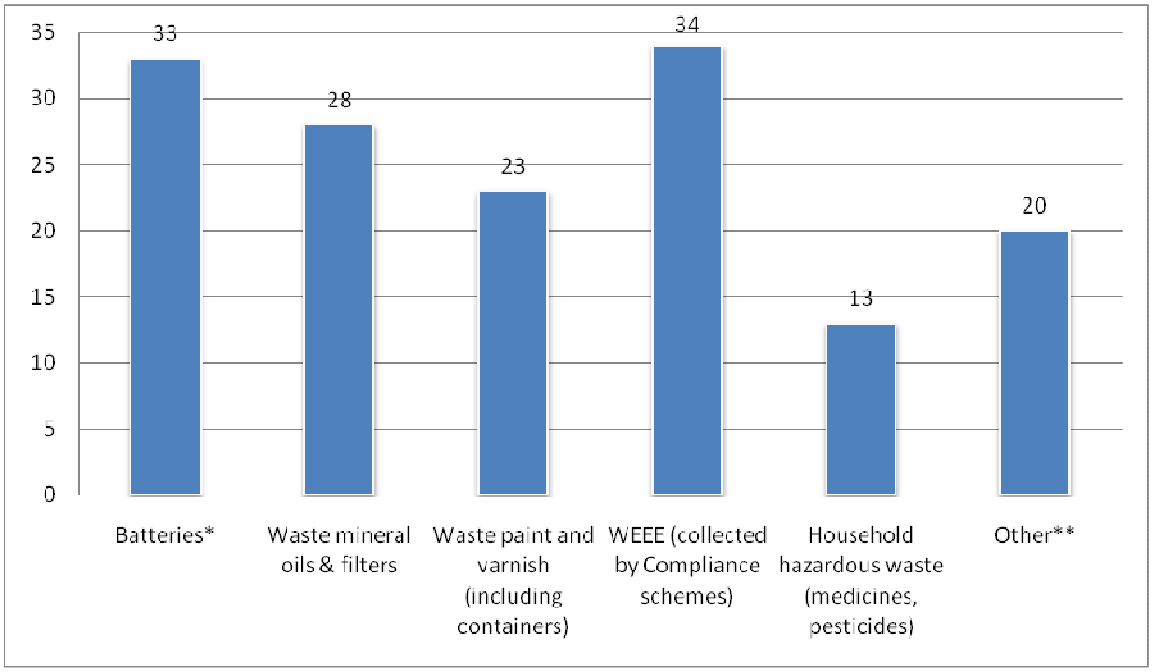


Appendix 4.11 Management of Contaminated Soil, 2001 – 2009 (update of Table 8 page 28 in the Plan)

	2001	2004	2005	2006	2007	2008	2009
Off-site in Ireland (t)	**8,636 (r)**	**14,838 (r)**	**-**	**36,872 (r)**	**44,221 (r)**	**2 (d)** **43,531 (r)**	**12,428 (r)**
Exported (total) (t)	**159,943**	**206,299**	**140,442**	**370,032**	**143,906**	**449,574**	**476**
Germany	14,063 (r)	172,948 (d)	120,455 (d)	341,158 (d) 28,570 (r)	126,859 (d) 14,919 (r)	285,028 (d) 135,980 (r)	7 (d),
Netherlands		10,691 (r)		305 (r)	2,128 (r)	12,655 (d) 15,911 (r)	469 (r)
Belgium	145,192 (r)	22,531 (r)					
Elsewhere in Europe	742 (r)	126 (r)	19,983 (d)				
Total reported (t)	**168,579**	**221,137**	**-**	**406,904**	**188,127**	**493,107**	**12,904**
Note: (r) = predominantly recovery or recycling; (d) = predominantly disposal							

Source: Table 36 of 2009 National Waste Report, Page 53.

Appendix 4.12 Number of LAs who reported acceptance of hazardous waste at Civic Amenity Sites in their functional area in 2009 (update of Figure 8 page 30 in the Plan)

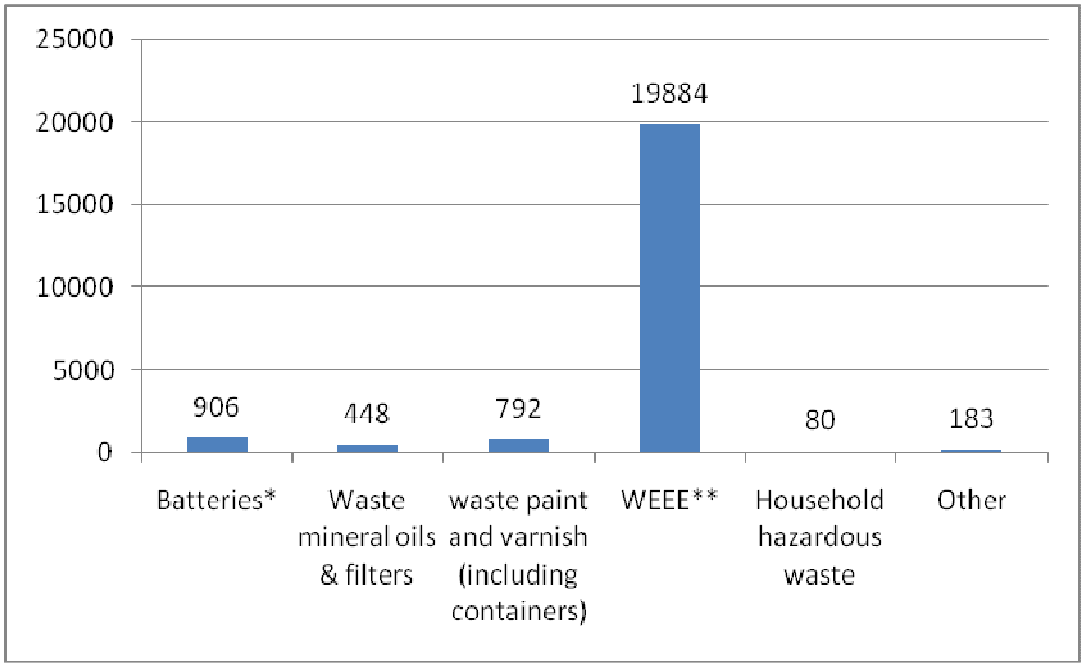


*** Batteries, approx 90% (in t) of which are lead/acid**

****Other= aerosols, gas cylinders, tyres, CDs, DVDs & books, miscellaneous recyclables, etc.**

Appendix 4.13 Collection of Hazardous Waste at Civic Amenity Sites in 2009, including WEEE and Batteries

Wastes delivered by households to public & private civic amenity sites 2009 (tonnes)



**** Compliance scheme data**

*** Batteries, approx 90% (in t) of which are lead/acid**

Other = aerosols, gas cylinders, tyres, CDs, DVDs & books, miscellaneous recyclables, etc.

Appendix 4.14 Collection of Hazardous Waste at Civic Amenity Sites in 2008 and 2009, not including WEEE and Batteries (update of Table 9 page 37 in the Plan)

Material	Quantity Collected (tonnes) 2008	Quantity Collected (tonnes) 2009
Waste paint and varnish (including containers)	662	792
Waste mineral oils and Filters	314	448
Oil containers (mineral oil) - plastic + metal	6	
Household hazardous waste (medicines, pesticides etc)	223	80
Total	**1,205**	**1,320**
Collected per Capita	**0.27 kg per capita** [1]	**0.30 kg per capita** [2]
[1] **Based on CSO population estimate of 4,422,100 people in 2008** [2] **Based on CSO population estimate of 4,459,300 people in April 2009**		

Source: 2008 and 2009 Local Authority Dataset

Appendix 4.15 Comparison of Treatment Technologies employed for Irish Hazardous Waste, 2004 – 2009 (update of Table 14 page 57 in the Plan)

Hazardous waste treatment category or technology [1]	2005		2006		2007		2008		2009	
	Treated in Ireland (tonnes)	Treated abroad (tonnes)	Treated in Ireland (tonnes)	Treated abroad (tonnes)	Treated in Ireland (tonnes)	Treated abroad (tonnes)	Treated in Ireland (tonnes)	Treated abroad (tonnes)	Treated in Ireland (tonnes)	Treated abroad (tonnes)
Incineration (D10)	37,304 on-site	54,314	35,121 on-site	47,854			20,897 on-site	40,505	21,378	34,079
Use as fuel (R1)	6,025 on-site	36,518	9,919 on-site 5 off-site	14,805			12,312 on-site [4] 23,986 off-site	21,714	28,344	23,157
Solvent recycling (R2)	26,597 on-site 837 off-site	19,772	25,956 on-site 1,840 off-site	16,477			23,506 on-site 7,374 off-site	33,078	32,594	18,953
Metal recovery (R4)	29 on-site 2,428 off-site	20,026	68 on-site 1,214 off-site	21,668			1,727 off-site	23,760	1,551	18,923
Physico-chemical treatment (D9)	72 on-site 28,397 off-site	4,179	499 on-site 31,372 off-site	1,709			322 on-site 27,131 off-site	1,792	21,654	621
Landfill (D1, D5)	13,657 on-site 3,109 off-site	5,976	13,748 on-site 2,524 off-site	12,183			12,559 on-site 7,462 off-site	21,992	15,364	15,115
Blending or mixing (D13)								124	186	622
Repackaging (D14)								44		51
Inorganic material recovery (R5)	0	4,758	0	2,650			6,030 off-site	2,596	5,874	3,157
Acid/base regeneration (R6)	0	3,122	0	2,150				1,543		1,441
Organic substance recovery (non-solvent) (R3)	78 on-site	2,681	2,215 on-site	5,596			379 on-site [5] 13,562 off-site	6,618	299	15,702

Hazardous waste treatment category or technology [1]	2005		2006		2007		2008		2009	
	Treated in Ireland (tonnes)	Treated abroad (tonnes)	Treated in Ireland (tonnes)	Treated abroad (tonnes)	Treated in Ireland (tonnes)	Treated abroad (tonnes)	Treated in Ireland (tonnes)	Treated abroad (tonnes)	Treated in Ireland (tonnes)	Treated abroad (tonnes)
Oil recovery (R9)	169 on-site 21,181 off-site	4	214 on-site 23,917 off-site	0			250 on-site 26,566 off-site		24,092	478
Waste exchange (R12)								248		1,299
Storage pending treatment (D12, D15, R13)							23 on-site	380	1	469
Other (D2-D4, D6-D8, R7, R8) [2] plus unspecified treatments	2,398 on-site	14,149	668 on-site	9,812			1,791 on-site	2,812	1,808 (D8)	1,084 (D8), 38 (R7), 5 (R8)
Totals	86,328 on-site	165,499	88,409 on-site	134,904	82,732 on-site	147,542	72,038 on-site	157,207	74,668 on site	150,395
	55,952 off-site		60,872 off-site		91,240 off-site		113,839 off-site		89,992 off site	
	142,280 total		149,281 total		173,972 total		185,877 total		164,661 total	
	307,779		**284,185**		**304,941** [3]		**319,098** [3]		**289,910** [3]	

[1] These technologies are defined according to the list of waste disposal and recovery operations in the Annex to the Waste Framework Directive. Many of the categories do not clearly or particularly usefully indicate the treatment *technology* used on the waste in question – these categories are grouped together in the "other" category in this table.

[2] D2, land treatment; D3, deep injection; D4, surface impoundment; D6, release to water body; D7, release to sea/ocean; D8, biological treatment; R7, recovery of components used for pollution abatement; R8, recovery of catalysts.

[3] To avoid double counting due to the treatment of waste solvents in Ireland, followed by their export as waste for use as a fuel, the 2007 total has been discounted by 16,573 t, the 2008 total has been discounted by 23,986 t and the 2009 total has been discounted by 25,145 t.

[4] This figure represents the blending of waste solvents prior to their export as waste for use as fuel. To avoid double-counting, the quantity is disounted from the total for this row.

[5] The increase in R3 (organic substance recycling) in 2008 was largely due to improved treatment of waste fuels and oils by Rilta Environmental Ltd (formerly SITA Environmental) (Reg. No. W0192-02), which had previously been assigned D9 by the company.

Source: Tables 31 and 33, 2009 National Waste Report, Pages 47 and 49.

Appendix 4.16 List of Dominant Waste Streams Exported for various Treatment Techniques, 2004 - 2009 (update of Table 15 page 58 in the Plan)

Hazardous waste treatment category or technology	2004 Principal waste types exported	2006 Principal waste types exported	2008 Principal waste types exported	2009 Principal waste types exported
Incineration (D10)	Solvents (69%)[1]	Solvents (32%)	Solvents (49%)	Aqueous washing liquids and mother liquors (29%)
	Other industrial waste (17%) [2]	Other industrial waste (56%)	Other waste (37%)	Solvents (20%)
	Other chemical waste (6%)	Other chemical waste (4%)	Other chemical waste (9%)	Halogenated Solvents (12%)
			Contaminated packaging (4%)	Other Industrial waste (21%)
			Paint, ink, varnish waste (1%)	
Use as fuel (R1)	Solvents (67%)	Solvents (71%)	Solvents (87%)	Solvents (98%)
	Other industrial waste (11%)	Other industrial waste (17%)	Other waste (8%)	Other industrial waste (2%)
	Other chemical waste (7%)	Waste oil (7%)	Waste oil (1%)	
			Contaminated packaging (2%)	
			Paint, ink, varnish waste (2%)	
Solvent recycling (R2)	Solvents (97%)	Solvents (99%)	Solvents (98%)	Solvents (95%)
			Paint, ink, varnish waste (1%)	Paint, ink and varnish (1%)
			Other waste (1%)	Other industrial waste (1%)
Metal recovery (R4)	Equipment (43%)	Equipment (39%)	Equipment (31%)	Batteries (63%)
	Batteries (34%)	Batteries (33%)	Batteries (47%)	Other industrial waste (6%)
	Photochemicals (8%)	Photochemicals (18%)	Photochemicals (3%)	Equipment (electrical, electronic, mechanical 28%)
			Contaminated packaging (1%)	
			Other waste (20%)	
Physico-chemical treatment (D9)	Acid/alkali (10%)	Acid/alkali (31%)	Acid/alkali (40%)	
	Other industrial waste (36%)	Other industrial waste (69%)	Other waste (60%)	Acid / Alkali waste (47%)
	Sludges (12%)			Paint, Ink & Varnish (32%)
	C&D waste (38%)			

Hazardous waste treatment category or technology	2004 Principal waste types exported	2006 Principal waste types exported	2008 Principal waste types exported	2009 Principal waste types exported
Landfill (D1, D5)	Asbestos (68%)	Asbestos (54%)	Asbestos (32%)	Asbestos (93%)
	Sludges (19%)	Other industrial waste (23%)	Other industrial waste (56%)	Sludges and filter cakes (6%)
	Other industrial waste (13%)	Sludges (19%)	Sludges (12%)	
Inorganic material recovery (R5)	Other industrial waste (42%)	Other industrial waste (58%)	Other waste (61%)	Equipment (electrical, electronic, mechanical 33%)
	Sludges (19%)	Solvents (22%)	Solvents (35%)	Construction and Demolition waste (27%)
	Acid and alkali waste (20%)	Contaminated packaging (11%)	Equipment (4%)	Other industrial waste (29%)
Acid/base regeneration (R6)	Acid and alkali waste (75%)	Acid and alkali waste (100%)	Acid and alkali waste (89%)	Acid and alkali waste (100%)
	Solvent-based waste (25%)		Other chemical waste (11%)	
Organic substance recovery (R3)	Solvents (67%)	Paint, ink, varnish waste (54%)	Paint, ink, varnish waste (50%)	Construction and Demolition waste (77%)
	Other industrial waste (26%)	Other industrial waste (18%)	Other waste (21%)	Paint, Ink & Varnish (10%)
		Equipment (8%)	Contaminated packaging (9%)	Equipment (electrical, electronic, mechanical 9%)
		Other chemical waste (8%)	Other chemical waste (1%)	
			Solvents (18%)	

[1]Percentages are calculated with reference to the data in Table 14
[2] **This is principally process waste from the pharmachem sector.**

(Sources: 2008 TFS Master File; 2009 TFS Master File).

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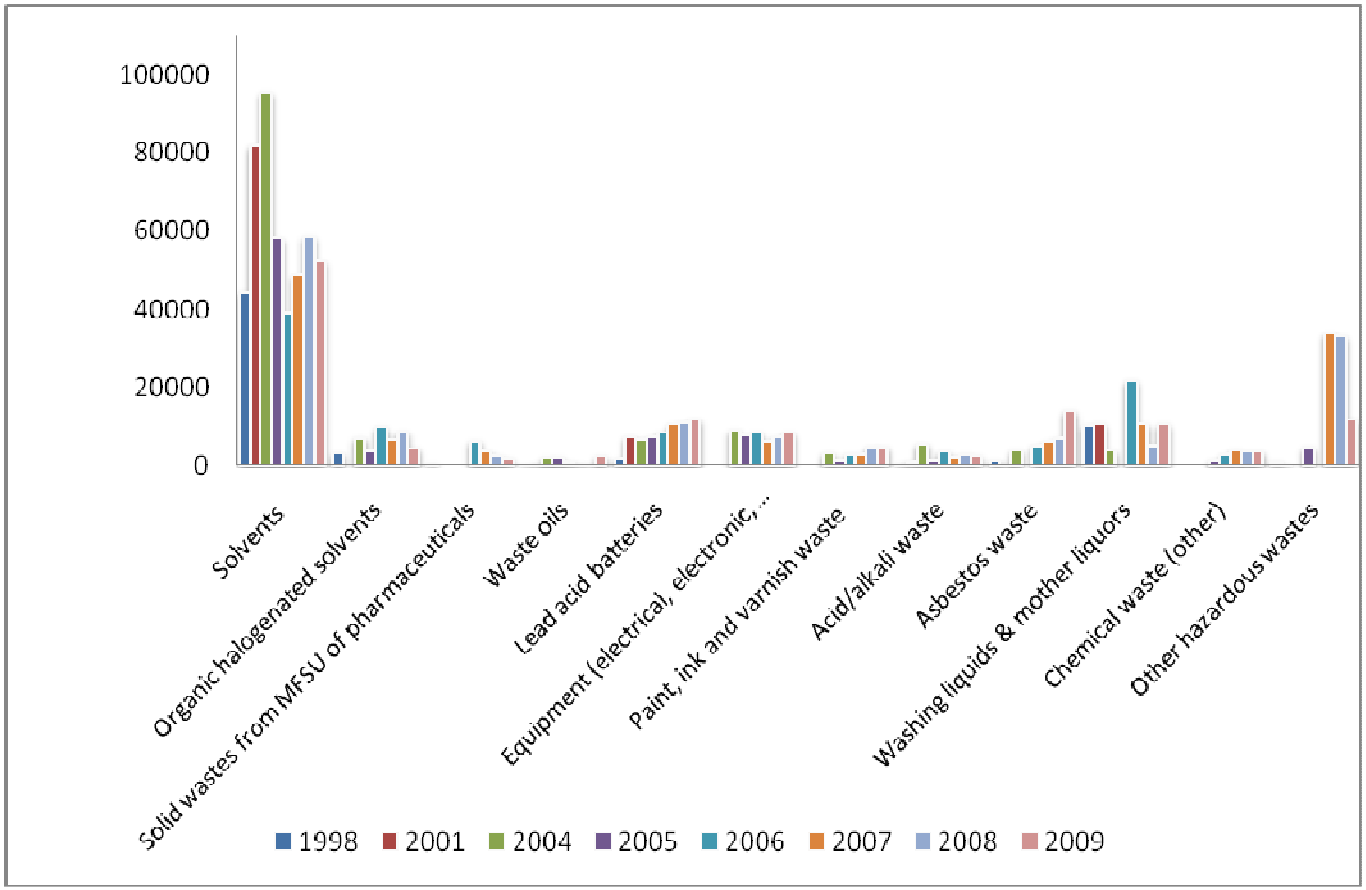
Appendix 4.17 Export of some Major Hazardous Waste Streams, 1998 – 2009 (update of Figure 11 page 60 in the Plan)



Appendix 4.18 Reported Thermal Treatment of Waste Solvents and other Hazardous Waste, 2004 – 2009 (update of Table 16 page 63 in the Plan)

	2004			2005	2006			2007	2008			2009		
	On-site	Off-site	Exported	Exported	On-site	Off-site	Exported	Exported	On-site	Off-site	Exported	On-site	Off-site	Exported
Solvents (total shown, including halogenated solvents where these were specified)														
Recycling [2] (R2)	26,597	837	19,172	23,283	25,952	[3] 940	16,105	18,085	23,500	7,374	32,430	25,042	7,386	18,381
Use as fuel (R1)	2,324	0	24,676	28,719	6,201	0	10,472	22,180	8,139	23,986 [4]	18,897	7,326	17,745	22,647
Incineration (D10)	35,214	0	35,884	27,301	31,368	0	15,424	11,912	19,687	0	19,786	21,299		20,893
Other industrial hazardous waste (mostly pharmachem sector – aqueous mother liquors, reaction residues, solid wastes – often containing solvents but not as a principal constituent)														
Recycling [2] (R2)	0	0	0	0	0	0	0	147	6	0	301	0	0	292
Use as fuel (R1)	3,676	0	4,206	2,617	3,703	0	2,790	669	4,173	0	1,832	3,273	0	416
Incineration (D10)	1,956	0	10,127	10,472	3,536	0	27,056	13,008	1,103	0	15,102	4.86	0	8,960
Chemical waste not otherwise specified (mostly organic and inorganic chemicals 16 05 07* and 16 05 08*)														
Use as fuel (R1)	0	0	2,421	40	0	0	83	374	0	0	0	0	0	
Incineration (D10)	0	0	3,731	1,923	0	0	1,673	2,565	17	0	3,745	0	0	773
All others (mostly waste oil, waste paint, absorbents and filter materials and contaminated packaging)														
Recycling [2] (R2)	0	0	0	0	0	0	0	63	0	0	347	5.65	140	121
Use as fuel (R1)	25	0	5,215	2,094	15	0	1,460	4,924	0	0	985	0	0	94
Incineration (D10)	134	0	4,571	4,023	218	0	3,702	5,179	90	0	1,872	55	0	1,686

	2004			2005	2006			2007	2008			2009		
	On-site	Off-site	Exported	Exported	On-site	Off-site	Exported	Exported	On-site	Off-site	Exported	On-site	Off-site	Exported
Sub-total - Use as fuel (R1)	6,024	0	36,518	33,470	9,918	0	14,805	28,147	12,312	0	21,714	10,599	17,745	23,157
Sub-total – Incineration (D10)	37,304	0	54,314	43,719	35,121	0	47,854	32,664	20,807	0	40,505	21,359	0	32,312
Total	43,328	0	90,832	77,189	45,040	0	62,659	60,811	33,119	0	62,219	31,958	17,745	55,469

[1] Data for on-site and off-site management of hazardous waste is reported every second year. Export data is collated annually from local authority records

[2] Solvent recycling (R2) is presented in this table not as a thermal treatment technique, but to illustrate the scale of solvent recycling vis-à-vis thermal treatment (R1 + D10). (Note: R1 means use as fuel, i.e. recovery of heat/energy; R2 means material recycling, e.g. by distillation; D10 means incineration).

[3] Solvent recycling by distillation. The blending of 900 tonnes of solvent for export for use as fuel is not counted here.

[4] A total of 23,986 t of waste solvent (1,073 t of halogenated solvent and 22,913 t of non-halogenated solvent) was blended at facilities in Ireland prior to export for use as fuel in cement kilns and incinerators. The blended solvents were exported as a waste. These quantities are correctly counted in both the "treated off-site in Ireland" column and the "exported" columns. However, they have been discounted in the "total" column to avoid double counting in the total amount of hazardous waste generated.

Appendix 4.19 Calculation of Quantity of Hazardous Waste Potentially Available for Incineration in Ireland, 2004 – 2009 (update of Table 17 page 66 in the Plan)

	2004 (tonnes)	2005 (tonnes)	2006 (tonnes)	2008 (tonnes)	2009 (tonnes)
Total quantity of hazardous waste exported for incineration (D10)	54,314	43,719	47,854	40,505	32,312
***Deduct* the actual quantity of solvent exported for incineration (D10) that may have the potential to be diverted for recycling or use as fuel**	-35,884	-27,301	-15,424	-19,786	-20,893
Minimum potentially available for incineration in Ireland that is currently incinerated abroad	18,430	16,418	[1] 32,430	[2] 20,719	11,419

[1] Includes 27,056 tonnes of 'other industrial waste' from the pharmachem sector (predominantly EWC codes 07 05 01* and 07 05 13*), 1,673 tonnes of 'other' chemical waste, 1,520 tonnes of healthcare risk waste, and miscellaneous other wastes.

[2] Includes 6,446 tonnes of 'other industrial waste' from the pharmachem sector (predominantly EWC codes 07 05 01* and 07 05 13*), 3,745 tonnes of 'other' chemical waste, 731 tonnes of healthcare risk waste, 308 tonnes of paint, ink & varnish waste, 1,564 tonnes of contaminated packaging and 7,925 tonnes of miscellaneous other wastes.

Appendix 4.20 Reported Commercial Landfilling of Irish Hazardous Waste, 2004 – 2009 (update of Table 18 page 68 in the Plan)

Hazardous Waste Type	2004 (tonnes)		2006 (tonnes)		2008 (tonnes)		2009 (tonnes)	
	Off-site	Exported	Off-site	Exported	Off-site	Exported	Off-site	Exported
Asbestos	[1] 3,109	[2] 4,058	[1] 2,524	[3] 5,294	[1] 7,462	[4] 7,007	0	14,068
Sludges and filter cakes		1,122		2,896		2,634		895
Industrial waste (other)		795		3,994		12,351		65
Contaminated soil		289		21,138		184,316		
Total	**3,109**	**6,264**	**2,524**	**33,321**	**7,462**	**206,308**		**[5] 15,116**
Total off-site landfill excluding contaminated soil	**9,084**		**14,708**		**29,455**		**[5] 15,116**	
Total off-site landfill of asbestos	**7,167**		**7,818**		**14,469**		**14,068**	

[1] Landfilled at KTK Landfill, Co Kildare

[2] Exported to Germany, of which 3,109 tonnes of construction materials containing asbestos (EWC 17 06 05*) and 949 tonnes of insulation materials containing asbestos (EWC 17 06 01*)

[3] Exported to Germany, of which 3,430 tonnes of construction materials containing asbestos (EWC 17 06 05*) and 1,863 tonnes of insulation materials containing asbestos (EWC 17 06 01*)

[4] Exported to Germany, of which 5,189 tonnes of construction materials containing asbestos (EWC 17 06 05*) and 1,817 tonnes of insulation materials containing asbestos (EWC 17 06 01*)

[5] Total also includes 49t of solid wastes from MFSU of pharmaceuticals (EWC 07 05 13*) and 39t of heavy metal containing waste (EWC 06 04 05*) which were exported to Germany for landfill.

Appendix 4.21(i) Recommended Capacity for Hazardous Waste Landfill facilities* (update of Table 19 page 70 in the Plan)

Materials requiring landfill disposal	Facility 1 National Facility (tonnes)	Facility 2 'Regional' Facility (tonnes)
Asbestos (all asbestos, including insulation materials)	20,000	
Asbestos (as set out in article 6(c)(iii) of the Landfill Directive (1999/31/EC) and section 2.3.3 of the Annex to Council Decision 2003/33/EC		7,000
Other hazardous wastes for which landfill is the sole option	20,000	
Total recommended annual capacity	**40,000**	**7,000**

In July 2010, A study on the Technical and Economic Aspects of developing a National Difficult Waste Facility (NaDWaF) was completed by SKM Envros on behalf of EPA. This is available at http://www.epa.ie/downloads/pubs/waste/haz/EPA_NaDWaF_report_Final.pdf

This report has projected growth tonnages for hazardous wastes which are presented in Table 23 of the NaDWaF report. Table 23 of the NADWaF report looks at Hazardous Waste arisings potentially suitable for Landfill in Ireland and Northern Ireland and are aggregated on 6 year basis, 2008 – 2025, (including hazardous contaminated soils). Table 23 of the NaDWaF report is included below for reference.

The current and expected future arisings of hazardous waste, suitable for landfilling at a potential National Difficult Waste Facility (NaDWaF), were determined through a desk-based assessment of historic hazardous waste data combined with economic forecast data. The sources of information used during this assessment include EPA National Waste Report datasets; TFS datasets; Northern Ireland Environment Agency data; England and Wales Environment Agency Hazardous Waste Interrogator data; ESRI's Sustainable Development Research Model for Ireland "ISus"; and various direct contacts within the EPA.

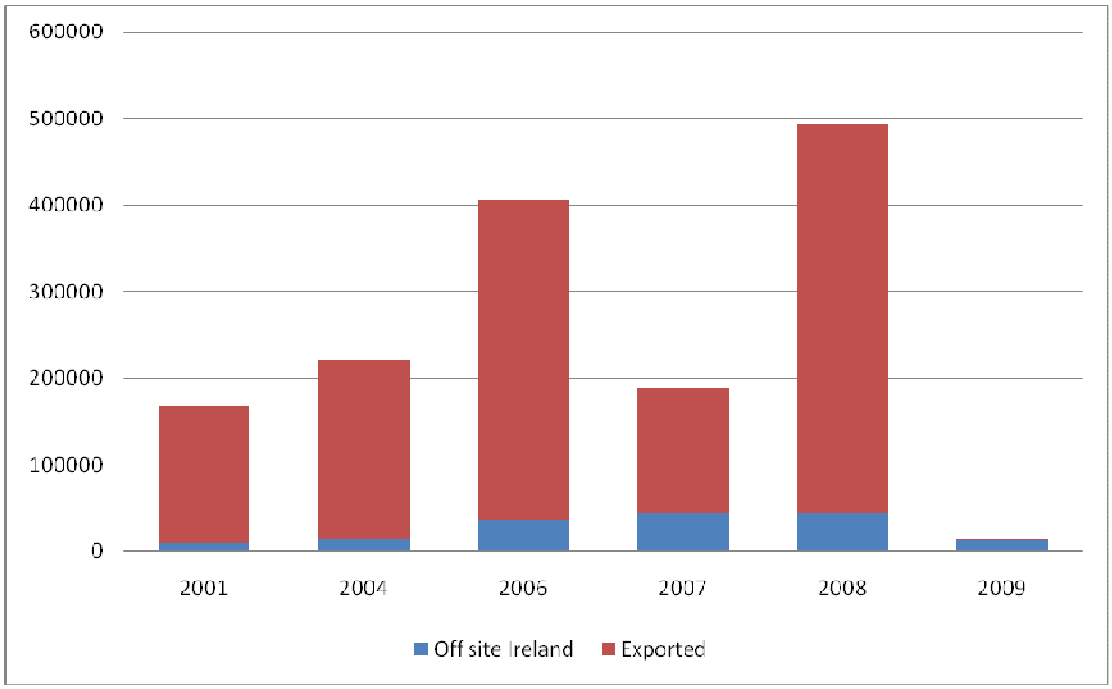
Data relating to both Ireland and Northern Ireland was analysed with a view to considering an all island facility. For the purposes of predicting future hazardous waste arisings, the year 2008 was selected as the baseline year. The 2008 baseline data was then subjected to economic forecast factors, as supplied by the ESRI, to estimate waste arisings from 2008 to 2025 inclusive.

Appendix 4.21(ii) Hazardous Waste Arisings Potentially Suitable for Landfill, Ireland and Northern Ireland, Aggregated on 6 year basis, 2008-2025. [15]

HAZARDOUS WASTE, LANDFILLED Unit: tonnes	NACE	2008 - 2013 Average	2014 - 2019 Average	2020 - 2025 Average
Chemical production				
*07 05 11**	**24**	**89**	**141**	**182**
*07 05 13**		**156**	**246**	**318**
*16 11 05**		**6**	**9**	**12**
Non-metallic mineral production				
*10 11 13**	**26**	**36**	**50**	**60**
*10 11 19**		**1,527**	**2,131**	**2,524**
*12 01 14**		**12**	**17**	**20**
Metal prod. excl. machinery & transport equip.				
*01 03 07**	**27-28**	**14,190**	**22,414**	**28,946**
*10 02 07**		**43**	**68**	**88**
*10 10 07**		**826**	**1,305**	**1,685**
Electrical goods				
*06 04 05**	**31-33**	**2,845**	**4,494**	**5,804**
Construction				
*17 05 03**	**45**	**142,642**	**179,121**	**195,723**
*17 06 01**		**2,841**	**3,567**	**3,898**
*17 06 05**		**11,882**	**14,921**	**16,304**
*17 09 03**		**11**	**14**	**16**
Services (excl. transport)				
*19 01 05**	**50-55, 64-95**	**8**	**10**	**11**
*19 03 04**		**27**	**33**	**39**
*19 03 06**		**1,124**	**1,373**	**1,621**
*19 08 06**		**3**	**4**	**4**
*19 10 03**		**9,266**	**11,321**	**13,371**
Predictions Model Sub-Total (Applying ESRI Growth Factors)				

[15] Table 23 of Technical and Economic Aspects of developing a National Difficult Waste Facility (NaDWaF) study, completed by SKM Envros on behalf of EPA in July 2010. This is an all-island view. http://www.epa.ie/downloads/pubs/waste/haz/EPA_NaDWaF_report_Final.pdf

Appendix 4.22 Location of treatment of reported contaminated soil (update of Figure 12, page 77 from the Plan)



Appendix 4.23 Indicators for Hazardous Waste Generation and Management, 1996-2009 (update of Table 23 page 117 from the Plan)

Indicator	1996 (tonnes)	1998 (tonnes)	2001 (tonnes)	2002 (tonnes)	2003 (tonnes)	2004 (tonnes)	2005 (tonnes)	2006 (tonnes)	2007 (tonnes)	2008 (tonnes)	2009 (tonnes)
Industrial hazardous waste treated on-site of generation (predominantly at IPPC-licensed facilities)	141,156	131,738	95,566			86,328		88,409	82,732	72,038	74,668
… recovered (tonnes)	85,690	75,440	40,900			32,899		38,372	46,545	36,446	36,124
… disposed (tonnes)	55,464	56,298	54,666			53,429		50,037	36,187	35,592	38,544
Hazardous waste treated off-site in Ireland at authorised facilities (not including contaminated soil)	36,434	42,485	48,013			55,952		60,872	91,240	113,839	89,992
… recovered (tonnes)	29,228	28,868	32,401			24,446		26,976	52,452	79,245	68,145
… disposed (tonnes)	3,921	13,541	15,612			31,506		33,896	38,791	34,594	21,848
Hazardous waste exported (not including contaminated soil)	51,327	75,907	115,366	109,545	170,678	165,498	146,811	134,904	147,542	157,207	150,395
… for recovery	23,651	48,210	67,751	63,706	80,852	100,134	91,418	69,515	82,770	89,749	98,049
… for disposal	27,369	50,180	47,140	41,975	88,197	76,494	55,392	65,130	64,675	67,424	52,345
… for unspecified treatment	307	1,208	476	3,864	1,629	372	0	259			0
Unreported hazardous waste (estimate)	98,228	74,311	48,402			47,011		29,888			

Indicator	1996 (tonnes)	1998 (tonnes)	2001 (tonnes)	2002 (tonnes)	2003 (tonnes)	2004 (tonnes)	2005 (tonnes)	2006 (tonnes)	2007 (tonnes)	2008 (tonnes)	2009 (tonnes)
Contaminated soil	400	45,486	168,579			221,137		406,904	188,127	493,107	12,904
… recovered in Ireland	0	0	8,535			14,838		36,872	44,241	43,531	12,428
… disposed in Ireland	0	0	101			0		0	0	2	0
Exported contaminated soil	400	23,691	159,943	139,892	218,521	206,299	140,442	370,032	143,906	449,574	476
… recovered abroad	400		159,153	139,449	143,897	35,555	7,184	28,875	17,047	151,891	469
… disposed abroad	0		789	443	74,264	170,744	133,258	341,158	126,859	297,683	7
Industrial hazardous waste generated											
… reported (i.e. sample)	192,789	219,974	202,502			209,197		216,411			
… projected (i.e. total)	222,107	238,892	244,426			259,487		271,755			
… recovered (tonnes)		110,702				87,794		101,173			
… disposed (tonnes)		109,156				120,159		114,041			
…unspecified recovery or disposal (tonnes)								1,197			

All data from the National Hazardous Waste Management Plans (2001 and 2008) and National Waste Reports (1998, 2001-2009)

Appendix 4.24 Treatment of Hazardous Waste On-site at IPPC Facilities (excluding contaminated soil) in 2009 (update of Table 24 page 119 in the Plan)

Facility name	IPPC Reg No.	Waste Type	Recovery/ Disposal Code	Quantity treated (tonnes)
Arran Chemical Co Ltd	P0110-02	Solvents	R2	118
Astellas Ireland Co. Ltd	P0007-03	Solvents	D10	475
			D10	1,650
Aughinish Alumina Ltd	P0035-04	Salts and salt cake	D1	15,238
Cognis Ireland Ltd	P0052-02	Other industrial hazardous waste	R1	3,273
Conoco Phillips	P0419-01	Oil waste (mineral oil)	R9	180
DIS Enbi Seals Ireland Ltd	P0064-01	Oil waste (mineral oil)	R9	0.3
Eli Lilly	P0009-03	Solvents	D10	10,578
			R2	659
			D10	186
Galmoy Mines Ltd	P0517-01	Absorbents, wiping cloths	D12	1
Irish Industrial Explosives Ltd.	P0055-01	Other industrial hazardous waste	D10	3
Liebherr Container Cranes Ltd	P0146-01	Paint, ink, varnish	R2	6
Mallinckrodt Medical Imaging	P0050-02	Solvents	D8	349
			R2	6,713
			D8	<0.1
			D9	119
Merck Sharp & Dohme	P0011-03	Solvents	D8	1,002
			R2	1,521
Millipore Ireland Limited	P0571-02	Solvents	R2	736
Novartis Ringaskiddy Ltd	P0006-03	Oil waste (mineral oil)	D10	<0.1
		Packaging (contaminates or containing residues)	D10	40
		Sludges and filter cakes	D10	6
		Solvents	D10	0.2
			D8	443
			R1	1,854
			R2	6,222
		Absorbents, Wiping cloths	D10	20

Facility name	IPPC Reg No.	Waste Type	Recovery/ Disposal Code	Quantity treated (tonnes)
		Solvents	D10	343
			D8	5
		Solid wastes from MFSU of pharmaceuticals (07 05 13*)	D10	2
		Laboratory and general chemical waste	D10	8
Pfizer Cork Limited	P0103-02	Solvents	R2	156
			R2	79
Pfizer Ireland Pharmaceuticals	P0013-04	Solvents	R2	4,257
Roche Ireland Limited	P0012-04	Solvents	R1	1,416
			R1	689
Schering-Plough (Ireland)	P0015-04	Solvents	R1	997
Sigma-Aldrich Ireland Ltd	P0089-03	Solvents	R2	98
Smithkline Beecham (Cork) Limited	P0004-03	Solvents	D10	4,276
			R1	2,372
			R2	295
Swords Laboratories	P0014-04	Solvents	R2	448
			R2	382
Bristol Myers Squibb Cruiserath	P0552-02	Solvents	D10	94
			R2	1,683
			D10	3,696
			D8	8
			R2	628
Temmler Ireland Ltd	P0813-01	Solvents	R2	1,047
		Solid wastes from MFSU of pharmaceuticals (07 05 13*)	R3	297
			Total	**74,668**

(Source: Table 34 of National Waste Report, 2009, Page 50)

Appendix 4.25 EPA Licensed and Permitted Facilities for Hazardous Waste Treatment and Transfer in 2009 (update of Appendix C – Hazardous Waste Facilities, Table 25 page 121 in the Plan)

Company Name	Licence or Permit Reg. Number	Treatment or Transfer Facility	Hazardous Waste Operations	Principal hazardous wastes authorised for treatment	Quantity of hazardous waste treated in 2009 (tonnes)
Eco-Safe Systems Limited	W0054-02	Transfer and Treatment	Healthcare risk waste processing by heat treatment (disinfection) and shredding prior to landfill	Healthcare risk waste	**601**
Enva (Portlaoise)	W0184-01	Transfer and Treatment	Oils and oil filters processing, contaminated soils processing	Waste oils and sludges, contaminated soils	**20,566**
Enva (Shannon)	W0041-01	Transfer and Treatment	General chemical waste treatment and storage prior to export	Acid and alkali waste, photographic waste, industrial sludges, laboratory waste, solvents blending, other industrial and commercial chemical waste	**6,363**
Indaver Ireland Limited - Tolka Quay Road	W0036-02	Transfer and Treatment	General chemical and other hazardous waste treatment and storage prior to export	Solvents blending and recycling	**186**
Irish Lamp Recycling	02/2000B	Treatment	Fluorescent lamps pre-treatment prior to export of segregated materials and other wastes	WEEE (Fluorescent Lamps)	**297**
Donohill Landfill	W0074-02	Landfill	Landfill	Contaminated Packaging (15 01 10*)	**126**
Rilta	W0192-03	Transfer and Treatment	General chemical and other hazardous waste treatment and storage prior to export	Oily sludges, waste oils, oil filters, photographic waste, contaminated soil, contaminated drums, containers	**20,058**

Company Name	Licence or Permit Reg. Number	Treatment or Transfer Facility	Hazardous Waste Operations	Principal hazardous wastes authorised for treatment	Quantity of hazardous waste treated in 2009 (tonnes)
				and IBCs, WEEE	
Soltec (Irl) Ltd.	W0115-01	Transfer and Treatment	Solvent distillation and recycling	Solvents distillation	**457**
Sterile Technologies Ireland Ltd.	W0055-02	Treatment	Healthcare risk waste processing by heat treatment (disinfection) and shredding prior to landfill	Healthcare risk waste	**8,874**
Veolia Environmental Services (formerly AVR-Safeway Ltd)	W0050-02	Transfer and Treatment	Solvents	Solvents blending and recycling	**25,011**
KMK Metals Recycling	W0113-03	Transfer and Treatment	Metal-rich wastes and sludges storage prior to export. WEEE treatment	WEEE	**5,874**
Recycling Village	2004 / 015	Treatment	WEEE treatment	WEEE	
Safety Kleen Ireland Ltd.	W0099-01	Transfer	Solvents and chemical waste storage prior to export	None	**-**
Guardian Silver Lining Industries (Ireland) Ltd	W0122-01	Transfer	General chemical and electronic waste storage prior to export	None	**- 1,579**
Enva (Dublin)	W0196-01	Pre-treatment & transfer	Waste oils and oily sludges transfer.	Waste oils and oily sludges (not operational)	
Enva (Cork)	W0145-02	Transfer and Treatment	Waste oil transfer	Healthcare risk waste (not operational)	**-**
TOTAL TREATED ONSITE IN 2009 (including contaminated soil):	***102,421***				
....contaminated soil (tonnes)	***12,428***				
TOTAL TREATED ONSITE IN 2009 (excluding contaminated soil):	***89,992***				
TOTAL TREATED ONSITE IN 2009 (including	***102,421***				

Company Name	Licence or Permit Reg. Number	Treatment or Transfer Facility	Hazardous Waste Operations	Principal hazardous wastes authorised for treatment	Quantity of hazardous waste treated in 2009 (tonnes)
contaminated soil):					
Indaver Ireland Limited - Ringaskiddy	W0186-01	Treatment	Integrated waste management facility, including incineration	Chemical waste including solvents	Not operational in 2009
Indaver Ireland Limited - Carranstown	W0167-01				Not operational in 2009 No treatment of hazardous waste in 2009
Cedar Resource Management	W0185-01; CK(S) 96 (104); WP (12) 04	Transfer & Treatment	General chemical and other hazardous waste storage prior to export. WEEE treatment	WEEE	
Sita Environmental Limited - Lower Oriel Street	W0083-01	Treatment	Drums and IBCs processing and recycling	Contaminated drums, containers and IBCs and those containing residues	Site closed
National Recycling & Environmental Protection Limited	W0112-01				Site closed -
Sorundon Limited T/A Irish Environmental Services	W0040-01	Transfer	General chemical and other hazardous waste storage prior to export	None	

Total number of facilities in operation	16
... of which processors:	13
... of which transfer only:	3

Appendix 4.26 Management of Contaminated Soil as Reported in 2009

Disposal or recovery activity	Off-site in Ireland (t)	Exported (t)		
		Germany	Netherlands	Total exported
Landfill				
Biological treatment				
Incineration on land		7		7
Physico-chemical treatment				
Sub-total disposal		**7**		**7**
Inorganic substance recovery	12,428		469	469
Sub-total recovery	12,428		**469**	**469**
Total	12,428	**7**	**469**	**476**

(Source: Table 36 of 2009 National Waste Report 2009, Page 53.

APPENDIX 5: NEW PRODUCER RESPONSIBILITY OBLIGATIONS RECOMMENDED FOR EVALUATION

(Table 11 page 40 from Plan)

Material	Potential collection route(s)	Potential funding model(s)
Medicines (human)	Retail take back - return of out of date or unused medicines to pharmacists	Public funding with contributions from major suppliers (based on market share) may be appropriate.
Farm chemical containers (plant and animal protection products and medicines)	Options: - Retail take back - Civic amenity sites (clean containers only) - Milk-round collection	The viability of visible environmental management costs and producer recycling funds could be explored. Synergies with existing farm plastic schemes could be explored. Deposit-refund for containers could be explored.
Waste oil	Collection at source from garages Civic amenity sites and other convenient locations such as large service stations	A producer recycling or collection fund may be a means of allowing producers to subsidise waste oil collections should the net positive value of waste oil change.
Oil filters	Collection at source from garages Civic amenity sites and other convenient locations such as large service stations	A producer recycling or collection fund could be considered as a means of increasing collection and recycling.
Paint and paint containers	Return of paint and paint tins to retail outlets (perhaps with reuse of paint tins by refilling) Civic amenity sites (with paint reuse where appropriate)	Any funding model should incentivise consumers to bring back paint tins and old paint. A deposit-refund or “reward-for-refill” scheme may be appropriate for retail or wholesale take back.
Pesticides and herbicides (household)	Return of domestic unused, residual and out of date chemicals and packaging to retail outlets (e.g. garden centres, co-ops) Civic amenity sites	Any funding model should incentivise consumers to bring materials. A deposit-refund scheme may be appropriate for retail take back.
Ink and ink containers from publishing	Reverse logistics within the publishing and printing industry supply chain	A producer recycling or collection fund could be considered as a means of product innovation and waste collection within the trade.