

ENVIRONMENTAL PROTECTION AGENCY

ANNUAL HIGHLIGHTS



EPA ANNUAL HIGHLIGHTS 2008

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DIRECTOR GENERAL'S STATEMENT

DIRECTOR GENERAL'S STATEMENT

Welcome to our Annual Highlights for 2008.

2008 was a very busy and challenging year for the EPA. At the start of the year, there was little indication that the world was facing an economic crisis on the scale witnessed in the past few months. Yet environmental challenges both for Ireland and for the planet remain. We still have to face up to and deal with climate change; our waters and habitats still need to be restored where damaged, and protected where in good condition; all sectors of the economy still need to reduce their impact on the environment and we still have to comply with the ever-growing number of environmental laws and agreements. These are all challenges that we must continue to face and deal with despite the worsening economic situation we find ourselves in.

I am hopeful, though, that we can meet these challenges and that there are also significant economic opportunities for Ireland in becoming a low carbon and greener economy. Ireland's environment is a key strategic asset for the country and we must protect, manage and invest in it to secure a healthy society and a strong economy into the future. The EPA has an important role to play in ensuring that the protection and improvement of Ireland's environment remains centre stage and I look forward to leading the EPA through these more challenging times.

The EPA has set out its long-term vision for Ireland's environment in its corporate strategy *2020Vision*. This vision sets out goals for Ireland's environment under the headings of limiting and adapting to climate change, clean air, protected water resources, protected soil and biodiversity, sustainable use of resources and integration and enforcement. The work of the EPA is fully aligned to this vision. This is reflected in the structure of this report

which enables the reader to see how the work of the EPA in 2008 helps us to move towards achieving these goals. These are challenging goals and the EPA is now engaging with many other organisations and individuals in finding ways to move us along in the right direction. During 2009, and in future years, building alliances and networks with other groups and organisations will become increasingly important given the wide range of actors involved in environmental protection, and the EPA will play its part in facilitating the development and operation of such alliances and networks.

The new economic situation also calls for public sector organisations to become highly efficient in their use of scarce resources. Put simply, we have to be able to do more with less and I am committed to continuing to ensure that the EPA is an organisation that gives good value for money. I am also committed to ensuring that the EPA continues to be an organisation with a strong focus on public service and one that prides itself on the delivery of a top quality service to its many stakeholders.

IRELAND'S ENVIRONMENT 2008

In October 2008, the EPA published its fourth '*state of the environment*' report, *Ireland's Environment 2008*. This report, the flagship report from the EPA, is a comprehensive, wide-ranging evidence-based assessment of Ireland's natural environment. The report highlights the scale of the challenges Ireland faces and shows that the environment is an asset under threat. The report identifies the four main environmental challenges for Ireland to address in the coming years. These are:

1. Limiting and adapting to climate change,
2. Reversing environmental degradation – particularly in relation to water pollution and the conservation status of habitats,

3. Mainstreaming environmental considerations across all sectors of the economy, and
4. Complying with environmental legislation and agreements.

This was the fourth '*state of the environment*' Report published by the EPA since its first such report in 1996. The value of regular reporting of this kind is that it allows us to chart trends in environmental quality over time and to take stock of the challenges facing us in maintaining a good quality environment. These reports have covered a period of unprecedented economic growth in Ireland and it is reassuring to be able to report that, despite the many problems that we have and the many pressures inflicted on the environment, for the most part Ireland's environment is generally of good quality. However, there is no room for complacency and we must continue to work hard at protecting our environment where it is in good condition and reversing environmental degradation where that has occurred, particularly in relation to water pollution and habitats. There is a need for on-going investment in environmental infrastructure including waste water treatment, drinking water treatment, river basin management and waste management as Ireland has been playing catch-up in these areas. In more straitened economic circumstances it becomes even more important to ensure that investment goes where it is most needed; for waste water treatment, for example, this means prioritising investment in areas where the risk of pollution is highest. '*state of the environment*' reporting assists the State to make investment decisions based on sound scientific evidence.

ENVIRONMENTAL RESEARCH & INNOVATION

Developments in science, research and innovation play a valuable role in environmental protection. Good quality research can provide the foundation for credible decision

making, while technology and innovation can provide valuable pioneering solutions for environmental problems. The complexity of existing and emerging environmental issues, and the range of causal factors, means that modern environmental policies must be underpinned by the type of knowledge that can be delivered through a systematic programme of environmental research. The EPA's research strategy (STRIVE) is focused on the provision of world-class scientific knowledge to protect and improve the natural environment.

During 2008, a range of high profile research reports was published, providing input to policy development and support to the implementation of EU legislation in Ireland. The EPA also held a major national conference which showcased the depth and breadth of environmental research and innovation that has been funded by the EPA over the past number of years. In addition, the STRIVE programme made awards for new research projects to address key environmental priorities in waste and resource management, environment and health, sustainable development and in environmental technologies. It also continued its programme to build environmental research capacity in Ireland by providing grants for new Ph.Ds, Masters and post-doctoral fellowships.

2008 also saw the completion of a number of research projects on environmental technologies, a priority area for the EPA research programme in recent years. These projects which feed directly into the national roadmap for environmental technologies and underpin the Smart Green Economy. The EPA also published the results from its industry-focused *Cleaner Greener Production Programme*, which promotes greater eco-efficiency in businesses in Ireland. The results showed positive benefits for the environment with reductions in waste and waste water arising and in energy use, coupled with significant economic

saving for the participating organisations, highlighting how environmental protection and economic development can go hand-in-hand.

As part of its research programme, the EPA has also been working with the Economic and Social Research Institute (ESRI) and Teagasc on the development of a new way of forecasting how economic and social developments will affect the environment. The first results of this project, called the ISus project (Irish Sustainable Development Model), were presented in *Ireland's Environment 2008* and the ESRI's Medium Term Review 2008-2015. The model allows us to predict the impact of future economic and social developments on the production of waste and the generation of potentially polluting substances such as acidifying gases and greenhouse gases. It also allows us to model issues such as the likely impact on the environment of an increase in landfill taxation. While one can never be certain about predicting the future, this new tool will help guide us in making informed decisions about what is best for the future of Ireland's environment. We intend to continue this pioneering work with the ESRI and see this as a very concrete way of mainstreaming environmental considerations across all sectors of the economy.

CLIMATE CHANGE

Climate change remains the single biggest challenge facing humanity and Ireland faces very difficult challenges in the years ahead. The challenge is two-fold: to cut greenhouse gas emissions and to protect ourselves against the inevitable consequences of climate change. To cut greenhouse gas emissions we must radically reduce our dependence on fossil fuels and radically improve energy efficiency and conservation. Given our unusual dependence on fossil fuels as an energy source for electricity, heat and transport, and our poor record in energy efficiency and conservation,

particularly in the domestic sector, this is no easy task and will take time to achieve. All sectors of the economy in Ireland must make the necessary adjustments that will result in incremental reductions in carbon emissions and start moving Ireland towards a low carbon future.

We must also start to plan for climate changes that are now likely to happen even if we manage large-scale reductions in carbon emissions. Through EPA-funded research, we are now able to anticipate what Ireland might look like with a climate change induced increase in temperature. We appear to be moving to a situation where the existing regional variations between the west and the east of the country will become accentuated with more rainfall in the west and less rainfall in the east. Coupled with potential rises in sea level and more frequent occurrences of what we now consider to be weather extremes, water and coastal management are going to be big issues for the future. This means that planning authorities need to bring climate change centre stage when preparing development plans so both carbon reduction and climate adaptation strategies can be given full consideration. Reliable information and good quality research will also be vital when it comes to drawing up these plans.

The EPA will continue to play its part in dealing with climate change by providing reliable information on greenhouse gas emissions, both current and future, and continuing to implement the emissions trading scheme. The EPA will also continue to coordinate and fund research into climate change, to provide support to the Irish government at national and international level and to raise awareness about the issues facing Ireland. It is absolutely essential that we have good quality information and research to underpin decisions made in the pursuit of a low carbon future and that the public become more engaged and involved in the process.

WATER MANAGEMENT AND PROTECTION

2008 was a significant year for water protection and management for the EPA. The EPA continued to deliver on its commitments under the Water Framework Directive, which is the key driver for water protection and management over the medium term. 2008 was our first full year with powers of supervision over the production of drinking water by public authorities, and the year when we started licensing sewage discharges. These are two very significant measures, which in time will lead to improved water protection and management in Ireland, improved water quality and a consistent and well-protected supply of good quality drinking water. The introduction of licensing for waste water treatment discharges is particularly welcome, as they were the last major unregulated point discharges into the aquatic environment. There is an unacceptable level of non-compliance both with drinking water standards and with waste water treatment standards. This has major consequences for both people's lives when they are deprived of good quality drinking water and for the quality of our rivers, lakes, estuaries and groundwaters when they are contaminated by inadequately treated sewage. The EPA fully intends to use its new powers under the legislation to continue to drive improvements in the treatment and provision of drinking water and sewage treatment. These improvements, though, will not happen overnight and in many cases are dependent on investment in new and existing facilities, which is taking place through the Department of the Environment, Heritage and Local Government's water services investment programme.

LICENSING AND ENFORCEMENT

2008 has also been a busy year for both licensing and enforcement. In the licensing area, 52 final decisions were made on licence applications, including the granting of a waste licence to Dublin City Council for an incinerator following an Oral Hearing. An Oral Hearing was also held in relation to a proposed new landfill in Fingal, showing that the provision of large waste infrastructure facilities continue to be controversial with the public. The EPA also commenced the licensing of urban waste water discharges during 2008 with 10 licences issued. During 2008, the EPA's Office of Environmental Enforcement continued to use its enforcement powers both to enforce EPA licences and to bring about improved and more consistent enforcement by local authorities. The EPA took 20 prosecutions at District Court level during 2008 and three files were prepared for the Director of Public Prosecutions.

Recent global events have highlighted the importance of appropriate regulation. Environmental licensing and enforcement and the achievement of good environmental status are viewed by some as an unnecessary regulatory burden. However, such regulation is necessary if we want to have a high quality environment. The successes of the EPA's licensing systems, with the vast majority of licensees largely compliant with their licences and not a source of complaint or nuisance to those that live or work close to them, is a testament to this. The EPA is acutely aware of the difficulties some of its licensees will face in 2009 and will work with them and their representative organisations to ensure that environmental protection continues to be provided for in a cost-effective manner. We will also continue to use a risk-based approach to enforcement, which means that the EPA will focus its enforcement efforts where the risk to the environment is greatest and we will continue to ensure that persistent offenders are brought before the Courts to account for their actions.

WASTE MANAGEMENT AND THE SUSTAINABLE USE OF RESOURCES

During 2008 the EPA published the second *National Hazardous Waste Management Plan*. The Plan makes 29 recommendations that, when implemented, will reduce the generation of hazardous waste, ensure that all hazardous waste is collected and managed appropriately, increase Ireland's self-sufficiency in hazardous waste management, and deal with the legacy and contamination of past practices involving hazardous materials. The EPA will take the lead in implementing a large number of the Plan's recommendations as well as monitoring the implementation of the overall plan.

The EPA also highlighted the difficulties facing Ireland in relation to meeting the targets for diversion of biodegradable municipal waste from landfill and set out a number of options for dealing with the issue. This will be a major issue for Ireland in the coming years. Our dependence on landfill as the primary route for disposal of municipal waste must be reduced. Alternative infrastructure for dealing with biodegradable waste is badly needed.

In relation to waste prevention, strong progress was made on implementing the *National Waste Prevention Programme*. The *Local Authority Prevention Demonstration Programme*, which is now operating in fourteen local authority areas, continued with a national conference being held in February to highlight the prevention results achieved. Practical and useful outputs are now being generated through this programme such as the booklet on waste prevention on farms published by Monaghan County Council.

A Green Business Initiative called *Greenbusiness.ie* was also launched in 2008 with web-based audit tools and free confidential on-site audits being made available to all businesses. This free business advisory service represents

an innovative approach to waste prevention and resource efficiency in Ireland. *Greenbusiness.ie* is aimed primarily at small and medium sized enterprises, public bodies and other organisations. The *Green Home Programme* with An Taisce continued to grow strongly during 2008 with 9,000 new households being targeted. Waste prevention and resource efficiency are important objectives for every sector in society as there are economic benefits in addition to environmental gains to be made.

Finally, I want to pay a special tribute to Dr. Padraic Larkin who retired as a Director of the EPA in April 2008, having served with the EPA since its foundation in 1993 and worked tirelessly on environmental protection issues. I want to welcome Mr. Micheál Ó Cinnéide who joined the Board of the EPA in August 2008.

I would also like to thank all the staff of the EPA, my fellow Directors, the EPA Advisory Committee, the EPA Internal Audit Committee, the GMO Advisory Committee, the National Allocation Advisory Group, the *National Waste Prevention Committee*, the Enforcement Network Steering Committee and the myriad other groups and individuals who have advised and assisted us, for their support and commitment during the year and for their dedication to protecting the environment. Particular thanks are due to the Minister for the Environment, Heritage and Local Government for his support for the EPA in 2008 and to the many officials in his Department with whom we work very closely.

Mary Kelly

Dr. Mary Kelly

Director General, EPA, December 2008



INTRODUCTION

INTRODUCTION

Welcome to the EPA Annual Highlights 2008. This report provides a summary of the EPA's key activities and environmental and organisational outcomes achieved during 2008. The structure of the document reflects *2020Vision*, the strategic framework for protecting and improving Ireland's environment that was published by the EPA in April 2007.

The work of the EPA is carried out by its four main Offices:

- ▼ **The Office of Climate, Licensing and Resource Use** has a broad remit, which includes licensing large-scale industrial and waste facilities, and waste water discharges by the Licensing Unit. The Climate Change Unit is responsible for regulating and reporting on Ireland's greenhouse gas emissions and coordinating climate change research. The Resource Unit is responsible for promoting the sustainable use of resources by implementing the *National Waste Prevention Programme*, publishing the *National Waste Report*, promoting the *National Hazardous Waste Management Plan* and by enforcing a wide range of Producer Responsibility regulations. The Office is also responsible for permitting large petrol storage facilities and granting consents for genetically modified organisms.
- ▼ **The Office of Environmental Enforcement** is responsible for the enforcement of EPA licences issued for waste, industrial and other activities. It also exercises a supervisory role in relation to the environmental protection activities of local authorities. This ranges from providing advice and guidance, through to auditing performance, and, where necessary, issuing legally binding Directions.

- ▼ **The Office of Environmental Assessment** co-ordinates and undertakes ambient monitoring of air and water including chemical, biological and hydrometric monitoring of lakes, rivers and estuaries and the qualitative and quantitative monitoring of groundwater. It supports the EPA's licensing and enforcement functions through monitoring of emissions and various laboratory related services. It also provides sampling and laboratory assistance to local authorities.

The Office has responsibility for a range of functions including: co-ordinating a national environmental research programme; developing and using assessment tools such as Geographic Information Systems (GIS); producing regular reports on environmental quality and publishing periodic '*state of the environment*' and Indicator Reports. In addition, the Office implements key aspects of the EU Air Framework Directive and its Daughter Directives and EU Water Framework Directive. This EPA Office operates as Ireland's National Focal Point for the European Environment Agency (EEA), oversees Strategic Environmental Assessment and coordinates EPA activity on soils and biodiversity.

- ▼ **The Office of Communications and Corporate Services** ensures, among other things, that the EPA conducts its business activities in an efficient manner, conforming to best business practice and also effectively communicates with its stakeholders and the general public. The Office is responsible for Finance, Communications, Corporate Governance, Information Technology, Human Resources, Training and Organisational services.

More information on EPA activities, licences, publications and newsletters can be found on the EPA website at www.epa.ie. The Environmental Protection Agency Annual Report and Accounts 2008 will be available later in 2009.

1. LIMITING AND ADAPTING TO CLIMATE CHANGE

■ 2020 Goal

Ireland will achieve major reductions in greenhouse gas emissions and will be prepared for the unavoidable impact of climate change.

1. LIMITING AND ADAPTING TO CLIMATE CHANGE

EMISSIONS TRADING

The EPA is responsible for implementing emissions trading of greenhouse gases (GHG) in Ireland. The scheme applies to large producers of GHGs – such as the cement and power generation industries as well as other large users of fossil fuels.

At the end of 2008, 106 installations covered by the emissions trading scheme in Ireland held valid permits requiring them to monitor and report emissions and surrender allowances in accordance with the Regulations.

A National Emissions Trading Registry, which ensures the accurate accounting of the issue, transfer, cancellation and surrender of emission allowances within the Emissions Trading Scheme is accessible to stakeholders at www.etr.ie.

In 2008 all operators once again surrendered the required amount of allowances by April 30 to match their verified emissions ensuring that Ireland was 100 per cent compliant with the scheme. As Registry Operator, the EPA successfully retired Ireland's 2007 allowances, as required by the Directive, on 30 June 2008.

On March 4th, the EPA approved the Final Allocation Decision on Ireland's second *National Allocation Plan*. This decision finalises the allocations of greenhouse gas (GHG) emission allowances which will be made under the Emissions Trading Directive to Ireland's major GHG emitters for the Kyoto period 2008 - 2012. This was finalised by the EPA Board, having undergone extensive consultation and having received approval from the EU Commission.

In October 2008 Ireland, in conjunction with the other 26 EU Member States, connected to the United Nations' ITL Registry system, thus completing the transition to a global Emissions Trading System.



OTHER KYOTO PROTOCOL 'MECHANISMS'

The Kyoto Protocol has established three flexible mechanisms to assist parties in reducing the overall costs of achieving their commitments on GHG emissions. International Emissions Trading provides for developed countries to acquire Kyoto Protocol units (tonnes of CO₂ equivalent) from other developed countries and use them towards meeting their targets.

The Kyoto Protocol also allows for emission reductions to be carried out in projects implemented abroad through the Clean Development Mechanism and Joint Implementation. The EPA is the statutory body with responsibility for issuing "Letters of Approval" for Irish participants in these projects.

These 'project based' mechanisms allow parties to the Kyoto Protocol to implement emission reduction projects in other countries in exchange for credits that can be used towards achieving the Kyoto target. In the *National Climate Change Strategy (2007)* the use of these international mechanisms has been identified as having a role to play in enabling Ireland to meet part of the gap to the Kyoto Protocol target.

NATIONAL EMISSIONS INVENTORIES

The EPA submitted data regarding Ireland's annual greenhouse gas emissions to the EU and to the United Nations Framework Convention on Climate Change. During the year the national inventory for 2006 was finalised, while the preliminary inventory for 2007 was published in October for the Minister of the Environment, Heritage and Local Government's second carbon budget.

Another significant step has been the determination of Ireland's assigned amount under the Kyoto Protocol, which is the total allowable emissions in the period 2008–2012. Ireland's assigned amount is 314.18 Million tonnes CO₂

equivalent (Mt CO₂eq) calculated from base year emissions of 55.6 Mt and the allowable increase of 13 per cent. This corresponds to an average Kyoto limit of 62.8 Mt annually for the five years. When account is taken of permitted forest sinks, Ireland's net GHG emissions in 2007 were 67.9 Mt CO₂eq.

EMISSIONS PROJECTIONS

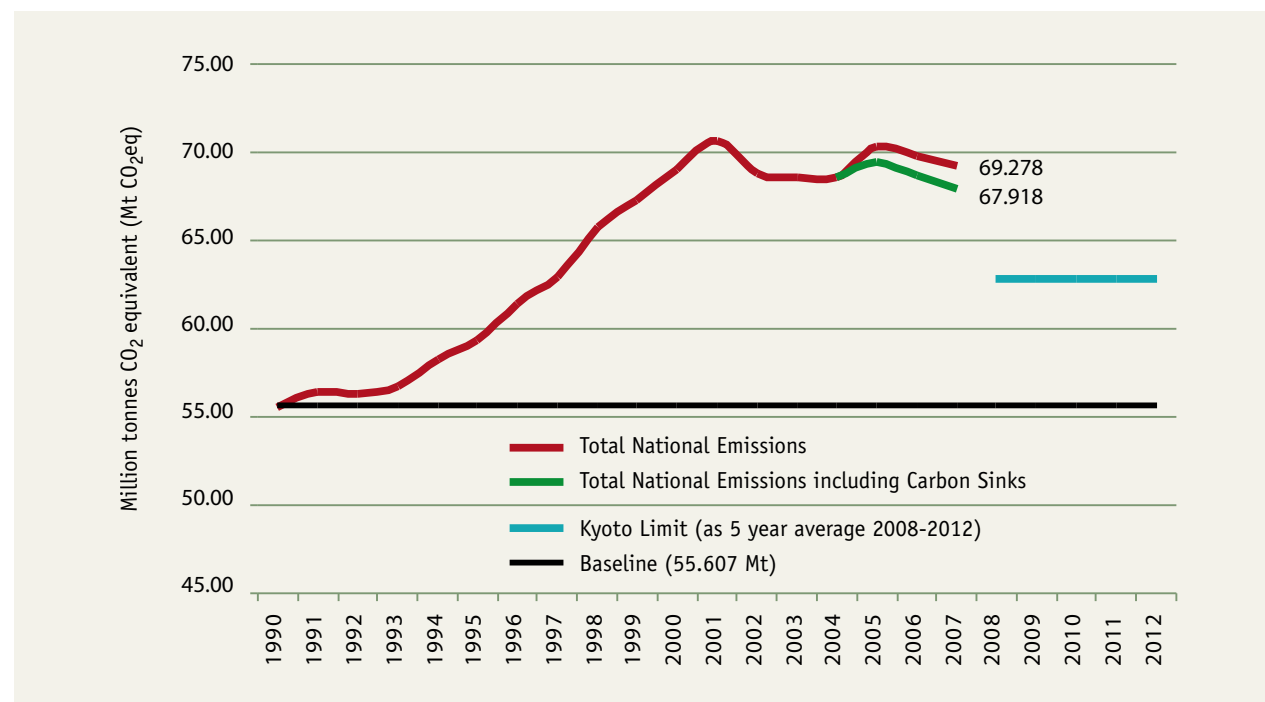
Emissions projections provide a forecast of future emissions and are a valuable analytical tool to predict how Ireland will comply with its Kyoto obligation and to inform Ireland's position in the post-Kyoto negotiations. In the *National Climate Change Strategy (NCCS)* (DEHLG, 2007), the EPA was designated with responsibility for developing

annual national emission projections for GHGs for all key sectors of the economy, in collaboration with relevant State and other bodies.

Producing Greenhouse Gas (GHG) emission projections annually will allow the most recent environmental and other policy developments to be taken into account, as well as updates to key assumptions (such as revisions to anticipated economic growth). The first of these emission projections was published in September 2008.

These projections give a picture of Ireland's ability to meet international targets with respect to greenhouse gas emissions, and highlight an ongoing challenge for Ireland in meeting its obligations under both the Kyoto Protocol targets and under the proposed EU 2020 targets.

Figure 1:
Distance to Ireland's Kyoto Limit



Three scenarios were developed that show how emissions to 2020 may vary depending on policy development and implementation. In all three, the annual growth in GHG emissions is projected to slow down, relative to previous years.

These scenarios are predicated on the assumptions that:

1. All the relevant policies and measures outlined in the *NCCS* and the draft *Energy Efficiency Action Plan* will be adopted and fully implemented on time, and
2. All relevant measures will achieve the full emissions reductions anticipated.

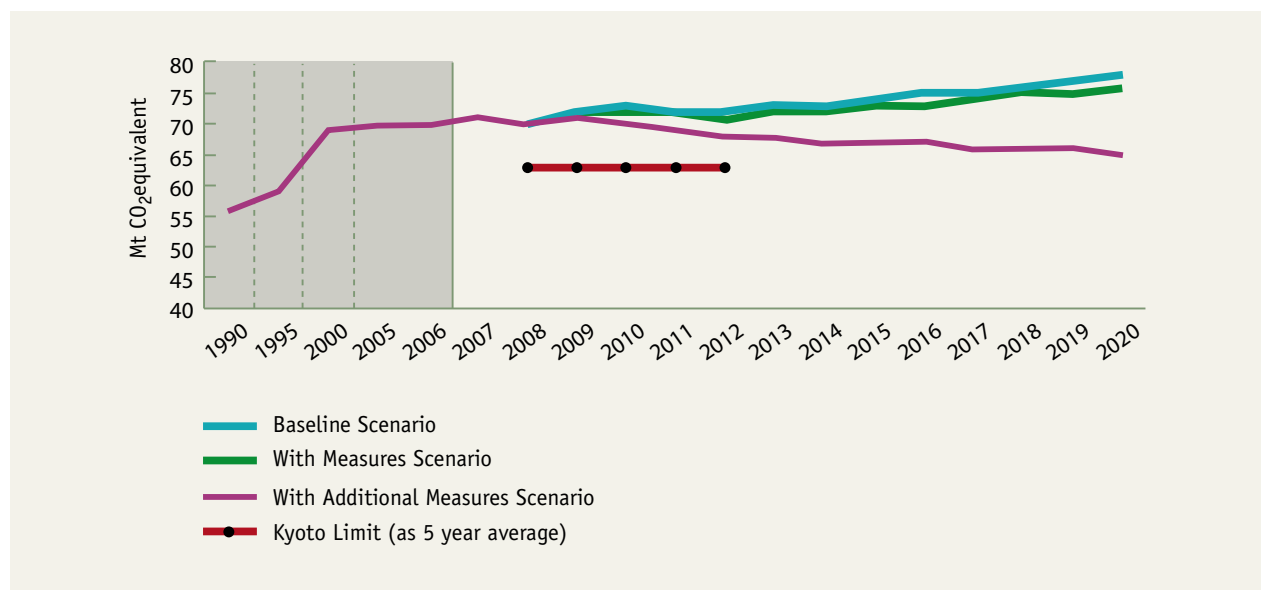
Failure to deliver these measures or a reduction in their environmental effectiveness will result in higher emissions levels than projected.

Under the *With Additional Measures* scenario, (which is the

most ambitious reduction scenario), total greenhouse gas emissions are projected to be on average 5.0 Mt per annum of CO₂ higher than our Kyoto Protocol target for each year of the period 2008 – 2012. Hence, these projections now imply a further distance to target of 1.4 Mt per annum, for each of the five years to 2012, over that envisaged in the *National Climate Change Strategy*, after account is taken of the planned purchase of 3.6 Mt per annum under Kyoto mechanisms.

The difficulties associated with meeting these criteria should not be underestimated. Figure 2 shows the projected trend in emissions up to 2020 for all three scenarios, with the Kyoto target shown as a five year average. These data show total projected GHG emissions for the period and do not include the impact of the EU Emissions Trading Scheme or the use of flexible mechanisms by the government.

Figure 2:
Total GHG Emissions for Each Scenario and Kyoto Limit



AIR & CLIMATE SCIENCE

Science has been the main driver of international actions on issues such as climate change and transboundary air pollution at global and regional levels. The overall aim is to provide support for policy development in Ireland in the context of developments at EU and UN levels.

During 2008 the EPA:

- ▼ Continued to maintain a strong presence in international activities on air and climate science.
- ▼ Continued interactions on the future work and development of the IPCC and represented Ireland at the selection of the new leaders of the IPCC Working Groups, membership of IPCC Bureau and other groups.
- ▼ Contributed to work of the EU Science Expert group on climate change in finalisation of an updated analysis of the EU climate protection target in light of the findings of the IPCC 4th Assessment Report.
- ▼ Acted as member of the Irish delegation to UNFCCC meetings and contributed to the UNFCCC processes.
- ▼ Represented Ireland at meetings of the Global Monitoring for Environment and Security (GMES) Advisory Council.
- ▼ Accepted an invitation to be a member of the EMEP Bureau, which advanced work in support of implementation on the Convention of Long Range Transport of Air Pollution.

RESEARCH INITIATIVES

The EPA and Sustainable Energy Ireland (SEI) jointly funded research that resulted in a number of high profile climate change related reports, which were published during 2008. This work was carried out with the cooperation of other state agencies including Met Eireann and the Geological Survey of Ireland. This is an indication of growing cross agency co-operation on climate change issues. These reports included:

- ▼ *Ireland in a warmer world, predictions of the Irish Climate in the 21st century; and*
- ▼ *Assessment of the potential for Geological Storage of CO₂ for the Island of Ireland.*

The Geological Storage of CO₂ project had a strong North/South dimension with the Geological Survey of Northern Ireland (GSNI) being a key participant in this work. The climate modeling work is also being conducted on an all island basis.

Other research publications in 2008 included:

- ▼ *Implementation of the Global Climate Observing System in Ireland;*
- ▼ *Long term measurements of atmospheric mercury at Mace Head; and*
- ▼ *New transboundary air pollution monitoring capacity for Ireland.*

The work of the climate change research programme was also advanced during 2008. Funding of a total of €12.5 million was committed overall to research in this area since June 2007. Priority projects have been progressed on:

- ▼ Carbon Capture and Storage;
- ▼ National energy/emissions modeling; and
- ▼ Sustainable transport.

COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

- ▼ The completion in 2008 of the EPA's first public lecture series on Climate Change served as a very important awareness raising activity to promote the understanding of climate change facts and issues. On average, over 500 people attended each of the seven lectures, all of which are now available for viewing as a podcast on the EPA website. The first of a set of occasional climate change lectures was held in November, and further lectures will be held in 2009.
- ▼ Tailored information on climate change impacts was distributed to all local and regional newspapers, to coincide with the broadcasting of the EPA climate change lecture series on the website.
- ▼ The Climate Change Research Co-ordination Committee, which was established to bring together all of the funding agencies and departments with an interest in climate change research, met a number of times in 2008. The main aim of the committee is to encourage co-operation on a national framework for climate change research and a timeframe for delivery of key priorities under that programme.

2. CLEAN AIR

2020 Goal

Our air will be healthy and clean. Ireland's emissions to the atmosphere will meet all international and national targets.

2. CLEAN AIR

AIR QUALITY

The report *Air Quality in Ireland in 2007 – Key Indicators of Ambient Air Quality* provided an overview of ambient air quality trends based on monitoring data from 26 stations. The report found that:

- ▼ Air quality was good at monitoring stations throughout the country, meeting all EU standards;
- ▼ Levels of nitrogen dioxide and particulate matter (PM₁₀) due to traffic are potentially of concern in urban centres, should further increases occur;
- ▼ Levels of particulate matter (PM₁₀) are elevated in smaller towns due to continued use of bituminous coal.

The graph on page 14 illustrates trends in PM₁₀ concentrations in Dublin, Cork and Galway between 2000 and 2007.

AIR MONITORING NETWORK

All air monitoring results from across the country are available, using a map-based interface, on the EPA web site. The map on page 13 shows the locations of current monitoring sites (green dots) and towns where assessment reports have been prepared (blue dots). New monitoring sites for 2008 included Clonskeagh and Knocklyon in Dublin, and Letterkenny in Co. Donegal. In 2008, the EPA participated successfully in a Europe-wide intercomparison for PM₁₀.

ENVIRONMENTAL NOISE MAPPING

The Environmental Noise Regulations, which came into effect in April 2006, designated the EPA as the National Authority for the purposes of the Regulations. The EPA's role includes supervisory, advisory and co-ordination functions in relation to both noise mapping and action

Map 1:
Air Monitoring Network Locations in Ireland



planning, as well as reporting requirements for the purpose of the Environmental Noise Directive relating to the assessment and management of environmental noise.

Following on from the production of the noise maps in 2007, the relevant local authorities were required to prepare noise action plans during 2008. The EPA assisted the local authorities in the preparation of these plans through the production of a guidance document, coordinating workshops and providing comments and feedback on individual plans. Ireland also fulfilled its reporting obligations on time by reporting to the European Commission those entities that will be required to be mapped in the second round of noise mapping in 2012. In addition, Ireland was the first country to report the specified data on action plans to the European Commission by the mid January 2009 deadline.

OZONE DEPLETING SUBSTANCES, POLYCHLORINATED BI-PHENYLS AND PERSISTENT ORGANIC POLLUTANTS

The EPA is leading the implementation and enforcement of the Regulations concerning Ozone Depleting Substances (ODS), Polychlorinated Bi-phenyls (PCBs) and Persistent Organic Pollutants (POPs). Control of the use of these substances and waste generated from these environmentally harmful substances is important for the protection of air, waters and land. Information and guidance has been developed and disseminated on an on-going basis by a variety of means including seminars and the EPA webpages. Inspections and, in some cases, further enforcement actions have been undertaken. A nation-wide survey and management plan for PCBs was completed in 2008 and an inventory for POPs is nearing completion. Following on from this inventory work the development of a draft *National Implementation Plan* for POPs has commenced.

RESEARCH INITIATIVES

Reports were published on the following:

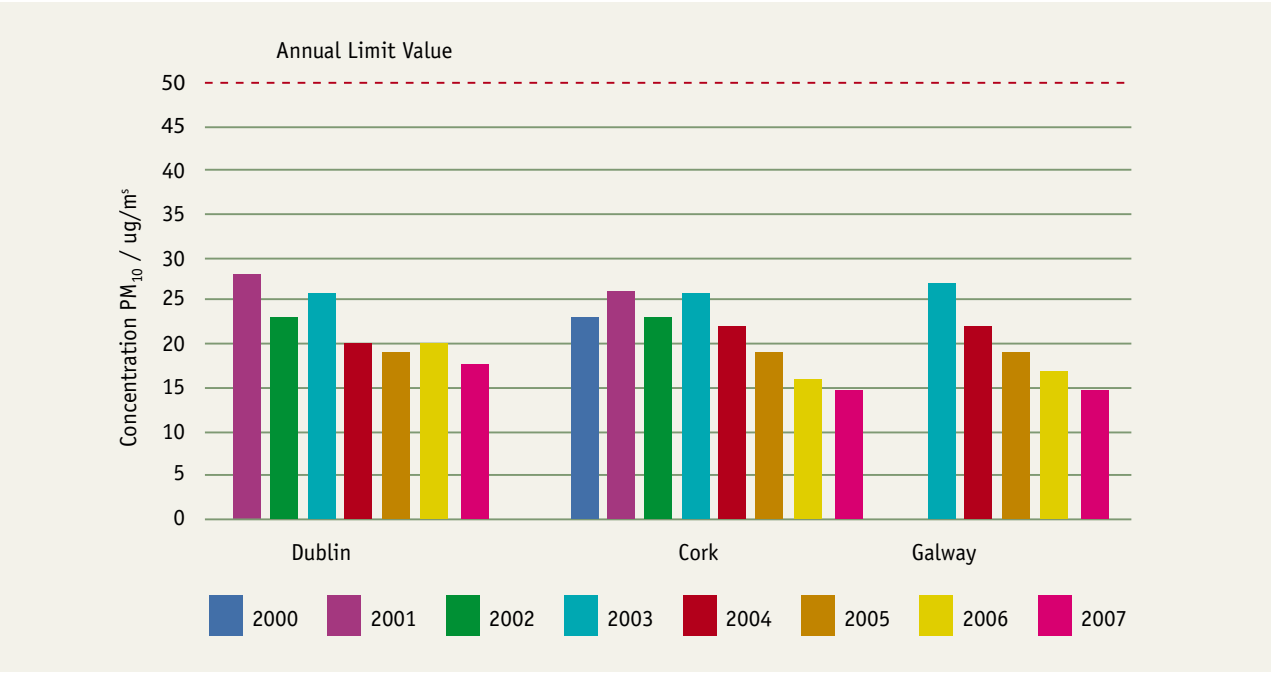
- ▼ *New Transboundary Air Pollution Monitoring Capacity for Ireland;*
- ▼ *Long-term measurements of atmospheric mercury at Mace Head, Carna, Co. Galway.*
- ▼ *Detailed methods employed to generate an estimate of greenhouse gas emissions to the atmosphere due to land use and land-use change in Ireland, in compliance with UN Convention reporting requirements.*

In May 2008 three projects relating to air quality were funded under the Environment and Health pillar of the STRIVE programme dealing with indoor air pollution, air quality at ports and urban settings.

COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

- ▼ As noted above, during 2008, real-time air quality monitoring continued at select locations in Ireland, as part of an on-going comprehensive assessment of *air quality in Ireland*.
- ▼ In addition to the availability of up to date air quality information on the EPA website through *ENVision*, and the publication of the report *Air Quality in Ireland 2007*, the *Air Quality Bulletin for PM₁₀ and Ozone* was also emailed monthly to about 200 interested parties and groups.

Figure 3:
Annual Average PM₁₀ Concentrations in Dublin, Cork and Galway between 2000-2007



- ▼ Two reports were published on dioxin levels in the Irish environment (based on the levels in cows' milk in 2006 and 2007 surveys). The reports showed that all of the samples over this two year period had levels well below the relevant EU limit.
- ▼ The EPA issued an article and a radio advertisement to all regional media advising people to use registered dry cleaners only. The Registration and Accredited Inspection Contractor system now in place for dry cleaners ensures that they are using solvents with due care, to avoid any impact on air quality and to manage solvent waste correctly.

3. PROTECTED WATER RESOURCES



2020 Goal

Our surface water and groundwater will not be depleted and will be of excellent quality, meeting all national and international standards.

3. PROTECTED WATER RESOURCES

WATER QUALITY

The *Water Quality in Ireland 2004 - 2006 Report* on the Aquatic Environment was published in November and provides detailed information regarding water quality in Ireland for that period.

The main findings of the Report showed:

- ▼ 71.4 per cent of river channel length and 92 per cent of lake surface area examined were of satisfactory water quality;
- ▼ 78 per cent of the estuarine/coastal water bodies examined were classified as being unpolluted or in an intermediate condition;
- ▼ 25 per cent of all groundwater samples and almost six of every ten groundwater sampling locations were contaminated by faecal coliforms, while nitrate concentrations exceeded the annual mean nitrate threshold concentration at almost 10 per cent of sampling locations;
- ▼ the overall quality of bathing waters in Ireland remains very good; and
- ▼ the number of fish kills recorded in the three-year period was 122, representing an improvement over the previous three year period, but is still at an unacceptably high level.

WATER FRAMEWORK DIRECTIVE

The Water Framework Directive represents the most significant development in the field of EU water policy to date. The Directive provides an overarching framework and programme to deliver long-term protection of water. It aims at protecting existing high and good status water, preventing further deterioration of water quality and restoring all degraded ground and surface waters to good status.

In 2008, the EPA made recommendations to the Minister for the Environment, Heritage and Local Government on physico-chemical and chemical standards for surface waters, to be included in Regulations. The Water Framework Directive Monitoring Programme tasks,

assigned to the EPA for 2008, were successfully completed. In particular, the EPA issued interim status assessments for surface and groundwaters to the River Basin District Authorities for the purpose of objective setting in the River Basin District management plans.

HYDROMETRIC PROGRAMME

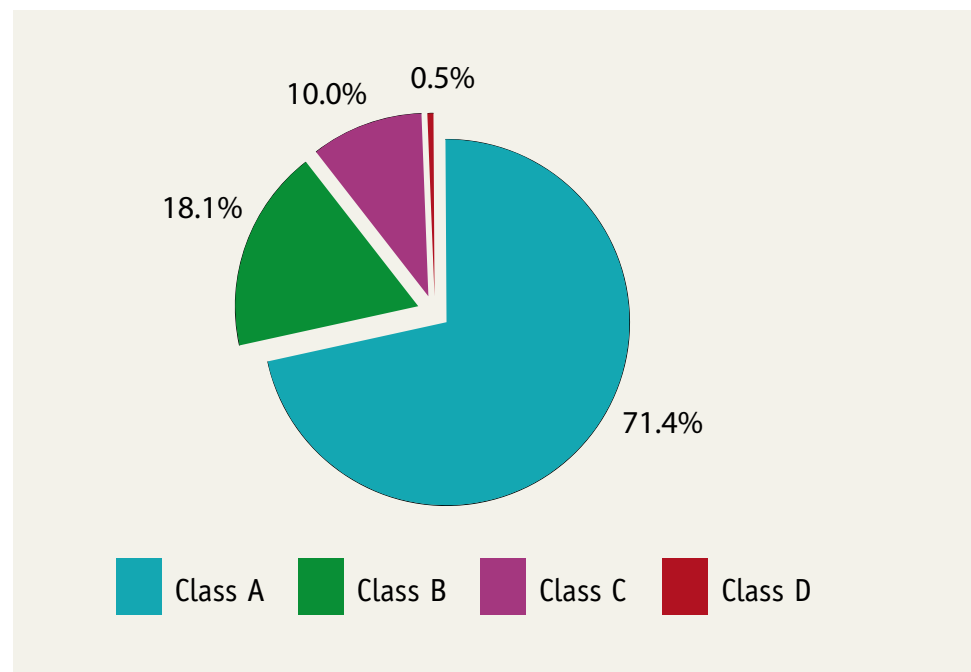
The objectives of the Hydrometric Programme are to produce good quality, relevant data on flows and water levels in order to support the design of major infrastructure, for example, water supply abstractions, as well as undertaking monitoring in support of environmental goals such as those of the Water Framework Directive (WFD).

EPA HydroNet, launched in June, has significantly improved the provision of hydrological data to the public via the internet. The site provides easy access to summary hydrometric data at local authority hydrometric stations throughout the Republic of Ireland.

The WFD underlines the need to understand the interactions between surface water and groundwater. The installation of over 50 new monitoring wells and over 20 weirs on springs in 2008 has added substantially to the number and quality of groundwater monitoring points. The status of the 757 groundwater bodies, delineated as part of the implementation of the WFD, was determined. Emphasis was placed on improving the quality of hydrometric data and the safety of hydrometric stations, with the assistance of local authorities. Progress in these areas will continue in 2009.

The predicted impacts of climate change in Ireland, as elsewhere, point to changing rainfall patterns with consequent implications for water resources and the availability of water supplies; this underlines the continuing need for hydrometric monitoring including rivers, lakes and groundwater.

Figure 4:
River Quality 2004-2006: Percentage channel length in each quality class





improving treatment. The EPA has focused its efforts during 2008 on identifying the areas of greatest risk to both the security and safety of drinking water supplies in Ireland and the steps that need to be taken to minimise these risks.

Over 300 public water supplies are not considered to be sufficiently secure for the continuous provision of clean and wholesome drinking water and tackling this problem was a priority issue for the EPA. The EPA has received 281 notifications of the failure to meet the drinking water standards in 2008 and has carried out 79 audits of water treatment plants. Furthermore the EPA has met each local authority to outline the requirements of the drinking water regulations and this work has acted as a catalyst for funding to be allocated to priority drinking water supplies in order to improve the safety and security of identified drinking water supplies.

The first prosecution case under the Drinking Water Regulations was also taken by the EPA during 2008. This case related to the failure by Galway County Council to comply with a direction.

Following exceedences of lead in drinking water supplies, the EPA has responded by investigating exceedences, issuing directions, meeting with local authorities, and the EPA is currently in consultation with other stakeholders on developing national policies and guidance for addressing the issue of old lead pipes that are still used for the distribution of drinking water. The EPA has also advised all local authorities that they must carry out lead surveys of their water distribution systems to determine the extent of lead piping in use.

URBAN WASTE WATER

The Waste Water Discharge (Authorisation) Regulations 2007 requires the EPA to regulate the discharges of waste water from our villages, towns and cities. All discharges from sewerage systems owned, managed and operated by local authorities will require a waste water discharge authorization or certificate from the EPA, and these are being enforced. Ten licences were issued during 2008.

During 2008, the EPA continued to use its supervisory powers over local authorities to drive improvements in the operation and management of waste water treatment plants. The EPA issued 13 statutory notices to local authorities during 2008, in relation to waste water issues. These notices were issued under Section 63 of the EPA Acts 1992 and 2003. These notices were issued following audits carried out by the EPA or for the investigation of environmental complaints. Actions included the investigation of complaints about odours from treatment plants, investigation of discharges to waters and follow up on bathing waters that failed the mandatory standards. One Proposed Direction was issued to Galway County Council in relation to inadequate waste water treatment.

RESEARCH INITIATIVES

Six technical research reports were published that support the implementation of the Water Framework Directive and general water quality policy formation.

These include:

- ▼ A major project investigating eutrophication from agricultural sources. The report:
 - identified the importance of considering a range of soil, physical and chemical characteristics in developing measures for managing nutrient losses from agriculture to water;
 - suggested the need to focus more targeted mitigation measures in high risk areas for nutrient loss from agriculture to water; and
 - underpinned the basis of existing advice and measures for reducing nutrient losses from agriculture to water.
- ▼ A report entitled *Marine Ecological Tools for Reference, Intercalibration and Classification*; and
- ▼ A report developing a quantified link between groundwater vulnerability and recharge.
- ▼ Six new long-term water research projects commenced. One of these projects, *Pathways*, will improve our understanding of the pathways transporting particulate and dissolved constituents and provide a more scientifically sound basis for focusing resources in River Basin Districts to achieve good status in a cost-effective manner.

- ▼ Other water-relevant projects were funded under the Environmental Technology and Environment & Health Programmes, which will result in novel treatment and monitoring technologies for chemical and microbial contaminants.
- ▼ The valuable role of research in support of the Water Framework Directive via the development of new assessment, monitoring, recording and reporting techniques was highlighted in Chapter 5 of *Ireland's Environment 2008*.

COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

- ▼ The EPA continues to make water quality information on rivers, lakes, estuaries, groundwater and bathing areas available to the public on the EPA website through *ENVision*, the interactive map-based facility. Using this facility, you can find out about water quality in your local area.
- ▼ As mentioned earlier, the *EPA HydroNet*, launched in June, has significantly improved the provision of hydrological data to the public via the internet. The site provides easy access to summary hydrometric data at local authority hydrometric stations throughout the Republic of Ireland.
- ▼ The EPA organised a National Water Conference in June in Galway, attended by over 200 delegates.
- ▼ The EPA published the following reports during 2008:
 - *The Provision and Quality of Drinking Water in Ireland, A report* for the years 2006 – 2007. This was the EPA's first report on drinking water quality since new Regulations were introduced in March 2007.
 - The EPA also issued information to all local and regional newspapers and radio stations informing people on important items to consider when installing drinking water filter systems.
 - The *Water Quality in Ireland 2004 – 2006*, report was released in November. This comprehensive review assessed the quality of lakes, rivers, canals, coastal areas and groundwater and presented a detailed picture of the quality of Irish waters.
 - Regional information on bathing water quality was distributed to all local and regional newspapers following the publication of the *Quality of Bathing Water 2007* report.

4. PROTECTED SOIL AND BIODIVERSITY

■ 2020 Goal

The soil of Ireland will be protected from contamination and loss and will support dependent plants and animals. Our biodiversity will be protected and managed for future generations.

4. PROTECTED SOIL AND BIODIVERSITY

IRELAND'S ENVIRONMENT 2008

The chapters on land use, soils and biodiversity, in the report *Ireland's Environment 2008*, set out the current state of knowledge about land use, soil and biodiversity in Ireland and provide us with a benchmark against which progress over the next four years can be measured.

NATIONAL SOILS DATABASE

Work was completed on the National Soils Database and Archive in 2008. Datapoint and spatial distribution maps have been produced for 45 elements including major nutrients such as phosphorus, potassium and magnesium, essential trace elements such as cobalt, copper and selenium, and other elements of interest (due to their potential toxicity) such as cadmium, arsenic, lead, nickel and mercury. This provides Ireland with a robust and structured baseline of soil geochemical properties relevant to environmental, agricultural and public health related pressures which can be used to assess trends in measured parameters over time and to quantify the soil's response to environmental pressures. Maps 3 and 4 are examples of the two types of maps produced, and all of this information is now accessible on the EPA website at www.epa.ie/nsdb.

ENVIRONMENTAL LEGACY ISSUES

Ireland, in common with most developed countries, is dealing with environmental legacy issues such as old landfill sites, abandoned mine sites and contaminated land.

However, the scale and severity of these issues in Ireland is significantly smaller than other industrialised countries because of Ireland's relatively late arrival into the industrial age. Currently there is no national inventory of contaminated sites in Ireland though there are a number of national initiatives underway to deal with various types of contamination and updates on these initiatives are provided below.



OLD WASTE SITES

In 2007, the EPA published a Code of Practice that provided a framework for local authorities to identify and assess old waste sites. During 2008, local authorities started to apply this Code of Practice in their functional areas and to identify old waste sites. These sites will be risk assessed and a risk ranking assigned. To assist local authorities in carrying out these assessments the EPA has developed an online risk assessment tool. The EPA is in consultation with the Local Government Computer Services Board with a view to rolling out the online risk assessment tool in early 2009.

ABANDONED MINES PROJECT

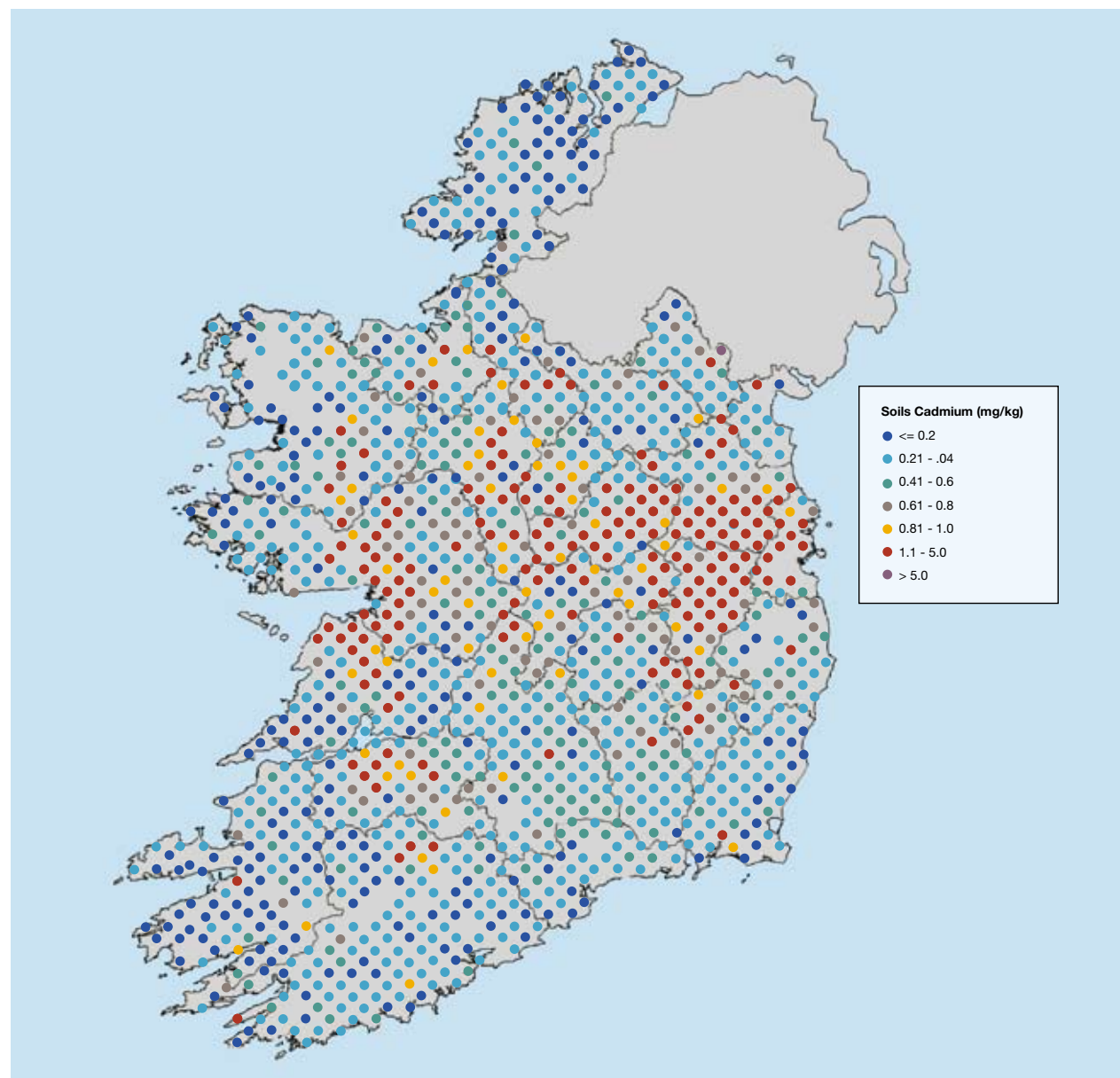
In February 2006, the EPA and the Department of Communications, Energy and Natural Resources (Geological Survey of Ireland and Exploration and Mining Division) embarked on a joint project to carry out detailed site investigations at priority historic mine sites, to assess their potential risk to human health and safety and the wider environment and to make recommendations in relation to the future management of these sites. International experts in geostability and risk assessment are advising on the project.

Over 100 metal and coal mine sites have been investigated and detailed geochemical analysis and geostability assessment have been undertaken. The project is now close to completion and a final report will be published in 2009.

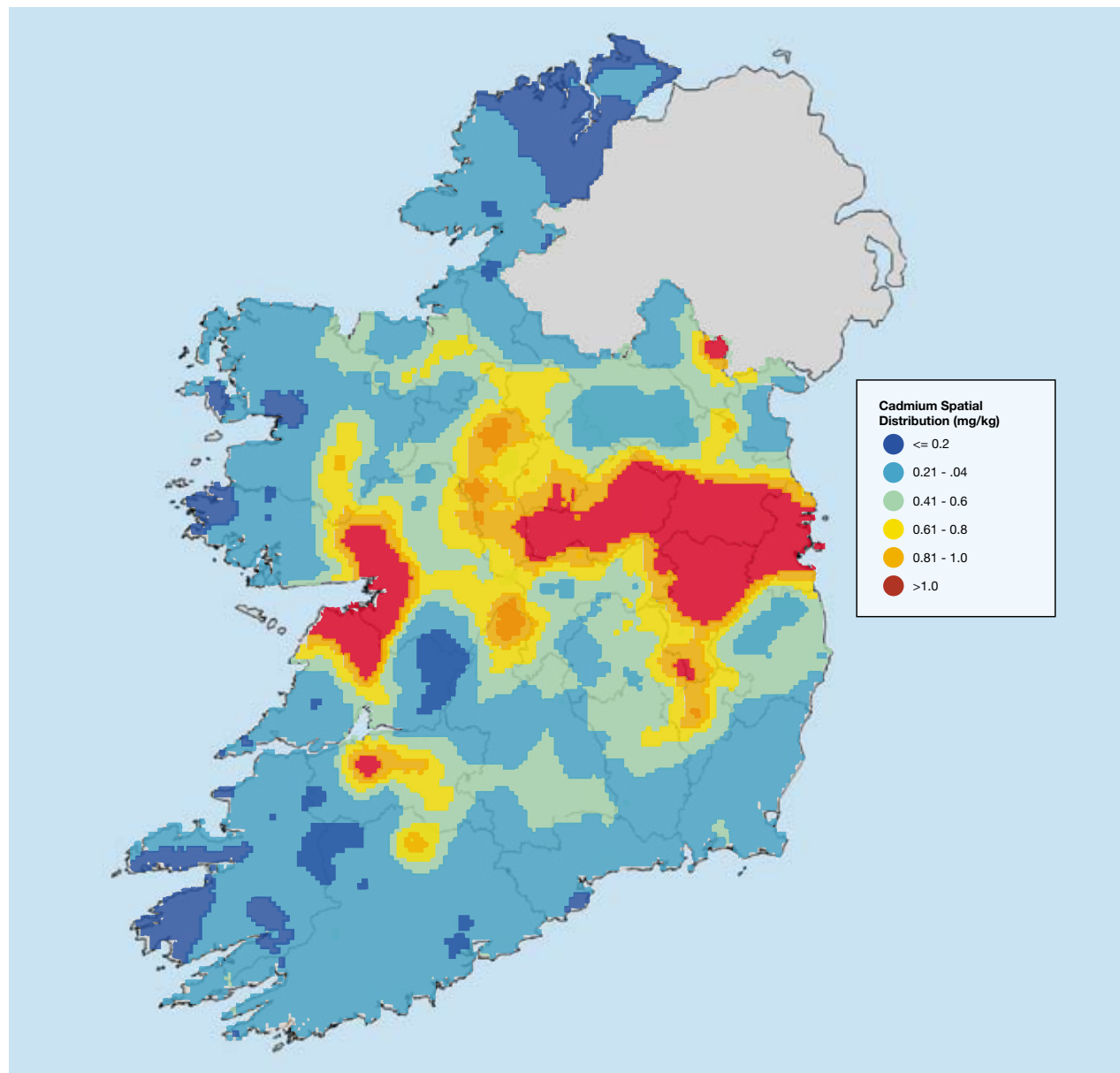
CONTAMINATED LAND

During 2008 an important piece of work was conducted as part of Ireland's implementation of the Water Framework Directive which added significantly to our knowledge and understanding of contaminated land issues in Ireland. The Water Framework Directive requires that a risk assessment be undertaken of anthropogenic (man-made) pressures on groundwater from both diffuse and point sources,

Map 3:
Datapoint Map for Concentration of Cadmium in Irish Soils (Source: National Soils Database)



Map 4:
Spatial Distribution Map for Cadmium in Irish Soils (Source: National Soils Database, 2007)



including quarries, contaminated land and landfill sites. Groundwater bodies are categorised as being either of 'good' status or 'poor' status. This work will assist in prioritising contaminated sites for future work/remediation. One of the main potential environmental impacts of land contamination is the risk of groundwater contamination. Measures will be required at contaminated land sites where the contamination from the site is contributing to the groundwater body being at poor status. Poor status groundwater bodies will require measures to bring them back to good status prior to the Water Framework Directive deadline of 2015. Where a contaminated site has been identified as being 'at risk' causing contamination, but the extent and magnitude is not significant enough to put the groundwater body at 'poor' status, varying degrees of measures and monitoring will be required.

On December 16th, 2008 the EC (Environmental Liability) Regulations 2008, S.I. No. 547 of 2008 regulations were made for the purpose of giving full effect to the EU Environmental Liability Directive. The Regulations will come into effect on 1st April 2009. The EPA will be the competent body for the purposes of these Regulations.

LAND COVER - CORINE

Information about land cover and land usage is improving every year through the application and development of satellite and photographic imagery that allows for the presentation of complex information in map and picture format. During 2008 the EPA completed an update to the land cover/land use map of Ireland, as part of the European Corine Land Cover initiative, in which the European Environment Agency coordinates land cover mapping of most of Europe. This update will be made available in 2009 through the EPA's *ENVision* map based interface to the environmental data on the EPA website. This will mean that there will be land cover maps for the years 2000 and 2006,

which will allow us to study changes in land use and land cover during that period. The types of changes being seen are illustrated in Figure 5, which shows a significant increase in land used for residential, industrial and commercial purposes ('artificial' areas) in the Greater Dublin area and comparative reductions in arable land and pasture land.

BIODIVERSITY TEAM

The EPA's Biodiversity Team, representing each Office in the EPA, coordinate activities pertaining to biodiversity. Its activities included preparation of a submission on the revised *National Biodiversity Plan*. The EPA worked closely with the National Parks and Wildlife Service on biodiversity related matters, including the re-establishment of a National Platform for Biodiversity Research.

RESEARCH INITIATIVES

SOILS RESEARCH INITIATIVES:

- ▼ Launch by the EPA and Teagasc of the *Soil Geochemical Atlas of Ireland*.
- ▼ The *IRLSOIL 250* project, which started in June 2008 and is co-funded with Teagasc, will address the serious data deficit in the soils thematic area through the application of modern digital soil mapping techniques deployed in tandem with traditional field survey techniques.
- ▼ Extensive reference made to the vital relevance that the funded soil research projects have made in terms of improving our understanding of soils, their functions and improved management were outlined in Chapter 12 of *Ireland's Environment 2008*.

BIODIVERSITY RESEARCH INITIATIVES:

- ▼ The large biodiversity project *AgBiota* was completed in 2008 and will be published in 2009. This project has

identified suitable bio-indicators for the environmental impacts of agriculture and will assist in the national aspiration to halt, and reverse, the decline in biodiversity within our wider countryside. A related project on the value of parasites as bio-indicators was published in March 2008.

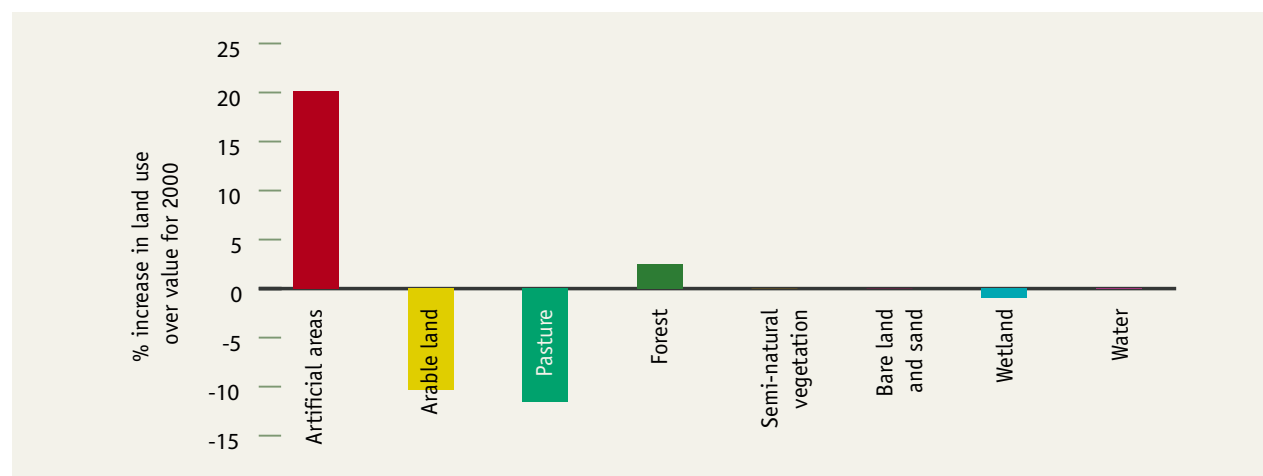
- ▼ A large-scale four year research project *SIMBIOSIS* was awarded, that will quantify impacts of key sectoral activities (in particular: cultivation of bioenergy crops, road landscaping and aquaculture) on genetic, species and landscape biodiversity and the ecosystem services they provide, including pollination, biological pest control, carbon sequestration and resistance to alien species invasion.
- ▼ The relevance of the Biodiversity research programme in terms of providing a valuable input into providing knowledge and mitigation measures minimising the impact of various sectors on biodiversity was highlighted in Chapter 13 of *Ireland's Environment 2008*.

- ▼ The five-year research project *BIOFOREST*, co-funded with COFORD, concluded in late 2007. The outputs from this project have been used in the development of FEPS (the forest environment protection scheme) and are seen as an essential contribution towards Ireland meeting its obligations under the Convention on Biological Diversity.

COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

- ▼ Launch of online interactive map interface arising from National Soil Database project. This map interface contains a national baseline database of soil geochemistry including data point maps and spatial distribution maps of major nutrients, major elements, essential trace elements, trace elements of special interest and minor elements. This project has generated a valuable archive of over 1,000 air-dried soil samples and an archive of extracted nucleic acids based on a sampling campaign in Ireland from 2002 to 2005. The database is now being used by national and international experts and lay-users.

Figure 5:
Percentage Land Cover Changes in the Greater Dublin Area between 2000 and 2006
(Source: Data, JRC/UII; Analysis, EPA)



5. SUSTAINABLE USE OF RESOURCES

■ 2020 Goal

The overall goal is a more efficient use of resources (water, energy and materials). Waste will be prevented and minimised, with the balance safely collected, recycled or recovered. Final disposal will be completed in a way that does not harm the environment.

5. SUSTAINABLE USE OF RESOURCES

NATIONAL WASTE PREVENTION PROGRAMME

The aim of the *National Waste Prevention Programme* is to explore practical ways to deliver waste prevention and minimization. It seeks to integrate a range of initiatives addressing awareness-raising, technical and financial assistance, training and incentive mechanisms. The programme is being implemented via projects such as *Greenbusiness.ie*; the *Local Authority Prevention Demonstration Programme (LAPD)*; Packaging prevention (led by Repak and supported by the EPA); *Green Homes* (led by An Taisce) and implementation of product compliance Directives including restriction of hazardous substances in electrical equipment, packaging, batteries and vehicles.

In 2008, the fourth annual report for the programme was published. The *National Waste Prevention Committee* appointed by the Minister for the Environment, Heritage & Local Government, which includes members from governmental, non-governmental, business, farming and sectoral interest groups, continued to provide valuable strategic advice on all of the *National Waste Prevention Programme* projects. (See www.nwpp.ie).

The *Local Authority Prevention Demonstration Programme (LAPD)*, which promotes waste prevention through fourteen local authorities, is now showing how waste can be prevented in a wide variety of participating businesses, organisations and sectors. Its findings are providing the template for similar waste prevention projects nation wide. One such example was the publication of a farm waste prevention guide. A national LAPD conference was held in February to highlight the prevention opportunities developed and a prevention training programme was launched. (See www.lapd.ie).

A *Green Business Initiative* commenced with online resource and water audit tools, backed up by confidential free expert advisors and a helpline. (See www.greenbusiness.ie).

Building on the EPA *Cleaner Greener Production Programme* project, a *Green Hospitality Award* scheme was launched and by year-end over 190 hotels had signed up for this prevention programme. (See www.ghaward.ie).

The *Packaging Prevention Programme* continued with Repak (the packaging waste compliance body) which is implementing a variety of prevention projects. A supply chain study was completed, a certified packaging prevention training programme commenced and new packaging prevention case studies were developed for the website www.preventandsave.ie.

The *Green Home Programme* awards were held in May, with 2,500 households participating. For the next phase of the programme, the EPA and An Taisce are seeking to recruit a further 9,000 households to engage in waste prevention, energy and water savings, as well as composting and recycling. (See www.greenhome.ie).

The EPA has integrated the sustainable management of domestic, commercial or industrial consumption of water and energy, as well as hazardous/non-hazardous material and biodegradable resources into all *National Waste Prevention Programme* projects.

PRODUCER RESPONSIBILITY INITIATIVES

Waste Electrical & Electronic Equipment (WEEE) and Battery Regulations

The EPA has continued to engage with obligated organisations within the sector to improve levels of compliance. Over 174 inspections were completed at retailer level and 13 audits were completed on obligated

producers. In most cases, this engagement resulted in compliance being achieved without recourse to further enforcement action. However, two successful District Court cases were taken against non-compliant producer businesses. Enforcement of domestic obligations on foreign-based distance sellers is a particularly difficult challenge. In this case, High Court actions were initiated against two businesses in foreign jurisdictions (UK and Germany) to force compliance in relation to distance selling obligations.

Similar approaches to enforcement were commenced in relation to the new Batteries Regulations, which commenced in September 2008. Engagement with sectoral players has commenced and guidance has been developed. A webpage at www.batteries-enforcement.ie has been set up to facilitate the provision of guidance to this specific stakeholder audience.

Packaging Regulations

A database project was completed to identify producers potentially obligated under new regulations to either join Repak or self-comply. The findings were distributed at a workshop to relevant stakeholders and local authorities for use in their enforcement work. The essential requirements in relation to restricted hazardous substances in packaging are being addressed by the development of testing protocols.

Reduction of Hazardous Components

Other regulations in relation to restricting hazardous components in products include the *Restriction of Hazardous Substances* (RoHS) and the *Deco-paints (product) Regulations*. Enforcement of these Regulations resulted in products being purchased at retail level for testing in accredited laboratories. Where non-compliances were detected, the EPA contacted producers to ascertain when the product was placed on the market. Where



non-compliant products were found to have been placed on the market after the due date, the distributors voluntarily removed them from stock. There are ongoing communications to alert both the supply chain actors and other Member States to these products. Work commenced on the new Batteries and End-of-Life Vehicles Regulations in this regard also.

Solvents and Deco-Paint (Vehicle Refinishers) Regulations

The EPA has engaged extensively with the vehicle refinishing sector to assure effective implementation of the new regulations which came into effect in March 2008. The regulations require all vehicle refinishing businesses to undertake a compliant inspection by an Accredited Inspection Contractor (AIC) and to register with their local authority. New binding national guidance was published following approval by the Minister for the Environment, Heritage and Local Government in accordance with the regulations. Inspections by Accredited Inspection Contractors have commenced. A nation wide radio and trade magazine advertising campaign was conducted by the EPA to raise awareness of the requirements of these regulations.

Where local authorities have significant roles in Producer Responsibility Initiatives enforcement, for example with solvents, vehicle refinishing, packaging, WEEE or Batteries, their capacity has been developed directly through the EPA *Environmental Enforcement Network*.

NATIONAL WASTE REPORTING

Early in 2008, the *National Waste Report* for arisings in 2006 was published which noted a significant increase in the landfilling of waste. Significant challenges remain if Ireland is to meet the requirements of the Landfill Directive to restrict the quantity of biodegradable waste going to disposal. Recycling, however, increased significantly. Compilation of information on 2007 waste arisings was largely completed in 2008 ready for publication in early 2009.



NATIONAL HAZARDOUS WASTE MANAGEMENT PLAN

Following full public consultation, a revised *National Hazardous Waste Management Plan* and *Strategic Environmental Assessment (SEA) Statement* was published in 2008. The plan sets out the known facts on hazardous waste arisings and current management practices. Recommendations are made in relation to enhancing hazardous waste prevention; improving collection rates as well as enhanced self-sufficiency in environmentally sound treatment and disposal. The EPA will take the lead in implementing, or influencing others to implement, a large number of the Plan's recommendations as well as monitoring the overall implementation of the plan in consultation with the *National Waste Prevention Committee*.

RESEARCH INITIATIVES

- ▼ The summary report on the *Cleaner Greener Production Programme (CGPP) Phase Two*, which took place over a 24 month period between 2005 and 2007, was published. Significant improvements, both economic and environmental, have been made among the 22 participating organisations.

There has been significant interest in Phase Four of the *Cleaner Greener Production Programme*, from the business and research community. Following widespread dissemination via four regional workshops and a restructuring of the programme there were 141 expressions of interests from applicant organisations.

The CGPP programme has been highlighted as a successful programme by the EC in their recent review of Eco-innovation programmes. A number of highly topical research

projects were completed and published, including projects on mechanical biological treatment, eco-footprint, settlement patterns, energy crops in Ireland, eco-industrial networks, pay-by-use waste collection charges, use of food waste macerators, and organic waste management in apartments.

- ▼ The relevance of a number of the EPA waste research projects have been highlighted in the *Circular WPPR 17/08 National Strategy on Biodegradable Waste* published by the Department of Environment, Heritage and Local Government in July 2008, which urges the implementation of the separate collection and treatment of biodegradable waste to help meet the requirements of the Landfill Directive noted above.
- ▼ The *Ireland's Environment 2008* report features research findings from the Economic and Social Research Institute's (ESRI) Irish Sustainable Development Model (ISus) project, funded by the EPA, which includes projections for waste generation and management in Ireland up to the year 2020. This assists decision makers by providing possible future trends in relation to Ireland's emissions, including waste, based on predicted future economic growth scenarios.

COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

- ▼ The EPA held a Waste Enforcement Conference on 15th & 16th October in Wexford, attended by waste enforcement personnel from Ireland and Northern Ireland.
- ▼ A chapter on Sustainable Resource Use, Consumption and Waste was developed for the EPA publication *Ireland's Environment 2008*. This chapter was developed

and researched to provide the latest thinking on waste prevention and how this links to consumption and the wider economy. Waste is often treated as a separate issue to economic growth and consumption generally. However, the most recent EEA 4th Environmental Assessment commenced this linking of the two matters. This chapter tries to bring this thinking home to the Irish situation and has been published as an offprint and circulated to all relevant stakeholders.

- ▼ The revised *National Hazardous Waste Management Plan* was published, following the completion of public consultation.
- ▼ The *National Waste Report 2006* and *National Waste Prevention Programme 2007-2008 Annual Report* were published.
- ▼ The *Green Business.ie* website, *Green Hospitality Award* and *Green Home Programme* initiatives were launched, following extensive consultation with stakeholders.
- ▼ Regional newspapers featured several articles about local hotels involved in the *Green Hotels* initiative and local schools and households involved in the *Green Home Programme*.
- ▼ New guidance for Vehicle Refinishers was published and Accredited Inspection Contractor inspections commenced.
- ▼ Information was broadcast via targeted radio programmes, websites and journals to raise awareness about producer responsibility obligations.
- ▼ In December, regional information focusing on waste recycling and reduction at Christmas, was distributed to regional newspapers.

6. INTEGRATION AND ENFORCEMENT

2020 Goal

Environmental considerations will be at the heart of policy-making and decision-making. Responsible environmental behavior will be the norm across all sectors of society and those who flout environmental laws will be held to account.

6. INTEGRATION AND ENFORCEMENT

IRELAND'S ENVIRONMENT 2008

Two of the four key challenges identified in the *Ireland's Environment 2008* report pertain to integration and enforcement. These are:

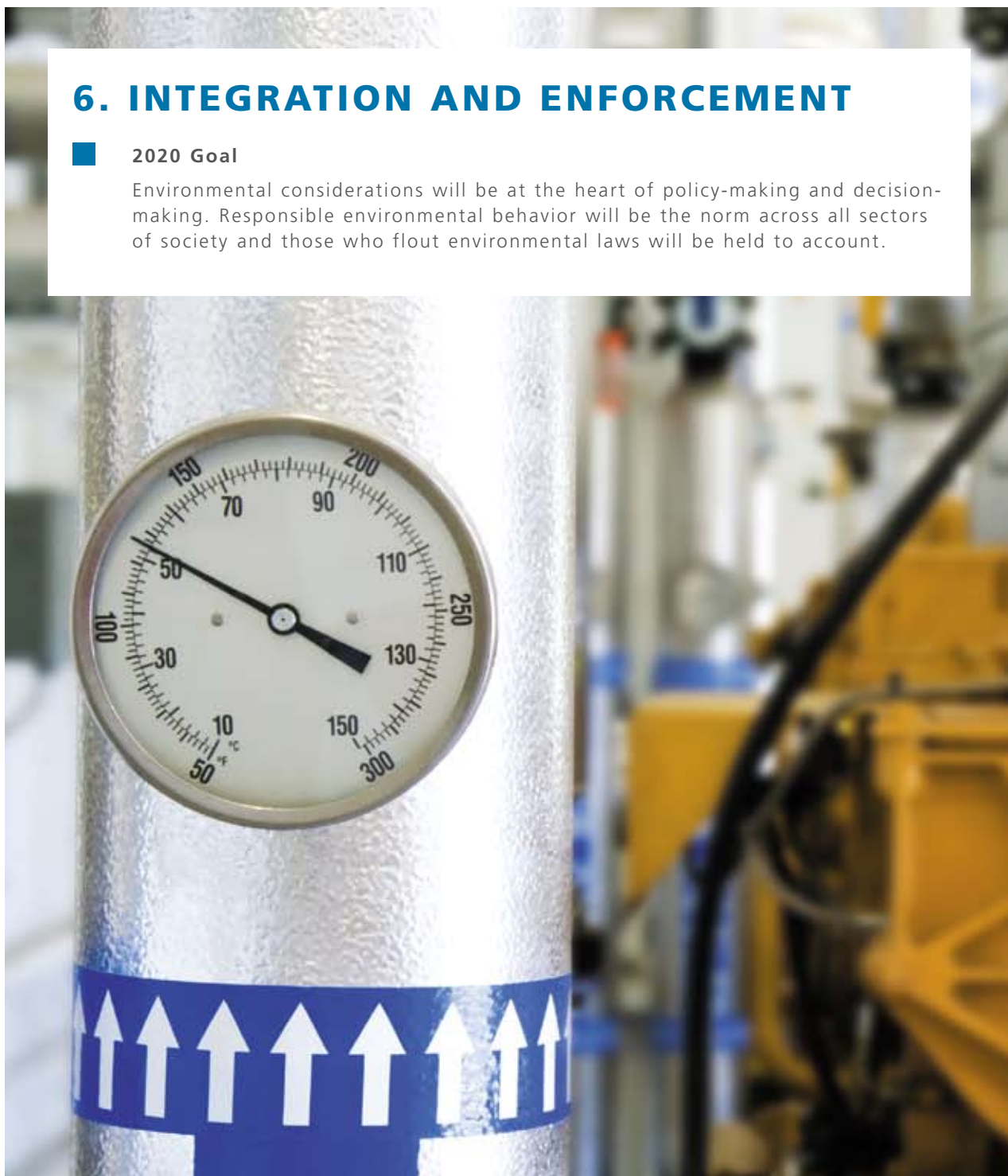
- ▼ Mainstreaming environmental considerations across all sectors of the economy; and
- ▼ Complying with environmental legislation and agreements.

INTEGRATED POLLUTION PREVENTION AND CONTROL (IPPC) LICENSING

The IPPC licensing system emphasises waste prevention with the aim of reducing emissions to air, water and land, reducing waste overall and using energy efficiently. Large-scale or complex industrial processes with significant polluting potential require an IPPC licence.

In 2008:

- ▼ 40 IPPC licences were granted while 11 licence applications (piggeries) were rejected. In addition 44 Proposed Decisions were issued. Technical amendments were made to 33 licences in accordance with the licensing regulations. Technical amendments provide for the amendment of conditions in a licence to bring it into conformity with the requirements of the IPPC Directive or to facilitate the operation of the licence.
- ▼ An application for a Judicial Review of an IPPC licence granted by the Agency to Shell E & P Ireland Limited, (Reg. No. P00738-1) was struck out by the High Court on 7th May 2008.



- ▼ On 8th May 2008, in High Court case - AHP Manufacturing t/a Wyeth Ireland V DPP, EPA and the Attorney General - the High Court refused the applicants leave to challenge the conditions of their licence.
- ▼ 18 IPPC Sector BAT Notes have now been published.

WASTE LICENSING

The Waste Management Act, 1996, gives the EPA responsibility for the licensing of all significant waste recovery and disposal facilities managed by local authorities and private operators. Stringent conditions are placed on the operation of facilities under the waste licensing process to ensure potential environmental impacts are strictly controlled.

In 2008:

- ▼ The EPA granted new or revised licences for three landfills, two waste transfer stations, two materials recovery facilities, three integrated waste management facilities and two hazardous waste facilities.
- ▼ 14 Proposed Decisions were issued.
- ▼ 11 Technical Amendments were issued.
- ▼ In February, the EPA held an Oral Hearing on Fingal County Council's application for a proposed landfill at Nevitt, Lusk, County Dublin. No decision on the application has issued to date.
- ▼ In April the EPA held an Oral Hearing on Dublin City Council's application for a proposed incinerator at Poolbeg Peninsula, Dublin. Having considered the application and Oral Hearing report, the EPA issued its decision to grant a licence on Monday 1st December 2008.

- ▼ A guidance note on the pre-treatment of municipal waste has been developed for licensees to assist with achieving full compliance with the Landfill Directive. This guidance has been published for public consultation with a view to publishing the final Guidance Document early in 2009.

WASTE WATER DISCHARGE LICENSING

147 waste water licence applications were received in 2008, bringing the total number of applications received to date to 207. Ten Final Decisions issued in 2008.

The final group of allocations is to be submitted to the EPA by 22nd June 2009. The licensing process applies to agglomerations greater than 500 population equivalent while a certification process, which commences in 2009, applies to all agglomerations below that threshold.

CERTIFICATES OF REGISTRATION

The EPA uses Certificates of Registration to regulate low risk local authority waste recovery facilities.

In 2008, the EPA issued 149 Certificates of Registration.

GENETICALLY MODIFIED ORGANISMS (GMO)

The EPA is the competent authority in Ireland for the implementation of the GMO Regulations on the contained use, the deliberate release into the environment and the transboundary movement of GMOs.

By the end of 2008:

- ▼ There were 307 entries on the register of GMO users in Ireland. Approximately 98 per cent of these relate to contained use. The majority of these are third level research laboratories, classified primarily as being of low risk.
- ▼ 34 Consents were granted for the contained use of GMOs.
- ▼ GMO site inspections were carried out at 18 registered premises, where a total of 106 registered users were inspected throughout these premises.

Table 1:
Licensing Activities in 2008

	IPPC Licences	Waste Licences	Waste Water Licences	GMO Consents	VOC Licences	Certificates of Registration
Applications Received	52	20	147	32	1	152
Proposed Decisions	44	14	N/A	N/A	1	N/A
Objections Received	37	12	21	N/A	0	N/A
Final Decisions	40	12	10	34	1	149

VOLATILE ORGANIC COMPOUNDS (VOC)

The purpose of The Environmental Protection Agency Act, 1992 (Control of volatile organic compound emissions resulting from the storage of petrol and its distribution) Regulations, 1997 is to control volatile organic compound emissions resulting from petrol storage and distribution terminals. The EPA uses a permitting process to regulate these activities. In 2008 the EPA reviewed one VOC Permit.

LICENCE ENFORCEMENT

Licences granted by the EPA provide for the control and enforcement of specified activities and the protection of all environmental media in one document. The enforcement work of EPA's Office of Environmental Enforcement (OEE) includes the auditing and inspection of licensed sites to assess compliance and environmental performance, the sampling and assessment of emissions and the provision of guidance and information on best practice.

The investigation of complaints and incidents and the direction and supervision of corrective actions accounts for a significant part of enforcement of licensed sites. Facilities continually showing significant non-compliance with relevant legislation or presenting a serious risk to the environment are targeted for legal action.

Details on all Waste and IPPC licences can be viewed on the EPA website at www.epa.ie/whatwedollicensing/.

In 2008:

- ▼ EPA inspectors conducted 124 audits and 652 inspections of licensed IPPC and Waste facilities.
- ▼ 114 compliance meetings were conducted with senior management of licensed facilities, to emphasise the level of non-compliance and the consequence of continued non-compliance.

- ▼ Licensed facilities were monitored 971 times for air, water and noise emissions in 2008.
- ▼ 616 non-compliance notices were served in 2008.
- ▼ The main non-compliance issues encountered related to odour impact, waste management, containment and exceedences of emission limits at facilities.
- ▼ The number of complaints made to the EPA in relation to IPPC facilities and Waste facilities numbered 424 and 1,462 respectively.
- ▼ 10 IPPC facilities accounted for 70 per cent of all licensed industry complaints. The majority of complaints related to odour.
- ▼ 88 per cent of all Waste complaints received related to 10 facilities. The most common cause of complaint was odour.
- ▼ During 2008, extensive odour assessments, landfill gas management and landfill operational practice have been a priority for the EPA in addressing significant complaints of odour from EPA licensed landfills. While improvements have been made at a number of sites, the EPA has issued legal notices on landfill operators and undertaken further enforcement by prosecution.
- ▼ A major investigation involving the Gardaí and EPA enforcement officers was conducted into the operation of a number of waste facilities in the Dublin and Kildare areas. This investigation began late in 2008 and will continue into 2009.

Following an extensive assessment of the timber treatment sectors in 2007 these licensees have been advised of corrective action best practice recommendations. Targeted inspections carried out in 2008 to assess implementation and compliance will be followed by enforcement action where necessary to ensure protection of surface water and ground water.

INSPECTIONS

Table 2 presents a summary of the inspection work conducted by or on behalf of the EPA during 2008, broken down by category of inspection.

Table 2:
EPA Audits and Inspections 2008

Inspection Type	Number
License application and review inspections	200
IPPC Enforcement inspections	432
IPPC Enforcement audits	65
Waste enforcement inspections	220
Waste enforcement audits	59
IPPC monitoring visits	656
Waste monitoring visits	187
Landfill Gas Monitoring	47
IPPC compliance meetings	78
Waste compliance meetings	36
Local authority audits	9
Section 63 investigation inspections	26
GMO facility inspections	18
Emission Trading inspections	13
Waste Electrical and Electronic Equipment inspections	187
Decorative Paints inspections	109
Restriction of Hazardous Substances inspections	39
PCPs/POPs inspections	28
Ozone Depleting Substances inspections	17

LEGAL MATTERS

Prosecution is one enforcement tool available to the EPA. Others include legal notices to implement specific measures to prevent or remedy pollution. Legal action pursued by the EPA in 2008 included the following:

- ▼ 20 cases were brought before the District Courts, 17 of which were against licensees. Convictions were handed down in 14 of these cases with the Probation Act being applied in the other six. Fines and costs of €150,953 were awarded to the EPA.
- ▼ Charges were brought against licensees in numerous sectors. However, licensees in the piggery sector were prosecuted most frequently. The first prosecution under the Drinking Water Regulations was taken in April 2008. Other charges related to breaches of WEEE regulations, breaches of emission limit values, failure to install infrastructure, failure to retain records on site, exceeding annual waste tonnage limits (transfer stations) and failure to submit information or notify the EPA of incidents as required under licence conditions.
- ▼ Three cases were refused jurisdiction before the District Courts. These and other detailed investigations were carried out, resulting in the submission of three files to the Office of the Director of Public Prosecutions.
- ▼ A Study on the *Use of Administrative Sanctions for Environmental Offences in Other Comparable Countries and Assessment of their Possible Use in Ireland* was finalised during the year. The study involved the review of such sanctions in the US, UK, Germany and Australia.
- ▼ Legal action taken by the EPA led to commitments by individual licensees of up to €850,000 by way of remedial measures, such as improving waste water treatment plants and carrying out a range of environmental improvement works on site.



ENVIRONMENTAL ENFORCEMENT NETWORK

The EPA co-ordinates a *National Environmental Enforcement Network*. The Network harnesses the collective resources, expertise and investigative capacity available nationally to tackle environmental crime. The Network is well established and brings together over 1,000 staff from over 50 agencies.

Enforcement activities are co-ordinated through environmental inspection plans. Environmental complaints are managed through the implementation of the national complaints procedure in line with the publication *See Something? Say Something!* The inspection plans and implementation of the national complaints procedure

provide the platform for a national systematic approach to inspection and enforcement.

Members work across themes, which include drinking water and water quality; air and waste and producer responsibility. The EPA provides resources to co-ordinate activities and promotes communications and use of best practice guidance. The EPA maintains a contact database, an events calendar, and secure web pages used to share information and guidance. In 2008, the EPA published a newsletter about the Network, arranged two national conferences and held several workshops and training courses.

UNAUTHORISED WASTE ACTIVITIES

Tackling unauthorised waste activity remains a key priority for the EPA's Office of Environmental Enforcement. During 2008, this involved intensive engagement with members of the *Environmental Enforcement Network*. The Office of Environmental Enforcement continues to work with colleagues in Northern Ireland to address cross-border illegal waste issues. During 2008 this focused on assisting the relevant competent authorities in dealing with Transfrontier Shipment repatriation requests.

The 24 hour illegal dumping line, 1850 365 121, was continued during 2008. Organisations involved are the EPA, local authorities and An Garda Síochána. In 2008, a total of 1,110 calls were received.

Following the publishing of the Code of Practice, *Environmental Risk Assessment for Unregulated Waste Disposal Sites*, and the carrying out of associated training, the EPA developed an electronic tool during 2008 to assist local authorities in carrying out these assessments. This has been tested with local authorities and is with the Local Government Computer Services Board for roll-out in 2009.

The investigation of local authority statutory performance in respect of waste was regionalised during 2008. Any relevant complaints are now dealt with by the enforcement teams based in the five EPA regional inspectorates in Wexford, Dublin, Cork, Kilkenny and Castlebar. This is a more efficient way of dealing with the matter and provides for improved customer service.

Guidance with respect to the new Waste Collection Permit and Waste Facility Permit and Registration Regulations was produced and training provided to local authorities.

A central, publicly accessible, electronic database for the storage of all waste authorisations issued by local authorities under the Regulations was also established at www.epa.ie/wastepermit.

The Office of Environmental Enforcement began a review of landfill conditioning plans in 2008. The purpose of this work is to assess whether EPA licences provide for compliance with the Landfill Directive. All active landfills have been assessed and site-specific recommendations made to amend licences.

Position papers were generated on the issues of waste gypsum and baled tyres, resulting in the issue of guidance on management of these waste streams through the Enforcement Network.

PUBLIC AUTHORITY ENFORCEMENT

The EPA exercises a supervisory role in relation to the environmental protection activities of local authorities.

In 2008:

- ▼ 88 audits of local authorities were carried out on a range of areas including 79 drinking water audits; five integrated complaint resolution audits, two bathing water audits and two audits of seriously polluted river sites.
- ▼ 253 investigations were carried out, on foot of complaints made to the EPA or based on incidents identified by the EPA, in relation to activities that were the responsibility of local authorities. The majority of these complaints related to either waste management or water management issues, with the remainder relating to issues such as odour, noise and planning. As a result of these investigations, 28 advice and recommendation notices were issued to local authorities.

Table 3:
Public Authority Enforcement Activities in 2008

Audits	88
Investigations conducted	253
Advice and recommendation notices	28
Proposed directions served	1
Directions served	45

STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) DIRECTIVE

The objective of the SEA Directive is to provide for a high level of protection of the environment and to promote sustainable development. Some key highlights for the SEA team in 2008 included significant progress in developing effective systems and procedures for improving the SEA process and for promoting best practice in SEA.

These include:

- ▼ Ongoing testing and development of an automatic GIS Search and Reporting Tool and a SEA Process Checklist;
- ▼ Issuing of the SEA Checklist consultation during 2008 to guide best practice in SEA;
- ▼ Preparation of a generic SEA Pack to assist Plan/ Programme makers through the SEA process;
- ▼ The automation of the SEA GIS Search Tool. The time-savings arising from the development of this automated reporting tool are significant;
- ▼ Preparation of *Draft Best Practice Guidelines on the application of GIS* in SEA is in the advanced stages of completion and will be formally circulated early in 2009;
- ▼ Holding of an SEA and Appropriate Assessment Workshop with key Plan/ Programme and decision makers; and

- ▼ Further promotion of SEA best practice with the following targeted sectors - Fisheries, Energy, Forestry, Water, Telecommunications and Tourism.

In 2008:

- ▼ 116 SEA Screening notifications were received;
- ▼ 62 SEA Scoping notifications for new SEAs commenced;
- ▼ 49 Environmental Reports were received;
- ▼ 38 Submissions were made on Draft Plans/ Programmes and Environmental Reports.

Key Strategic Environmental Assessments completed by Public bodies in Ireland during 2008:

- ▼ Review of the *National Hazardous Waste Management Plan SEA*;
- ▼ The Irish Seafood Operational Programme;
- ▼ Greater Dublin Strategic Drainage Strategy.

In addition, four Flood Risk Assessment and Management Studies are currently underway.

GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

The GIS Unit continued its commitment to providing better access to data, which started through the development of *ENVision* in 2007, by focusing on development of WebGIS sites to automate and streamline specific functions, either within the EPA or as a service to be provided to other stakeholders.

These projects were aimed at using automated methods to reduce the time taken to access and process the data required for certain tasks.

The first in this suite of tools is the Assimilative Capacity Model system, to assist in calculating safe emission levels for waste water.

The second is the Strategic Environmental Assessment WebGIS which acts as a one stop shop for creating SEA reports on a development plan boundary.

The third is the Landfill Risk Assessment WebGIS, which is a supporting tool to accompany the EPA Code of Practice for Unregulated Landfills.

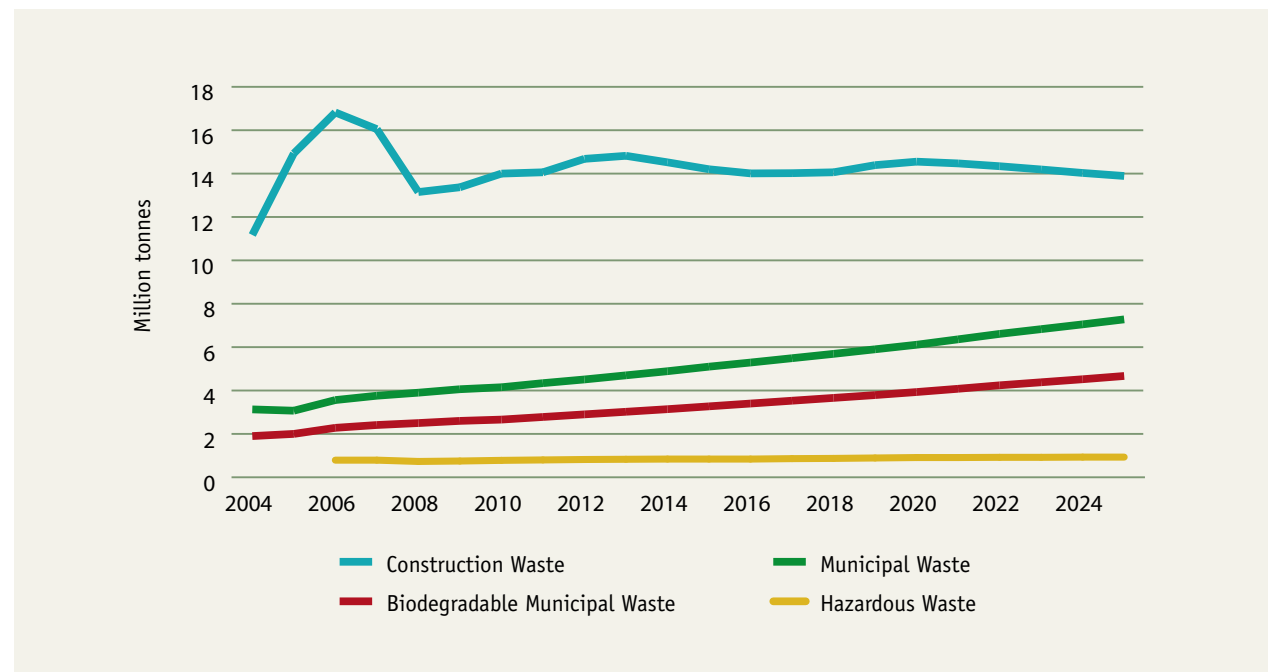
All three projects are in implementation phases and will be available to EPA staff and Local Authorities.

IRISH SUSTAINABLE DEVELOPMENT MODEL (ISus)

The Economic and Social Research Institute (ESRI) is undertaking a three year EPA-funded research project to

model how the evolution of activity across the economy and society effects waste generation and emissions of potential pollutants. The project commenced in 2006 and the model developed is called the Irish Sustainable Development Model or ISus for short. The ISus model utilizes a wide range of economic and environmental data including the ESRI's own macroeconomic projections and is capable of scenario analysis to highlight the environmental implications of various measures in order to better inform decisions that affect the environment. Preliminary results were presented in *Ireland's Environment 2008*. Figure 6, for example, used the ISus model to illustrate waste projections.

Figure 6:
Waste Projections: Business-as-Usual Scenario (Source: ISus)





RESEARCH INITIATIVES

In 2008 the STRIVE programme made awards for 30 projects, corresponding to a budget commitment of circa €11 million. The project awards were for the following:

- ▼ 8 projects in Waste & Resource Management;
- ▼ 9 projects in Environmental Technologies;
- ▼ 9 projects in Environment & Health; and
- ▼ 4 projects in Sustainable Development and Environmental Socio-Economics.

Awards were granted for 16 PhDs, 12 Masters and six post-Doctoral fellowships representing a commitment from the EPA of approximately €4 million up to 2010.

Four Masters were upgraded to PhD status.

The year also marked the completion of the 33rd PhD under the direct Scholarship Scheme since the programme started in 2001.

In all, 33 research reports were published in 2008 including two on markets for environmental technologies, that feed directly into the *National Environmental Technology Action Plan*.

COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

- ▼ A major research conference was held in February, which show-cased the depth and breadth of environmental research and innovation that has been funded by the EPA over the past number of years.
- ▼ The fourth annual *Environment Ireland* conference was held in September. The theme of the conference was 'Achieving a Sustainable Ireland'.
- ▼ An article was issued to all regional media to alert the public to the dangers of backyard burning.
- ▼ Advertising continued to be placed highlighting the issues of illegal dumping, back-yard burning and the man-in-the-van phenomenon.

7. BUILDING A HIGH PERFORMANCE ORGANISATION

2020 Goal

Developing the people and organisational resources to underpin our strategy is a continuing requirement which requires a focus on four key areas: Competent/Committed People; Environmental Champion; Customer-Focused and Organisationally Efficient.

7. BUILDING A HIGH PERFORMANCE ORGANISATION

- ▼ The publication in October of the fourth 'state of the environment' report, *Ireland's Environment 2008* assisted in communicating the key challenges facing Ireland, resulting from the major economic, social and demographic changes that have occurred in recent years. This major report analysed the last four years of Ireland's performance on the environment. It assessed the overall quality of Ireland's environment, the pressures on it and the way we are responding as a society to current and emerging environmental issues.
- ▼ The fourth annual *Environment Ireland* conference was held in September with the theme 'Achieving a Sustainable Ireland'. Held at a time when Ireland's economy is facing difficult challenges, the conference addressed a number of key policy issues including sustainable development; climate change; environmental regulation; clean technologies; waste management; water resources and environmental policy.
- ▼ National conferences were also held on the issues of water management and waste enforcement.
- ▼ The EPA completed the seven-part climate change lecture series, and followed up with the first occasional lecture in October. The seven-part series explored key aspects of climate change ranging from predictions and impacts, to its economic and political consequences. Each lecture attracted a large audience, proving that climate change is an issue of great importance to all sectors of society. These lectures are available as video broadcasts on the EPA website, raising awareness about this important topic.

- ▼ The sixth of the popular television series *EcoEye* was broadcast on RTÉ early in 2008 and repeated in the summer. The viewing figures increased once again for this series with approximately 400,000 people watching each programme. The seventh *EcoEye* series was developed for broadcast in 2009.
- ▼ The EPA also sponsored another programme on Climate Change in the second of the science series, *The Investigators*. This programme highlighted some of the outstanding work being undertaken by Irish scientific researchers. Broadcast in a late night slot on RTÉ 1 the average number of viewers for each programme was 176,000.
- ▼ The new *EPA HydroNet* site, available on the EPA website, provides access to summary hydrometric data, for those who need to know about the flows and water levels in Ireland's rivers and lakes, and for anyone with a general interest in such matters.
- ▼ An Taisce, in partnership with the EPA, officially launched the *Green Home Programme* in May 2008, and Mr John Gormley T.D., Minister for the Environment, Heritage and Local Government, presented 17 schools with their *Green Home* flag. The aim of the *Green Home Programme* is to raise environmental awareness and support positive and sustainable environmental actions amongst householders and community groups. The programme covers topics such as waste prevention, energy conservation, water usage and transport. Now in its third phase, the programme is running in fifty communities, with forty-one schools taking part, and online registrations continue at www.greenhome.ie.
- ▼ As part of the *EPA Local Authority Prevention Demonstration Programme* a booklet to help farmers cut costs and improve their environmental performance was launched.



EPA Climate Change Lecture.

- ▼ The EPA exhibited at the BT Young Scientist and Technology Exhibition, Greener Ireland Expo at the RDS, Farmfest '08 in Athenry and the National Ploughing Championships held in Kilkenny. The EPA presented a Special Award to the best environmental project winners at the BT Young Scientist and Technology Exhibition.
- ▼ The EPA again sponsored a lesson on climate change in *Science and Technology in Action*, a multimedia resource for second level schools.
- ▼ Dr Padraic Larkin, Deputy Director General and Director of the EPA's Office of Climate, Licensing and Resource Use retired in April 2008. In August, Ms Laura Burke took over this position and Mr Micheál Ó Cinnéide joined the EPA as Director of Communications and Corporate Services. Mr Larry Stapleton continues as

Director of the Office of Environmental Assessment and has also been appointed as Deputy Director General of the Agency. Mr Dara Lynott will continue in his role as Director of the Office of Environmental Enforcement.

- ▼ Regional information was circulated each month on a range of topics to local and regional media outlets. Topics included drinking water quality and drinking water filters, bathing water quality, climate change, backyard and fireplace burning, the EPA/An Taisce *Green Home Programme*, green business, and seasonal tips at Christmas.
- ▼ In March, Mr. John Gormley, T.D., Minister for the Environment, Heritage and Local Government presided at the official turning of the sod to mark the commencement of the new extension to the EPA headquarters in Johnstown Castle Estate, Wexford.

EPA PUBLICATIONS 2008



2008

IRELAND'S ENVIRONMENT

EPA PUBLICATIONS 2008

The majority of EPA publications are available to download from the EPA website www.epa.ie.

All publications can also be purchased either on-line or from EPA Publications' Sales at +353 1 2680100.

STATE OF THE ENVIRONMENT REPORT

The following 'state of the environment' report can be found on the EPA website at www.epa.ie/whatwedo/assessment/soel/

▼ *Ireland's Environment 2008.*

AIR

The following air reports can be found on the EPA website at www.epa.ie/downloads/pubs/air/

- ▼ *Air Quality in Ireland 2007.*
- ▼ *Dioxin Levels in the Irish Environment – Fifth Assessment.*
- ▼ *Ireland's National Greenhouse Gas Emissions Inventory for 2007.*
- ▼ *Ireland's National Greenhouse Gas Emissions Projections to 2020.*
- ▼ *Ireland's Emissions of Greenhouse Gases for the period 1990-2006.*

CORPORATE

The following corporate reports can be found on the EPA website at www.epa.ie/downloads/pubs/other/corporate/

- ▼ EPA Annual Highlights 2007.
- ▼ EPA Annual Report and Accounts 2007.
- ▼ EpaNews Spring 2008.
- ▼ EpaNews Autumn 2008.

WASTE

The following waste reports can be found on the EPA website at www.epa.ie/downloads/pubs/waste/

- ▼ *National Hazardous Waste Management Plan 2008–2012.*
- ▼ *National Waste Report 2006.*
- ▼ *National Waste Prevention Programme –Annual Report 2007–2008.*

WATER

The following water reports can be found on the EPA website at www.epa.ie/downloads/pubs/water/

- ▼ *The Provisions and Quality of Drinking Water in Ireland–A Report for the years 2006–2007.*
- ▼ *Water Quality in Ireland 2004–2006.*
- ▼ *The Quality of Bathing Water in Ireland –A Report for the year 2007.*

GUIDANCE NOTES

The following guidance notes can be found on the EPA website at www.epa.ie/downloads/advice/

- ▼ *Code of Practice - Environmental Risk Assessment for Unregulated Waste Disposal Sites.*
- ▼ *Guidance Note for Noise in Relation to Scheduled Activities 2nd Edition 2006.*
- ▼ *Air Emissions Monitoring Guidance Note # 2.*

ENVIRONMENTAL RESEARCH REPORTS

Climate Change

The following climate change research reports can be found on the EPA website at www.epa.ie/downloads/pubs/research/climate/

- ▼ *Climate Change – Implementation of the Global Climate Observing System in Ireland. (ERC 8)*
Ned Dwyer.
- ▼ *Climate Change – An Analysis of Aerosol Properties at Mace Head. (STRIVE 4)*
S. Gerard Jennings.

Air

The following air research reports can be found on the EPA website at www.epa.ie/downloads/pubs/research/air/

- ▼ *Long-Term Measurements of Atmospheric Mercury at Mace Head, Carna, Co Galway. (ERC 9)*
Stephan Leinert.
- ▼ *New Transboundary Air Pollution Monitoring Capacity for Ireland. (ERC10)*
Stephan Leinert.
- ▼ *AQUIRE – Air Quality Forecast and Statistics over Ireland. (ERC 11)*
Hermann Jakobs.
- ▼ *Data Analysis and Estimation of Greenhouse Gas Emissions and Removal for the IPCC Sector Land Use, Land-Use Change and Forestry Sectors in Ireland. (ERC 7)*
Phillip O'Brien.

Water

The following water research reports can be found on the EPA website at www.epa.ie/downloads/pubs/research/water/

- ▼ *Water Framework Directive: Recharge and Groundwater Vulnerability. (STRIVE 6)*
Bruce Misstear, Les Brown.
- ▼ *Water Framework Directive: Marine Ecological Tools for Reference, Intercalibration and Classification. (STRIVE 7)*
Caroline Cusack.
- ▼ *Eutrophication from Agricultural Sources - The Impact of the Grazing Animal on Phosphorus, Nitrogen,*

Potassium and Suspended Solids Loss from Grazed Pastures-Phosphorus Dynamics in Grazed Grassland final report. (ERTDI 77)

D. Burke

- ▼ Forestry Operations and Eutrophication - PENrich. Synthesis Report. (ERTDI 78)
Ján Machava.
- ▼ Eutrophication from Agricultural Sources. Integrated Report. (ERTDI 81)
O.T. Carton.
- ▼ A Framework for the Assessment of Groundwater Dependent Terrestrial Eco Systems under the Water Framework Directive. (ERC 12)
Garrett Kilroy

Soils and Biodiversity

The following soils and biodiversity research reports can be found on the EPA website at www.epa.ie/downloads/pubs/research/biodiversity/ or www.epa.ie/downloads/pubs/research/land/

- ▼ The Value of Parasitic Hymenoptera as Indicators of Biological Diversity. (STRIVE 3)
Annette Anderson, Gordon Purvis.
- ▼ Quantification of Erosion and Phosphorus release from a Peat Soil Forest Catchment. (STRIVE8)
M. Rodgers
- ▼ ATLAS - Soils Geochemical Atlas of Ireland.

(This report is available at <http://erc.epa.ie/safer/iso19115/displayAllAttachments.jsp?isoID=7>)

Waste and Resource Management

The following resource management research reports can be found on the EPA website at www.epa.ie/downloads/pubs/research/waste/

- ▼ Organic Waste Management in Apartments. Final report. (ERTDI 71)
Carmel Carey, Warren Phelan, Conall Boland.
- ▼ A Nationwide Review of Pay-By-Use (PBU) Domestic Waste Collection Charges in Ireland. (STRIVE 10)
Abigail O' Callaghan, Anna Davies.
- ▼ A Nationwide Review of Pay-By-Use (PBU) Domestic Waste Collection Charges in Ireland. Executive Summary. (STRIVE 9)
Abigail O' Callaghan, Anna Davies.
- ▼ Examining the Use of Food Waste Disposers. (STRIVE 11)
Carmel Carey
- ▼ Critical Analysis of the Potential of Mechanical Biological Treatment for Irish Waste Management. (STRIVE 16)
B. Guinan

Socio-Economics

The following socio-economic research reports can be found on the EPA website at www.epa.ie/downloads/pubs/research/econ/

- ▼ Quality of Life and the Environment. (ERTDI 74)
Craig Bullock.
- ▼ Island Limits - A Resource Flow Analysis and Ecological Footprint of Ireland. (STRIVE 1)
Cathy Maguire, Robin Curry.
- ▼ Energy Crops in Ireland: An Assessment of their Potential Contribution to Sustainable Agriculture, Electricity and Heat Production. Final report. (ERTDI 70)
David Styles, Michael Jones.
- ▼ Environmental Sustainability and Future Settlement Patterns in Ireland. (STRIVE 2)
Richard Moles, Bernadette O'Regan.
- ▼ Strategic Environmental Assessment –SEA: Alternative Development for Household Waste Management. (STRIVE 18)
Margaret Desmond.

Environmental Technologies

The following environmental technology research reports can be found on the EPA website at www.epa.ie/downloads/pubs/research/tech/

- ▼ Air Pollution – Trace Radical Absorption through Cavity-Enhanced Spectroscopy TRACES (STRIVE 15)
U. Heitmann
- ▼ eDiesel – Barriers and Benefits. (STRIVE 5)
Fergal Purcell
- ▼ Energy Efficient Improvement of Waste water Treatment Processes – Using Process Integration Techniques. (STRIVE 14)
Toshko Zhelev
- ▼ Results from the *Cleaner Greener Production Programme*–Summary Phase 2.
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