



ENVIRONMENTAL PROTECTION AGENCY  
2009 | Annual Highlights





## ENVIRONMENTAL PROTECTION AGENCY

### ANNUAL HIGHLIGHTS 2009

EPA · Annual Highlights 2009

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## DIRECTOR GENERAL'S STATEMENT

Welcome to our annual highlights for 2009 which was a very busy and challenging year for the EPA. Like all public sector organisations we are being impacted by the downturn in the economy and the steps that the government is taking to restore our finances. We have to operate with less money and fewer people. In the current economic climate, 'doing more with less' is a high priority for the EPA and we are examining a range of options for getting things done more efficiently and using technology to best effect, to help our people work more efficiently and effectively. Despite the economic downturn and reductions in both budgets and staff, our mission, vision and values remain the same and the challenge for the EPA is to make the best use of the people and resources available to it to deliver on our strategic objectives.

The same environmental protection challenges remain and, if anything, have been made more difficult because of the economic crisis. In the simplest terms, there is less money to invest in environmental protection in a cash-strapped economy and many of our problems, such as the water shortages witnessed recently in the aftermath of unprecedented rainfall and snow, require very significant and on-going investment for them to be resolved.

This is why it is crucial to keep environmental protection centre-stage. Ireland's environment is a key strategic asset for the country, which we must protect, manage and invest in to secure a healthy society and a strong, low-carbon and greener economy into the future. If, as a society, we want to make sure that future generations inherit a clean and productive environment, action and investment now is essential.

There are, however, many reasons to be optimistic. Green technologies and green business are being seen as integral to the new 'Smart Economy'. Sustainable development is now at the heart of the European Community and Europe is leading the way globally on climate change. A new European Commission has recently been put in place and the three priorities for the new environment commissioner are promoting a green economy, halting the loss of biodiversity and implementing and improving existing environmental legislation. Climate change is of such central importance that a separate new directorate has been created. In Ireland, despite all of our problems, we still have a high quality environment. State of the Environment reports and the many other EPA reports on air quality, water quality, waste management, enforcement, climate change and other issues – coupled with the outputs from EPA-funded research – provide us with an evidence base to show where the problems are and what needs to be done to remedy them.



This report presents the highlights of EPA work during 2009. The EPA, in its vision for Ireland's environment, has set goals for the year 2020 for climate change, air quality, water, biodiversity, soils, sustainable use of resources and integration and enforcement. EPA annual work programmes are aligned to these strategic goals for Ireland's environment

and this is reflected in the structure of this report. During 2010, we will be reviewing progress to date with our 2020 Vision strategy and consulting with our stakeholders on the actions required by the EPA and others between 2011 and 2014 to progress this vision, with a new corporate strategy to be published by the end of the year. During

2010, the review of the EPA provided for in the programme for government will also be carried out. My fellow Directors and I welcome this review which will help chart the way forward for the EPA for the foreseeable future and will be key to the development of the EPA's new corporate strategy.

## Climate Change



There was considerable disappointment in Europe that more substantial progress was not made at the global summit on climate change in Copenhagen in December. There is a long and difficult road ahead for Ireland, Europe and the rest of the world in facing up to, and dealing with, the consequences of climate change and it is more

important than ever that the issue remain prominent. It will be important to take the positives from the Copenhagen Accord and build on them to bring about a meaningful global agreement. As part of the framework for a new Climate Change Bill, the Minister for the Environment, Heritage and Local Government has proposed the creation of a new Office of Climate Change, to be located in the EPA and I look forward to taking on this important challenge when it comes to us.

An EPA highlight in 2009 was the publication of a summary of the state of knowledge about climate change in Ireland. The report pulls together information from a number of climate change studies funded by the EPA through its research programmes. It provides a strategic assessment of possible impacts for key economic sectors in Ireland and identifies a number of adaptation options and gaps in knowledge. During 2009, we also continued our successful series of public lectures on climate change with two lectures arranged as part of the run up to the global summit on

climate change in Copenhagen. These lectures continue to attract large audiences and we intend to hold some additional lectures during 2010.

## Water



The EPA is involved in many aspects of water management in Ireland and is well positioned to identify the challenges facing us in future years. Recent flooding and freezing events brought home to many of our citizens the fragility of our infrastructure for delivering a secure supply of safe drinking water and our latest report on water quality, published in December 2009, spells out the

challenges that Ireland faces in restoring our rivers, lakes, estuaries and groundwaters to good ecological status. This report also highlighted the dramatic decline in high quality river sites during the last 20 years. This was the first report to use the new water quality classification system required under the Water Framework Directive and it clearly signposted the scale of the challenge ahead in meeting the targets set by that Directive.

The EPA continued to supervise the provision of drinking water by public authorities and actively managed the remedial action list drawn up in 2008. This is a list of public drinking water supplies that required examination from source to consumer to determine whether replacements or upgrades were needed, or whether operational practices should be improved. Of the 339 public water supplies identified by the EPA and placed on a Remedial Action List (RAL) in early 2008, 96 supplies have been removed from the list having completed the necessary remedial actions and 58 have been added. Overall at the end of 2009 there were 301 supplies on the RAL.

2009 was the first full year for the EPA in its new role as regulator of urban wastewater treatment plants, the last major unregulated point of discharge into the aquatic environment. During 2009, 49 licences were issued to local authorities for most of the larger plants around the country and the EPA is now enforcing these licences. Over 500 plants will be regulated by the EPA and this new licensing system should result in significant improvements in water quality in future years and help Ireland meet the targets set by the Water Framework Directive for Irish water bodies.

During the summer we launched a new web service called Splash, to provide the public with up to date information on bathing water quality. The site, which won an award from Irish Water Safety, also gives details about lifeguard availability, blue flag status, tides and weather forecast. The website was developed in co-operation with IBM, An Taisce, (the body responsible for awarding Blue Flags to Irish bathing areas) and Irish Water Safety.

Unpolluted and well-protected fresh water is one of the most precious natural resources that we have in Ireland and a key challenge for Ireland over the coming decade will be to put the necessary systems and infrastructure in place for freshwater management, which will guarantee the inheritance by future generations of this most precious of resources. Water, though, as the recent flooding and freezing events have shown us, can also be very damaging and we must also put the systems and infrastructure in place to control and manage flooding and minimise damage to property. If we do this we will be better prepared for the changes to our weather and rainfall patterns that are likely to happen as a result of climate change. These recent climatic events have also highlighted issues regarding the governance of water at national level which need to be addressed.



## Sustainable Use of Resources



Despite the economic downturn, the National Waste Prevention Programme continued to provide leadership in the area of waste prevention. 142 hotels are now involved in the green hospitality programme and over 9,000 households have participated in the Green Home programme. The EPA coordinated Ireland's participation in the first European Week for Waste Reduction in November of last year, which provided an opportunity to showcase many of the initiatives being funded through the programme. Partner organisations included An Taisce, Repak and the local authorities and the week was used to highlight the importance of waste prevention and minimisation and more sustainable use of our natural resources. The Programme also received favourable mention by the OECD in its report on Ireland's environmental performance, published in November 2009.

## Licensing and Enforcement

Highlights for 2009 in the area of licensing and enforcement included the review of all landfill licences, the ramping up of our licensing of urban wastewater treatment plants, which I mentioned earlier, and the publication of our second Focus on Enforcement Report.

All of our landfill licences were reviewed in 2009 to bring them into compliance with the Landfill Directive targets for reduction of biodegradable municipal waste to landfill. Reducing the quantity of biodegradable waste going to landfill will also reduce greenhouse gas emissions and reduce the potential for odour at landfill.

We published our second Focus on Enforcement Report in November. The report assesses Ireland's enforcement of environmental standards and highlights the challenges we face in complying fully with European requirements for



air, water and waste. It includes detailed information about enforcement activities by the EPA and other environmental enforcement authorities over the period 2006 – 2008. A new Code of Practice for the development of an enforcement policy for unauthorised waste activities was also published in 2009. The Code of Practice provides a framework for local authorities to respond to unauthorised waste activities and complements waste management controls already in place to protect the environment.

## Environmental Research & Innovation



The EPA is responsible for the promotion and coordination of environmental research in Ireland and continues to support the growth and development of this area through its Science, Technology, Research and Innovation (STRIVE) programme. In 2009, 28 research reports covering climate change, water, waste and resource management, soils and biodiversity, environmental technologies and socio-economic issues, were published by the EPA. Awards were also made for 45 new projects. We now have a mature environmental research sector in Ireland, which is supporting policy development and implementation across a range of areas. The outputs from STRIVE and earlier EPA research programmes are also helping Ireland comply with its many international environmental obligations and avoid the financial consequences of failing to comply with these obligations.

2009 was also a year when the potential benefits of a green and low carbon economy for Ireland gained greater prominence. There are economic advantages to low carbon economic growth as well as environmental ones. The EPA is playing its part in building a greener economy in Ireland by investing in it through its STRIVE programme. Some of the outcomes of this investment were showcased in the EPA report Innovation for a Green Economy, launched by Minister Gormley in June. Environmental licensing is another key driver of green innovation and it is of crucial importance that investment in environmental research and innovation continues so that we can lay the foundations for a cleaner greener tomorrow and take advantage of the global trend towards a low-carbon future.

In closing, I want to pay special tribute to Larry Stapleton who retired as a Director of the EPA in November 2009, having served with the EPA since its foundation in 1993. I also want to pay special tribute to Paddy Nolan, Ciaran O'Donnell, George McHugh, Hugh Horan, John O'Hare and Jim Penny, all of whom retired in 2009. I want to thank all of 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 and the Enforcement Network Steering Committee and the many 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. I also want to thank the Minister for the Environment, Heritage and Local Government for his support for the EPA in 2009 and to the many officials in his Department with whom we work very closely.

**Dr Mary Kelly**

Director General, EPA, January 2010



## INTRODUCTION

Welcome to the EPA Annual Highlights 2009. This report provides a summary of the EPA's key activities and environmental and organisational outcomes achieved during 2009. 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 Use 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 dedicated to the implementation and enforcement of environmental legislation in Ireland. It is directly responsible for enforcing EPA licences granted to waste, industrial and other activities. It also supervises the environmental protection activities of local authorities, through auditing their performance, providing advice and guidance, and in appropriate cases, giving 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, and Training and Organisational services.

More information on EPA activities, licenses, publications and newsletters can be found on the EPA website at **[www.epa.ie](http://www.epa.ie)**.

The Environmental Protection Agency Annual Report and Accounts 2009 will be available later in 2010.



## 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.



### EMISSIONS TRADING

- ▲ Verified Greenhouse Gas Emissions (GHG) continued the downward trend from a high of 22.43 Mtonnes in 2005, to the 20.38 Mtonnes reported for 2008.
- ▲ 104 installations covered by the emissions trading scheme in Ireland held valid permits requiring them to monitor and report emissions and surrender allowances.
- ▲ Ireland was again 100% compliant with the scheme, with all operators surrendering the required amount of allowances by April 30th to match their verified emissions.
- ▲ Work commenced on the extension of the EU Emissions Trading Scheme to the Aviation sector.

### UNFCC COPENHAGEN CLIMATE CHANGE CONFERENCE

- ▲ Experts from the EPA's Climate Change Unit participated in the UNFCC Climate Change Conference in Copenhagen.

### NATIONAL EMISSIONS INVENTORIES

- ▲ The EU Commission agreed a package of proposals that seeks to deliver a 20% reduction in total EU greenhouse gas emissions by 2020 (relative to 1990 levels) and at the same time to increase to 20% the amount of renewable energies in energy consumption.
- ▲ The national inventory for 2007 was finalised, while the preliminary inventory for 2008 was published in December for the Minister of the Environment, Heritage and Local Government's second carbon budget.



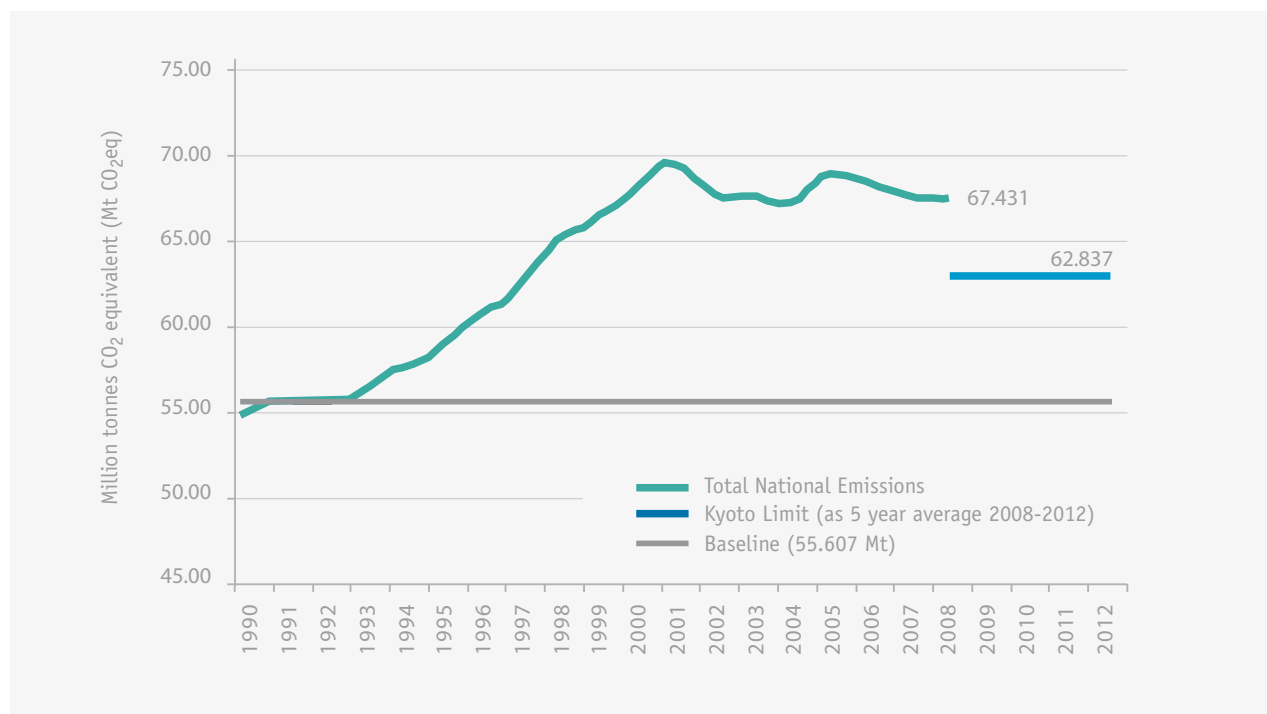


FIG 1: Distance to Ireland's Kyoto Limit (Source: EPA 2009)

- ▲ Ireland's Greenhouse Gas Emissions in 2008 fell 210,000 tonnes (0.3%) to 67.43 million tonnes. There was a 523,600 tonnes (4.4%) reduction in emissions from the Industry and Commercial sector and a smaller decrease of less than 1% from the Agriculture and Transport sectors. There was an increase in emissions of 603,700 tonnes from the Residential sector which cancels out any reductions in other sectors. Improved methodologies in the Energy and Waste sectors have resulted in emissions decreasing by 1.56 million tonnes in 2008.
- ▲ Distance from our Kyoto Limit is now 4.4 million tonnes (7%).

### EMISSIONS PROJECTIONS

- ▲ Ireland's Greenhouse Gas Projections for the period 2008-2012 reflect the reduced activity due to the economic downturn, but there is still an ongoing challenge for Ireland to meet its obligations under both the Kyoto Protocol and under the EU 2020 binding targets.
- ▲ The profile of greenhouse gas emissions in Ireland is unusual in the European context, with agriculture currently accounting for 27% of all emissions and 40% of emissions in the non-trading sector. This makes it very difficult to effect actual reductions on the scale required in the non-trading sector.



- ▲ Current projections show Ireland will still exceed its Kyoto Protocol limit by an average of 1.3-1.8 MtCO<sub>2</sub>eq annually in the period 2008-2012. Additional domestic policies and measures and/or Government purchases of carbon credits will be required to bridge this gap. In the longer term to 2020, Ireland's unique position within the EU as the country with the highest national proportion of agricultural emissions, together with further projected growth in transport emissions, will present this country with major challenges in meeting the EU's proposed future emission reduction targets. In the best-case scenario, non-Emissions Trading Scheme sector emissions are projected to be 7 million tonnes of CO<sub>2</sub> higher in 2020 than the binding target for that year.

This gap will be even larger if the EU target is further reduced in the event of an appropriate international agreement to follow the Kyoto Protocol.

## RESEARCH INITIATIVES

- ▲ Funding of a total of €5 million was committed to research in this area during 2009. Priority projects have been progressed on Carbon Capture and Storage; National Energy/Emissions Modelling, and Sustainable Transport.
- ▲ The report *Climate Change in Ireland: Refining the Impacts for Ireland* shows that by 2050 average temperatures will rise by 1.4°C to 1.8°C.
- ▲ Summer and autumn are projected to warm faster than winter and spring, with the midlands and east warming more than coastal areas. Winter rainfall is projected to increase by 10%, while reductions in summer rainfall of between 20 – 28% are expected in southern and eastern coasts. Longer heat waves and drought may occur, which will be especially important for eastern and southern parts of Ireland.
- ▲ The report concludes that there is an urgent need to adopt appropriate mitigation and adaptation responses to the risks posed by climate change, notwithstanding the challenges of economic events.
- ▲ The *CelticFlux* report showed that the management of Irish grasslands can have an important role in addressing climate change. The report indicates that grasslands take up between 11 tonnes and 18 tonnes of carbon dioxide from the air, per hectare, per year. It is estimated that 10 – 15% of the carbon is sequestered into the soil, with a positive environmental benefit.

- ▲ The report *A Summary of the State of Knowledge on Climate Change Impacts for Ireland* is an assessment of the current knowledge on climate change and expected impacts for Ireland. It provides a high level assessment of possible impacts for key economic and social sectors in Ireland and identifies a number of adaptation options and gaps in knowledge. The report showed air temperature increased by 0.4°C between 1980-2008; a significant increase in total rainfall in the North and West; an observed decrease in the frequency of storms but their intensity has increased. Adaptation planning and actions will be required to avoid the adverse impacts of climate change and to take advantage of any opportunities that may arise.

Work on analysis of other GHG emissions mitigation options was also advanced in 2009 including an assessment of the potential for Geological Storage of CO<sub>2</sub> in key areas of Ireland. A report on this assessment will be produced in 2010.

## COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

- ▲ The climate change web-pages were updated and now offer frequently asked questions on climate change; the latest research findings from EPA funded projects; up to date information from international climate negotiations; links to international organisations working on climate change and carbon calculator tools for personal and business use. Visit: [www.epa.ie/whatwedo/climate/](http://www.epa.ie/whatwedo/climate/)
- ▲ The EPA has also produced a new booklet, *The EPA and Climate Change*, which outlines the roles and responsibilities that the EPA has in the fight against climate change.

- ▲ The EPA's public lecture series on Climate Change continued in 2009, with 2 further lectures taking place covering the role of Peat Bogs and Climate Science in Climate Change.

Further lectures will be held in 2010.



## 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.

#### AIR QUALITY

- ▲ The report *Air Quality in Ireland in 2008 – Key Indicators of Ambient Air Quality* found that air quality was good at all monitoring stations, meeting all EU standards. In cities, emissions from traffic are the main threat to air quality whilst in smaller towns, elevated emissions are due to continued use of bituminous coal.

This graph illustrates trends in  $PM_{10}$  concentrations in Dublin, Cork, Galway and a rural site outside Drogheda between 2004 and 2008.

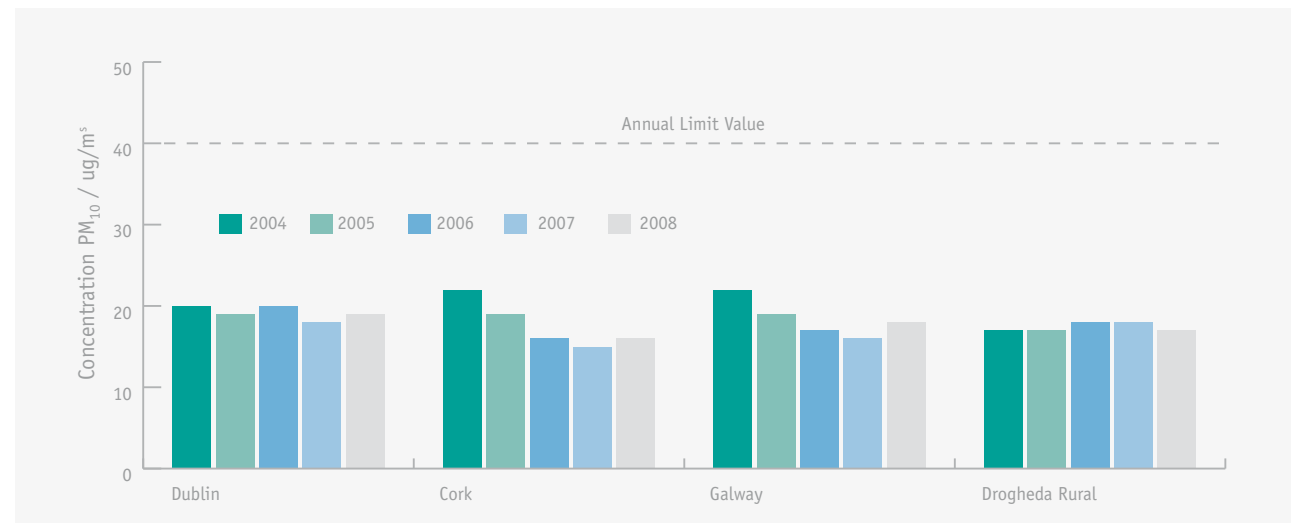
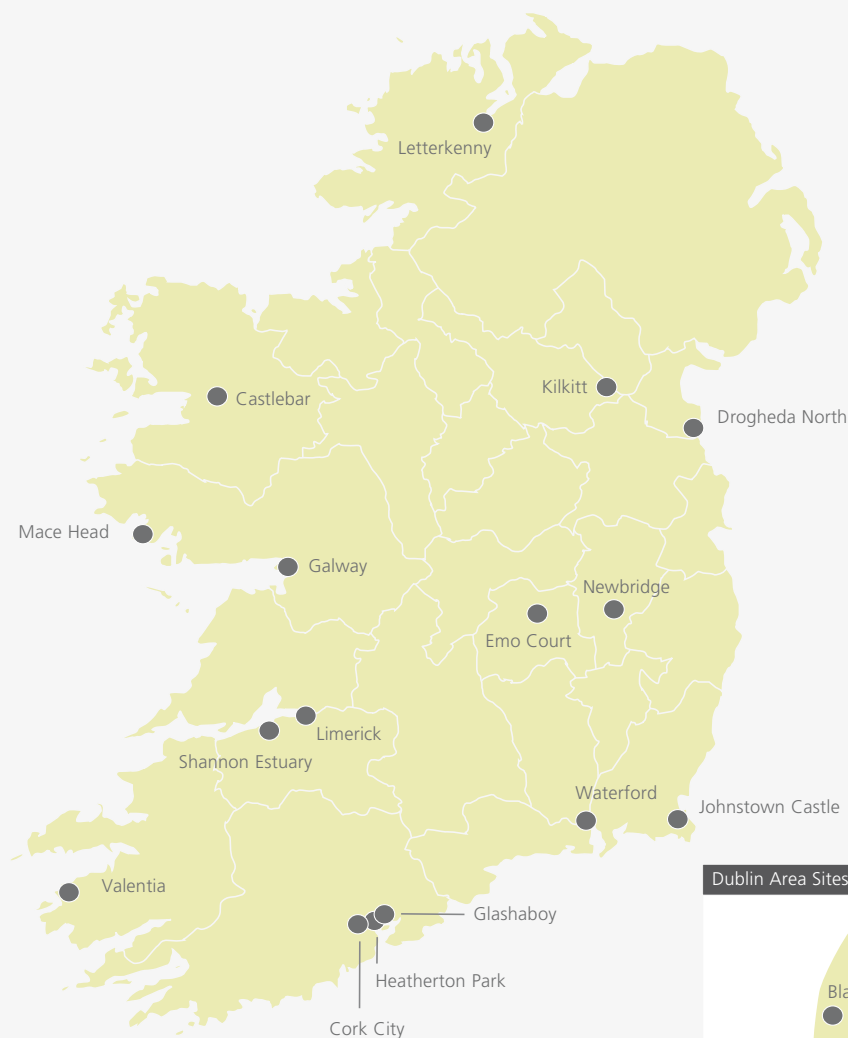


FIG 2:  $PM_{10}$  Concentration Graph

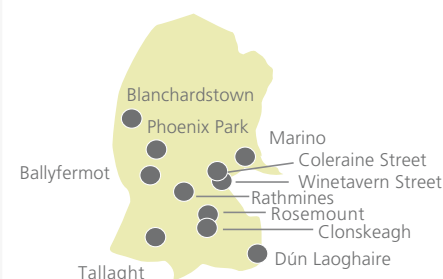
#### AIR MONITORING NETWORK

- ▲ New EU legislation relating to the monitoring of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, came into force in 2009.
- ▲ New air monitoring sites in 2009 included Ringsend and Rosemount, Co. Dublin; Ennis, Co. Clare and Newbridge, Co. Kildare.
- ▲ Three new  $PM_{2.5}$  sites (where PM levels are less than 2.5 microns in size) were established in Dublin to meet the requirements of the 2008 EU Directive on ambient air quality and clean air for Europe.

The map on the following page shows the locations of current monitoring sites.



Dublin Area Sites



National Air Quality Sites

### ENVIRONMENTAL NOISE DIRECTIVE

- ▲ The EPA fulfilled its reporting requirements under the Noise Directive by submitting the required reports and accompanying data via Reportnet, to the European Commission.
- ▲ In advance of the Noise Mapping requirement for 2012, the EPA circulated guidance documents on both Noise Mapping and Action Planning to all local authorities and Noise Mapping Bodies providing details on how this process should be undertaken.

### AIR ENFORCEMENT

The Air Enforcement Unit in the Office of Environmental Enforcement developed a proposed Technical Endorsement Scheme with the aim of improving and standardising the quality of monitoring results received by the EPA from licensees. The proposed scheme was presented to licensees, the Irish Business and Employers Confederation (IBEC) and monitoring contractors at a workshop in November.

### OZONE DEPLETING SUBSTANCES, POLYCHLORINATED BI-PHENYLS (PCBs) AND PERSISTENT ORGANIC POLLUTANTS (POPs)

- ▲ A nation-wide survey for PCBs and an inventory for POPs were completed. Following on from this inventory work, the development of a draft National Implementation Plan for POPs has commenced.

### REACH (REGISTRATION, EVALUATION, AUTHORISATION AND RESTRICTION OF CHEMICAL SUBSTANCES)

- ▲ The EPA and the Health and Safety Authority (HSA) agreed a Memorandum of Understanding regarding areas of mutual responsibility and shared interest with respect to the operation and enforcement of the REACH Regulation.



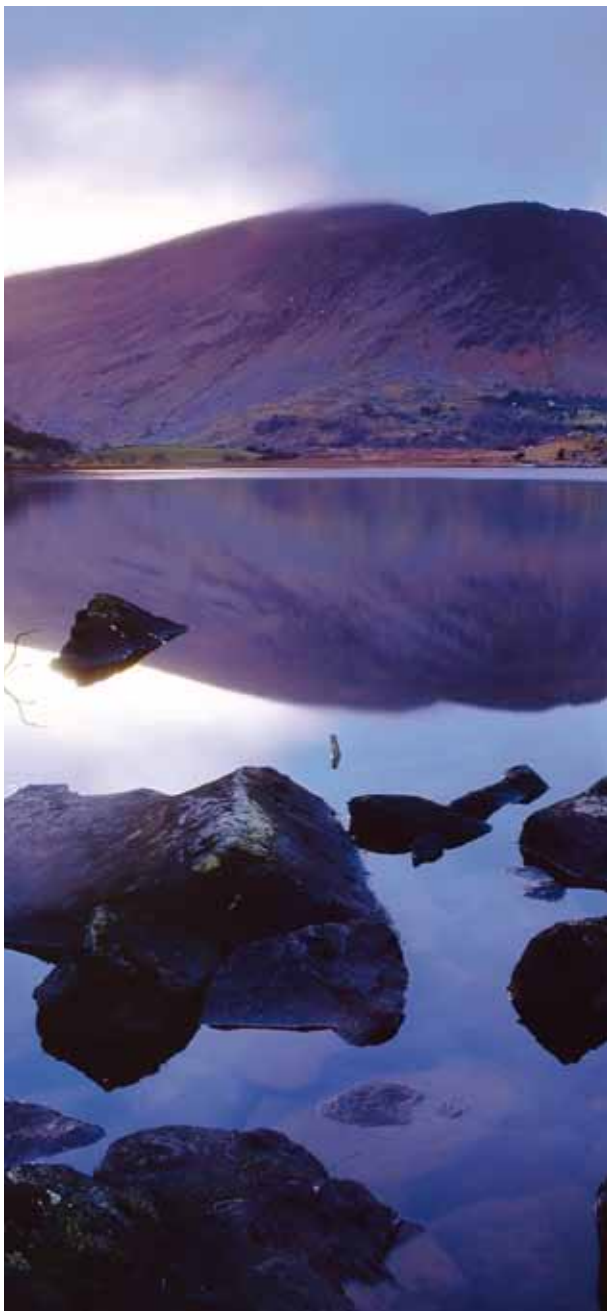
## RESEARCH INITIATIVES

- ▲ The research project *Innovative Data Capture and Presentation Techniques in Support of the EU Environmental Noise Directive* developed methodologies for the creation of data required for accurate noise modelling in road environments.
- ▲ The *Focus on Enforcement Report* reported the outcomes of a TCD-led research project, which developed an Environmental Emissions Index (EEI) model. Focussing on the pharma-chem sector, the research indicated that integrated licensing was the most important driver of pollution avoidance, and was responsible for 50% of air pollution avoidance. It was estimated that integrated licensing reduced pollution by 35%, and individual emissions by between 8% (total particulates) and 49% (sulphur dioxide) compared with hypothetical 'no-improvement' emissions.
- ▲ There are a number of on-going projects relating to air quality 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

- ▲ Real-time air quality monitoring continued at several locations in Ireland, as part of an on-going comprehensive assessment of air quality countrywide.
- ▲ A report was published on dioxin levels in the Irish environment (based on the levels in cows' milk in a 2008 survey). The report showed that all of the samples over this two-year period had levels well below the relevant EU limit.





### 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.



#### WATER QUALITY

- ▲ The main findings of the report *Water Quality in Ireland 2007-2008 – Key Indicators of the Aquatic Environment* showed:
  - ▲ 70% of river channel length and 90.4% of lake surface area examined, were of satisfactory water quality;
  - ▲ The percentage of high ecological quality river sites has almost halved since 1987, from approximately 30 per cent of the total sampled in the 1987-1990 period to less than 17 per cent currently;
  - ▲ 84% of the estuarine/coastal water bodies examined were classified as being unpolluted or in an intermediate condition;
  - ▲ 34% of all groundwater samples and almost seven of every ten groundwater sampling locations were contaminated by faecal coliforms, while nitrate concentrations exceeded the annual mean nitrate threshold concentration at almost 10% of sampling locations;



- 49% of river waterbodies; 57% of lake waterbody surface area and 59.4% of transitional and coastal water bodies were classified as being in high or good status using the extensive Water Framework Directive Classification schemes;
- 22 and 34 fish kills were recorded respectively in 2007 and 2008.

### WATER FRAMEWORK DIRECTIVE (WFD)

- In 2009, the Minister for the Environment, Heritage and Local Government issued Regulations on the biological classification systems and the physico-chemical and chemical standards for surface waters based on recommendations submitted by EPA.
- The EPA completed an interim status assessment for each water category and issued these to each River Basin District (RBD) for the purpose of objective setting in their final management plans.
- An assessment of each of the draft RBD management plans was completed and issued to RBDs.

### HYDROMETRIC PROGRAMME

- Monitoring of river flows has been aided by new acoustic doppler equipment and the installation of new weirs in Wexford, Kildare and Donegal. Significant progress was made in some local authority areas in improving the health and safety aspects of the hydrometric stations.

### DRINKING WATER

- A key priority for the EPA in 2009 was to reduce non-compliance with Drinking Water Standards.

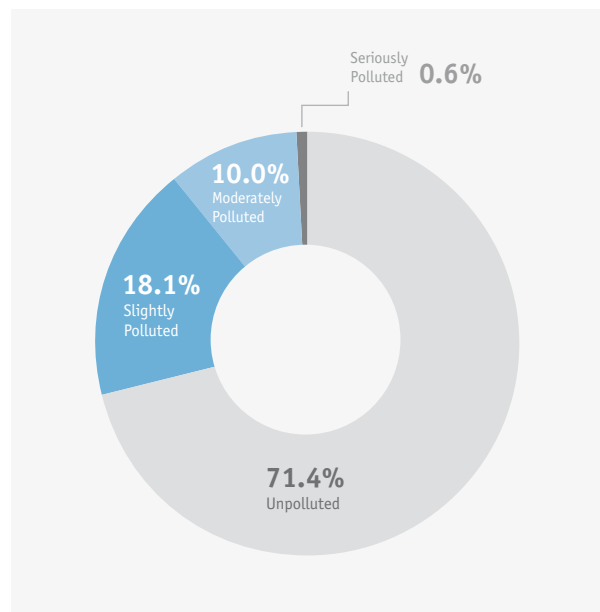


FIG 3: River Water Quality 2006-2008

- The EPA conducted 124 audits of drinking water supplies and served 28 directions on nine different local authorities in relation to drinking water issues.
- At the end of 2009 there were 301 supplies on the Remedial Action List, a significant driver for prioritising investment in drinking water infrastructure.
- A report on compliance with the *E. coli* standard was prepared for the European Commission. In 2009 there were 82 open *E. coli* investigation files.
- At the end of 2009 there were 19 public water supplies on boil water notices. 7 of these boil water notices were imposed during 2009.

- Six drinking water advice notes were issued to all local authorities, and published to the EPA website during the year. These related to lead compliance monitoring, lead pipes and plumbing, *E. coli*, disinfection by-products, turbidity and restoring public water supplies affected by flooding.
- Two further guidance booklets were issued to all local authorities during the year in relation to the Remedial Action List for public water supplies and drinking water returns.
- The report *Provision and Quality of Drinking Water in Ireland for the years 2007-2008* noted many improvements in the areas of safety and security of supplies. However, some concerns included:
  - over 31% of private group water schemes were contaminated at least once during 2007.
  - boil water notices or restrictions on use were put in place on 53 supplies in 2008.
  - compliance with several indicator parameters, in particular compliance with aluminium and turbidity parametric values, remained poor.
  - compliance with tighter standards in the future (e.g. tighter lead standard in 2013) will be a challenge.
- The *Urban Waste Water Discharges Report for 2006-2007* showed that continued investment in waste water treatment is required, as well as a dramatic improvement by local authorities in the operation and monitoring of existing waste water treatment infrastructure.



## GROUNDWATER

- ▲ The upgrading of the national groundwater monitoring network was completed, with the installation of 61 wells and 27 flow measurement systems, mainly weirs on springs.
- ▲ Zones of contribution have been delineated around the majority of the groundwater quality monitoring points, thus contributing to the evaluation of the data and the protection of the sources.
- ▲ Guidance on delineation of landspreading exclusion zones was prepared and assistance was given to preparation of Department of Environment, Heritage and Local Government Guidance on Integrated Constructed Wetlands.

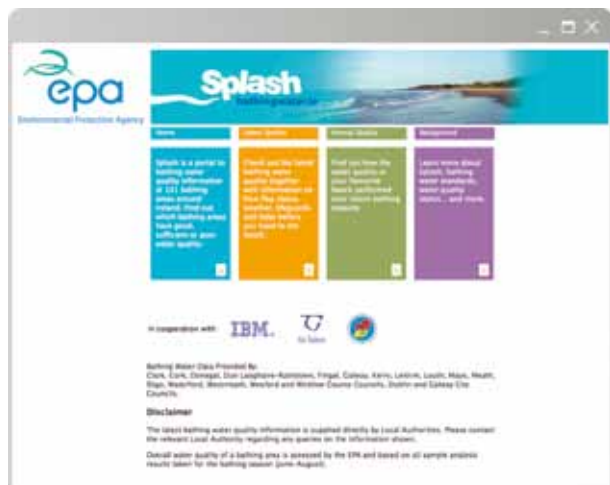
## BATHING WATER QUALITY

- ▲ The *Bathing Water Quality Report 2008* bathing found that 93% of the designated bathing sites met the minimum EU Mandatory Standards achieving sufficient water quality status. This represents a fall of four percentage points from 97% in 2007.
- ▲ 78% of bathing areas achieved the higher standard of good status, a reduction of 2% on the 2007 figure.
- ▲ The EPA launched the new online bathing water quality website “Splash”, available at [www.bathingwater.ie](http://www.bathingwater.ie), to give “as near to real time” information as possible on water quality and other issues that will be of benefit to the public.
- ▲ In addition, the website has a section on “Annual Quality” that provides the overall compliance information for all bathing sites from 2003 onwards.



Bathing Water Quality 2008





### ENVIRONMENTAL DATA MANAGEMENT

- ▲ The Environmental Data Exchange Network (EDEN) processed over 1,000 electronic data uploads, consisting of over 31,000 water samples from local authorities and national organisations including the EPA.

### RESEARCH INITIATIVES

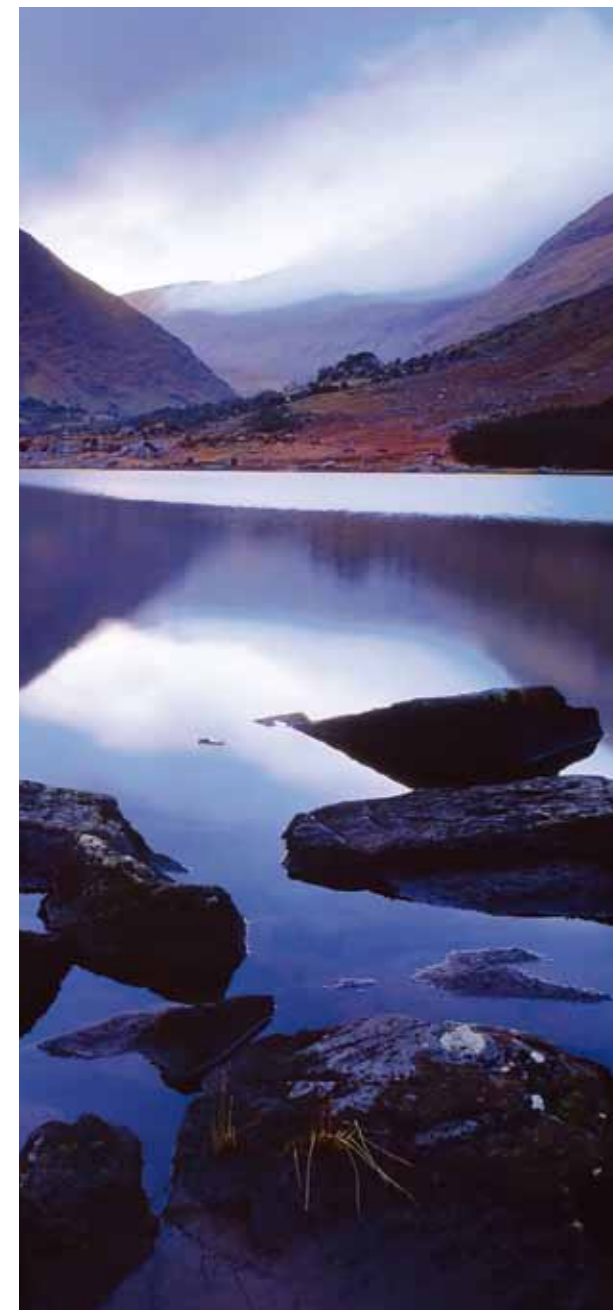
- ▲ A peer review publication was published highlighting the key role of the EPA-funded research in WFD implementation in Ireland.
- ▲ A significant research report investigated the attenuation of chemical and microbiological pollutants in domestic wastewater through relatively fast percolating subsoil and also through reed bed treatment systems. Findings from this research were incorporated into the recently published EPA Code of Practice on Wastewater Treatment for Single Houses.
- ▲ The EPA in conjunction with NUI Galway and Galway County Council established a state-of-the-art wastewater treatment facility at Tuam, Co. Galway. The facility has significant potential for innovative research

for the development and testing of novel environmental technologies.

- ▲ The EPA and Marine Institute jointly published three research reports on Advanced Technologies for Water Quality Monitoring as part of an innovative programme of environmental technology research in support of the Water Framework Directive to underpin the development of the Smart Green Economy.
- ▲ The EPA co-operated with other environmental agencies in the UK to co-fund research projects that aim to support WFD implementation through the Scotland & Northern Ireland Forum for Environmental Research (SNIFFER) initiative.

### COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

- ▲ The EPA hosted a national drinking water conference in June. Over 350 delegates from 70 organisations attended. The focus this year was on protecting and enhancing our water resources to improve monitoring, implementation and enforcement of water related legislation.





## 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.



### IRISH SOIL INFORMATION SYSTEM (ISIS) Project

The ISIS project aims to produce a digital soil map for all of Ireland at a scale 1:250,000 as well as deliver a Soil Information System, which will provide publicly-available digital information on soils. The ISIS project will be of huge benefit to the future of soils. With the added use of field techniques the project shall also build up thematic data on Irish soils which have been seriously lacking.

### NATIONAL SOIL DATABASE

- ▲ An interactive GIS map interface has been developed to allow viewing of all the data compiled during the National Soil Database sampling campaigns. More information is available at: <http://erc.epa.ie/nsdb>.

### SOIL ORGANIC CARBON PROJECT

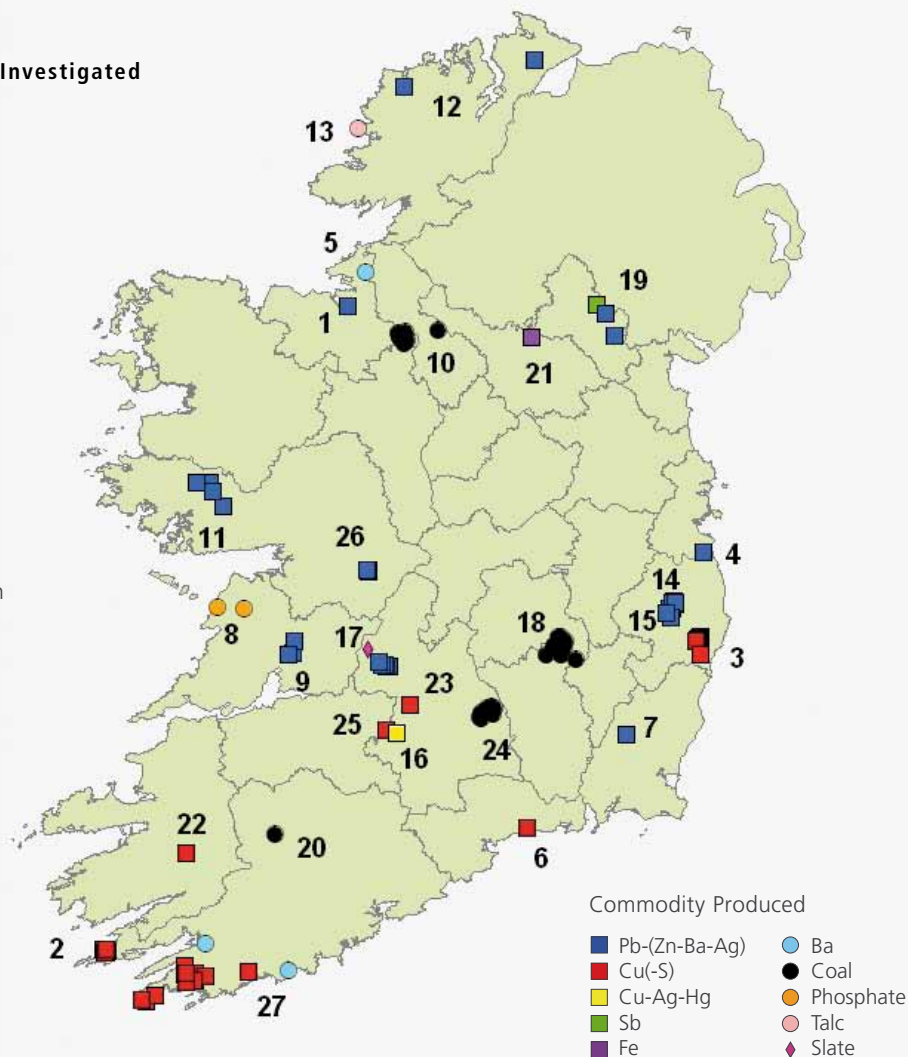
- ▲ The Soil Organic Carbon project, led by UCC, measured and modelled the soil carbon stocks and stock changes in a representative number of Irish soils. This research has a role in informing policy makers and stakeholders to improve sustainable management of Irish lands in respect to carbon management. The report is available for download at: <http://www.epa.ie/downloads/pubs/research/land/>.

### HISTORIC MINES SITES PROJECT

The *Historic Mine Sites – Inventory and Risk Classification (HMS-IRC) project Volume I*, was completed in late 2009, and will be launched in Quarter 1 of 2010. This was a multi-agency project between the EPA and the Department of Communications, Energy and Natural Resources (the Geological Survey of Ireland and Exploration and Mining Division). The project has produced the most comprehensive inventory of historic mines sites in Ireland.

**HMS-IRC Project****Mine Districts And Sites Investigated**

- 1 Abbeytown
- 2 Allihies
- 3 Avoca
- 4 Ballycorus
- 5 Benbulbin
- 6 Bunmahon
- 7 Caim
- 8 Clare Phosphate
- 9 Clare Pb
- 10 Connacht Coalfield
- 11 Connemara
- 12 Donegal Pb
- 13 Donegal Talc
- 14 Glendalough-Glendasan
- 15 Glenmalure
- 16 Gortdrum
- 17 Killaloe Slate
- 18 Leinster Coalfield
- 19 Monaghan Pb
- 20 Munster Coalfield
- 21 Redhills
- 22 Ross Island
- 23 Silvermines
- 24 Slieve Ardagh Coalfield
- 25 Tipperary Minor Cu
- 26 Tynagh
- 27 West Cork Cu-Ba

**UNREGULATED WASTE DISPOSAL SITES**

The EPA published the “Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal Sites” in 2007 for Local Authorities to identify and assess their unregulated waste sites. In December 2008 the Department of the Environment, Heritage and Local Government published the Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations. These Regulations required Local Authorities to register all “closed landfills” by 30th of June 2009 and for the EPA to facilitate the Local Authorities by providing the form and layout of the register. This register is known as the Section 22 Register. The EPA added a Web tool to the Section 22 Register that allowed the user to complete a desk top risk assessment automatically following the completion of a site walkover survey.

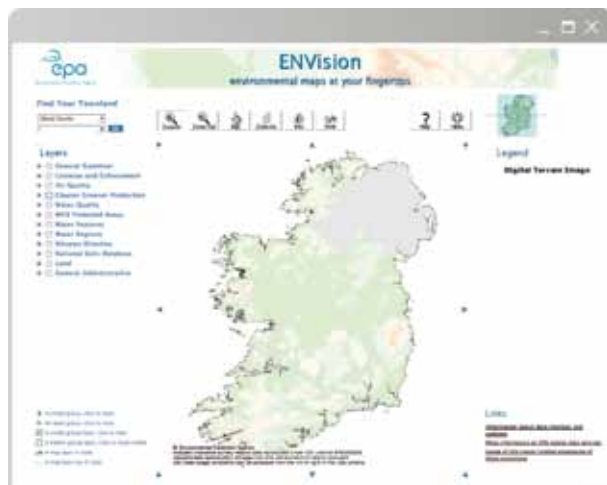
**LAND COVER – CORINE**

- ▲ During 2009 the EPA completed an update to the land cover/land use map of Ireland, as part of the European Corine Land Cover initiative. The updated CORINE Dataset is available on the EPA’s ENVision map viewer.

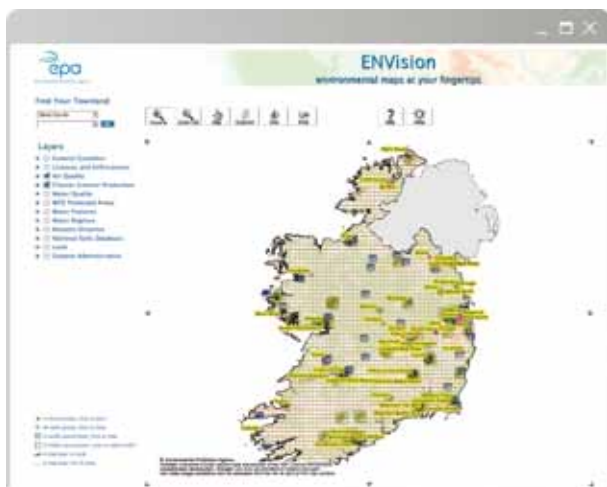
**CONTAMINATED LAND**

An Environmental Liability Unit was established within the EPA to handle matters arising from the Environmental Liability Regulations. The EC (Environmental Liability) Regulations 2008, S.I. No. 547 of 2008 came into effect in 2009, and the EPA is the competent body for the enforcement of these regulations. This Directive aims to prevent and remediate environmental damage. One of the main implications of this directive is the enforcement of the polluter pays principle. This will have a great influence on contaminated land in Ireland.





EPA's ENVision map viewer



EPA's ENVision map viewer

## BIODIVERSITY

The EPA prepared a *Biodiversity Action Plan* in 2009, for publication in 2010. This plan sets out specific actions which the EPA will undertake for the implementation of its role in the protection of biodiversity. The Plan covers a range of activities in the areas of monitoring, research, assessment and reporting, environmental regulation, climate change and management and communications.

## RESEARCH INITIATIVES

**Soils** – Work continued to build on the National Soils Database and Archive. In a further extension of the soil database project, key outputs from this project will be a 1:250,000 soils map of Ireland and an associated Soil Information System.

An international workshop was organised as part of a large-scale EPA funded project on soil biodiversity in Ireland, which was attended by over 70 key stakeholders

**Biodiversity** – The report from the Ag-Biota research project showed that the abundance and diversity of bees, birds and other species of insects and plants have suffered serious losses as a result of changing farming practices in Ireland. These findings were presented to scientists, policymakers and other stakeholders at a special conference in Dublin on Friday 27th March.

The research project *Biochange* provided necessary information for protecting the diversity of Ireland's flora and fauna and focused on emerging and important issues surrounding Irish biodiversity.

The EPA worked closely with the National Parks and Wildlife Service to re-establish the National Platform for Biodiversity Research to facilitate biodiversity research in Ireland.





## 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.



### NATIONAL WASTE PREVENTION PROGRAMME

▲ The fifth annual report for the National Waste Prevention Programme was published. This provides a comprehensive overview of activities during 2008 and 2009 and is available on the EPA website at [www.epa.ie](http://www.epa.ie).

Highlights include:

- ▲ 81 hotels now hold Green Hospitality Awards, including some of the largest and most prestigious hospitality properties.
- ▲ Successful completion of the Local Authority Prevention Demonstration Programme and the establishment of a Local Authority Prevention Network to provide capacity for prevention projects across the country.
- ▲ Over 230 companies have registered on [greenbusiness.ie](http://greenbusiness.ie), which is a site offering resource efficiency assessment and water audit tools, backed up by confidential free expert advisors and a helpline.

The booklet, *Calling Time on Waste: a publican's handbook to a leaner, greener cost base* was launched to help publicans cut costs and improve their environmental performance.

The Green Home Programme recruited a further 9,000 households to engage in waste prevention, energy and water savings, as well as composting and recycling activities.

A new project on food waste prevention and home composting commenced.

## PRODUCER RESPONSIBILITY INITIATIVES

Waste Electrical & Electronic Equipment (WEEE) and battery regulations

Two successful District Court cases were taken against non-compliant producer businesses.

A webpage at [www.batteries-enforcement.ie](http://www.batteries-enforcement.ie) has been set up to facilitate the provision of guidance to the specific stakeholders in relation to the new Batteries Regulations.

### Packaging regulations

The essential requirements in relation to restricted hazardous substances in packaging are being addressed by the development of the website [www.preventandsave.ie](http://www.preventandsave.ie) through the Packaging Prevention Programme.

### Reduction of Hazardous Components

A product recall direction was issued to one company in relation to a dangerous toy and was pursued through the Circuit Court and High Court.



Hazardous Waste / WEEE

## NATIONAL WASTE REPORTING

- ▲ The *National Waste Report 2008* showed that Ireland is well advanced in achieving most of the EU waste recovery and recycling target. However, the report urges continued effort to divert biodegradable waste from landfill, and to prevent waste arising from all sectors of society.
- ▲ A revised National Hazardous Waste Management Plan and Strategic Environmental Assessment (SEA) Statement was published in 2008. The EPA is taking 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. 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.

## EUROPEAN WEEK FOR WASTE REDUCTION

- ▲ The first ever European Week for Waste Reduction took place in 2009. A range of activities to highlight waste reduction practices and promote more sustainable consumption and production were organised by a variety of organisations, and coordinated by the Environmental Protection Agency (EPA).

## RESEARCH INITIATIVES

The report *Innovation for a Green Economy – Environment and Technology: A Win-Win Story*, highlights the many successes and impacts of research and innovation supported by the EPA research programme. This investment is also yielding wider economic benefits such as patents, license agreements and in one case a new spin off company.



The Organisation for Economic Co-operation and Development (OECD) invited the EPA to present this report at the recent Global Forum on Eco-Innovation in Paris.

An EPA funded research project by Ballymun Regeneration Ltd. showed that urban community composting has the potential for significant social, environmental and economic benefits.

A number of other EPA-funded research projects examined emerging issues for waste management including projects on mechanical biological treatment, pay-by-use waste collection charges, use of food waste macerators, organic waste management in apartments and the development of an Industry-Led Compost Quality Standard.

## COMMUNICATIONS AND CUSTOMER SERVICE INITIATIVES

The EPA hosted the National Waste Enforcement Conference.

The National Waste Prevention Programme 2008-2009 Annual Report were published.



## 6. INTEGRATION AND ENFORCEMENT

### 2020 Goal

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



### FOCUS ON ENVIRONMENTAL ENFORCEMENT REPORT 2006 – 2008

The *Focus on Environmental Enforcement in Ireland* report showed an increased level of enforcement activities in line with an increase in legislation, with 130,000 inspections, 10,000 enforcement actions and over 750 prosecutions by Environmental Regulators. The report also showed that complaints from large industry, and waste transfer stations have decreased while odour complaints from landfills have doubled. The number of seriously polluted river stations has decreased by 10 from 39 to 29. Emissions of air pollutants have reduced significantly in the pharmaceutical/chemical sector (by 59%), and the energy sector.

### INTEGRATED POLLUTION PREVENTION AND CONTROL (IPPC) LICENSING

In 2009:

- ▲ 55 IPPC licenses were granted while 7 license applications (piggeries) were rejected.
- ▲ 47 Proposed Decisions were issued.
- ▲ Technical Amendments were made to 95 licenses in accordance with the licensing regulations.
- ▲ 18 IPPC Sector Best Available Techniques (BAT) Notes have now been published and are available on the EPA website.
- ▲ 359 Article 11 requests received, to determine if facilities require a Waste License or Permit.

### WASTE LICENSING

In 2009:

- ▲ New or revised licences were granted for 11 landfills; three waste transfer stations; two soil recovery facilities; one integrated waste management facility and two composting facilities.



- ▲ 30 Proposed Decisions were issued.
- ▲ Technical Amendments were made to 11 licences, in accordance with the licensing regulations.

The EPA re-opened the 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.

#### Compliance with Landfill Directive

- ▲ Guidance document published on pre-treatment of residual waste: *Municipal Solid Waste – Pre-Treatment and Residuals Management*.
- ▲ Review of 25 landfill licenses was initiated and 25 proposed decisions issued in October 2009.
- ▲ 15 PDs were objected to and Technical Committee reports will be prepared for the EPA Board.
- ▲ Final decisions issued for 10 licences, which were not objected to.

#### WASTE WATER LICENSING

- ▲ The EPA published a Code of Practice for *Waste Water Treatment and Disposal Systems serving Single Houses* in relation to on-site systems for protection of our environment and specifically drinking water.
- ▲ 49 wastewater discharge licences (WWDL) were issued.
- ▲ 24 audits were carried out at these sites

#### ENFORCEMENT OF WASTE WATER DISCHARGE AUTHORISATIONS

- ▲ 304 waste water licence applications were received in 2009
- ▲ 49 Final Decisions issued in 2009.
- ▲ 174 Certificate of Authorisation applications for agglomerations with a population equivalent of less than 500 were received. These applications are currently being processed.

#### CERTIFICATES OF REGISTRATION

The EPA issued 25 Certificates of Registration in 2009 in relation to local authority waste recovery facilities deemed to be low risk to the environment.

#### GENETICALLY MODIFIED ORGANISMS (GMO)

By the end of 2009:

- ▲ There were 349 entries on the register of GMO users in Ireland.
- ▲ 44 Consents were granted for the contained use of GMOs.
- ▲ GMO site inspections were carried out at 14 registered premises, where a total of 47 registered users were inspected throughout these premises.

#### LICENCE ENFORCEMENT

- ▲ The EPA completed 193 audits and 762 inspections of waste and IPPC licensed sites.
- ▲ 730 notifications of non-compliance (NONCs) were issued by the EPA
- ▲ 138 meetings were held with licensees to address non-compliance issues.
- ▲ Complaints received during the year in relation to these licensed sites totalled 2182. 91% of these related to odour issues.
- ▲ Incidents notified to the Agency (in accordance with the terms of licences) totalled 2406.

#### WASTE ENFORCEMENT

The *Code of Practice for the Development of an Enforcement Policy for Unauthorised Activities* provided a framework for local authorities to respond to unauthorised waste activities.

The National Waste Workshop focussed on issues including BAT (Best Available Techniques) for the waste sector, landfill gas and odour, treatment of waste, waste classification, leachate management, and landfill cover.

	IPPC Licences	Waste Licences	Waste Water Licences	Certs of Auth	GMO Consents	Certs of Registration
Apps Received	41	29	304	150	43	59
Proposed Decisions	47	30	N/A	N/A	N/A	N/A
Objections Received	19	18	N/A	N/A	N/A	N/A
Final Decisions	55	19	49	0	44	25

Table 1: Licensing Activities 2009



Inspection Type	Number
Licence application and review inspections	102
IPPC Enforcement inspections	496
IPPC Enforcement audits	118
Waste Enforcement inspections	266
Waste Enforcement audits	75
IPPC monitoring visits (water)	653
Waste monitoring visits (water)	173
Landfill Gas Monitoring	35
IPPC compliance meetings	101
Waste compliance meetings	37
Local authority audits	154
Section 63 investigation inspections	242
GMO facility inspections	14
Emission Trading inspections	38
PCB Surveys and Inspections	64
WEEE/Battery Producer Inspections	52
WEEE Retailer Inspections	134
Companies inspected for WEEE/Batteries at Trade Shows	34
ODS/F Gas End User Inspections	48
Paint Retailer Inspections	6
Joint VR installation inspections with Local Authorities	2
National Waste Report Local Authority Inspections	10
National Waste Report Waste Treatment Operators Inspections	12
National Waste Report MSW Operator Inspections	8
National Waste Report Metal Handlers Inspections	6

Table 2: Audits And Inspections 2009

Activity	Number in 2009*
IPPC & Waste Enforcement Inspections	762
IPPC & Waste Enforcement Audits	193
Complaints Received	2182
Notification of Non Compliance Issued	730
Compliance Meetings Held	138
Incidents Notified to the Agency	2046
Water Monitoring Visits	860
Landfill Gas Monitoring Visits	35
*Figures subject to change	

Table 3: Enforcement Activities 2009

Activity	Number in 2009*
Audits	154
Investigations Initiated during the Year	242
Investigations Closed during the year	236
Directions Served	27
*Figures subject to change	

Table 4: Public Authority Enforcement 2009

## ENVIRONMENTAL LIABILITY UNIT

## LEGAL ENFORCEMENT

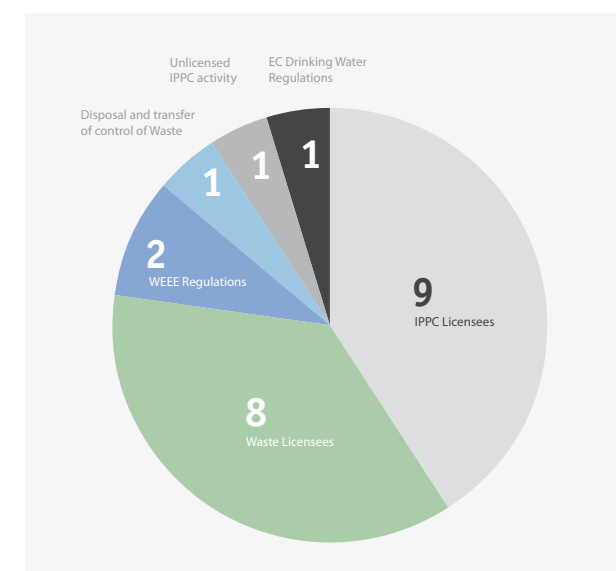
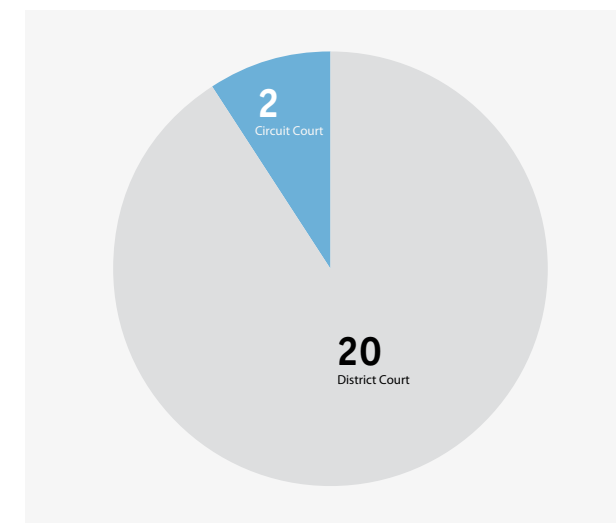


FIG 4: EPA Prosecution Cases



The Agency brought 22 successful prosecution cases to court. 20 of these were heard in the District Court. 2 were in the Circuit Court (including the EPA's first trial by jury). 8 cases were brought against waste licensees and 9 against IPPC licensees. 2 were brought under the Waste Management (Waste Electrical and Electronic Equipment) Regulations. 1 was under the European Communities (Drinking Water) (No. 2) Regulations. 1 was in relation to carrying on an unlicensed IPPC activity 1 was in relation to the disposal and transfer of control of waste. Costs and fines imposed amounted to €584,651.

#### **COMPLAINTS IN RELATION TO STATUTORY PERFORMANCE OF LOCAL AUTHORITIES**

- ▲ The EPA conducted 6 integrated audits of local authorities, in addition to 124 drinking water audits and 24 wastewater audits.
- ▲ The EPA received 242 new investigations this year, 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.
- ▲ A total of 236 investigations were closed out during the year.
- ▲ 27 Directions were issued to local authorities. These all related to drinking water issues.

#### **POLLUTANT RELEASE AND TRANSFER REGISTER (PRTR)**

The European Pollutant Release and Transfer Register (E-PRTR) is an inventory of pollutant emissions from industry and other sources across Europe. The first report from facility operators was coordinated by the EPA and submitted to the European Commission in September. Results can be viewed at <http://prtr.ec.europa.eu>

## STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) DIRECTIVE

Key Strategic Environmental Assessments undertaken by public bodies in Ireland, and for which submissions were made by the EPA during 2009 include:

- ▲ 7 WFD River Basin District Management Plans
- ▲ 6 Shellfish Waters Regional SEAs – covering 63 Pollution Reduction Programmes
- ▲ 6 County Development Plans
- ▲ 15 Town Plans
- ▲ Greater Dublin Strategic Water Supply Scheme Phase II.

## GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

The Assimilative Capacity Model system was finalised and made available to the EPA's Urban Waste Water licensing inspectors in 2009.

The EPA developed a GIS based online risk assessment to assist local authorities in carrying out these assessments. This GIS tool was integrated with the existing Unregulated Waste Sites Register (UWSR web page) to provide a single website for landfill registration and assessment. This integrated tool was made available to Local Authorities via the Environmental Data Exchange Network (EDEN).

An application for generating a flow duration curve at a site with no hydrometric gauge was completed in conjunction with the Hydrometric team and in co-operation with ESBI through a joint project with them. The website is available to River Basin Districts and Local Authorities through the Environmental Data Exchange Network (EDEN).

## RESEARCH INITIATIVES

The EPA released a report entitled *A Study on the use of Administrative Sanctions for Environmental Offences in other comparable countries and assessment of their possible use in Ireland*. The overall objective of this report was to assess whether the introduction of administrative sanctions for environmental pollution offences in the Republic of Ireland would be in the interests of the main stakeholders (i.e. relevant government departments, the business community, the general public) and the environment.

In 2009 the STRIVE programme included the following:

- ▲ 15 projects in Cleaner Production
- ▲ 4 Projects in Environmental Technologies
- ▲ 1 Large Socio-Economic project on Developing a Green Net National Project for Ireland
- ▲ 9 Doctoral Scholarships.

Twenty-one research reports were published in 2009. In addition, there were 6 small-scale studies finalised and released.

In support of Irish research community at EU level the EPA launched an Online Catalogue of Irish Expertise in Environmental Research, which has been accessed by over 4,000 researchers throughout Europe.

## KEY EVENTS

The EPA National Environment Information Day showcased Irish research projects that have successfully leveraged EU FP7 funding to date. In addition, key experts from the European Commission, European Environment Agency and

various industrial and academic institutions highlighted knowledge gaps and emerging issues across various environmental areas.

The 7th Annual EPA Doctoral and Post-doc Seminar represented 16 universities and colleges.

The year also marked the completion of the 46th PhD under the Direct Scholarship Scheme since 2001.

There were seven research-supported events hosted this year attended by 700 stakeholders.

## BUSINESS ANALYSIS

A project aimed at methodically analysing business areas within the EPA and determining how these may be improved by process changes and in particular the improved application of IT got underway in early 2009. The findings of the review of this business area has led to the establishment of a project named LEMA (License Enforcement and Monitoring Application) which will result in the development of a new IT application for automation of much of the business processes in this area.





## EPA PUBLICATIONS 2009

The majority of EPA publications are available to download from the EPA website [www.epa.ie](http://www.epa.ie).

All publications can also be purchased either on-line or from EPA Publications' Sales at +353 1 268 0100.



### AIR

The following air reports can be found on the EPA website at [www.epa.ie/downloads/pubs/air/](http://www.epa.ie/downloads/pubs/air/)

- ▲ Air Quality in Ireland 2008
- ▲ CO<sub>2</sub> EPA Emission Factors 2009
- ▲ Ireland's Greenhouse Gas Emissions for 2008
- ▲ Ireland's National Greenhouse Gas Emissions Projections 2008-2020
- ▲ Dioxin Levels in the Irish Environment 2008

### CORPORATE

The following corporate reports can be found on the EPA website at [www.epa.ie/downloads/pubs/other/corporate/](http://www.epa.ie/downloads/pubs/other/corporate/)

- ▲ EPA Annual Highlights 2008
- ▲ EPA Annual Report and Accounts 2008
- ▲ EPANews Spring 2009
- ▲ EPANews Autumn 2009
- ▲ EPANews Winter 2009

### ENFORCEMENT

The following reports can be found on the EPA website at [www.epa.ie/downloads/pubs/enforcement](http://www.epa.ie/downloads/pubs/enforcement)

- ▲ Focus on Environmental Enforcement in Ireland – for the years 2006-2008



- ▲ Ireland's 2007 European Pollutant Release and Transfer Register (E-PRTR) Report
- ▲ Pollutant Release and Transfer Register Datasets
- ▲ A Study on the use of Administrative Sanctions for Environmental Offences in other comparable countries and assessment of their possible use in Ireland

## WASTE

The following waste reports can be found on the EPA website at [www.epa.ie/downloads/pubs/waste/](http://www.epa.ie/downloads/pubs/waste/)

- ▲ EPA Enforcement of WEEE Regulations to date
- ▲ Calling Time on Waste
- ▲ National Waste Report 2008
- ▲ National Waste Prevention Programme – Annual Report 2008-2009
- ▲ Municipal Waste Characterisation 2008 Surveys – Final Report

## WATER

The following water reports can be found on the EPA website at [www.epa.ie/downloads/pubs/water/](http://www.epa.ie/downloads/pubs/water/)

- ▲ The Provisions and Quality of Drinking Water in Ireland – A Report for the years 2007-2008
- ▲ Water Quality in Ireland 2007-2008: Key Indicators of the Aquatic Environment
- ▲ The Quality of Bathing Water in Ireland – A Report for the year 2008

- ▲ Urban Waste Water Discharges in Ireland for Population Equivalents Greater than 500 persons – A Report for the Years 2006-2007

## GUIDANCE NOTES

The following guidance notes can be found on the EPA website at [www.epa.ie/downloads/advice/](http://www.epa.ie/downloads/advice/)

- ▲ Guidance on the Notification, Management and Communication of Environmental Incidents.
- ▲ Code of Practice for the Development of an Enforcement Policy for Unauthorised Waste Activities.
- ▲ WEEE Regulations – Information for Retailers of Electrical and Electronic Equipment and Batteries.
- ▲ Municipal Solid Waste – Pre-Treatment and Residuals Management – An EPA Technical Guidance Document.
- ▲ Code of Practice – Waste Water Treatment and Disposal Systems serving Single Houses.
- ▲ Guidance for the Farming Community on Protection of Water Resources and Habitat Quality from Impacts due to Livestock Access to Water.
- ▲ EPA Guidance Note for Strategic Noise Mapping.
- ▲ EPA Guidance Note for Noise Action Planning.

## 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/](http://www.epa.ie/downloads/pubs/research/climate/)

- ▲ A Summary of the State of Knowledge on Climate Change Impacts for Ireland. (CCRP 1) Margaret Desmond et al.
- ▲ CELTICFLUX: Measurement and Modelling of Greenhouse Gas Fluxes from Grasslands and Peatland in Ireland. (STRIVE 24) Gerard Kiely et al.
- ▲ Conflicts between Energy Policy Objectives and the National Climate Change Strategy in Ireland. (STRIVE 31) Brian Ó Gallachóir et al.
- ▲ Climate Change – Refining and Impacts for Ireland. (STRIVE 12) Sweeney, J et al.

### Water

The following water research reports can be found on the EPA website at [www.epa.ie/downloads/pubs/research/water/](http://www.epa.ie/downloads/pubs/research/water/)

- ▲ Macroalgal Biomonitoring – Applying Phenolic Compounds as Biomarkers for Metal Uptake Characteristics in Irish Coastal Environments. (STRIVE 42) Soléne Connan and Dagmar B. Stengel.
- ▲ On-Site Waste Water Treatment: Investigation of Rapid Percolating Sub-Soils, Reed beds and effluent distribution. (STRIVE 28) Laurence Gill et al.

### 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/](http://www.epa.ie/downloads/pubs/research/biodiversity/) or [www.epa.ie/downloads/pubs/research/land/](http://www.epa.ie/downloads/pubs/research/land/)

- ▲ Predicting the Impact of Coexistence-Guided, Genetically Modified Cropping on Irish Biodiversity. (STRIVE 39) Ewan Mullins et al.

- ▲ AGBIOTA (STRIVE 21) G. Purvis et al.

#### 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/](http://www.epa.ie/downloads/pubs/research/waste/)

- ▲ Development of an Industry-Led Quality Standard for Source-Separated Biodegradable Material Derived Compost. (STRIVE 22) M. Prasad and P. Foster.
- ▲ The Development of an Audit Methodology to Generate Construction Waste Production Indicators for the Irish Construction Industry. (STRIVE 26) Mark Kelly and John Hanahoe.
- ▲ Implementation of an Urban Community Composting Programme. (STRIVE 40) Sarah Miller et al.

#### Socio-Economics

The following socio-economic research reports can be found on the EPA website at [www.epa.ie/downloads/pubs/research/econ/](http://www.epa.ie/downloads/pubs/research/econ/)

- ▲ Public Participation in the Selection of Sustainable Development Indicators in Limerick and Freshford, Ireland. (STRIVE 13) B. O'Regan and R. Moles.
- ▲ Deriving Quality of Life Indicators in Urban Areas – A Practitioner's Guide.
- ▲ Galway 21: Implementing the Principles and Practices of Sustainable Development in Galway City Council. (STRIVE 17) Frances Fahy.
- ▲ Guide to Establishing an Eco-Industrial Network.

- ▲ Establishing an Eco-Industrial Network for SME's in the Mid-West Region (STRIVE 19) B. O'Regan and R. Moles.

- ▲ Innovative Data Capture and Presentation Techniques in Support of the EU Environmental Noise Directive (STRIVE 25) Gearóid Ó Riain and Tim McCarthy.

#### Environmental Technologies

The following environmental technology research reports can be found on the EPA website at [www.epa.ie/downloads/pubs/research/tech/](http://www.epa.ie/downloads/pubs/research/tech/)

- ▲ Innovation for a Green Economy  
– Environment and Technology: A Win-Win Story (STRIVE).
- ▲ Sustainable Logistics: Towards the Development of Environmentally Conscious Supply Chains. (STRIVE 32) Paul Ryan et al.
- ▲ The Use of Mesoporous Silicas to Absorb and Separate Metals and Nanoparticles from Aqueous or Organic Solutions. (STRIVE 33) Aoife Burke.
- ▲ Development of a Novel Environmental Monitoring System based on Optical Oxygen Sensing and Respirometry. (STRIVE 23) Dmitri B. Papkovsky et al.
- ▲ Demonstration of a Minuturised Multi-Channel Cytometry System and its Suitability for Autonomous Deployment. (STRIVE 29) Barbara Fogarty et al.



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