

epaNews

The newsletter of the Environmental Protection Agency

Focus on Environmental Enforcement in Ireland 2006 – 2008

The EPA report *Focus on Environmental Enforcement in Ireland* report assesses Ireland's enforcement of environmental standards and highlights the challenges we face as a country in complying fully with European air, water and waste legislation. It covers the environmental enforcement activities of local authorities and the EPA.

The report shows that the amount of environmental legislation has increased dramatically in recent years, and it is being matched by a significant level of enforcement activity. This level of regulation is a driver for improved enforcement and a cleaner environment. As a country we have less pollution entering the environment; and without this regulation we would not see many of the environmental outcomes highlighted in the report.

Examples of some of these positive environmental outcomes are as follows:

Waste

All municipal waste is now landfilled in lined cells with gas and leachate collection.

Odour complaints from waste transfer stations licensed by the EPA are down by 66%.

Water

There was a reduction in the number of water monitoring stations seriously polluted by 10 – from 39 stations to 29 stations.

Air

Air quality monitoring for Ireland indicates good compliance with current EU and national air quality standards.

Emissions from power stations have fallen in the period 2001-2007. Sulphur oxides (SO_x), nitrous oxides (NO_x), and heavy metals emissions have all dropped.

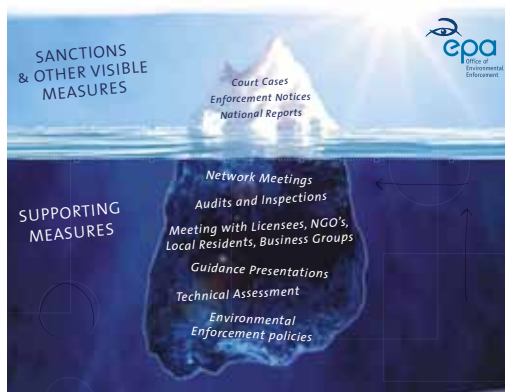
Large Industry

Complaints received in 2008 relating to large industrial activities were down by ~60% on 1998.

The EPA adopts and promotes an enforcement approach best represented by the figure below. This strategic approach involves a combination of enforcement tools to manage compliance with environmental legislation and deliver outcomes for the environment.

Enforcement tools comprise supporting measures (below the surface) and visible measures such as sanctions and national reports (above the surface). The tools are selected and applied on a risk basis.

Supporting measures include activities such as audits and inspections, emissions monitoring, and complaint investigations. These are complemented by guidance documents, meetings with licensees, residents, NGOs and business groups, and network events.



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Administrative sanctions are generally used to secure compliance as a result of audits and inspections, including warning letters, enforcement notices and directions. In 2008 the EPA issued in the region of 450 administrative sanctions and local authorities issued over 10,000 in the same period.

Criminal sanctions are pursued where serious non-compliance is detected or inaction persists. Criminal sanctions consist of summary prosecutions at the District Court, prosecution on indictment at the Circuit Court, and High Court injunctions. The EPA has prosecuted over 150 cases at District Court level since 2000 and submitted ten files to the Director of Public Prosecutions on indictment for more serious cases of environmental crime since 2000.

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Director General's Statement



Welcome to the Summer 2010 edition of EPANews.

This year looks like being a very challenging year for the EPA. With the economic crises taking centre stage, there is a real danger of the environment being sidelined. Like all other public sector bodies, EPA finances and staffing resources are under pressure. Budgetary cuts and the impacts of a staffing moratorium mean we have to find efficiencies within the system.

The EPA is looking to IT solutions for some of these efficiencies. A major project is now underway which, when complete, will lead to more automated – end to end – solutions for licensing enforcement and monitoring. This IT programme will initially be rolled out to assist with urban waste water discharge licensing but will be extended to other licensing systems. However, there is no substitute for physical inspections and enforcement of licence conditions, and this will continue to be a main focus for the EPA.

The EPA will continue to play a leadership role in climate change in 2010, informing and supporting policy development. Publication of

national greenhouse gas projections is an important step in understanding Ireland's greenhouse gas profile in the medium term, and in assessing the effectiveness of policy measures designed to reduce emissions of greenhouse gases. Projections recently published by the EPA show the impact of the slowdown in the economy, as well as projected reductions from new policy initiatives. However, it is imperative that Ireland implements all the proposed policy measures in full and on time. We need to prepare for low carbon economic growth by decoupling greenhouse gas emissions from economic activity.

The EPA has a central role in facilitating the implementation of the River Basin District Management Plans to comply with the Water Framework Directive (WFD). In 2010 the EPA will complete the final status assessments for surface and groundwater bodies based on the monitoring carried out in the first WFD monitoring cycle between 2007 and 2009. This assessment will be issued in March 2011. The second monitoring cycle for the period 2010 – 2015 has already commenced and is on schedule.

The EPA will host a series of conferences in June 2010, which will explore the range of environmental challenges facing Ireland.

The *Local Authority Prevention Network* conference on 3rd June will highlight the important initiatives being run by the public sector funded by the National Waste Prevention Programme, for the promotion of resource efficiency and waste prevention at a local and grassroots level. These initiatives help individuals and organisations save money through resource efficiency, leading to innovation and sustainability - whilst promoting the green economy.

The theme for the annual EPA water conference, running on 9th + 10th June, is *Managing Water in a Changing Environment*. The conference will focus on water governance, lessons learned following the recent flooding events, legislative requirements, drinking water quality and river basin management plans.

As Ireland works towards economic recovery, there is a strong focus on ensuring that future development is solid and sustainable. The EPA recognises that environmental research and innovation play a pivotal role in this task. The *EPA Research conference* on 23rd June will highlight the knowledge developed under EPA-funded research and demonstrate its application to delivering a sustainable Ireland.

Our *climate change* conference on 30th June will provide a unique perspective on key developments in climate science and policy. It will explore the communications of science process and understanding, as well as informing the public, policy makers and enterprise in relation to the likely actions and opportunities.

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. Its conclusions will guide the development of the EPA's new corporate strategy. 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.

Focus on Environmental Enforcement in Ireland 2006 – 2008 *continued from pg 1*

Finally, I would like 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 would like to welcome Dr Matt Crowe who joined the Board of the EPA on 25th April. Matt joined the EPA in 1995 and has worked across a range of areas, most recently as Programme Manager in both the Office of Communications and Corporate Services and the Office of Environmental Enforcement.

I would also like to welcome the Fifth Advisory Committee to the EPA who met for the first time in EPA Headquarters on the 25th March 2010. My fellow Directors and I look forward to working closely with them over the next three years.

Mary Kelly

**Dr. Mary Kelly,
Director General,
Environmental Protection Agency**

The number of local authority criminal sanctions reported has also increased, with over 770 cases initiated in 2008.

The statistics in this report show that this approach is working. The Report highlights:

Enforcement Actions:

In 2008 the EPA and local authorities carried out over 130,000 inspections leading to 10,000 enforcement actions and 750 prosecutions.

Drinking Water:

Following new legislation in 2007, the EPA issued 45 legally binding directions to local authorities to meet drinking water standards.

Water Quality:

There has been a 20% decrease in emissions of polluting matter to waters from the food and drink sector during 2004–2007.

Waste:

There was an increased use of higher courts (Circuit and High Courts) in waste prosecutions e.g. securing High Court orders against unauthorised waste facilities or submitting files to the Director of Public Prosecutions.

Air and Noise

Local authorities issued 1,200 warning letters following noise and nuisance complaints and undertook 27 prosecutions in this area.

Industry

Following the introduction of IPPC licensing in 1995, total pollutant emissions from the pharmaceutical/chemical sector to the year 2007 decreased by 59%.

The public play a significant part in highlighting risk and are a vital source of information for regulators. Almost 70,000 complaints came to local authorities last year across the spectrum of environmental issues. This

shows the level of public awareness of environmental issues, and a willingness to take action on the environment.

The increase in legislation and enforcement activity also drives new approaches to the tasks of monitoring and enforcement. For example the EPA now uses risk-based approaches to enforcement. This means we align our resources to where they are needed most. Additionally, the EPA's drive for higher standards and better use of enforcement resources has resulted in Ireland becoming the first EU member state to have comprehensive inspection plans across all local authority areas.

A continued emphasis on risk assessment and the prioritisation of available resources will be required to deliver intermediate and long-term environmental outcomes for Ireland. This emphasis will necessitate sustained infrastructural investment along with collaborative approaches between regulators and the regulated community. This risk-based approach is all the more important now given the increasing complexity and volume of environmental legislation at a time of reduced or negative growth in the economy.

Future EPA reports will assess the performance of environmental regulators in dealing with the enforcement challenges identified and discussed in this report. There is a need to close the infrastructural gap that exists between our current waste, wastewater and drinking water infrastructure, and the infrastructure required to meet environmental standards. Inextricably linked to this is the step change in expertise that is required at a local level to operate and manage these assets along with improving risk management and pollution prevention techniques.

National Waste Report

The EPA publishes a *National Waste Report* annually as part of the National Waste Prevention Programme. The objective of the report is to present information on waste generation and management in Ireland, as reported to the EPA. The EPA recognises that timely and accurate data on waste generation and management are fundamental in informing national and EU waste policy and also in reporting Ireland's progress in meeting waste diversion and recovery targets under national and EU legislation.

The *National Waste Report 2008* was published in November 2009 and presents data on municipal solid wastes (household, commercial and local authority cleansing wastes), packaging waste, waste electrical and electronic equipment, construction and demolition waste, hazardous waste, industrial waste (reported every second year) and waste infrastructure and collections. Several data sources were used to collate the information presented, including local authorities, landfill operators, recycling organisations and hazardous waste treatment facilities. The EPA acknowledges the co-operation of all respondent organisations, as the report could not be produced without this accurate and timely data.

Some of the key findings of the report are:

- The overall generation of municipal waste was down 5%, mirroring the fall in national Gross Domestic Product, and despite a rise in population.
- While the quantity of biodegradable municipal waste disposed at landfill decreased by 19%, Ireland is still in danger of missing the first Landfill Directive target for diversion of

biodegradable municipal waste from landfill, due July 2010.

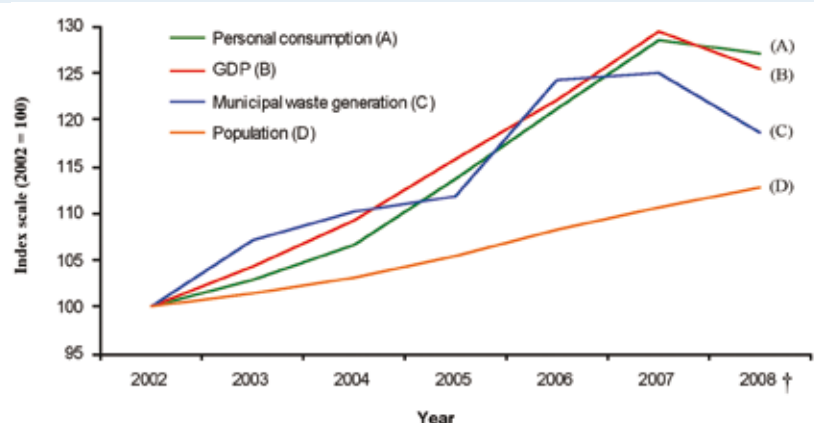
- Recovery rates generally remained steady with continued progress in relation to packaging (65% which exceeds the EU target for 2011 of 60% recovery).
- On average, 9 kg per capita of household waste electrical and electronic equipment was collected for recovery, which exceeds the 4 kg per capita EU Directive target.
- A 2-bin service (residuals bin and dry recyclables bin) was provided to 95% of serviced households, and a 3-bin service (residuals, dry recyclables and organics bins) was provided to 21% of serviced households.
- There was a 24% decrease in the reported quantity of construction and demolition waste collected and managed, compared with 2007 data.
- Waste operators reported that considerable volumes of recyclable waste streams were held in storage at the end of 2008, due to the price reduction in the international recyclates market in late 2008.

While Ireland is well advanced concerning achievement of its EU recovery/recycling obligations in relation to a range of EU waste directives, there remains considerable effort required in relation to diversion of biodegradable municipal waste from landfill, and this is a priority that must be addressed.

Development of essential infrastructure continues to be a challenge in the State. Facilities for materials recovery/recycling, treatment of the biodegradable portion of municipal waste, and for waste-to-energy are underdeveloped or absent.

Using the Economic and Social Research Institute's Sustainable Development Model for Ireland (ISus) to forecast environmental emissions and resource use up to 2025, it is estimated that the total volume of municipal waste is likely to increase quite substantially within the coming decade, necessitating future investment in waste management infrastructure.

The *National Waste Report 2008* can be downloaded from the EPA website at www.epa.ie/downloads/pubs/waste/stats/



Trends in generation of municipal waste, national productivity and consumption

Personal consumption of goods and services, at constant market prices (Source: CSO) GDP, gross domestic product, at constant market prices (Source: CSO)

EPA Special Award - BT Young Scientist and Technology Exhibition

Cian Rynne from Pobail Scoil Naomh Coilm Cille in Dublin 16, was this year's winner of the EPA Special Award at the BT Young Scientist and Technology Exhibition at the RDS, Dublin in January. The EPA presents a prize each year to the best environmental project. Cian also clinched a top Junior Individual award in the Biological and Ecological Sciences category.



Annette Cahalane, EPA, presents the EPA Special Award trophy to Cian Rynne at the BT Young Scientist and Technology Exhibition on 15th January, 2010.

His project, "Aesculus hippocastanum: Terminal bud locations in the Horse Chestnut and the effects of weather patterns", investigated the effects of weather patterns on the growth of horse chestnut trees in various locations in Dublin. He carefully measured the terminal buds of the trees and concluded that rainfall had a discernable impact on growth.

Cian's project beat off some stiff competition from environmental projects in other categories - ranging from solar-powered lawnmowers to the conversion of urea to energy. In the end, his attention to detail and concern for the impact of climate change won through. Cian's teacher at Pobail Scoil Naomh Coilm Cille is Ms Lelia Martin.

The EPA also hosted an interactive water-quality stand at the BT Young Scientist and Technology Exhibition. In excess of 3,000 people visited the EPA stand over the three days in January. Students and members of the public were encouraged to look at insects through microscopes to learn what they can tell us about water quality.



IPPC Licences issued from November 2009 to March 2010

Surface Coating

Info-Lab Limited

Unit 14
Annacotty Industrial Estate
Annacotty, Limerick P0141-03

Millipore Ireland B.V.

Tullagreen
Carrigtwohill, Co. Cork P0571-03

Boran Plastic Packaging Limited

Millenium Business Park
Osberstown
Naas, Co Kildare P0819-01

Intensive Agriculture

Kerry Pig Producers Limited

Clouneen
Causeway, Co. Kerry P0727-02

Mr Fintan Magee

Inishkeen
Carrickmacross, Co Monaghan P0870-01

Mr Robert McBride

Corbeg
Silverstream, Co. Monaghan P0875-01

Mr Patrick J Cullinane

Dromona
Cappoquin, Co. Waterford P0892-01

Food and Drink

Dunbia (Slane)

Greenhills
Beauparc
Navan, Co. Meath P0811-01

Metals

Adamstown Engineering Limited

Adamstown, Co. Wexford P0840-01

Chemicals

Rottapharm Limited

Damastown Industrial Park
Damastown Townland
Mulhuddart, Dublin 15 P0886-01

STRIVE

Environmental Protection Agency Research
Programme 2007 - 2013



EPA STRIVE News

The Science, Technology, Research and Innovation for the Environment (STRIVE) programme 2007 - 2013

SUSTAINABLE DEVELOPMENT MODEL PREDICTS POTENTIAL ENVIRONMENTAL IMPACT OF FUTURE ECONOMIC ACTIVITY

New research, published by the EPA, shows how economic forecasts can be used to project waste generation and emissions of pollutants across Ireland. The *ISus* (Irish Sustainable Development) Model is based on the work of a three-year study by the Economic and Social Research Institute (ESRI), funded under the EPA STRIVE research programme.

The *ISus* model provides a link between economic forecasting and potential environmental impacts. This enables us to use the expertise of the ESRI, in relation to economic data, and link this with the environmental data produced by the EPA. The results will aid policy and decision makers to diagnose environmental problems, identify pressure points, target policy interventions and assess their success.

For example, projections on the generation of biodegradable waste – how much and where - could be a very useful tool for planning the location and required capacity for waste management infrastructure in the future.

ISus covers more than 25 potential pollutants (to air, water and waste) emanating from 20 economic sectors.

Some of the findings from the research:

- In relation to greenhouse gas (GHG) emissions: Ireland faces a significant challenge in meeting its target for 2020.
- In relation to waste generation: projections from the model suggest that Ireland will also have great difficulty meeting EU limits on landfilling of biodegradable municipal waste.

The report *Ireland's Sustainable Development Model* is available on the EPA website at www.epa.ie/downloads/pubs/research/econ/.



OFFICIAL OPENING OF EPA-FUNDED NUI GALWAY WATER RESEARCH FACILITY

The new NUI Galway Water Research Facility at Tuam, Co. Galway was officially opened in February by Michael Finneran, Minister for Housing & Local Services and TD for Roscommon-South Leitrim. Core funding to establish the facility was provided by the EPA through its STRIVE Research Programme, and by NUI Galway.

Located on the site of Tuam Waste Water Treatment Plant the facility is a full-scale test-bed for novel waste water and water treatment technologies. There are already a range of NUI Galway research projects on new green technologies underway at the Water Research Facility.

With a rising population and increasing requirements for improved water quality, there is a real need to develop and optimise waste water treatment systems, especially for villages and small towns. This facility will play a strong role in developing new indigenous solutions to protect the environment and deliver economic growth.

In order to minimise the environmental impact of sewage discharges, effective systems are required to treat waste water and ensure clean and safe waters. By using influent taken from Tuam town waste water, the facility provides researchers and manufacturers

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Pictured at the launch of the plant were Minister Michael Finneran, Professor Terry Smith (NUI Galway) and Laura Burke (EPA Director)

with opportunities to evaluate novel technologies under realistic conditions. Operating at a scale equivalent to a village with a population of 400, this system offers high performance at low operating costs. It is estimated that this new technology will allow the plant to operate at approximately 25% of typical running costs for a conventional activated sludge plant of similar size.

The Tuam Water Research Facility employs solutions generated by Irish researchers to deliver high performance results at low operating costs. As work progresses at the facility, it will also contribute towards implementation of the Water Framework Directive in Ireland.

Whilst core funding was provided by the EPA and NUI Galway, additional critical support came from Galway County Council, who provided the site and carried out civil engineering works. A range of industrial partners, including the main contractors Response Group Ltd, also contributed significant resources and equipment.

EPA STRIVE PROGRAMME - IMPLEMENTATION OF ON-LINE GRANT MANAGEMENT SYSTEM

The EPA is responsible for the coordination of research on environmental issues in Ireland and administers the Science, Technology, Research & Innovation for the

Environment (STRIVE) Programme 2007 – 2013. The Climate Change Research Programme (CCRP) and the Cleaner Greener Production Programme (CGPP) are sub programmes of the STRIVE Programme.

In order to improve the administration of the programme and provide increased transparency to researchers, a new online grant application and project management system (<https://epa.smartsimple.ie>) was introduced in late January 2010. This new system will facilitate the online submission and management of research proposals for all STRIVE and CCRP-funded projects.

EPA STRIVE EVENTS

2010 EPA National Research Conference

The 2010 EPA National Research Conference will take place on 23rd June 2010. As Ireland works towards recovery, there is a strong focus on ensuring that future development is sustainable and based on sound environmental policy. The EPA recognises that environmental research and innovation play a pivotal role in this task. This conference will highlight the knowledge developed under EPA-funded research and demonstrate its application to delivering a sustainable Ireland.

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EPA STRIVE News

The Science, Technology, Research and Innovation for the Environment (STRIVE) programme

EPA FUNDED RESEARCH PROJECTS CONFERENCES & WORKSHOPS

European Analytical Measurements
Competition (EURACHEM
COMPETITION) - Limerick Institute
of Technology.

26th March 2010:

This competition aimed at focusing attention on the deductive skill and inductive reasoning necessary to produce world class scientists. At a time when all third-level colleges have suffered a downturn in numbers studying science, the competition has been instrumental in generating links between the competing colleges and renewing collegiality among the educators.

Mainstreaming Lime Hemp Bio-Composite Construction Workshop and Consultation BESRaC (Built Environment Sustainable Research and Consultancy) - Annesbrook Hotel, Mullingar.

31st March 2010:

BESRaC under EPA STRIVE funding are commencing a scoping study into the application of lime hemp bio-composite as a mainstream construction technology in Ireland, including issues pertaining to regulatory compliance, certification, research, demonstration projects, alternative construction application / opportunities. BESRaC invited individuals and organisations involved in the built environment to participate in this information and consultation exercise on mainstreaming lime hemp as a construction material.

Green Chemistry in Ireland: including highlights of Environmental Technology projects funded by the EPA – Dublin City University.

15th April 2010:

Showcasing recent advances in the implementation of green technologies in industry in Ireland, this conference disseminated the latest results from the Environmental Protection Agency (EPA) Medium Sized project awards granted in 2008.

EPA projects covered a broad scope from organocatalysis, microphotochemistry, long-term deployment of sensor monitoring systems, upcycling of post consumer polyethylene to a biodegradable plastic and stress induced molecular and ecological changes in soil autotrophs: carbon capture and novel compound prospecting.

Invited speakers included Emma Lavoie (USA EPA Office of Pollution Prevention and Toxics); Frank Bringezu (Merck KGaA) and Michael Kopach (Eli Lilly & Co., USA).

Joint EPA STRIVE and Invasive Species Ireland Forum 2010 – Botanic Gardens, Glasnevin.

13th -14th May 2010:

This year, the Environmental Protection Agency and Invasive Species Ireland are collaborating in a joint two day event hosted by the National Botanic Gardens, Glasnevin.

The first day of the meeting will act as a dissemination workshop for the results of the EPA Strive funded project 'Alien invasive species in Irish Water bodies'. This is a two year project aimed to address the knowledge gaps identified under the Water Framework Directive for alien invasive species in Ireland's River Basin Districts. This was achieved through a combination of research and policy development comprising of analysis of the impacts of selected invasive species on structure and function of natural ecosystems (primarily by innovative studies of impacted and non-impacted foodwebs using stable isotopes in exemplar waterbodies); preparation of an archived GIS-based database of aquatic aliens in Ireland; and development of a monitoring and reporting strategy and guidance on preventing and containing aquatic introductions.

The second day of the Forum will bring together stakeholders and invasive species experts to discuss and shape Invasive Species Ireland (ISI) – Phase 2. The review of ISI Phase 1 and the recommendations of stakeholders have been taken on board in the development of ISI Phase 2. You can register and view the event programme at:
www.invasivespeciesireland.com/forum/default.asp.

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EPA STRIVE News

The Science, Technology, Research and Innovation for the Environment (STRIVE) programme

INTERNATIONAL CONTEXT

Framework Programme 7: Environment Calls

The latest Environment calls closed in January 2010. Outcome of the evaluation process should be available in May 2010. Let us know if you are part of consortium which has submitted a proposal! Contact: fp7@epa.ie



The next Environment call is due to be published in late July 2010. For more information, please contact the representative of your organisation on our FP7-Environment Working Group. (<http://www.epa.ie/researchandeducation/research/europeanfunding/fp7/fp7-envworkinggroup/>).

Do you have a suggestion on topics/gaps that should be included in future calls? Please contact the representative of your organisation on our FP7-Environment Working Group or Contact fp7@epa.ie.

National FP7-ENV Information Day 2010

It is proposed to hold this annual event in September 2010. To help us make this event successful, please send us your suggestions on contents / format. Contact: fp7@epa.ie.

Catalogue of Irish expertise in environmental research



FP7 Online Catalogue - Map of Europe illustrating Search on the Catalogue (16/11/09)

The Catalogue of Irish Expertise in Environmental Research provides an insight into Irish companies and research organisations active in the field of Environmental Research. This online database is provided to support researchers and enterprises in establishing and strengthening international co-operations for research and technological development.

There are now over 145 researchers/organisation profiles in the Catalogue. Since its launch in September 2009, there have been over 12,000 hits!

SKEP NETWORK

The EPA are involved in the SKEP network of Environmental Regulators that support research. Researchers in UCD commenced work in January 2010 on the nanoREACH project funded by SKEP. This project brings together groups from Ireland, Sweden, Finland and the UK to examine the suitability of the REACH framework for regulating environmental impacts of nanotechnology.

RESEARCH RESOURCES

The following websites provide additional resources of interest for researchers:

- EPA Research Publications: www.epa.ie/downloads/pubs/research/
- ERC Environmental Research Data Archive website: <http://erc.epa.ie/safer/>
- National Soil Database Archive website: <http://erc.epa.ie/nsdb/>
- Cleaner Greener Production Programme website: www.cleanerproduction.ie
- FP7 website: www.fp7Ireland.com
- Online Catalogue of Irish Expertise in Environmental Research: www.epa.ie/researchandeducation/research/funding/fp7/catalogueofirishexpertise/
- SKEP website: www.skep-era.net/
- ERA-ENVHealth website: www.era-envhealth.eu/



CLIMATE CHANGE RESEARCH PROGRAMME



CLIMATE CHANGE LECTURE SERIES

The EPA's Climate Change Unit continued its successful series of lectures on climate change with two further lectures in October and November, 2009 at the Mansion House in Dublin.

The October lecture was entitled *For Peats sake - Bogs and Climate Change* and was presented by Professor Hans Joosten, Head of Mire ad Paleo Ecology Institute of Greifswald Germany.

Peatland degradation has a significant impact on climate change and is a potential cause of climate change through enhanced greenhouse gas emissions in a warmer world. The lecture presented an overview of the latest developments in trying to reduce peatland degradation both via the United Framework Convention on Climate Change and the voluntary market (Voluntary Carbon Standard).

The November lecture was entitled *Climate science, impacts, and solutions: what does the IPCC really say ahead of the Copenhagen conference?* This was presented by Jean-Pascal van Ypersele, Vice-chair of IPCC (Intergovernmental Panel on Climate Change) and Professor of climatology at the Université catholique de Louvain (Belgium).

Climate warming has now been qualified by the IPCC as unequivocal. The main factor for the warming since 1950 has been identified: greenhouse gases (GHGs) from human activities.



The habitability of the planet is at stake, with impacts felt or projected on about every ecosystem or human activity. There will be significant, often adverse, impacts on many ecological systems and socio-economic sectors

All countries will be affected, but developing countries, which have contributed least to the accumulation of GHGs in the atmosphere, will bear the most severe impacts, particularly their poor populations.

One can adapt to some climate change, but only up to a point. The Kyoto Protocol commits industrialized countries to a small reduction of their emissions over the period 1990-2012.

The first commitment period of the Kyoto Protocol expires soon, and the international community is presently negotiating a new agreement to reinforce, complement, and broaden the Climate Convention and the Kyoto Protocol.

As per previous lectures in this series, video broadcasts and slides from the presentations can be viewed on the EPA website at www.epa.ie/downloads/videos/

CLIMATE CHANGE RESEARCH PROGRAMME



A SUMMARY OF THE STATE OF KNOWLEDGE ON CLIMATE CHANGE IMPACTS FOR IRELAND

The EPA 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.

This report sets out the likely impacts of temperature rises, wetter winters and warmer seas on areas as diverse as agriculture, fishing, disease control and infrastructural networks (roads, electricity and telecommunications).

Climate Change is happening in Ireland and we need to adapt and to ensure that adaptation actions are environmentally and economically sustainable.

Changes identified in the report include:

- **Air temperature:** Air temperature increased by 0.7°C since 1890. The increase was 0.4°C during the period 1980-2008, which is equivalent to 0.14°C per decade. Temperature is expected to rise by between 1°C to 3°C by 2100.
- **Precipitation:** There has been a significant increase in total rainfall in the North and West. Many stations also show increases in March and October. Projected changes include wetter winters in the West and drier summers in the Southeast.

- **Extreme weather:** There has been an observed decrease in the frequency of storms, whilst their intensity has increased.
- **Adaptation planning and actions:** These actions will be required to avoid the adverse impacts of climate change and to take advantage of any opportunities that may arise.

The report outlines how these changes may impact key sectors such as:

- agriculture, biodiversity, forest and peatlands;
- surface water, coastal and marine resources;
- settlement and society, human health and tourism and
- transport and communications, energy, industry and insurance.

The report also shows where gaps exist in information, where further work is needed to reduce uncertainties or where uncertainties need to be factored into planning and investment choices. Key areas of further work include vulnerability analysis to climate change; adaptive capacity; adaptation options and opportunities; costs; information provision and capacity building.

Authored by members of the Climate Change Research Programme (CCRP), the report sets out the current state of knowledge on climate change and expected impacts for Ireland. The report brings together a large body of work carried out by Met Eireann, the National University of Ireland Maynooth, material

from the IPCC and expert opinion. The information is presented in a format suitable for policy makers, planners, environmental decision makers and other stakeholders interested in or working climate change adaptation. Copies are available on the EPA website at <http://www.epa.ie/downloads/pubs/research/climate/>.



EPA Biodiversity Action Plan

The Environmental Protection Agency published its *Biodiversity Action Plan*, to coincide with World Wetlands Day in February.

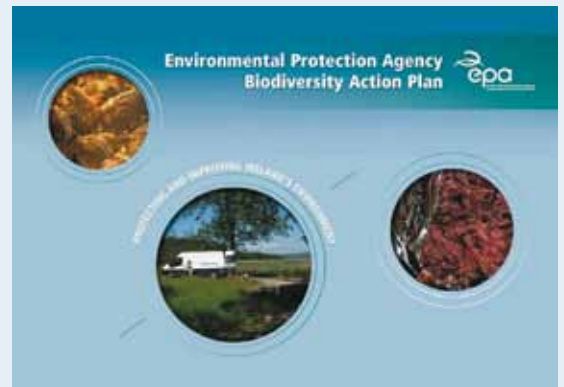
For its relatively small size Ireland has a wide diversity of habitats ranging from peatlands to coastal lagoons. These habitats are internationally renowned and support a high level of biodiversity that is increasingly under threat.

While many people now understand the threats to society and the planet posed by global climate change, the threats posed by loss of biodiversity are less commonly understood. But human wellbeing is dependent on 'ecosystem services' provided to us by nature, for free. For example, water and air purification, fisheries, timber, nutrient cycling, floodwater storage and recreational facilities.

It is therefore of vital importance that such reservoirs of biodiversity are protected.

The EPA's *Biodiversity Action Plan* presents an explicit action plan 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.

The Plan outlines a wide range of significant actions, which will be undertaken by the EPA in relation to the protection of Ireland's biodiversity, thus underlining the substantial support role undertaken by the Agency in this area.



The *Biodiversity Action Plan* can be accessed on the EPA's website at www.epa.ie/downloads/pubs/biodiversity/.

A full discussion on the state of biodiversity in Ireland is contained in the EPA report *Ireland's Environment 2008* which is available on the EPA website at www.epa.ie/downloads/pubs/other/indicators/irlenv/.



GMO consents issued from November 2009 to March 2010

School of Medicine & Medical Sciences

Conway Institute
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Waste water Discharge Licences issued from November 2009 to March 2010

Donegal County Council

Letterkenny D0009-01
Bundoran D0130-01

Clare County Council

Sixmilebridge D0076-01

Limerick County Council

Askeaton D0315-01
Cappamore D0310-01
Bruff D0313-01
Newcastle West D0108-01

Wexford County Council

Buncloody D0163-01
Wexford Town D0030-01

Sligo County Council

Sligo D0014-01

Monaghan County Council

Inniskeen D0348-01

Leitrim County Council

Leitrim Village D0278-01
Carrick on Shannon D0154-01

Westmeath County Council

Rochfortbridge D0101-01

Meath County Council

Dunshaughlin D0138-01
Trim D0137-01

Offaly County Council

Tullamore D0039-01
Birr D0109-01

Carlow County Council

Fenagh D0246-01

Waterford City Council

Waterford City D0022-01

Waterford County Council

Tramore D0015-01
Dungarvan D0017-01

Carlow County Council

Ballon D0247-01

Cork City Council

Cork City D0033-01

Longford County Council

Ballymahon D0096-01

Wicklow County Council

Laragh D0415-01

Mayo County Council

Achill Island Central Waste
Water Treatment Plant
D0072-01

Cork County Council

Watergrasshill D0201-01
Northern Division

Monitoring of dioxins, PCBs and other micropollutants in cows' milk

Dioxins are a group of chemicals formed during incomplete or poorly controlled combustion processes, such as accidental fires and backyard waste burning, as well as from some industrial processes such as paper pulp bleaching and pesticide manufacture.

Because of their environmental significance, the term 'dioxins' is often used for the most toxic elements of the family of structurally and chemically related polychlorinated dibenzo para dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). There are a total of 210 of these substances but only 17 are considered to have toxicological significance. Certain dioxin-like polychlorinated biphenyls (PCBs) with similar toxic properties are often also included under the term "dioxins".

Unlike dioxins, PCBs have found widespread use in a number of commercial

applications, due to their physical and chemical properties, such as non-flammability, chemical inertness, high boiling points and high dielectric constants. Typical applications have been their use in pigments, sealants, rubber products, hydraulic and heat transfer systems, transformers and capacitors. The production and use of PCBs has been discontinued for some years but, because of their persistent qualities, they remain in electrical equipment, buildings and the environment.

Uncontrolled burning of PCBs can give rise to the formation of dioxins in large quantities. Dioxins and PCBs are included in the list of dangerous substances known as Persistent Organic Pollutants or (POPs) which are subject to binding regulation at UN and EU level.

Exposure and Monitoring

More than 90% of human exposure to dioxins is through the food supply, especially in fat-containing media such as meat and dairy products, fish and shellfish. Much lower levels are found in plants, fruit and water. Even though human exposure from air is negligible, the primary mechanism for dioxins entering the food chain is through atmospheric deposition of dust and soot particles. Since dioxins can be deposited by atmospheric sedimentation onto soil and vegetation such as grass, cows' milk is considered to be a particularly suitable matrix for assessing the presence of dioxins in the environment, as long as sampling is carried out in the grazing season.

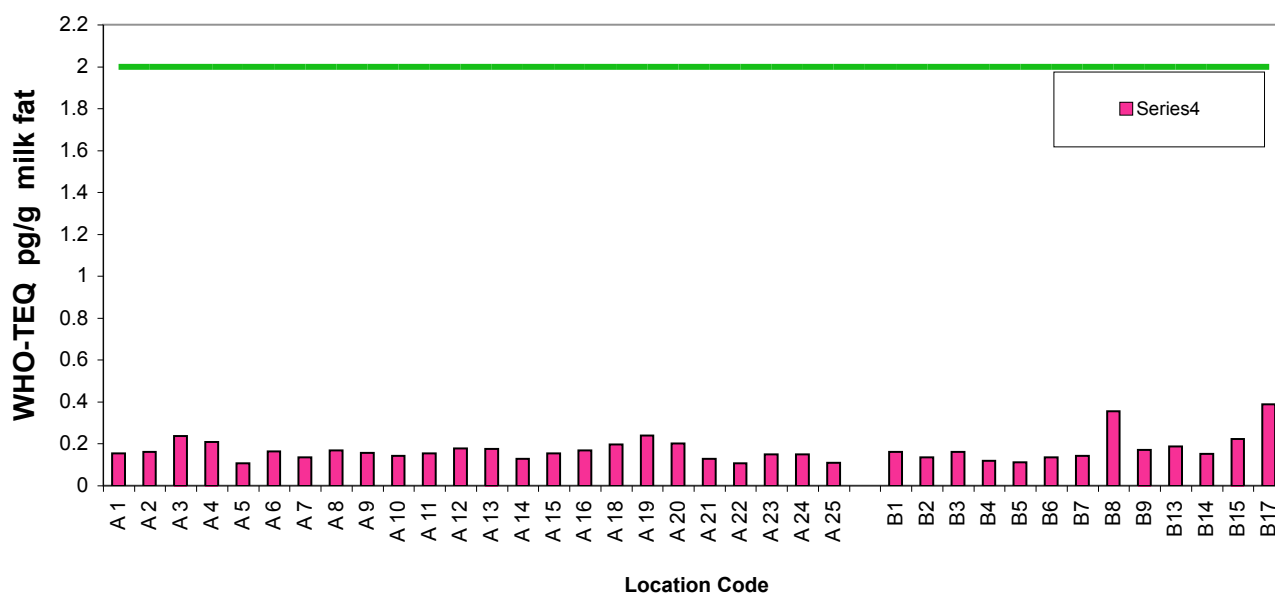


Figure 1 Dioxins / Furans 2008 Data

Sampling and Results

The most recent EPA report on dioxin monitoring covers a survey undertaken in the 2008 grazing season.

Two types of sampling stations were chosen:

Type A background stations covering the entire country (24 samples)

Type B potential impact stations in areas of perceived potential risk (13 samples)

The results for dioxins are summarised in Figure 1 using the standard units of WHO Toxic Equivalent (WHO-TEQ). The range for concentrations of dioxins in milk fat is 0.190 to 0.673 pg WHO-TEQ/g with overall mean values of 0.269 pg WHO-TEQ/g. When PCBs are included, the range is 0.304 to 0.835 pg WHO-TEQ with a mean of 0.440 pg WHO-TEQ/g. (Figure 2)

These levels are well below the EU limit in milk and milk products of 3.0 pg WHO-TEQ/g for dioxins only, and 6.0 pg WHO-TEQ/g for dioxins and PCBs combined (Figures 1 and 2).

All levels recorded in this survey compare favourably with those taken from a random selection of similar studies in other EU countries

There is also little doubt that the trend of reductions observed in the earlier surveys could be attributed to a number of regulatory measures and various technological advances, reflecting the pattern shown in similar surveys across Europe. Examples of measures that were taken in Ireland and which may have had an impact on dioxin levels were the virtual abolition of leaded petrol and the shutting down of all hospital incinerators.

The full report *Dioxin Levels in the Irish Environment 2008* can be found on the EPA website at www.epa.ie/downloads/pubs/other/dioxinresults/.

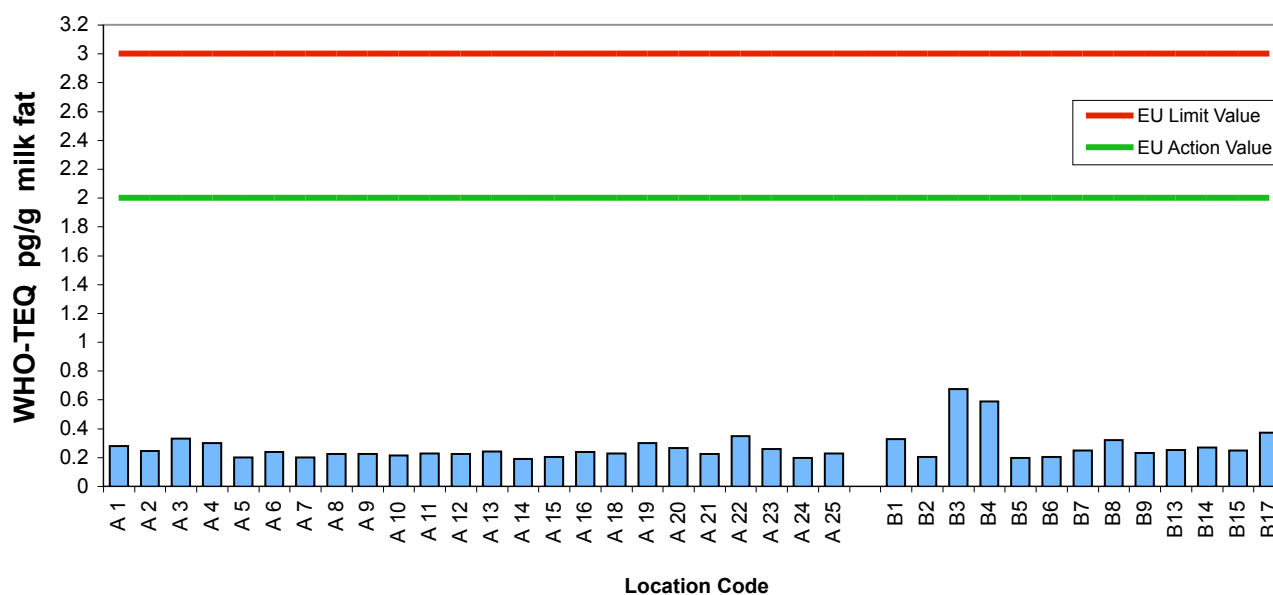


Figure 2 Dioxins + PCBs 2008 Data

Prosecutions from November 2009 to February 2010

The EPA brought eight cases before District Courts during the period November 2009 to end of February 2010.

From the eight cases, four of the prosecutions were taken under the Environmental Protection Agency Acts 1992 to 2007; one case was taken under the Waste Management Acts 1996 to 2008 and three cases were taken under the Waste Management (Waste Electrical and Electronic Equipment) (WEEE) Regulations 2005, as amended.

The EPA initiated these cases following a number of site inspections and audits carried out by its inspectors.

EPA Prosecutes Euro General Retail Limited

On 09 November 2009 Euro General Retail Limited, Unit 30, Robinhood Industrial Estate, Clondalkin, Dublin 22, pleaded guilty to charges brought by the EPA in relation to four offences under the Waste Management (Waste Electrical and Electronic Equipment) (WEEE) Regulations 2005, as amended.

At Dublin Metropolitan District Court Judge Dermot Dempsey heard the case and the company admitted breaching the Regulations by:

- Placing electrical and electronic equipment on the market at a time when the company was not registered as a producer of such equipment.
- Failing to apply to the producer registration body for registration or renewal of registration.
- Failing to declare the quantities, by weight or number of units, of electrical and electronic equipment placed on the market.

On hearing details of the offences Judge Dermot Dempsey adjourned the case until 23 November 2009, subject to the payment of a donation of €7,500 to Temple Street Children's Hospital and the payment of costs totalling €8,464 to the EPA. On 23 November 2009, Judge Dermot Dempsey applied the Probation Act.

EPA Prosecutes Silver Hill Foods

On the 7th December 2009 at Monaghan District Court, Silver Hill Foods pleaded guilty to charges brought by the EPA in relation to offences under the Environmental Protection Agency Acts 1992 to 2007 for breaches of its IPPC Licence (Reg. No. PO422-02). The facility is located at Emyvale, Co Monaghan.

The Company admitted breaching conditions of its Licence by:

- Failing to store waste in designated areas protected against spillage and leachate runoff.
- Failing to maintain active slurry storage lagoons at the site.
- Operating a lagoon for the storage of poultry faeces and /or slurry to which a high level alarm was not fitted.

On hearing details of the offences, Judge McBride imposed fines of €1,000 each on the first two charges and took the third charge into account. EPA costs of €7,412 were also awarded.

This prosecution was taken following Site Inspections carried out by Inspectors from the EPA's Office of Environmental Enforcement on 2nd and 3rd March 2009.

EPA Prosecutes Mr. Liam O'Connell

On the 11th December 2009 at Fermoy District Court, Mr. Liam O'Connell pleaded guilty to a charge brought by the EPA in relation to an offence under the Environmental Protection Agency Act 1992 and 2003 (as amended).

Mr. Liam O'Connell pleaded guilty to operating without an IPPC Licence by carrying on the activity of rearing poultry in installations where the capacity exceeds 40,000 places, as referred to in the Environmental Protection Agency Act 1992 (Established Activities) Order 2006 (S.I. No. 279/2006).

On hearing details of the offence, Judge Patwell imposed a fine of €1,000 and awarded the sum of €2,500 to be paid towards EPA costs and expenses.

This prosecution was taken following a site inspection carried out by inspectors from the EPA's Office of Environmental Enforcement and the EPA's Office of Climate, Licensing and Resource Use on 28th April 2009.

EPA Prosecutes Passax Electronics Limited

On 05 January 2010 Passax Electronics Limited, Unit 7 Mulvoy Commercial Centre, Sean Mulvoy Road, Galway, Co. Galway, pleaded guilty to charges brought by the EPA in relation to five offences under the Waste Management (Waste Electrical and Electronic Equipment) (WEEE) Regulations 2005, as amended.

At Galway District Court, Judge Mary Fahy heard the case and the company admitted breaching the Regulations by:

- Placing electrical and electronic equipment on the market at a time when the company was not registered as a producer of such equipment.
- Failing to apply to the producer registration body for registration or renewal of registration.
- Failing to declare the quantities, by weight or number of units, of electrical and electronic equipment placed on the market.

On hearing details of the offences Judge Mary Fahy imposed a fine of €1,000 for the first offence, taking the other offences into account, and awarded costs of €3,000 to the EPA.

EPA Prosecutes Total Energy Controls Distributors Ireland Limited

On 12 January 2010 Total Energy Controls Distributors Ireland Limited, 278 Glasnevin Avenue, Dublin 11, was prosecuted by the EPA in relation to eight offences under the Waste Management (Waste Electrical and Electronic Equipment) (WEEE) Regulations 2005, as amended.

The Defendant was accused of:

- Placing electrical and electronic equipment on the market at a time when the company was not registered as a producer of such equipment.
- Failing to apply to the producer registration body for registration or renewal of registration.
- Failing to declare the quantities, by weight or number of units, of electrical and electronic equipment placed on the market.

At Dublin Metropolitan District Court, Judge Bridget Reilly heard details of the offences and imposed fines totalling €4,000 for four offences, taking the other four offences into consideration. Costs totalling €8,440 were awarded to the EPA.

Prosecutions from November 2009 to February 2010 *continued*

EPA Prosecutes Mr. Michael O'Connor

On the 10th February 2010 at Dungarvan District Court, Mr. Michael O'Connor pleaded guilty to a charge brought by the EPA in relation to an offence under the Environmental Protection Agency Act 1992 and 2003 (as amended).

Mr. Michael O'Connor pleaded guilty to operating without an IPPC Licence by carrying on the activity of rearing poultry in installations where the capacity exceeds 40,000 places, as referred to in the Environmental Protection Agency Act 1992 (Established Activities) Order 2006 (S.I. No. 279/2006).

On hearing details of the offence, Judge Finn imposed a fine of €750 and EPA costs of €2,750 were also awarded.

This prosecution was taken following a site inspection carried out by inspectors from the EPA's Office of Environmental Enforcement and the EPA's Office of Climate, Licensing and Resource Use on 15th May 2009.

EPA Prosecutes Mr. Mark O'Connor

On the 10th February 2010 at Dungarvan District Court, Mr. Mark O'Connor pleaded guilty to a charge brought by the Environmental Protection Agency in relation to an offence under Sections 8 and 82(2) of the Environmental Protection Agency Act 1992 and 2003 (as amended).

Mr. Mark O'Connor pleaded guilty to operating without an IPPC Licence by carrying on the activity of rearing poultry in installations where the capacity exceeds 80,000 places as referred to in the Environmental Protection Agency Act 1992 (Established Activities) Order 2006 (S.I. No. 279/2006).

On hearing details of the offence, Judge Finn imposed a fine of €600 and EPA costs of €2,750 were also awarded.

This prosecution was taken following a site inspection carried out by inspectors from the Office of Environmental Enforcement and the Office of Climate Licensing and Resource Use on 3rd June 2009.

EPA Prosecutes Westmeath County Council

On the 24th February 2010 at Athlone District Court, Westmeath County Council pleaded guilty to three charges brought by the EPA in relation to offences under the Waste Management Acts 1996 to 2008 for breaches of its Waste Licence (Reg. No. W0028-02). The facility is situated at Ballydonagh Landfill, Ballydonagh, Dublin Road, Athlone, Co. Westmeath.

The Council admitted breaching conditions of its Licence by:

1. Failing to ensure that activities carried out did not result in significant interference with the environment beyond the facility boundary;
2. Failing to ensure that odours did not give rise to nuisance at the facility or the immediate area of the facility;
3. (i) Failing to maintain infrastructure that forms part of the landfill gas management scheme in a safe and fully operational manner;
- (ii) Failing to remove all loose litter or other waste placed on or in the vicinity of the facility and accepted waste at the facility outside the permitted hours;
- (iii) Disposing of tyres which were not permitted and failing to check all wastes at the working face and to remove wastes not acceptable for recovery or disposal; and
- (iv) Failing to install and maintain a telemetry system for recording leachate levels in the lined cells, storage tank and lagoon.

On hearing details of the offences from an EPA Inspector and local residents, Judge John Neilan imposed fines of €9,000 and awarded EPA costs of €6,750.

This prosecution was taken following a number of site inspections carried out by inspectors from the EPA's Office of Environmental Enforcement.

Waste licences issued from November 2009 to March 2010

In order to assist Ireland's compliance with the Landfill Directive, the EPA reviewed the landfill licences below. The reviewed licences contain new restrictions on the quantity of biodegradable municipal waste that can be accepted by the operators, require that all landfill waste be pre-treated and deal with other issues arising from the Directive.

Kerry County Council

North Kerry Landfill Site
Muingnaminnane, Tralee,
Co. Kerry
W0001-04

South Dublin County Council

Arthurstown Landfill
Arthurstown, Kill,
Co. Kildare
W0004-04

Fingal County Council

Balleally Landfill
Balleally, Lusk, Co. Dublin
W0009-03

Limerick County Council

Gortadroma Landfill Site
Gortadroma, Ballyhahill,
Co. Limerick
W0017-04

Monaghan County Council

Scotch Corner Landfill
Letterbane, Annyalla, Castleblaney
Co. Monaghan
W0020-02

Mayo County Council

Derrinnumera Landfill Facility
Derrinnumera, Drumilra (Townlands)
Newport, Co. Mayo
W0021-02

Rathroeen Landfill

Rathroeen, Ballina,
Co. Mayo
W0067-02

Donegal County Council

Ballynacarrick Landfill Site
Ballynacarrick, Ballintra,
Co. Donegal
W0024-04

Carlow County Council

Powerstown Landfill Site
Kilkenny Road, Co. Carlow,
W0025-03

Laois County Council

Kyletalesha Landfill
Clonsoughy, Kyleclonhobert,
Co. Laois
W0026-03

Westmeath County Council

Ballydonagh Landfill
Ballydonagh, Dublin Road
Athlone, Co. Westmeath
W0028-03

Offaly County Council

Derryclure Landfill
Derryclure and Killeigh
Tullamore, Co. Offaly
W0029-03

Roscommon County Council

Ballaghaderreen Landfill
Aghalustia Townland
Ballaghaderreen,
Co. Roscommon
W0059-03

Louth County Council

Whiteriver Landfill Site
Whiteriver & Gunstown Townland
Dunleer, Co. Louth
W0060-03

Wicklow County Council

Rampere Landfill
Rampere, Co. Wicklow
W0066-03

Cork County Council

Youghal Landfill
Youghal Mudlands,
Youghal, Co. Cork
W0068-03

South Tipperary County Council

Donohill Landfill
Garryshane, Donohill,
Co. Tipperary
W0074-03

Cavan County Council

Corranure Landfill
Lismagratty & Corranure Townlands
Cootehill Road, Co. Cavan
W0077-03

North Tipperary County Council

Ballaghveny Landfill
Ballymackey, Co. Tipperary,
W0078-03

Clare County Council

Central Waste Management Facility
Ballyduff Beg, Inagh, Co. Clare,
W0109-02

Cork City Council

Beaumont Quarry
Churchyard Lane
Ballinlough / Ballintemple,
Cork City,
W0141-02

Greenstar Holdings Limited

Knockharley Landfill
Knockharley, Navan, Co. Meath,
W0146-02

Ballynagran Residual Landfill

Ballynagran
Coolbeg and Kilcandra, Co. Wicklow,
W0165-02

East Galway Residual Landfill Site

Killagh More
Ballinasloe, Co. Galway,
W0178-02

Wexford County Council

Holmestown Waste Management Facility
Barntown, Co. Wexford,
W0191-02

Bord na Mona Plc

Drehid Waste Management Facility
County Kildare,
W0201-03

First European Week for Waste Reduction

The first European Week for Waste Reduction took place last November. In Ireland, a range of activities to highlight waste reduction practices and promote more sustainable consumption and production were organised - by a variety of organisations. These activities were coordinated by the EPA.

The European Week of Waste Reduction is an important opportunity to showcase all the positive work that is being done in relation to waste reduction, not just in Ireland, but across the EU. There is a requirement in the new Waste Framework Directive that each Member State shall have a waste prevention programme.

The aim of the European Week for Waste Reduction is to highlight to each person the important role that they can play either at home, at work, travelling or at leisure to prevent waste and reduce their impact on the environment.

Along with the EPA, and local authorities, the following prevention partner organisations were involved in developing the events:

- EPA – launch of National Waste Report and STRIVE Community Composting report.
- Repak Packaging Prevention Programme – launch of packaging prevention web tool kit.
- Green Hospitality Award – national competition for waste prevention awareness programmes.
- Clean Technology Centre – food waste prevention fair and launch of food waste reduction guide.

- An Taisce Green Home/Schools - prevention seminar and Green Home public display project at IKEA.
- Green Business - regional workshops/ events on Resource Efficiency
- Community Recycling Network Ireland - Public Reuse Exhibition in Science Gallery

All of these organisations are engaged in waste prevention and resource efficiency (waste, water & energy) work on an ongoing basis.

Over 30 different events were planned throughout the week at different locations around the country. These ranged from business seminars and public information events in a wide variety of locations to the release of related EPA reports.



The following contributed to this issue of the EPA Newsletter:

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