



Ireland's Environment 2008 aims at providing an assessment of the overall condition of the environment in the State and provides summary information on the quality of the environment and the trends of change, as well as the human dimensions or socioeconomic aspects that are linked to these changes. Since the previous assessment in 2004, there have been significant environmental policy and legislative developments at both national and EU levels. These developments relate to climate change, air quality and air emissions, environmental noise, chemicals in the environment and waste management. Further EU policy and legislative proposals, in tandem with strategic environmental assessment and environmental research, will continue to drive environmental protection.

Ireland's investment in environmental research has grown considerably in recent years. Funding of over €100 million has been made available through the National Development Plan and the Inter-departmental Committee for the Strategy for Science, Technology and Innovation for the EPA's latest environmental research programme covering the period 2007-2013. This reflects recognition of the importance that environmental research and innovation will play in helping to address the key environmental challenges facing Ireland.

INTRODUCTION



Introduction

Ireland's Environment 2008, the fourth state of the environment report produced by the Environmental Protection Agency, presents the most recent information on the quality of Ireland's environment and the pressures being placed on it. The report details the state of the environment, trends of change and the human dimensions or socioeconomic aspects that are linked with these changes. Responses to current and emerging environmental issues, including legislation, are evaluated, and challenges for the future are identified. *Ireland's Environment 2008* is set within the framework of the EPA's strategic plan for the environment *2020 Vision - Protecting and Improving Ireland's Environment* (EPA, 2007a).

Given the complex linkages between the environment and human activities, changes to the environment can be properly appreciated only in the context of the human activities or driving forces that give rise to them. Any action aimed at amelioration, if it is to be effective, must recognise and understand these linkages.

To understand this 'cause and effect' and interdependent relationship between the environment and humanity, the report uses the DPSIR framework – driving forces–pressures–state–impact–response.

- **Drivers** – Fundamental societal processes that drive activities that impact directly on the environment, e.g. demographics, economics.
- **Pressures** – Resource use (deforestation, mining), emissions to air, land and water.
- **State** – The current state of the environment.
- **Impacts** – Direct or indirect impacts on the environment arising from the drivers and pressures, contributing to impacts on people and the developmental options (social and economic) available.
- **Response** – Instruments, including legislation, policy and science, that address impacts on the environment and human well-being.

The EPA produces state of the environment reports on a four-year cycle. *Ireland's Environment 2008* is the fourth such report; previous reports were produced in 2004, 2000 and 1996. The EPA also publishes environmental indicator reports in the middle of this cycle, which provide a mid-term assessment of state of the environment reporting. The EPA has published three indicator reports to date: *Environment in Focus* 1999, 2002 and 2006. The fourth indicator report is planned for publication in 2010.

These state of the environment and indicator reports provide ongoing, timely information and knowledge to the general public, to those involved in the preparation of policy and also to key sectors of the economy so

as to support action to protect and manage the environment.

Ireland is not unique in this activity: most member states of the European Union produce such reports. Northern Ireland's state of the environment report *Our Environment, Our Heritage, Our Future* was published in March 2008 (EHS, 2008). The European Environment Agency also produces periodic reports considering the state of Europe's environment, the most recent being *Europe's Environment – The Fourth Assessment* (EEA, 2007). The United Nations Environment Programme (UNEP) has a core mandate of 'keeping the global environment under review' and thus produces *Global Environment Outlook (GEO)* reports, with GEO-4 being the most recent (UNEP, 2007). All state of the environment reporting generally follows a similar process: collate the latest data on the environment; evaluate and detail the state, trends and dimensions of environmental change; and determine what responses are necessary to secure protection of the environment.

Regulatory and Policy Framework

Much of the current legislative and policy framework was enacted in response to issues identified through the DPSIR cycle, and in many instances originated at European or international level. To set the scene for *Ireland's Environment 2008*, the main legislative and policy framework within which environmental action and responses operate is summarised below. The current legislative and policy measures across the main environmental themes are noted, with more detailed comment reserved for the individual chapters.



Climate Change

Climate change is now centre stage on policy agendas around the world, especially in the aftermath of the Stern Report (Stern, 2006) from the UK and the UN's Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (UNEP, IPCC, 2007), which concluded that if left unchecked, the world's average temperature could rise by as much as 6°C by the end of the century, causing serious harm to economies, societies and ecosystems worldwide.

The Kyoto Protocol, arising from the United Nations Framework Convention on Climate Change (UNFCCC), sets legally binding targets and timetables for cutting the greenhouse gas emissions of industrialised countries. Ireland ratified the Kyoto Protocol in May 2002 and agreed to a target of limiting its greenhouse gas emissions to 13 per cent above 1990 levels by the first commitment period, 2008–2012, as part of its contribution to the overall EU target. Domestic policy to achieve that target is outlined in the National Climate Change Strategy 2007–2012 (DEHLG, 2007a). Primary measures in place in Ireland to limit emissions include renewable energy targets, revised building regulations, the EU emissions trading system, and climate change awareness campaigns.

The Emissions Trading Scheme (ETS) is in its second phase of operation, from 2008 to 2012, coinciding with the first commitment period of the Kyoto Protocol. Specified installations in the energy, metal processing, mineral, paper, board and pulp industries are covered by the ETS and receive an allocation of greenhouse gas emissions for the operating period. The National Allocation Plan (NAP), produced by the EPA and the Department of the Environment,



Heritage and Local Government (DEHLG), determines this allocation allowance for installations covered by the scheme in Ireland. Ireland's second National Allocation Plan (NAP2) was confirmed by the European Commission in February 2008 and published in March 2008.

While current domestic focus is largely on existing targets such as the Kyoto commitment, a number of initiatives under way internationally will impact on climate change commitments in the future. The United Nations Climate Change Conference in Bali in December 2007 concluded an initial agreement on a climate change deal for post-2012, when the first commitment period of the Kyoto Protocol expires. In January 2008 the EU Commission announced a proposal for further unilateral greenhouse gas emissions reductions for the EU to be achieved by 2020. Among Ireland's share of the proposed EU burden-sharing agreement is a target of increasing

the renewables' share in energy use to 20 per cent by 2020 and reducing total greenhouse gas emissions to 20 per cent below 2005 levels.

Climate change and its future implications for Ireland are discussed in detail in Chapter 3.

Water Quality

The Water Framework Directive (WFD) (2000/60/EC) is the most important legislative protection for water quality in rivers, lakes, groundwater, and transitional and coastal waters. The WFD provides an overarching framework and programme to deliver long-term protection of water. Its objectives include the attainment by 2015 of good status in water bodies that are of lesser status at present, and retaining good status or better where such status exists at present. The directive was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (SI 722 of 2003).



The main implementation activities of the WFD will take place in the context of River Basin Districts (RBDs). These are catchment-based water management and planning areas, which are led by local authorities. Implementation activities to date have included characterisation of river basins, followed by the establishment of monitoring networks and public consultation. The current stage of work involves development of River Basin Management Plans and Programmes of Measures to achieve the directive's targets. The first 6-year management cycle for implementation of the WFD will conclude in 2015, after which River Basin Management Plans must be revised and an initial flood risk management plan prepared.

The Water Framework Directive is discussed in Chapter 5, with Chapters 6–9 detailing the current implementation status of the WFD in the context of specific water categories such as groundwater, rivers, lakes and tidal waters. Water legislation such as the Nitrates Directive and the Bathing

Water Directive are also discussed in these chapters.

Air Quality and Emissions

The existing legislative framework for air quality protection is based on the EU Air Framework Directive (96/62/EC), which sets out a Europe-wide approach to monitoring, assessment and management of air quality. A number of associated daughter directives incorporate standards for a range of pollutants, several of which were not measured in Ireland before. These directives were transposed into Irish law by the Environmental Protection Agency Act 1992 (Ambient Air Quality Assessment and Management) Regulations 1999, Air Quality Standards Regulations 2002 and Ozone in Ambient Air Regulations 2004.

In December 2007 the European Parliament endorsed the Clean Air for Europe (CAFE) Air Quality Directive, which merges five existing EU laws and sets new air quality standards for ultrafine particles. The provisions of this new directive (European Parliament and Council, 2008) will supersede the existing legislation over the coming years.

In the area of transboundary emissions, the EU National Emissions Ceiling (NEC) Directive sets out limits or emission ceilings for sulphur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOC) and ammonia (NH₃) that are to be achieved by 2010. Regulation of these transboundary gases is important, as these gases have given rise to acidification, eutrophication and ground-level ozone in many parts of Europe in the past.

The current state of air quality and trends in emissions to air are discussed in Chapter 4.

Waste

National policy on waste management (DEHLG, 2004) is based on a hierarchy of options, namely prevention, minimisation, reuse/recycling, and the environmentally sustainable disposal of waste that cannot be prevented or recovered. The legislative framework underpinning national policy is the Waste Management Act 1996, as amended by the Waste Management (Amendment) Act 2001 and the Protection of the Environment Act 2003. At EU level, legislation is currently being prepared to revise the existing 1975 Waste Framework Directive to simplify and streamline rules on waste management.

Waste management is a complex and continually evolving area, which is governed by an extensive list of legislation. One regulatory tool increasingly being used to manage waste is producer responsibility obligations that move the burden of responsibility from the end-user to the producer. Such obligations were used initially for packaging waste and farm plastic and more recently with respect to waste electrical and electronic equipment (WEEE), end-of-life vehicles (ELVs) and tyres. The transposition into Irish law of the Batteries Directive (Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators) will extend the use of producer responsibility for waste management.

Ongoing developments in the area of waste management are discussed in Chapter 10 within the wider context of resource use and consumption.

Chemicals

REACH is the new European regulation for Registration, Evaluation, Authorisation and Restriction of Chemicals (EC

1907/2006), which entered into force in June 2007 and will radically expand knowledge, control and management of all chemicals. The regulation aims at streamlining and improving the former chemicals legislative framework in the EU and places greater responsibility on industry to manage risks that chemicals may pose to human health and the environment. It also aims to promote alternative methods for the assessment of hazards of substances and to eliminate unnecessary testing, especially on animals.

REACH and the other legislation controlling the use of chemicals are discussed in Chapter 14.

Land, Soil and Biodiversity

Unlike that of water or air, legislative protection of soil is largely overlooked at both national and European levels. Legislation relating directly to soil is poorly developed, and soil protection aspects are scattered across existing environmental legislation in areas such as water,

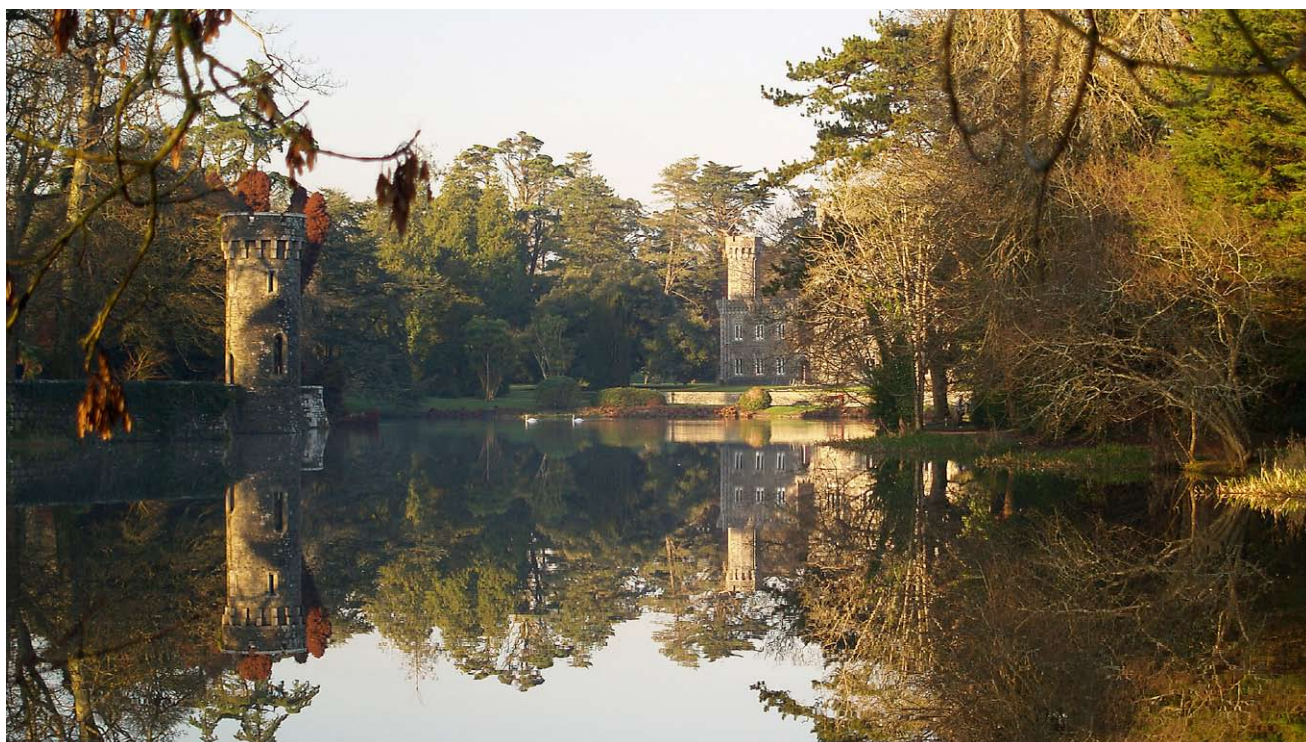
waste, chemicals, industrial pollution prevention, environmental liabilities, nature protection and pesticides. The legislative deficit was addressed at European level with the publication of the European Commission Thematic Strategy for Soil Protection (Commission of the European Communities, 2006) and a proposal for a Soil Framework Directive. However, Environment Ministers failed to reach agreement on the proposed directive in December 2007 and further discussions are not expected before 2009.

In the area of biodiversity, the EU and Ireland are party to a number of international conventions on nature conservation, including the 1992 Rio Convention on Biological Diversity (CBD). The National Biodiversity Plan (Department of Arts, Heritage, Gaeltacht and the Islands, 2002) is the main vehicle by which Ireland aims at meeting its commitments under the CBD and the EC Biodiversity Strategy. The Plan contains 91 actions, whose focus

is to integrate biodiversity concerns into all sectoral activities over time. One element of the plan is the establishment of the Irish National Biodiversity Data Centre, which was officially opened in January 2007 at Waterford Institute of Technology. An interim review of the National Biodiversity Plan was published in 2005 (DEHLG, 2005) and a revised National Biodiversity Action Plan is due to be published in 2008.

The National Spatial Strategy 2002–2020 outlines Irish land use policy. Implementation of the strategy occurs through regional and local development plans and also through Government programmes and investment plans as they relate to regional development. For example, the regional development dimension of the National Development Plan (NDP) 2007–2013 coincides with National Spatial Strategy objectives.

Land and land use change are discussed in Chapter 11; soil is addressed in Chapter 12 and biodiversity is covered in Chapter 13.



Noise

Environmental noise is described as unwanted or harmful outdoor sound created by human activities, including road, rail, air traffic and industry. The legislative framework for regulating environmental noise is the Environmental Noise Directive (2002/49/EC), which was transposed into Irish law by the Environmental Noise Regulations (SI 140 of 2006). The regulations provide for a two-stage approach to the assessment and management of environmental noise. The first stage is the preparation of strategic noise maps for areas and infrastructure falling within defined criteria; for example, large conurbations, major roads, railways and airports. The first strategic noise maps were completed in 2007. The second stage is the preparation of noise action plans based on the results of the mapping process, which will be completed in 2008.

The EPA is the national authority with overall responsibility for implementation of the regulations. Implementation at local level is a matter for the local authorities concerned, the Dublin Airport Authority, the National Roads Authority, Iarnród Éireann and the Railway Procurement Agency.

Environmental noise is discussed in more detail in Chapter 14.

Other EU Policy Developments

In addition to the legislative and policy developments within the main environmental themes outlined above, there are several areas where significant change has occurred that will affect how we interact with the natural environment.

EU Environmental Action Programmes

In 2002, the European Parliament and Council adopted the Sixth Environmental Action Programme (EAP), which takes a broad look at the environmental challenges and provides a strategic framework for the Commission's environmental policy up to 2012.

The Sixth EAP identifies four priority areas:

- climate change
- nature and biodiversity
- environment and health
- natural resources and waste.

The mid-term review of the Sixth EAP in 2007 confirmed that the EAP remains the correct framework for Community action in the field of the environment up to 2012. To ensure that the EAP remains on track and to address new challenges effectively, the Commission will focus on:

- making international cooperation more effective in support of the EU's global environmental policies

- integrating environment policy in other sectors, such as energy, transport, industrial policy, agriculture, fisheries, external relations and research
- increasing the role of market-based instruments to help meet environment policy goals
- improving the implementation and enforcement of existing legislation
- improving the quality of environmental regulation
- actively encouraging the development and deployment of environmental technologies, the promotion of eco-efficient solutions and definition of common standards and benchmarks.

Access to Information on the Environment (AIE)

Access to environmental information ensures that the public and policy-makers are better informed on environmental issues and can participate fully in the environmental decision-making process. Legislation at both EU and national levels



provides for access to information on the environment.

The European Communities (Access to Information on the Environment) Regulations 2007 (the 2007 AIE Regulations) came into force during 2007 and transpose Council Directive 2003/4/EC on public access to environmental information. The core obligation of the 2007 AIE Regulations requires a public authority to make available to the requester, environmental information that is held by or for it and to which the Regulations apply, subject to certain exceptions (DEHLG, 2007b). The Regulations broaden the definition of environmental information; outline the manner in which requests for information may be submitted to, and information provided by, public authorities; and introduce a formal appeals procedure. The AIE Regulations will operate in parallel with the Freedom of Information Acts.

ENVision, the EPA's online viewer also provides for easier public access to environmental information. Through *ENVision*, the public can access EPA information on air quality, water quality and facilities licensed by the EPA. Technical information is also available in the areas of soils, subsoils and landcover mapping. *ENVision* will provide further environmental information as soon as it is technically possible to do so.

Strategic Environmental Assessment (SEA)

Through the SEA process, environmental considerations must be fully integrated into the preparation and implementation of specified plans/programmes that are likely to have significant effects on the environment. The process operates at a more strategic level (for

example, county, region, catchment, national level) than project-based environmental impact assessment (EIA). The SEA Directive (2001/42/EC) was transposed into Irish law by the Planning & Development (Strategic Environmental Assessment) Regulations 2004 (SI 436 of 2004).

Three statutory environmental authorities were designated under the SEA Regulations in Ireland:

- Environmental Protection Agency (EPA)
- Department of Environment, Heritage and Local Government (DEHLG)
- Department of Communications, Marine and Natural Resources (DCMNR).

Plan/programme-makers in 11 specified sectors must consult these designated environmental authorities during the SEA process.

SEA is considered further in Chapter 11 in the context of land use and land use change.

Research

A strong appreciation and understanding of the impact of human activities on the environment depends on environmental research. Ireland's investment in environmental research has grown considerably in the past 10–15 years, since the EPA's first research programme commenced in 1994. The EPA administered €39 million in environmental research funding in the 2000–2006 period, which was provided through the National Development Plan (NDP) 2000–2006. Funding of €101 million is earmarked to the EPA's current environmental research programme for the period 2007–2013. This programme is entitled Science, Technology, Research and Innovation for the Environment (STRIVE) and

is co-funded by the NDP 2007–2013 and the Inter-departmental Committee for the Strategy for Science, Technology and Innovation (IDC-SSTI).

The STRIVE programme seeks to fund research that will address key environmental management issues, which will ultimately protect and improve the natural environment. Core topics are air quality, biodiversity, environment and health, environmental technologies, climate change, land use, soils and transport, socioeconomics, water quality, waste and resource management. Funding is allocated on a competitive tendering basis and a number of research calls are advertised each year.

Future directions in research and development are discussed in Chapter 16.

Conclusion

In accordance with the DPSIR framework, each chapter of *Ireland's Environment 2008* presents information on the current state of the environment. The overall driving forces contributing to the pressures on the environment and the current state of the environment are elucidated. Each chapter explains the responses currently in place to address environmental impact. Some of these responses may be national, particularly in the field of research or environmental technologies, but, as outlined above, the legal framework for the protection of the environment is largely based on European or internationally agreed rules and principles. As such, the significant changes to the national legal system in the field of environmental protection in the past 10–15 years are likely to continue.

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