

8

INTERNATIONAL CO-OPERATION*

Features

- Climate change
- Marine pollution
- Bilateral environmental co-operation with Northern Ireland
- Official development assistance

* This Chapter reviews progress in the last ten years, and particularly since the 2000 OECD Environmental Performance Review. It also reviews progress with respect to the objectives of the 2001 OECD Environmental Strategy.

Recommendations:

- implement the commitment in the 2007-12 Programme for Government to *introduce a carbon levy on sectors outside the ETS*, focusing efforts where further emission reductions can be achieved most cost-effectively;
- consider how payments under the *agri-environmental programmes* could be better linked to meeting the 2020 greenhouse gas reduction commitment;
- complete the preparation of a *national climate change adaptation strategy*, based on expected adaptation costs and benefits, and develop a plan for its implementation;
- speed up preparation of a *national contingency plan for pollution by oil and by hazardous and noxious substances*; increase the means of the Irish Coast Guard to effectively implement it;
- maintain the strong commitment to mainstreaming environmental concerns in *official development assistance*, including by helping partner countries undertake SEA on their development plans and strategies.

Conclusions

Ireland has introduced a 3% target for annual domestic greenhouse gas reductions and an annual “carbon budget” to monitor progress. The government is committed to introducing a carbon levy that would apply to sectors outside the EU Emission Trading Scheme (ETS). By improving public transport services, the new transport policy released in February 2009 should help curb CO₂ emissions. A Cabinet Committee on Climate Change and Energy Security was established, chaired by the Taoiseach (Prime Minister). Since 1990, CO₂ emission intensity per unit of GDP has improved faster than the OECD Europe average and is now below that average. Ireland has made good progress in ratifying relevant *international agreements on marine pollution*. Ireland’s “pollution responsibility zone” is its exclusive economic zone, and Ireland is preparing accession to full membership of the Bonn Agreement to enhance co-operation on oil pollution preparedness and response. Steps have been taken to protect cold-water coral reefs from deep-water fishing off the west coast. *Co-operation with Northern Ireland* has been reinforced and extended to all-island issues (e.g. all-island electricity market, spatial planning). The North/South Ministerial Council was established and has met several times to enhance bilateral environmental co-operation, particularly on water quality and waste

management. Good progress has been made on co-operation on nuclear safety issues with the United Kingdom. Ireland has built up a strong, internationally recognised *official development assistance* programme in which environment is one of four issues prioritised for mainstreaming.

However, Ireland's *greenhouse gas emissions* in 2007 were 25% higher than the 1990 baseline, well above its EU burden-sharing target of 12.6% for 2008-12. Even taking the impact of the economic crisis into account, the distance to the Kyoto target is 1.3-1.8 Mt of CO₂ equivalent (CO₂eq) per year. In a best-case scenario (*i.e.* including carbon sinks, applying additional measures and considering the reduction of activity in the economic downturn), emission projections in sectors outside the ETS still indicate a distance to target for 2020 of 2.7 Mt CO₂eq a year. By 2020, projected agricultural and transport emissions would account for around 70% of total non-ETS emissions. The tax difference between diesel and unleaded petrol has encouraged the sale of diesel-fuelled vehicles, although CO₂ (and other air pollutant) emissions per litre are higher for diesel. Ireland has not yet prepared its *national contingency plan for pollution by oil and hazardous and noxious substances*; the Irish Coast Guard has very limited means to respond to either type of incident. Nor has enough been done to protect coastal waters from agricultural pollution: Ireland's national agricultural nitrogen balance has increased since 1990 (while it decreased in the OECD as a whole) and is now higher than the OECD average.



1. Climate Change

Analysis of meteorological data shows that the *climate in Ireland has changed* in recent decades. The clearest trend is evident in temperature records: since 1980 the mean annual temperature has increased by 0.42 °C per decade. Forecasts indicate that the Irish climate will become 1-3 °C warmer by 2100 compared to 1961-2000 (EPA, forthcoming). There is also a trend towards more intense and frequent rainfall. Annual precipitation has increased on the north and west coasts, with decreases or small increases in the south and east. These trends are reflected in ecosystem changes, with longer growing seasons and greater numbers of warmer latitude fauna. Annual sea level rise has increased from 1.8 mm in the 1960s to 3.3 mm per decade.

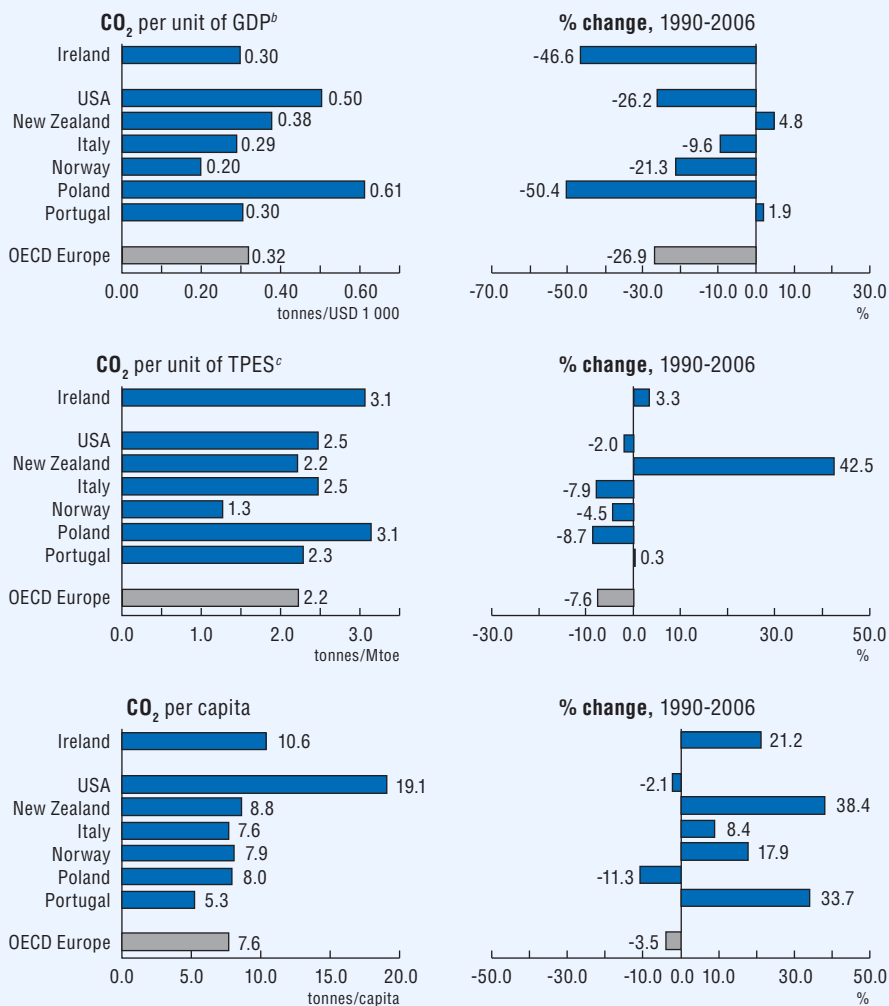
Ireland does not yet have a *climate adaptation strategy*, but has committed to develop one by the end of 2009. As a first step in meeting this commitment, the Environmental Protection Agency (EPA) is preparing a report on the current state of knowledge on climate change and expected impacts for Ireland (EPA, forthcoming). In developing its national strategy, Ireland should estimate how much adaptation might cost, and how large its benefits might be (OECD, 2008a).

While the Department of Environment, Heritage and Local Government (DoEHLG) has responsibility for *co-ordinating government policy on climate change*, other departments lead the development and implementation of climate policy in sectors such as energy, agriculture, transport and existing housing. Moves towards a whole-government approach to climate change can be seen, however, such as the Cabinet Committee on Climate Change and Energy Security, chaired by the Taoiseach (Prime Minister), and the annual carbon budget, first presented in December 2007 by the minister for environment, heritage and local government under the Programme for Government 2007-12. Ireland has issued two National Climate Change Strategies, respectively covering 2000-06 and 2007-12, and is committed to preparing a third one that would focus on post-Kyoto commitments (Table 8.1). The Inter-Departmental Committee on Science, Technology and Innovation established a funding stream for the Climate Change Research Programme 2007-13.¹

Since 1990, *CO₂ emission intensity per unit of GDP* has improved faster than the OECD Europe average and is now below that average (Figure 8.1). Ireland's situation compares less favourably in terms of *CO₂ emission intensity per unit of energy supply*, even though CO₂ emissions from energy use have been decoupled from GDP (Chapter 2).²

While greenhouse gas (GHG) emissions increased in the 1990s, total annual *emissions have remained virtually unchanged since 2000* (Figure 8.2 and Table 8.2). Emissions from energy rose by 40% in the 1990s, transport emissions more than doubled and industrial GHG emissions went up by 30% (Table 8.3).³ Emissions from transport have continued to rise in the 2000s. In 2007, energy, transport and industry (including commercial services) each accounted for 20% of total GHG emissions, and agriculture for more than 25%. Energy and, to some extent, industry are covered by the EU Emission Trading Scheme (ETS) under Directive 2003/87/EC, while transport and agriculture are not included.⁴

Figure 8.1 CO₂ emissions intensities,^a 2006



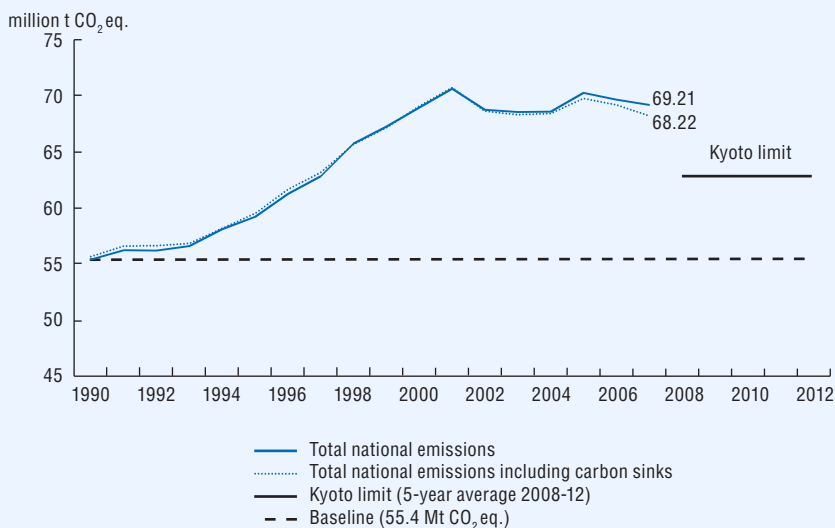
a) Includes CO₂ emissions from energy use only; excludes international marine and aviation bunkers; sectoral approach.

b) At 2000 prices and purchasing power parities.

c) Total primary energy supply.

Source: OECD-IEA (2007), *CO₂ Emission from Fuel Combustion*; OECD (2008); *OECD Economic Outlook No. 84*; OECD-IEA (2008), *Energy Balances of OECD Countries*.

Figure 8.2 Distance to Ireland's Kyoto limit, 1990-2007



Source: EPA (2009).

1.1 Commitments for 2008-12

Kyoto Protocol target

Ireland ratified the UN Framework Convention on Climate Change (UNFCCC) in 1994 and the Kyoto Protocol in 2002, together with the other EU countries. Ireland's EU burden-sharing target is 62.8 million tonnes of CO₂ equivalent (Mt CO₂eq) per annum over 2008-12 (*i.e.* 12.6% above the base year). Total GHG emissions in Ireland stabilised in 2000 at around 25% above the base year and have since deviated little (Table 8.2).

Ireland has participated in the ETS since its launch in 2005 (Box 8.1). The *second National Climate Change Strategy*, released in April 2007 for 2007-12, calculated that existing domestic measures would achieve only about half (8.7 Mt CO₂eq) of the annual reduction needed to meet the Kyoto target, then estimated at 17.2 Mt (DoEHLG, 2007).⁵ The strategy expects Ireland to make up the shortfall through additional measures to reduce domestic emissions (4.9 Mt) and purchases of

carbon credits from abroad via the Kyoto flexible mechanisms (3.6 Mt).⁶ The government accordingly has allocated EUR 270 million to buy 18 Mt of international carbon credits: 3.6 Mt per year over 2008-12.⁷ The strategy includes emission reduction targets in energy, transport, housing, industry, waste and agriculture, as well as in the public sector (Table 8.1).

Table 8.1 Key climate policy measures for 2007-12, by sector

Sector	Key measures
Cross-sectoral	Multi-annual climate change awareness campaign (EUR 15 million) Funding of research programmes National adaptation strategy by 2009 3rd National Climate Strategy to focus on post-Kyoto commitments
Energy supply	33% electricity generation from renewables by 2020 (15% by 2010) 30% electricity generation by peat stations from biomass by 2015 Support for combined heat and power projects National ocean energy strategy
Transport	Modal shift to public transport (Transport 21) Registration tax and annual circulation tax to reward purchase of greener cars Introduction of biofuel obligation in 2009
Residential	Energy efficiency of new homes improved by 40% Levy on incandescent bulbs to encourage shift to low-energy bulbs Smart meters supplied to all electricity consumers Grants for renewable energy heating systems
Industry, commercial and services	Energy agreements Support for eco-efficient technology and practices
Agriculture	Support to carbon sequestration and reduction of emissions from fertiliser (REPS 4) Support for improved manure management Top-up to EU premium for energy crops New support for afforestation
Waste management	Support for waste-to-energy projects (REFIT scheme)
Public sector	33% energy savings by 2020 (offices, schools, hospitals, etc.) Carbon offsetting of all official air travel in support of urban forests Energy efficient street lighting All public sector fleet to move to biofuel blend

Source: DoEHLG, 2007.

Table 8.2 **Greenhouse gas emissions,^a by gas**
(million tonnes of CO₂ equivalent)

	1990 baseline	2000	2007	2007/base year (% change)
CO ₂	32.4	44.8	47.5	+46.6
CH ₄	13.5	13.5	13.0	-3.7
N ₂ O	9.5	10.1	8.0	-15.8
F-gas	0.04	0.6	0.7	+1 650
HFC	-	0.2	0.5	
PFC	-	0.3	0.13	
SF ₆	0.04	0.06	0.07	
Total GHG	55.4	69.0	69.2	+24.9

a) Excluding emissions/removals of the land use, land use change and forestry sector.

Source: EPA, 2009a.

Table 8.3 **Greenhouse gas emissions, by sector**
(million tonnes of CO₂ equivalent)

	Base year ^a	2000	2006	2007	2008-12 ^b		2020 ^b		2007/ base year (% change)	2010/ base year (% change) ^c
					WM	WAM	WM	WAM		
Energy ^d	11.7	16.7	15.5	14.9	14.5	12.7	15.0	9.4	27.3	23.9
Residential	7.4	6.6	7.3	7.1	7.4	7.1	9.1	6.6	-4.0	0
Industry and commercial	9.8	12.7	12.0	12.4	11.0	10.2	12.8	9.8	26.5	12.2
Agriculture	19.9	20.5	19.3	18.6	18.2	18.2	17.8	17.8	-6.5	-8.5
Transport	5.2	10.8	13.7	14.4	14.4	13.9	18.1	16.0	176.9	176.9
Waste	1.5	1.6	1.8	1.9	2.0	2.0	2.3	1.4	26.7	33.3
Total ^e	55.4	69.0	69.7	69.2	67.6 ^f	64.1 ^f	75.1	61.0	25.0	22.1 ^g
Sinks ^g	0.2	0.15	-0.5	..	-2.2	-2.2	-4.4	-4.4		

a) Ireland's base year emissions are calculated as the sum of the emissions of CO₂, CH₄ and N₂O in 1990, and emissions of fluorinated gases (HFCs, PFCs and SF₆) in 1995. This methodology is allowed by Art. 3.8 of the Kyoto Protocol for Parties included in Annex I.

b) Forecast under a "with measures" (WM) or "with additional measures" (WAM) scenario.

c) Considering the "with measures" scenario.

d) Electricity generation and oil refining.

e) Excluding international bunkers, as well as emissions/removals of the land use, land use change and forestry sector (LULUCF). Numbers may not sum exactly due to rounding.

f) Ireland's Kyoto Protocol target has been set as 314.18 Mt CO₂eq for 2008-12, i.e. 62.837 Mt CO₂eq per annum over the period (or 12.6% above the baseline estimate).

g) LULUCF emissions/removals, including forest land, cropland, grassland, wetlands, settlements and other land.

Source: EPA, 2009b.

Box 8.1 Emission trading

Ireland has participated in the *EU Emission Trading Scheme for CO₂* since its launch in 2005. The ETS covers over 100 major industrial facilities in Ireland; power plants and cement factories account for most emissions. The EPA oversees the monitoring, reporting and verification of emissions, as well as the National Emissions Trading Registry. ETS facilities have to pay a EUR 150 fee to open an account on the registry. Auction revenue, although modest (less than 1% of emission allowances thus far), is used to cover the ETS operating cost.

At 57.7 MtCO₂eq (excluding 9.2 MtCO₂eq set aside for new entrants), the ETS allocation for 2005-07 happened to be 12% below verified emissions (EEA, 2008). Ireland was among the few EU countries that were short on the market. It had to import 911 000 tCO₂, worth about EUR 5 million (Ryan *et al.*, 2008). The Commission for Energy Regulation allowed electric utilities to pass on to consumers only the additional cost of the allowances they had to purchase.

In the second trading phase, for 2008-12, 22.3 MtCO₂eq was allocated per year, representing 87% of projected ETS emissions (a third of projected total emissions). Excluding the reserve for new entrants, the annual allocation is 6.6% lower than in the previous phase. Since the all-island wholesale electricity market came into operation, electric utilities have been entitled to pass on to consumers the opportunity cost of their allowances (*i.e.* even when there is no actual purchase) (Ryan *et al.*, 2008). While this represents an important signal to consumers, it creates rents for utilities that received the allowances for free. Verified emissions in 2008 were lower than in 2007, confirming the downward trend since 2005, though the decrease partly reflected the economic downturn.

The full auctioning of emission allowances for the power sector *from 2013 onwards* (and gradually for other energy-intensive industrial sectors), as part of the new EU climate change package for 2020, will increase incentives for ETS facilities to curb emissions. It will also put an end to the rents created for utilities that currently receive allowances for free.

Assumptions of the 2007-12 Climate Change Strategy are consistent with *recent EPA projections*, provided that “additional measures” are rapidly put in place (Table 8.3). If they are not, and current measures remain unchanged, average annual GHG emissions are projected to increase by 22% in 2008-12, with the distance from the Kyoto target slipping to 5.2 MtCO₂eq per year. These projections (known as the “with measures” scenario) reflect the expected impact of policies and measures in place (and legislatively provided for) by the end of 2007, including the ETS. They include, most notably, *i)* reduced use of fertiliser and reduced livestock numbers as a

result of decoupling agricultural support from production, initiated in 2005 as part of the Common Agricultural Policy reform; and *ii*) increased reliance on renewable sources of electricity generation, pursuant to Directive 2001/77/EC.⁸ They also include the impact of forest sinks, under Article 3.3 of the Kyoto Protocol. “Additional measures” include meeting renewable energy targets set out in the energy white paper (DoCENR, 2007) and energy efficiency targets set out in the National Energy Efficiency Action Plan (DoCENR, 2009).⁹

Both scenarios assume that the recession will be limited to a 0.5% contraction in GDP in 2008 and 2009, with the economy reverting back to where it otherwise would have been by 2020. Since the energy forecasts were prepared, however, the economic outlook has deteriorated. A later “*economic shock*” analysis by the Economic and Social Research Institute assumes GNP will contract by 7% between 2007 and 2010, implying a distance to the Kyoto target of 1.3-1.8 Mt (Table 8.4).¹⁰ The distance to target could turn out to be smaller still; the latest OECD estimate (June 2009) of the

Box 8.2 The carbon budget

Ireland is the first country in the world, followed by the United Kingdom, to have introduced a national carbon budget as *part of the annual budgetary process*. The aim is to inform decisions on expenditure and taxation not only in terms of their financial and economic impacts but also regarding their impact on climate change. The carbon budget presents the additional emission reductions expected from new measures included in the budget (*e.g.* grants for residential renewable energy heating systems and revised vehicle taxation reflecting CO₂ emission ratings). The minister for environment, heritage and local government presents the carbon budget at the same time as the annual financial budget. The minister subsequently reports on Ireland’s use of energy in the previous year, on progress in meeting Ireland’s GHG emission reduction targets (EU burden-sharing as well as the government’s target of a 3% annual cut) and on government plans to meet the targets. Two carbon budgets have been presented so far, accompanying the financial budgets for 2008 and 2009.

However, the carbon budget *does not assess the overall impact of the financial budget* on GHG emissions, nor does it outline the economic costs and benefits of the proposed measures. It only takes account of measures directly aimed at cutting emissions. The 2009 carbon budget presented the revised GHG emission outlook without reporting on the effects of the previous budget. Hence, there is scope to improve the analytical basis of the carbon budget and to make it better fit to serve as an accountability instrument.

Box 8.3 Personal carbon allowances: cap and share

While sectors such as power generation and large industry are included in the EU Emission Trading Scheme, others, such as transport, residential housing and agriculture are not. Thus new policy measures are needed to reduce emissions in the sectors not covered. One idea proposed by the Foundation for the Economics of Sustainability (FEASTA), an Irish NGO, is “cap and share” (C&S), based on the notion of *giving each citizen a carbon emission allowance* within a defined cap.

Essentially, C&S would operate in a similar way as a carbon levy. However, it would address the problem of public acceptability since the cap would be placed on upstream emissions from primary fossil fuel suppliers to the sectors included in the system. Certificates would be issued to all adults, entitling each to an equal share of the emissions permitted under that year’s cap (Comhar, 2008). The certificates could then be sold to the fossil fuel suppliers via an intermediary such as a bank or post office.

Capping emissions upstream means *the price of emissions is built into the price of fossil fuel* which is passed through to the consumer. The consumer would have an incentive to use less fossil fuel than the average amount for which he is compensated through the sale of the certificates.

However, the C&S idea has important disadvantages. It gives individuals “ownership” of all transport-related emissions in the economy, but a large share of these emissions is caused by activities such as road haulage, public transport, taxi services and the like. Thus, *individuals would be over-compensated*, at least at first – they would earn “profit” on selling permits to the oil companies that need to cover emissions caused by the fuel they sell to the other activities.

Since the oil companies have to pay for the permits they need to cover the emissions caused by the products they sell, the idea can be compared to a cap-and-trade system with auctioned permits. However, in the C&S plan the government distributes the “revenues” in a lump sum to every adult, *forgoing the possibility to use the money to reduce distorting taxes, e.g. on labour*.

A C&S system would *interact with the current taxes on motor fuels*. But with such a cap on emissions from oil companies, the existing motor fuel taxes would have no impact on total motor fuel use – and hence on the related CO₂ emissions. It is easy to imagine the likely pressure to scrap the current motor fuel taxes, which would entail a major revenue loss.

Ireland already has very strong incentives to reduce emissions from light-duty motor vehicle use through one-off and recurrent motor vehicle taxes (Chapter 6). Policies to reduce emissions in other sectors would be more cost effective than seeking further emission reductions related to motor fuel.

Last but not least, the *transaction costs* for operating a C&S system would be very high compared with a carbon tax. Explaining the operation to 1.5 million individual households would be very burdensome. Operating and policing the resulting “market” as households cashed in their permits, the value of which would vary, would be a huge administrative challenge.

GNP decline is 14.8% over the period. In these circumstances, the National Treasury Management Agency has put its programme of purchasing carbon credits from abroad on hold.

Government target

By setting an annual average GHG reduction target of 3% for 2007-12, the *Programme for Government* adopted in June 2007 further raised the level of Ireland's ambition in combating climate change. An annual "carbon budget" has been introduced to monitor progress (Box 8.2). The DoEHLG Statement of Strategy from July 2008 responded to the high priority that the Programme for Government put on climate change (DoEHLG, 2008).

The *development of further measures* to reduce domestic emissions will focus almost entirely on the sectors not covered by the ETS, mostly transport and agriculture.¹¹ The 2009 Sustainable Travel and Transport Action Plan and the National Energy Efficiency Action Plan are key initiatives in that context (Chapter 6). No new measures on emissions are expected in the ETS sectors, which cover just over 100 Irish installations (currently representing about 30% of total GHG emissions) in a

Table 8.4 Projected distance to the Kyoto Protocol target,^a by scenario
(million tonnes of CO₂ equivalent)

	With measures (WM)	With additional measures (WAM)	Economic shock on WAM
Projected emissions	65.4	61.8	58.4
<i>of which:</i>			
Sectors covered by the EU Emission Trading Scheme (ETS) ^b	19.6	17.7	16.6
Other sectors (non-ETS)	45.8	44.2	41.8-42.3
Government purchase/additional domestic action ^c	5.2	3.6	1.3-1.8

a) 62.837 Mt CO₂ eq per annum over 2008-12.

b) Emissions are projected to be below the annual allocation as set out in the 2nd National Allocation Plan 2008-12 (*i.e.* 22.3 Mt CO₂ eq).

c) Kyoto limit (62.837 Mt) minus national allocation for ETS (22.3 Mt) minus projected emissions from non-ETS sectors. Numbers may not sum exactly due to rounding.

Source: EPA, 2009b.

programme administered by the EPA.¹² Comhar, Ireland's Sustainable Development Council, commissioned research in 2007 on a "cap and share" system as a policy instrument to reduce GHG emissions from the residential and transport sectors, which are not covered by the ETS (Comhar, 2008). However, the disadvantages seem to outweigh the merits (Box 8.3).

1.2 Commitments for 2020

The Kyoto Protocol is only a first step in addressing climate change. Ireland has to be prepared to respond to *more stringent GHG emission reduction objectives by 2020* and beyond, as part of the recently adopted EU Climate Change Package (Box 8.4) and any international climate change framework.

In a best case scenario (*i.e.* including carbon sinks, applying additional measures and taking into account the reduction in activity due to the economic downturn), *emission projections for 2020 in the non-ETS sectors still indicate an annual gap of 2.7 Mt CO₂ eq* between Ireland's likely achievement and the new target (Table 8.5).

Table 8.5 **Projected distance to the EU 2020 target for non-ETS sectors,^a by scenario**
(million tonnes of CO₂ equivalent)

	Base year (2005)	2007	2020		
			With measures (WM)	With additional measures (WAM)	Economic shock on WAM
Projected emissions	48.3	48.4	53.8	46.0	44.9
Sinks ^b	-0.4	..	-4.4	-4.4	-4.4
Distance to target: ^c					
Without sinks			15.9	8.1	7.0
With sinks			11.5	3.8	2.7

a) 37.9 Mt CO₂ eq per annum by 2020.

b) Subject to EU approval. The EU reserves the right to adjust a member state target if it decides to accept the inclusion of sinks in the calculations of total GHG in the second commitment period (2013-20).

c) Numbers may not sum exactly due to rounding.

Source: EPA, 2009b.

Box 8.4 Ireland and the EU climate change package

In December 2008, the European Parliament and Council agreed on legally binding targets to cut total EU GHG emissions by 2020 (relative to 1990 levels), to increase to 20% the share of renewable energy sources in energy consumption and to improve energy efficiency by 20% by 2020.^a In what is known as the *EU climate change package*, the effort for GHG reductions by 2020 is divided between ETS and non-ETS sectors.

A *single EU-wide cap for all emissions covered by the ETS* will assure a level playing field for industrial installations in the single market. The aim is to reduce ETS sector emissions by 21% between 2005 and 2020.^b The annual cap will decrease along a linear trend line. In non-ETS sectors, individual country targets average out at a total 10% reduction between 2005 and 2020.^c The *target for Ireland is to reduce emissions from non-ETS sectors by 20% over that period*. The limit was calculated by the EU Commission as 37.9 Mt CO₂eq. For the EU as a whole, the combined ETS and non-ETS reductions will result in an overall decrease of 14% from 2005 (20% from 1990).

a) The emission reduction is to be increased to 30% if a new global climate change agreement is reached.

b) Consequently, there are no specific national emission targets for ETS sectors.

c) GDP per capita was used as the main criterion when setting the individual country targets.

GHG emissions not covered by the ETS include emissions from agriculture, transport, housing and a number of other sectors. The profile of GHG emissions in Ireland is unusual in European terms, as agriculture accounts for 27% of all emissions and 40% of those not covered by the ETS. The transport sector is also of concern, as it accounts for 21% of all emissions and 35% of those not covered by the ETS. *Agriculture and transport* account for around 50% of projected 2008-12 emissions under both the “with measures” and “with additional measures” scenarios. By 2020, projected agriculture and transport emissions would account for around 70% of total non-ETS emissions under both scenarios.

Emissions from transport

“*Additional measures*” in the transport sector include integration of the Transport 21 investment programme and its alignment with spatial planning, which would reduce CO₂ emissions from congestion.¹³ The measures also include the recent linking of the vehicle registration and motor vehicle taxes to CO₂ emissions (Chapter 2). The “*additional measures*” scenario assumes that biofuel makes up 10% of all road transport fuel by 2020, which is consistent with the recently adopted EU Climate

Change Package. While the decision to base the annual vehicle registration and motor vehicle taxes for passenger cars on the manufacturer's declared CO₂ emissions goes in the right direction, it is unlikely that Transport 21 will result in a significant reduction of GHG emissions. Public transport investment could reduce some car trips, but the EUR 18 billion destined for roads under Transport 21 would increase road traffic. As regards first-generation biofuel, it is a very expensive way of abating transport-related CO₂ emissions;¹⁴ moreover, its production raises environmental concerns linked to intensive farming.¹⁵

Applying *carbon taxes* to sectors outside the ETS offers an opportunity to decrease taxes which distort incentives (*e.g.* to work and to invest) while increasing taxes which correct negative externalities, raising economic efficiency on both counts. In September 2004, the government decided a carbon tax was not an appropriate policy option for reducing GHG emissions on the grounds that the environmental benefits would not justify the economic and social difficulties that introducing such a tax would pose, particularly for households (IEA, 2007). A major policy change occurred in 2007 when the government expressed a desire to introduce a carbon levy that would apply to all sectors outside the ETS (Box 8.5). Despite the Programme for Government's commitment and the pressing need to preserve the fiscal balance, carbon taxation was not included in the 2009 budget, pending advice from the Commission on Taxation.

The "additional measures" scenario does not include *taxes on the carbon content of road fuel*, which would be a more efficient policy measure than subsidising biofuel use, as carbon taxes would directly target CO₂ emissions.¹⁶ In Ireland, taxes on diesel are lower than those on unleaded petrol. This differentiated taxation has encouraged the sale of diesel-fuelled vehicles, which emit more CO₂ per litre and more pollutants that contribute to urban smog (NO_x and PM) than petrol-fuelled vehicles, though this differential will reduce with the introduction of Euro 5 and 6 standards.¹⁷ Increased fuel taxes would also help reduce "tank tourism". Nevertheless, from a cost-effectiveness perspective, it would be preferable to introduce a carbon tax on the carbon content of all fossil fuels, irrespective of their use (including transport and heating fuels), except fuels used in sectors covered by the ETS.¹⁸

The "additional measures" scenario does not take into account the new transport policy, released in February 2009: "Smarter Travel: A Sustainable Transport Future". This policy aims to improve public transport through projects such as a planned metro system. It includes a target of reducing the private car share of total commutes from the current 65% to 45% by 2020, which the Department of Transport estimates would cut CO₂ emissions by at least 4 Mt. A more economically efficient way to enhance public transport would be to apply road charging. Ideally, the system should cover all roads, with rates that vary according to where and when the driving takes place, and the emission category of the vehicle (OECD, 2008b). However, in practice more

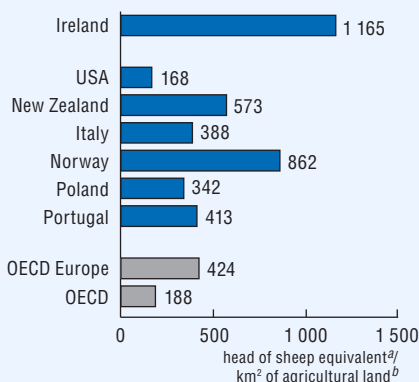
targeted approaches would need to be developed that take account of economic, environmental and social considerations.

More fuel-efficient vehicles also offer large GHG emission reduction potential and would be more cost-effective than replacing fossil fuel with biofuel (OECD, 2007). So far improvements in vehicle technology have delivered the bulk of CO₂ emission reductions from transport EU-wide and, to some extent, will continue to do so. The new EU car CO₂ regulation which entered into force in March 2009 will apply an average CO₂ emission limit of 130 grams per kilometre to the whole EU fleet from 2015.¹⁹ By revising vehicle taxation to reflect CO₂ emission ratings, Ireland is already providing much stronger incentives to reduce emissions than in other sectors of the economy (Chapter 6).

Emissions from agriculture

There is only one scenario for *agricultural GHG emissions*, as the “with measures” and “with additional measures” projections are identical in this regard. Some 92% of the projected reduction results from a decline in cattle numbers, from 6.8 million head in 2005 to 6.2 million in 2020,²⁰ related to the planned removal of the milk quota in 2015.²¹ Livestock density in Ireland has hardly changed since 1990, and remains much higher than the OECD Europe average (Figure 8.3).

Figure 8.3 Livestock density, 2006



a) Based on equivalent coefficients in terms of manure: 1 horse = 4.8 sheep; 1 pig = 1 goat = 1 sheep; 1 hen = 0.1 sheep; 1 cow = 6 sheep.

b) Arable area, permanent crop land and permanent grassland.

Source: FAO (2008), FAOSTAT data.

Box 8.5 The debate on carbon taxation in Ireland

The *2000 National Climate Change Strategy* included a commitment to introduce a framework for GHG taxation, focusing on CO₂ emissions. An *inter-departmental Green Tax Group* was established to assist in the design of such a tax. In 2003, more than half the authorities consulted on the introduction of a carbon tax were either against it or requested exemptions. As a result, the Green Tax Group proposed a tax of EUR 5 per tonne of CO₂ on sectors outside the ETS. The plan was to gradually increase the rate to reach the ETS carbon price. An 80% rebate was proposed for firms engaging in agreements with Sustainable Energy Ireland to reduce emissions and for combined heat and power plants. The group recommended spending the carbon tax revenue initially on Kyoto Protocol emission allowances, and later on measures to increase social welfare and improve energy efficiency in the housing stock. However, the carbon tax was not introduced. The government concluded that the reductions of GHG emissions would have been modest, and feared that the tax would have had adverse economic and social effects. The rapid oil price increase in 2004 was expected to provide enough incentive for energy saving.

With the entry into force of the Kyoto Protocol in 2005 and the development of an ambitious climate policy at EU level, the case for introducing a carbon levy in Ireland has been regarded as more compelling. The *National Climate Change Strategy 2007-12* and the *Programme for Government 2007-12* reiterated the commitment to gradually introduce environmentally related fiscal measures, including a carbon levy.

Much research has been conducted on the *appropriate design of a carbon levy* in Ireland (Ryan *et al.*, 2008). Cambridge Econometrics forecast that a EUR 20/tCO₂ tax would lead to a modest reduction in GHG emissions and that a much higher tax rate would be needed. However, even with tax rates in the range of EUR 200-300/tCO₂ (which would raise political and social acceptability issues), the Irish economy would grow, provided that the tax revenue was used to reduce income tax and increase social welfare benefits. In 2008, the Economic and Social Research Institute (ESRI) factored a carbon levy into its economic modeling for the period to 2015, under the following assumptions: *i*) introduction of a carbon tax in 2010 at the market price of carbon, *ii*) introduction of a similar tax elsewhere in the EU (limiting the effects on competitiveness) and *iii*) revenue recycling to reduce labour taxes (Fitzgerald *et al.*, 2008). ESRI's model showed a positive economic impact, with increased competitiveness of the Irish economy and higher employment. ESRI also assessed the *impact of a carbon levy on Ireland's GHG emissions and economy* (Tol *et al.*, 2008; Conefrey *et al.*, 2008), concluding that:

- a uniform tax is the cheapest way to reduce emissions;
- the tax should be imposed on all sources of GHG emissions not involved in the ETS (agriculture, transport, waste, residential and commercial sectors, industry not covered by the ETS);

Box 8.5 The debate on carbon taxation in Ireland (cont.)

- the tax should equal the futures price of emission permits in the ETS (estimated at EUR 20-38/tCO₂ in 2010);
- the tax revenue is likely to grow faster than the overall government budget between 2010 and 2020: the expected revenue from EUR 20/tCO₂ (on average, EUR 0.05 per litre of fuel) is EUR 550 million per year;
- the revenue would best be used to mitigate distributional implications and reduce labour costs;
- the tax would reduce emissions by a modest amount in the first decade, but the long-term effects would be much larger as new technology developed;
- a relatively modest increase in benefits and reduction in income tax would offset the mildly regressive nature of the tax;
- concerning emissions of methane, nitrous oxide and halocarbons from internationally exposed sectors, including agriculture, an equivalent tax could be charged to final consumers (rather than producers), as this would automatically exempt products for export and treat domestic and imported products alike.

Hence, there is an *overall consensus among economic researchers* that a carbon tax set at the EU emission allowance price would moderately reduce GHG emissions and benefit the Irish economy in terms of growth and employment. It would also provide some certainty for long-term investment in low-carbon technology. The economic impact would crucially depend on the use of the revenue. Accordingly, Comhar, the Sustainable Development Council, suggested introducing a carbon levy on all sectors not covered by the ETS, except for agriculture. Cohmar proposed using 40% of the revenue to reduce income taxes, 25-30% to compensate low-income households and address fuel poverty, and the rest on emission reduction measures in transport, agriculture, services and the residential sector. The Commission on Taxation was asked to review the issue of introducing a revenue-neutral carbon tax. It reported to the government in September 2009.

In 2007-13, *further reductions in GHG emissions* will result from implementation of the latest Rural Environment Protection Scheme (REPS 4),²² notably through nutrient management at farm level, minimum tillage and promotion of clover pasture, as well as grant aid for manure processing.²³ Additional emission reductions can also be expected in 2007-13 from the new stand-alone Organic Farming Scheme (OFS), which provides for reduced stocking rates and reduced use of nitrogen fertiliser.²⁴ Both REPS and the OFS involve high budgetary transfers (about EUR 300-350 million per year). Their efficiency and effectiveness would be

enhanced by further decoupling agricultural support from production, thereby avoiding another sharp decrease in livestock numbers, which would be going the hard way to meet the 2020 GHG reduction commitment.²⁵

Reductions in reliance on fossil fuel can be obtained by *supporting the use of biomass* from existing forests (forest harvest and processing residue), energy plantations (*e.g.* elephant grass and short rotation coppice willow)²⁶ or, to a lesser extent, incineration of meat and bone meal.²⁷ Since 2006 a feed-in tariff of EUR 72 per MWh has supported electricity production from biomass under the Renewable Electricity Feed-In Tariff (REFIT) programme (Chapter 6). However, after 2012, the EU-wide cap on emissions covered by the ETS will require auctioning of a much larger share of allowances than before. This would be a cost-effective way to drive future investment in biomass and other renewable energy sources. Auctioning can assure efficiency, transparency and simplicity in the trading system, and provide revenue that can be used to reduce distortionary taxes.

The National Council for Forest Research and Development projects that planting 8 000 hectares a year of new forest to 2020 will result in some 4.4 Mt being sequestered.²⁸ Further *carbon sequestration* will result from REPS, notably through planting and restoration of hedgerows.²⁹ The inclusion of carbon sinks would therefore play a significant role in bringing Ireland closer to its 2020 target for non-ETS sector emissions. The European Parliament and Council agreed in December 2008 that, should an international agreement on global reductions not be reached, member states will be able to include emissions and removals from activities related to land use, land change and forestry towards meeting their 2020 target, starting in 2013. The inclusion would be subject to a European Commission assessment as to whether individual member state targets should be adjusted accordingly.

Assessment

Ireland has taken a number of important steps to address climate change and established an impressive analytical base to support policy development. Despite the important progress made to date, *significant further efforts will be needed to achieve the Kyoto and post-Kyoto targets*. The recession will relieve some pressures in the short term. It also provides an opportunity to reduce subsidies for, and shift the tax burden to, activities that produce GHGs. Such measures would put Ireland in a better position to address climate change when economic activity picks up.

The forthcoming third *National Climate Change Strategy*, which will focus on post-Kyoto commitments, should specify the size of the reductions it expects to achieve through various measures. It should also include analysis of the *cost and reduction potential in the different sectors* (*e.g.* energy efficiency improvement in industry,

transport, agriculture and housing; development of renewables; deployment of the ETS), but it should not set explicit targets for the sectors. The aim should be to introduce a similar “carbon price” in all sectors – and let emissions in each sector be determined “residually”. The use of Kyoto flexibility mechanisms is probably one of the most cost-effective means of achieving emission reduction commitments in the short term. However, their use to acquire domestic emission rights is, and will continue to be, restricted.³⁰ Moreover, a definite advantage of economic instruments, such as the proposed carbon levy or emission trading, is that they create incentives for innovation to improve energy efficiency and to develop renewable and other substitutes for fossil fuel. Also, to assure the efficiency of implicit or explicit carbon taxes, it is important to let their effects be fully reflected in the user cost of all products, which implies reducing or eliminating subsidies (Chapter 6). Any support to agriculture should be linked to otherwise unremunerated but beneficial public services, such as carbon sequestration.

In September 2009, the *Commission on Taxation* recommended that the country introduce a carbon tax on non-ETS sectors (GoI, 2009). According to the commission, the carbon tax rate should be set annually and approximate the ETS price of carbon, with a floor price to help correct volatility on the ETS market. The commission recommended setting the floor price initially at EUR 20 per tonne. It suggested that there was no need to target any particular non-ETS sectors, but that efforts should be focused where further emission reduction can be achieved most cost-effectively.

2. Marine Pollution

2.1 Pollution from land-based sources

Coastal waters are still under pressure from *agricultural pollution*. Several major estuaries, predominantly in the south-east and south, persistently display symptoms of nutrient enrichment (Chapter 3). This is reflected in Ireland’s performance in meeting requirements of the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) – in particular the OSPAR Strategy to Combat Eutrophication, adopted in 1998. The second application of the OSPAR Common Procedure, submitted to OSPAR in 2008, shows that the proportion of problem areas with regard to eutrophication has changed little, increasing from 40.4 % in 1995-99 to 41.3% in 2001-05. Most problem areas are located inshore or in estuarine and nearshore coastal waters, along the eastern, southeastern and southern coasts of Ireland, reflecting higher human population densities and more intense agricultural activities. The majority of these will fall under the regime of the EU Water Framework Directive. Ireland’s national agricultural nitrogen balance has increased since 1990 (while it decreased in the OECD area) and is now higher than the OECD average (OECD, 2008c).

Coastal water *pollution by heavy metals* (e.g. mercury) and toxic contaminants (e.g. PCBs, dioxins) does not seem to be a major issue, as reflected in the low concentrations in shellfish and in shellfish waters (EPA, 2008). However, the proportion of shellfish production areas graded as class A (i.e. shellfish may be sold directly for human consumption) decreased from 34% in 2000 to 25% in 2006, while that of class B (purification for 48 hours is required before shellfish can be placed on the market) increased; no monitored area was solely graded C (a period of at least two months is required prior to sale). The European Court of Justice has required Ireland to designate more shellfish monitoring areas (Chapter 3).

2.2 *Pollution from ships*

Ireland has made good progress in ratifying relevant international agreements (Table 8.6). In 2004, the International Maritime Organization (IMO) classified the western-European waters as a *Particularly Sensitive Sea Area (PSSA)*. The PSSA includes the North Atlantic and Celtic seas (i.e. all waters around Ireland except the Irish Sea), plus all Atlantic waters off Belgium, France, Portugal, Spain and the United Kingdom, but not the North Sea. This huge area has experienced the highest concentration of major oil spills on the planet, with examples including the *Sea Empress* off Wales in 1996, the *Erika* off France in 1999 and the *Prestige* off Spain in 2002. Designating these waters as a PSSA is a direct signal that seafarers should respect these interdependent and vulnerable ecosystems. To improve maritime safety, the carriage of heavy grades of oil through the PSSA is prohibited for vessels of more than 600 dwt (deadweight tonnage), except double-hull tankers, which must comply with a reporting obligation with a 48-hour notice period so as to reduce collision risks.

In recent years, *between 40 and 60 oil pollution incidents a year* have been reported in waters surrounding Ireland. Some 80% occurred in small harbours and surrounding areas, the remainder being on the open sea. About 25% probably stemmed from discharges from fishing vessels. No such vessels were prosecuted for illegal discharges; in most cases, their identity could not be established.

The 1982 UN Convention on the Law of the Sea entered into force in Ireland in 1996. Ireland established an exclusive economic zone (EEZ), as defined in the convention, in 2006. In 2007, Ireland became one of the first countries permitted to extend the boundaries of its EEZ beyond the standard 200 nautical mile limit, on the extended continental shelf off the south-west coast. The EEZ now covers 41 million hectares (by comparison, Ireland has an area of 7 million hectares). Irish environmental regulations apply to ships within the EEZ, regardless of flag country. Ireland's *pollution responsibility zone* extends to 200 miles off the west coast and to

the median line between Ireland and the UK, covering about 20 million hectares. The zone is a resource of high ecological and socio-economic value. It is an ecologically sensitive area, containing a wide variety of fauna and flora. It supports an active leisure industry, with many blue flag beaches, as well as commerce including fishing, marine transport and natural resource use.

Table 8.6 Recent legislation giving effect to international agreements on marine pollution

Irish legislation	Year	Convention/Protocol	Entry into force internationally
Oil Pollution of the Sea (Civil Liability and Compensation) (Amendment) Act	2003	Supplementary Fund ^a	2005
European Communities (Port Reception Facilities for Ship-Generated Waste and Cargo Residues) Regulations	2003	Directive 2000/59/EC	2000
European Communities (Vessel Traffic Monitoring and Information System) Regulations	2004	Directive 2002/59/EC	2002
Sea Pollution (Hazardous Substances) (Compensation) Act	2005	HNS ^b	Not yet
Sea Pollution (Miscellaneous Provisions) Act	2006	OPRC/HNS ^c	2007
Sea Pollution (Miscellaneous Provisions) Act	2006	Bunkers ^d	2008
Sea Pollution (Prevention of Pollution by Sewage from Ships) Regulations	2006	MARPOL ^e Annex IV	2003
Sea Pollution (Prevention of Oil Pollution) Regulations	2007	Revised MARPOL ^e Annex I	2007
Sea Pollution (Prevention of Air Pollution from Ships) Regulations	2007	MARPOL ^e Annex VI	2005
Sea Pollution (Control of Pollution by Noxious Liquid Substances in Bulk) Regulations	2008	Revised MARPOL ^e Annex II	2007
Sea Pollution (Prevention of Pollution by Garbage from Ships) Regulations	2008	MARPOL ^e Annex V	1988
Sea Pollution (Control of Anti-Fouling Systems on Ships) Regulations	2008	AFS ^f	2008

a) FUND Convention's 2003 Protocol on the Establishment of a Supplementary Fund for Oil Pollution Damage.

b) 1996 Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea.

c) The Act enables the transport minister to make regulations giving effect to the 2000 Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances (OPRC/HNS).

d) 2001 Convention on Civil Liability for Bunker Oil Pollution Damage.

e) 1973 Convention for the Prevention of Pollution from Ships, as modified by its 1978 London Protocol (MARPOL 73/78).

f) 2001 Convention on the Control of Harmful Anti-fouling Systems on Ships.

Source: Department of Transport.

In 2001, Ireland ratified the 1990 Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), which entered into force internationally in 1995. The convention sets out steps countries must take to enhance their preparedness for an oil spill. The primary requirements are a national contingency plan, co-operation/notification between countries and response resources within the country. The Sea Pollution (Amendment) Act 1999 empowers the minister for transport to require harbours, ports, oil handling facilities and maritime local authorities to submit *oil spill contingency plans*, based on realistic risk assessment, to the Coast Guard for approval. However, Ireland has not yet prepared a national contingency plan for pollution by oil and hazardous and noxious substances as the Act requires.³¹

To enhance co-operation on exercises, operations, and research and development related to oil pollution preparedness and response, Ireland will become a *full member of the Bonn Agreement*, the mechanism by which the North Sea states (Belgium, Denmark, France, Germany, the Netherlands, Norway, Sweden and the UK) and the European Union work together to *i*) combat pollution in the North Sea from maritime disasters and chronic pollution from ships and offshore installations, and *ii*) carry out surveillance to detect such pollution. Once Ireland joins the Bonn Agreement, the North Sea Area will be enlarged to include Irish waters. Meanwhile, Ireland has observer status and actively participates in the Working Group on Operational, Technical and Scientific Questions Concerning Counter Pollution Activities. It also participates in the Consultative Technical Group on Marine Pollution Preparedness and Response, under the aegis of the European Maritime Safety Agency.

The Department of Transport, through the Irish Coast Guard, is the main government body responsible for addressing spillage or loss of oil, chemicals or dangerous substances threatening pollution of the Irish coastline or related interests. The Coast Guard operates Marine Rescue Co-ordination centres at Dublin, Malin Head and Valentia for marine emergency management. However, the Coast Guard has *limited means to respond to oil spill incidents*. It encourages oil spill response contractors to participate in the all-Ireland International Spill Accreditation Scheme. The Coast Guard uses its contracted search and rescue helicopters to investigate reported pollution incidents.³² It maintains stockpiles of pollution response equipment at three bases.³³ Regular exercises are carried out with local authorities and ports, and the Coast Guard provides annual training courses to staff members of harbour and maritime authorities. Ireland has no oil-spill response vessels or vessels with oil-recovery capability.

Ireland has not yet ratified the 2000 OPRC Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances

(HNS). Under this protocol, in force since June 2007, ships carrying HNS³⁴ must take measures similar to those concerning preparedness and response for oil spills. For instance, they must have a pollution emergency plan dealing specifically with HNS incidents. So far, the Coast Guard's *response capability for HNS incidents has remained limited* because of its poor monitoring capacities, its lack of specialised vessels, teams and scientific support for HNS response, and the lack of a national contingency plan covering HNS (IMO, 2008).

Ireland does not have its own *oil pollution compensation fund* to pay for damage resulting from oil spills. Compensation is payable in accordance with the IMO Liability and FUND conventions.³⁵ The former provides for a first tier of compensation (paid by the owner of the relevant ship), lays down the principle of strict liability for ship owners and creates a system of compulsory liability insurance. The FUND Convention provides a second tier of compensation, financed by oil importers in member states that have imported more than 150 000 tonnes of oil by sea in the previous calendar year. The size of annual contributions depends on the amount of oil eligible for levy and the number and size of claims settled. Claims arising out of a costly incident can push up the contribution required in a given year. After the *Erika* spill in 1999, a supplementary fund was established to provide a further tier of compensation.³⁶ Ireland became a party to the protocol establishing that fund in 2004, and was one of the eight states enabling it to enter into force in 2005.

Ireland has ratified the 2001 Convention on Civil Liability for Bunker Oil Pollution Damage, which took effect in November 2008.³⁷ Ships over 1 000 gross tonnage registered in a state party to this convention must carry a certificate of insurance covering the owner for pollution damage in an amount *i*) equal to the liability limit under the applicable national or international regime and *ii*) not exceeding a sum calculated in accordance with the 1996 protocol to the Convention on Limitation of Liability for Maritime Claims, which Ireland did not ratify. *Liability and compensation* in the case of HNS will be dealt with under the 1996 Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, which Ireland ratified in 2005 but which has not yet entered into force.

In 2008 Ireland ratified the 2001 Convention on the *Control of Harmful Anti-fouling Systems on Ships*, which came into force in September 2008. Under the convention, ships may no longer use organotin compounds as biocides in their anti-fouling systems. Ships that already have such compounds on their hulls must apply a coating to prevent them from leaching. The convention applies to all ships entering a port of a party. Over the review period, more than 25% of foreign-flag ships calling at Irish ports were inspected each year, meeting the minimum

requirement of the *Paris Memorandum of Understanding on Port State Control*. In 2007, Ireland ratified the 1997 Protocol (Annex VI) to the 1973 Convention for the Prevention of Pollution from Ships, as modified by the 1978 London Protocol (MARPOL 73/78). Annex VI sets *limits on SO_x and NO_x emissions from ship exhaust* and prohibits deliberate emission of ozone-depleting substances.

Since the discovery of unique *cold-water coral reefs* off its western coast in the Porcupine Basin in 1997 (appropriately, the Year of the Coral Reef), Ireland has multiplied initiatives to try to protect them from deep-water fishing trawlers.³⁸ The management and control of fisheries and marine resources primarily fall under United Nations General Assembly and EU fisheries policies.³⁹ In 2004, the General Assembly decided not to back a ban on high-seas bottom-trawling, but in 2006 it adopted a resolution calling on regional fisheries management organisations (RFMOs) to put an end not just to bottom-trawling, but to all types of bottom-fishing by 31 December 2008 in areas where vulnerable marine ecosystems cannot be protected.⁴⁰ In July 2008, the European Council adopted a regulation on the protection of vulnerable marine ecosystems in the high seas from the adverse impacts of bottom-fishing gears.⁴¹ To operate with bottom gears in the high seas, EU fishing vessels must have a special permit.⁴² The regulation applies to EU vessels operating in the high seas in areas not subject to regulation by an RFMO and thus requiring unilateral flag-state regulation.⁴³ Another way for Ireland to ban or limit fishing is to introduce marine protection areas under the 1998 OSPAR annex on biodiversity and ecosystems. Ireland plans to protect four sites, totalling 250 000 hectares, in its EEZ by designating them as Special Areas of Conservation under the EU Habitats Directive. If approved by the European Commission, the sites will be the first deep-sea marine sites in Europe to be protected under the Habitats Directive.⁴⁴

3. Trade and the Environment

3.1 Ozone-depleting substances

Ireland has ratified all amendments to the 1987 Montreal Protocol on ozone-depleting substances (ODS). It is also committed to following the EU timetable for elimination of ODS, pursuant to EU Council Regulation (EC) No. 2037/2000,⁴⁵ which is more stringent than the protocol (*e.g.* requiring HCFC consumption to be phased out by 2010 instead of 2030). As competent authority for Regulation (EC) No. 2037/2000, the EPA is engaged with the businesses and sectors involved in handling controlled substances. In particular, extensive efforts are underway to raise awareness about the final phase-out of HCFC-22 refrigerant – the principal controlled substance remaining in use in Ireland – and ensure compliance

with the HCFC phase-out schedule. In addition, annual surveys of relevant sectors are carried out to gather information for annual reporting to the European Commission, as required under the Regulation.

There were no legal cases against attempts to trade ODS in the review period. Irish regulations issued in 2006 require the Customs Division of the Revenue Commissioners to tighten control of imports and exports of ODS. In addition, the EPA and Customs are co-operating to combat potential illegal trade of ODS. Arrangements are being made to carry out *profiling of imported goods*. In particular, to prevent imports of controlled substances⁴⁶ under incorrect tariff codes (CN codes, e.g. HFC instead of HCFC), related codes will be profiled to determine if illegal use of ODS is at issue in Ireland.⁴⁷

Until 2005, local authorities accepted *waste refrigerators and freezers* at no charge as part of the All-Island Scheme for the Management of Waste Domestic Fridges and Freezers. Since then, the EU Directive on Waste Electrical and Electronic Equipment has made producers responsible for recovery, recycling and disposal of such equipment. Manufacturers, importers and retailers of fridges and freezers have to establish systems allowing customers to recycle obsolete devices free of charge. Regulation (EC) 2037/2000 requires the removal of controlled ODS from refrigeration equipment before such appliances are scrapped. CFCs and HCFCs can be destroyed only by approved methods, most commonly high-temperature incineration. As Ireland has no such facilities, it has to export under transfrontier shipments equipment containing ODS, such as refrigerators and freezers, to other countries for environmentally sound management, including recovery of ODS.⁴⁸

3.2 Hazardous substances

Irish law requires the EPA to prepare a national plan for hazardous waste management that sets objectives on prevention, minimisation and recovery of hazardous waste. The 2008-12 National Hazardous Waste Management Plan recommends striving for self-sufficiency in hazardous waste recovery and disposal (Chapter 4). Over the review period, Ireland produced 250 000 to 300 000 tonnes of hazardous waste per year (Table 8.7). It exported 120 000 to 160 000 tonnes per year, a *significant increase in volume* from the second half of the 1990s.⁴⁹ The National Hazardous Waste Management Plan expects that, as treatment infrastructure develops, hazardous waste exports will decrease from the current 40-50% of the total generated. However, treatment capacity has not increased over the past decade: off-site treatment (at commercial facilities) increased, but on-site treatment at facilities with integrated pollution prevention and control licences decreased (Table 8.7).

Table 8.7 Hazardous waste management,^a 1996-2007

('000 tonnes)

	1996	1998	2001	2004	2006	2007
Treatment in Ireland	175	170	144	142	149	174
On-site treatment	140	130	96	86	88	83
Off-site treatment	35	40	48	56	61	91
Exports	50	75	115	166	135	147
Total	225	245	259	308	284	305 ^b

a) Not including contaminated soil.

b) Excluding (to avoid double counting) 16 573 tonnes of waste solvents treated in Ireland prior to their export as waste for use as a fuel.
Source: EPA, 2009c.

There is no evidence to suggest any *illegal trade in hazardous waste* from Ireland, where all shipments of waste are controlled in accordance with Regulation (EC) 1013/2006. The EU Network for the Implementation and Enforcement of Environmental Law (IMPEL) recently reported that only 1% of Ireland's transboundary waste shipments violated legislation, which is low by EU standards (Table 8.8). The violations detected were administrative, involving paperwork. To comply with Regulation (EC) 1013/2006, border-area agreements are to be drafted with Northern Ireland to simplify the notification procedure for cross-border shipments of waste. The two have carried out joint enforcement to tackle illegal cross-border movements of waste. In 2007, Dublin City Council was designated as the single national competent authority for exports and imports of waste – the National Transfrontier Shipment Office (NTFSO), which replaced 35 competent authorities that existed up to then. This has led to stricter enforcement of waste movement. In 2008, the NTFSO carried out 4 830 inspections. In the first five months of 2009, 1 500 inspections prevented 3 000 tonnes of waste from being exported due to breaches of waste regulation.

Ireland became a party to the 1989 *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* in 1994. Ireland implements the 1995 ban amendment to the convention, which has been in force in the EU since 1998 and bans exports to non-OECD countries of any hazardous waste intended for recovery, recycling or final disposal. But Ireland did not ratify the 1999 protocol providing for liability and prompt compensation for damage resulting from transboundary movements of hazardous waste and “other” waste⁵⁰ and its disposal, including illegal traffic.

Table 8.8 Inspection of waste shipments, 2007-08

	Inspections		Violations ^a	
	Total shipments	Transboundary shipments	Number	% of transboundary shipments
Ireland	707	328	4	1
Austria	3 060	212	32	15
Belgium	1 616	98	20	20
Denmark	154	125	3	2
England and Wales	78	4	0	0
Germany	1 767	384	32	8
Netherlands	2 725	613	127	21
Northern Ireland	312	55	14	25
Poland	2 118	110	33	30
Portugal	657	20	1	5
Scotland	12	12	6	50

a) In regard to requirements of Regulation (EC) No. 1013/2006 of the European Parliament and of the Council on shipments of waste.

Source: IMPEL, 2008.

4. Bilateral Co-operation

4.1 Bilateral co-operation with Northern Ireland

The *North/South Ministerial Council* (NSMC) was established in December 1999, upon the entry into force of the British-Irish Agreement, which was signed by the British and Irish Governments to implement the Good Friday Agreement (Box 8.6). The NSMC comprises ministers of the Northern Ireland Administration and the Irish Government, working together to take forward co-operation between both parts of the island to mutual benefit. The St. Andrews Agreement of October 2006 confirmed the council's role.

The NSMC oversees *co-operation in six sectors and six areas*. Sector co-operation is implemented by six North/South Bodies established in March 1999 through a supplementary agreement to the Good Friday Agreement. This co-operation focuses on *i*) recreational use of navigable inland waterways; *ii*) food safety awareness; *iii*) promotion of trade and business; *iv*) special EU programmes; *v*) promotion of the Irish language and of the Ullans and Ulster-Scots culture; and *vi*) development of

fishing, aquaculture and marine tourism in selected estuaries. Co-operation in the six areas (agriculture, education, environment, health, tourism and transport) is carried out through existing mechanisms in each jurisdiction, generally by government departments or agencies. Co-operation on agriculture includes Common Agricultural Policy issues, and co-operation on transport involves strategic transport planning (road and rail infrastructure) and public transport.

Box 8.6 The Good Friday Agreement

The Good Friday Agreement (also known as the Belfast Agreement) of 10 April 1998 was the outcome of a long process of talks between the political parties of Northern Ireland and the British and Irish governments. It led to the establishment of the *Northern Ireland Assembly*, which has full legislative and executive authority for all matters that are the responsibility of Northern Ireland government departments (known as “transferred matters”).^a The assembly was elected on 25 June 1998, suspended on 14 October 2002 and restored on 8 May 2007 after the St. Andrews Agreement of 13 October 2006 led to the establishment of a transitional assembly. While the assembly was suspended, interim procedure decisions were taken.

The Good Friday Agreement also led to the establishment of the *North/South Ministerial Council* to bring together those with executive responsibilities in Northern Ireland and the Irish Government. The purpose is to develop consultation, co-operation and action within the island of Ireland – including through implementation on an all-island and cross-border basis – on matters of mutual interest that are within the jurisdiction of each administration.

Moreover, the agreement led to the establishment of the *British-Irish Council*, which exchanges information, carries out discussion and consultation, and endeavours to reach agreement on co-operation concerning matters of mutual interest. Membership comprises representatives of the British and Irish governments, of devolved institutions in Northern Ireland, Scotland and Wales, and of the Isle of Man and the Channel Islands (Jersey and Guernsey).

a) Transferred matters are not enumerated in the 1998 Northern Ireland Act. They include “excepted matters” (those not explicitly retained in perpetuity by the Parliament at Westminster) and “reserved matters”, which may be transferred to the Northern Ireland Assembly someday. The environment sector is among the transferred matters, as are education; health; agriculture; enterprise, trade and investment; regional development (including transport); employment; finance; social development; and culture, arts and leisure.

As of March 2009, the *NSMC environment sector* had met eight times. Environmental co-operation has focused on water quality, waste management and research into environmental protection. Progress has been made in the context of the EU Water Framework Directive (Chapter 3).⁵¹ Some regional waste management plans are developed jointly (Chapter 4). Joint enforcement actions have been carried out against illegal cross-border movements of waste, and over 175 000 waste fridges and freezers have been recycled under an all-island contract to enable compliance with EU regulations on ODS. Significant joint work has also been done on preservation of biodiversity resources: a “whole island” approach was adopted on several species’ action plans, the Invasive Species Ireland project was adopted in 2006 and a biodiversity forum, including representation from Northern Ireland, was established under Comhar (Chapter 5).

Northern Ireland’s Department of Regional Development and Ireland’s DoEHLG are preparing a collaborative framework for better co-ordination of *spatial planning* and infrastructure development on the island.⁵² The non-statutory framework will be the first to be based on all-island data sets and thematic mapping.

There is regular bilateral co-operation on marine and terrestrial *radioactivity monitoring* and nuclear emergency planning.

While *energy* is outside the remit of the NSMC, there is excellent co-operation with Northern Ireland on energy issues. Establishment of the all-island Single Electricity Market in 2007 was a key feature of this co-operation.

4.2 *Bilateral co-operation with the United Kingdom*

The *British-Irish Council*, established in 1998, seeks to promote harmonious and mutually beneficial development of relations between the peoples of the islands. It co-operates on areas of mutual interest, including demography, drug abuse, environment, health, the knowledge economy, minority and lesser-used languages, social inclusion, tourism, transport and, since 2009, energy. The council’s *Environment Group* has met eight times at ministerial level (most recently in February 2008), with a ninth meeting planned for 2009. Discussions have mainly concerned waste management, climate change, integrated coastal-zone management and radioactive waste management.

The Irish Government has been actively campaigning for an end to *radioactive discharges into the Irish Sea*, particularly in relation to the Sellafield nuclear processing facilities in the UK.⁵³ Steps in recent years have included legal proceedings against the UK under the UN Convention on the Law of the Sea, which Ireland instituted in 2001 when commissioning of the mixed oxide plant was

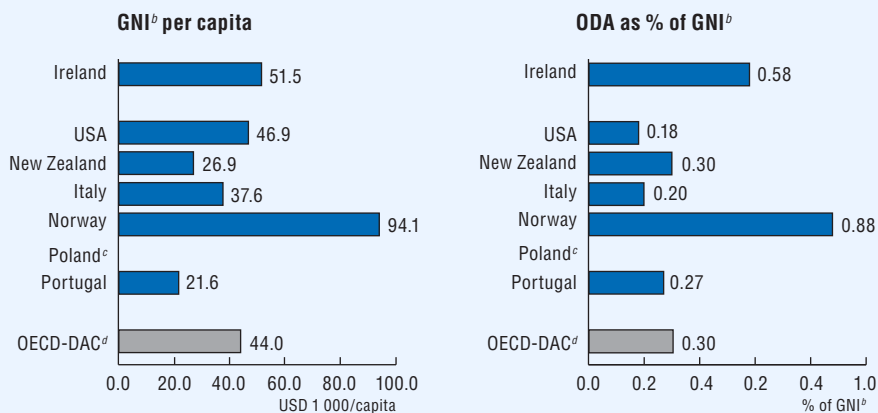
imminent.⁵⁴ Through a provisional measures order arising from this case, a series of co-operative measures between Ireland and the UK was put in place. They include a bilateral agreement on early notification of a nuclear accident; access to Sellafield by An Garda Síochána, Ireland's national police; direct access to the UK Radiation Monitoring System (RIMNET); access by the Radiological Protection Institute of Ireland to Sellafield and other facilities; significantly improved information exchange; co-operation on emergency planning with the UK; and improved, regular contacts on nuclear issues by regulators and officials. These measures are very valuable from Ireland's point of view.

The 1998 *OSPAR Strategy on Radioactive Substances* commits parties to the OSPAR Convention⁵⁵ to virtually eliminate all radioactive discharges to the marine environment by 2020. Ireland's national plan for implementing the strategy was prepared in 2002 and presented at the 2003 OSPAR Commission ministerial meeting. In 2004, British authorities announced a 90% reduction in technetium-99 discharges into the Irish Sea,⁵⁶ in an example of successful adoption of abatement technology in the capture of radioactive discharges.⁵⁷ An interdepartmental steering committee has been established in March 2009 to review implementation of the Irish strategy.⁵⁸ Ireland is updating its national plan and will present it to the 2010 OSPAR Commission ministerial meeting.

5. Official Development Assistance

Ireland's official development assistance (ODA) significantly increased over the review period, rising from EUR 254 million in 2000 to EUR 900 million in 2008. In 2007, it amounted to 0.58% of the country's gross national income (GNI). However, following the sharp economic downturn, the ODA budget was cut to EUR 696 million in 2009, which is projected to amount to 0.48% of GDP (Irish Aid, 2009). Ireland remains committed to reaching the UN target of 0.7% of GNI by 2012, ahead of the EU target date of 2015, and to expanding the aid programme when economic growth resumes. Achieving the target will be difficult. Nevertheless, Ireland remains closer to achieving the 2015 target than all but a few EU member states, and ODA is higher than the OECD-DAC average, both per capita and as a share of GNI (Figure 8.4).

In 2009, a DAC review concluded that "Ireland is a champion of making aid more effective ... [and has] a strong, cutting-edge development programme" (OECD, 2009). ODA is provided entirely in the form of grants, is fully untied and involves some of the lowest administrative costs of any DAC member. The government's first white paper on Irish Aid, published in 2006, identified the environment as a priority

Figure 8.4 Official development assistance, 2008^a

a) Provisional data.

b) Gross national income in USD at current exchange rates.

c) Poland is not a member of the OECD Development Assistance Committee.

d) Member countries of the OECD Development Assistance Committee.

Source: OECD-DAC.

issue to be mainstreamed in Ireland's development co-operation, along with gender equality, HIV and AIDS, and good governance. Ireland is one of the donors most committed to mainstreaming these four cross-sectoral issues into development co-operation and is generating experience that is useful for other donors (OECD, 2009). A strategic decision was made to stagger implementation of cross-sectoral mainstreaming priorities in order to enhance aid effectiveness. Ireland is on its way to mainstreaming environment across its development co-operation programme, as was done earlier for the other three issues.

The Irish Aid *Environment Policy for Sustainable Development*, released in 2007, provides a policy framework on the environment, which applies both to mainstreaming and to environment as a sector. The policy defines four key objectives: *i*) raise awareness of the links between environmental sustainability and poverty reduction; *ii*) integrate the principles of sustainable development into Irish Aid's policies and programmes; *iii*) continue to engage with key multilateral environmental agreements and agencies; and *iv*) assist developing countries to prepare for and adapt to changing environmental conditions while taking action to reduce negative impacts on the most vulnerable members of society. Ireland is committed to promoting the use

of strategic environmental assessment in partner countries to promote the integration of environmental issues in development plans and strategies, as agreed in the Paris Declaration on Aid Effectiveness.⁵⁹

In view of the emphasis on mainstreaming, Irish Aid's direct *contributions to environment activities are limited*, although they grew over the review period. As part of bilateral aid (70% of Irish ODA), direct environmental contributions amounted to EUR 3 million in 2007.⁶⁰ Higher amounts (*e.g.* EUR 62 million in 2007) have been devoted in recent years to activities contributing to climate change adaptation, as part of the mainstreaming approach. In 2007, Irish Aid assigned a person to work full time on environment and sustainable development issues.

Irish Aid and the DoEHLG have co-operated to assure coherent input by the Irish Government to negotiations under the UN Framework Convention on Climate Change. At the Conference of the Parties to the Climate Change Convention in Poznan, Poland (1-12 December 2008), Irish Aid led the EU in the discussion on the least developed countries fund, which aims to support developing countries in adaptation to the impacts of climate change. Both Irish Aid and the DoEHLG contribute to the fund. Through engagement with developing country partners, Irish Aid's support was instrumental in improving the funding delivery and getting agreement on timelines and feedback mechanisms.

Ireland also provides modest contributions to the activities conducted under other *multilateral environmental agreements*, including through the United Nations Environment Programme and the Global Environment Fund. This form of assistance amounted to EUR 6 million in 2007. Irish Aid committed USD 5.4 million over 2006-08 to the UN Poverty and Environment Initiative (PEI) in Rwanda and Mozambique.⁶¹ In the area of biodiversity, Irish Aid has committed EUR 3 million to date to the Global Crop Diversity Trust, which works to assure long-term conservation of crop diversity for food security worldwide. Irish Aid also provides funding (EUR 4.4 million in 2008) to the Consultative Group on International Agricultural Research (CGIAR), a group of agencies carrying out research on issues such as water resource management, agro-forestry and drought-resistant crops. In addition, EUR 1 million per year is allocated to the 2006-08 programme of strategic partnerships.⁶²

Notes

1. Administered by the EPA, the programme seeks to coordinate and fund climate research in Ireland.
2. Ireland's energy intensity (energy supply per unit of GDP) has decreased significantly since 1990 and is now much lower than the OECD Europe average (Chapter 5).
3. "Energy" refers to electricity generation and oil refining; "transport" to road, rail, navigation and domestic aviation; and "industry" to combustion emissions from industrial and commercial activities, and industrial process emissions.
4. Non-ETS sector emissions come from transport, households, services, smaller industrial installations, agriculture and waste.
5. The strategy builds on Ireland's original 2000 climate change strategy.
6. The project-based mechanisms are Joint Implementation (in other developed countries) and the Clean Development Mechanism (in developing countries).
7. The amount allocated is based on an estimated price of EUR 15 per tonne, which is close to the recent ETS price (www.co2prices.eu, accessed on 15 March 2009). The National Treasury Management Agency has to date purchased some 5.25 Mt credits at a cost of EUR 73.7 million. In addition, investments made in 2006 and 2007 in carbon funds operated by the European Bank for Reconstruction and Development and the World Bank are expected to yield some 3 Mt credits at a projected cost of EUR 27.6 million during the five-year Kyoto Protocol commitment period 2008-12.
8. Under the directive, Ireland is required to ensure that, by 2010, 13.2% of gross national electricity consumption is from renewable sources.
9. Both EPA scenarios ("with measures" and "with additional measures") are based on energy forecasts published in December 2008 by Sustainable Energy Ireland, an advisory body to the government. Agricultural emission projections are based on November 2008 data from the Agriculture and Food Development Authority, the national body providing advisory services to agriculture and the food industry.
10. The government purchasing requirement or need for additional domestic action is presented as a range to account for uncertainty over the impact of the economic downturn.
11. GHG emissions in 2008-12 are projected to be below 22.3 MtCO₂eq, the annual ETS allocation set out in the 2008-12 National Allocation Plan.
12. From 2013, when a single EU-wide ETS cap will be operating, any such measures would have no impact on total emissions, as long as the ETS "cap" remained unchanged.
13. Transport 21 promotes better planning of transport infrastructure development, including for public transport. It covers 2006-15 with a total budget of EUR 34 billion (Chapter 2).
14. Ethanol from sugar beet costs EUR 400-500 per tonne of carbon abated (compared with the recent ETS price of EUR 15 per tonne) (ITF, 2008).
15. Energy crops are eligible for a EUR 80 national top-up on the EUR 45 per hectare premium introduced by the 2003 Common Agricultural Policy.

16. EUR 200 million in biofuel excise tax concessions have been granted over 2007-11, as the EU energy tax directive (2003/96/EC) allows.
17. Since 15 October 2008, the excise rate for unleaded petrol has been EUR 516.79 per 1 000 litres, compared with EUR 368.05 for diesel. VAT registered companies can reclaim the VAT on diesel purchased for business use, while VAT on petrol cannot be regarded as a deductible business expense.
18. A first step would be to remove energy tax concessions, such as the excise duty exemption on domestic coal use (Chapter 6).
19. Additional emission reductions are expected from increased use of biofuel and more efficient driving, to reach a limit of 120 g/km.
20. The remaining 8% is attributed to reduced fuel combustion.
21. The European Commission has agreed on a 5% increase in the Irish milk quota between 2009 and the quota removal in 2015.
22. REPS, initiated in 1994 to implement EU agri-environmental payments, also aims to stimulate adoption of renewable energy technology at community level, which would directly contribute to achieving the renewable energy target.
23. Methane from livestock and nitrous oxide from fertiliser and manure applied on soil are the main sources of farm GHGs in Ireland.
24. Organic farming in Ireland represents less than 1% of the Utilised Agricultural Area (UAA), well below the EU level. The government's target is for 3% of the UAA to be either fully organic or in conversion by 2010.
25. For example, to achieve a 30% reduction in agricultural GHG emissions between 2005 and 2020, cattle numbers would have to fall to 4.5 million head.
26. The latter would also increase carbon sequestration.
27. The cement industry already incinerates some meat and bone meal with coal.
28. Over the last five years, the annual afforestation level has fallen well below the national target of 20 000 hectares set out in Ireland's 1996 strategic plan for forestry sector development, and now averages 8 000 hectares.
29. This includes 2007-13 targets of 4 800 kilometres of new hedgerows and rejuvenation of 3 200 kilometres.
30. The share of credits deriving from project-based Kyoto flexibility mechanisms that can be used within the ETS is 10% of the 2008-12 cap. The government can also buy credits to cover up to 50% of the needed reduction from the base year to the target, under the protocol's supplementarity principle. From 2012, ETS operators will be allowed to use credits provided to them by their governments for 2008-12 that they have not already used.
31. A study commissioned in 2008 is to inform the structure of the plan.
32. Specialised surveillance aircraft (*e.g.* for night-time identification) can be contracted at short notice from the United Kingdom.
33. In addition, it has the authority to contract for additional equipment from commercial companies, as required.
34. Defined as any substance other than oil which, if introduced into the marine environment, is likely to create hazards to human health, harm living resources and marine life, damage amenities or interfere with other legitimate uses of the sea.

35. In full, the 1992 protocols to the conventions on Civil Liability for Oil Pollution Damage and on the Establishment of an International Fund for Compensation for Oil Pollution Damage.
36. Via the 2003 protocol to FUND on Establishment of a Supplementary Fund for Oil Pollution Damage.
37. Bunker oil is the oil used for any ship's operation or propulsion. Other regimes cover only spills from oil tankers.
38. Cold-water corals feed on suspended organic matter and zooplankton, unlike their shallow-water tropical counterparts, whose food is generated indirectly by sunlight.
39. Operation of foreign vessels in Irish waters (whether under EU or non-EU flags) is governed at EU level by the Common Fisheries Policy, but controlled and monitored by Irish authorities. Ireland made the fast-tracking of environment-friendly fishing methods a central theme of its EU presidency in the first half of 2004.
40. There are 14 RFMOs. Some focus on certain species (*e.g.* bluefin tuna), others on living marine resources within a region (*e.g.* the Antarctic). Ireland participates in two RFMOs, having ratified the UN Fish Stocks Agreement and signed the FAO Code of Conduct for Responsible Fisheries.
41. Council Regulation (EC) No. 734/2008.
42. EU fishing of deep-water species has been subject to permits and monthly catch limits since 2003. The permit for bottom gears is much more restrictive: the applicant must provide a detailed fishing plan and the government must assess the potential impact of the proposed activities.
43. Most major fishing countries restrict bottom trawling within their jurisdictions.
44. The Irish list of marine SACs is still under discussion with the Commission (Chapter 5).
45. The EU regulation was given effect in Ireland in 2006 by the Control of Substances that Deplete the Ozone Layer Regulations, which designate the EPA as competent authority.
46. Such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons and methyl bromide.
47. CN codes assigned to cover all HFCs (*e.g.* 2903 39 90) will be separate from CN codes assigned to each individual type of ODS (*e.g.* 2903 42 00 for CFC 12 and 2903 49 11 for HCFC 22). Codes will also be profiled for imports of large consignments of refrigeration or air-conditioning parts (*e.g.* codes beginning with 8415 or 8418). Customs will collect statistics on imports of goods under specific CN codes. If such goods are declared for clearance, a message on an automated entry procedure system will alert the customs officer to contact the EPA for further investigation. With experience, the approach may be fine-tuned to increase efficiency and effectiveness of inspections. Under Irish law, a person found guilty of an offence is liable to a fine of up to EUR 3 000 or imprisonment of up to one year, or both.
48. Twenty OECD countries operate commercial ODS destruction facilities.
49. Half of exports are for final disposal (mainly to Germany) and half for recovery (primarily to the United Kingdom).
50. Waste collected from households other than through separate collection, and residue arising from household waste incineration.
51. Three of Ireland's seven river basin districts are shared with Northern Ireland.
52. The framework builds on Northern Ireland's Regional Development Strategy and Ireland's National Spatial Strategy 2002-20.

53. Sellafield, a former nuclear power facility that now stores and reprocesses spent nuclear fuel, is located in Cumbria, north-western England, on the Irish Sea. Since its inception in 1947, a series of incidents had occurred (including the 1983 “beach incident” and a leak from a reprocessing plant in 2005), leading authorities to initiate decommissioning in 2005. Reprocessing is expected to end by 2020. The complete dismantling of the nuclear facilities will take more than 50 years.
54. Mixed oxide fuel, or MOX, is made of plutonium and uranium separated from nuclear waste by reprocessing.
55. Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the European Union. The OSPAR maritime area includes all the seas surrounding Ireland (Region III of the North East Atlantic, also referred to as the “Celtic seas”).
56. Reprocessing of spent nuclear fuel is the dominant source of these discharges.
57. Another example is the significant decline in caesium-137, the dominant radionuclide in the Irish Sea, over the past two decades as a result of reductions in discharges from Sellafield.
58. Chaired by the DoEHLG, it includes representatives of the departments of Health and Children; Communications, Energy and Natural Resources; Education and Science; as well as the Marine Institute and the EPA.
59. In the 2005 Paris Declaration on Aid Effectiveness, over 100 ministers, heads of agencies and other senior officials committed their countries and organisations to continuing to increase efforts in harmonisation, alignment and managing aid, with a set of monitorable actions and indicators.
60. Irish bilateral assistance focuses on eastern and southern Africa (Ethiopia, Lesotho, Mozambique, Tanzania, Uganda and Zambia) and south-east Asia (Timor Leste and Vietnam).
61. The initiative, implemented by the UN Development Programme and the UN Environment Programme, operates in nine African countries.
62. The programme provides support to partners working in the area of environment and development, such as the International Institute for Environment and Development, the World Resources Institute, the International Union for Conservation of Nature and the United Nations Institute for Training and Research.

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