

Chapter 1: Introduction





Introduction

1. Introduction

This report by the Environmental Protection Agency (EPA), *Ireland's State of the Environment Report 2024*, presents current information on the quality of Ireland's environment.

Our previous 4-year assessment in the series, published in 2020, found that the outlook for Ireland's environment was not good. We urged the need for a decade of action and transformation, particularly in the context of escalating climate and biodiversity emergencies. We argued that sustained and focused action would be needed to achieve sustainability not only across sectors such as agriculture, energy, transport and industry but also across the whole of society. The assessment also highlighted the greater awareness of the positive benefits of a clean environment for both health and wellbeing (EPA, 2020).

From an environment and climate viewpoint, a similar conclusion was put forward by the European Environment Agency in its 4-year assessment, *The European Environment – State and Outlook 2020*, which stated that Europe and the world face urgent, unprecedented sustainability challenges that require systemic solutions (EEA, 2019). This report painted a bleak picture of the EU's prospects of meeting its policy objectives.

The seven hottest days since records began in the 1850s were recorded in July 2023. The global average temperature over the past 12 months (July 2023 to June 2024) is the highest on record, at 0.76°C above the 1991-2020 average and 1.64°C above the 1850-1900 pre-industrial average (Copernicus Climate Change Service, 2024). In line with global trends, Ireland's annual average temperature has increased by approximately 1°C over the last 100 years, with 16 of the 20 warmest years occurring since 1990, and 2023 being the hottest year on record (Thorne *et al.*, 2023).

About 1 million species are at direct risk of extinction, prompting experts to argue that the Earth is already experiencing a sixth 'mass extinction event' (IPBES, 2019). There are an estimated 350,000 different types of manufactured chemicals on the global market (Wang *et al.*, 2020). Pollution levels from chemicals and new entities¹ alone exceed our ability to monitor their extent and impact on the planet (Persson *et al.*, 2022). These are

all evidence of the triple planetary crisis – climate change, biodiversity loss and pollution – and a stark reminder of the environmental challenges facing humanity (UNEP 2020, 2022).

Environmental risks – as identified by 1500 global leaders across academia, business, government, international community and civil society – continue to dominate the risks landscape (WEF, 2024). The World Economic Forum reports that extreme weather events, critical changes in Earth systems, biodiversity loss and ecosystem collapse, and natural resource shortages are the top four threats facing humanity in the coming decade (WEF, 2024).

2. Wider context of protecting Ireland's environment

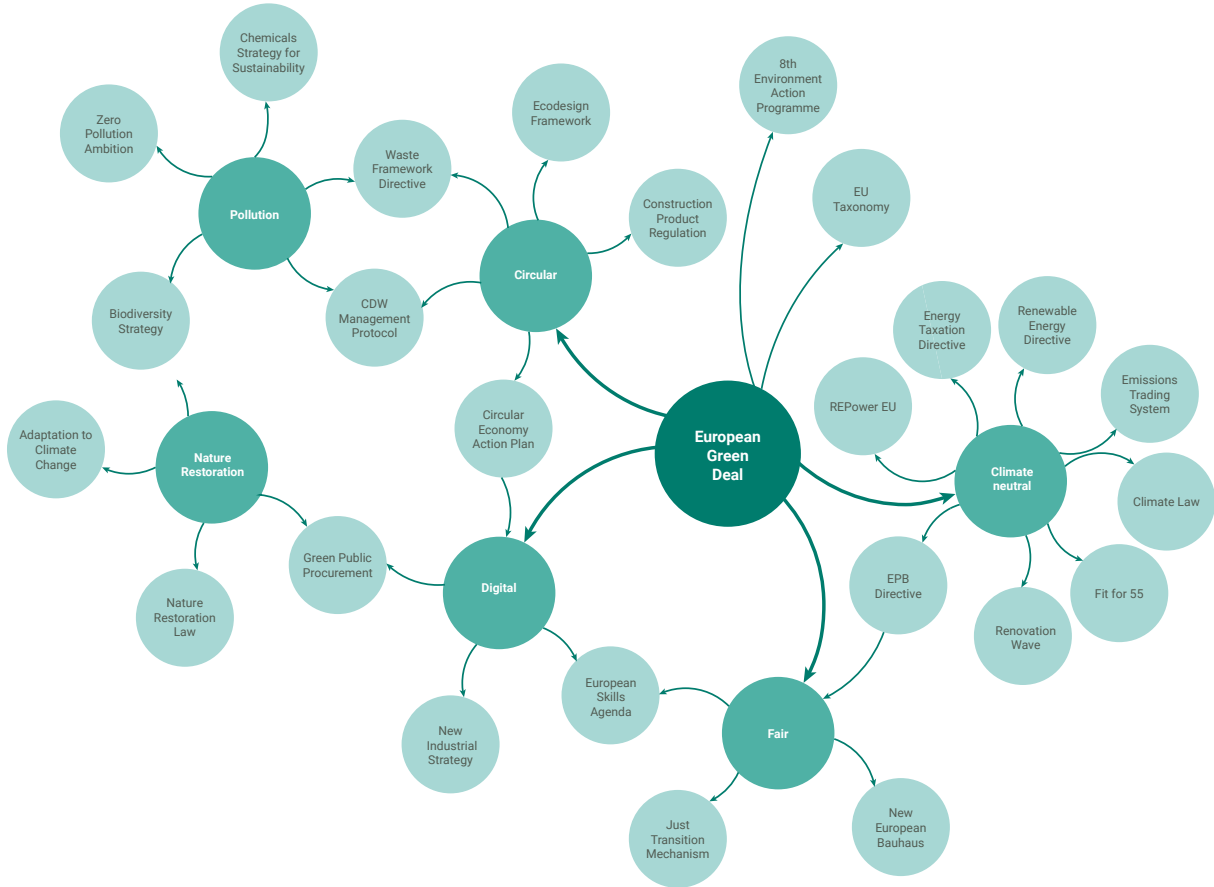
A broad range of EU directives and regulations provide a framework for the management of our environment. These legal instruments and their implications for Ireland are outlined in more detail in each of the relevant thematic chapters in this report.

The EU has set out clear ambitions for decarbonisation, with a target to reduce greenhouse gas emissions by at least 55% by 2030, supported by the comprehensive Fit for 55 legislation package, and the long-term objective of becoming the first climate-neutral continent by 2050, as set out in the European Green Deal policy initiatives and anchored in European Climate Law (EC, 2019). Associated with the EU Green Deal there has been extensive legislation strengthening traditional EU climate, energy and environmental policy instruments with brand new policy instruments. The latter include the Just Transition Fund, a new, separate Emissions Trading System (ETS 2) covering buildings and road transport, the Social Climate Fund, and the world's first Carbon Border Adjustment Mechanism (Figure 1.1).

1 synthetic chemicals including plastics



Figure 1.1 European Green Deal and associated policy initiatives



CDW, construction and demolition waste; EPB Directive, Energy Performance of Buildings Directive

Source: Compiled from data from EEA and ETC Circular Economy and Resource Use

Topic Box 1.1 Eighth Environment Action Programme

The long-term priority objective is that, by 2050 at the latest, Europeans live well, within the planetary boundaries and in a 'wellbeing economy' where nothing is wasted. Growth will be regenerative, climate neutrality will be a reality and inequalities will have been significantly reduced.

There are six priority objectives to 2030

- achieving the 2030 greenhouse gas emission reduction target and climate neutrality by 2050
- enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change
- advancing towards a regenerative growth model, decoupling economic growth from resource use and environmental degradation, and accelerating the transition to a circular economy
- pursuing a zero pollution ambition, including for air, water and soil, and protecting the health and wellbeing of Europeans
- protecting, preserving and restoring biodiversity and enhancing natural capital
- reducing environmental and climate pressures related to production and consumption (particularly in the areas of energy, industry, buildings and infrastructure, mobility, tourism, international trade and the food system).



The Eighth Environment Action Programme (8th EAP) is the EU's joint programme for implementing the European Green Deal on the ground until 2030, guided by a long-term vision to 2050 of achieving wellbeing for all while staying within the planetary boundaries (Topic Box 1.1). A significant difference between the 8th EAP and its predecessors is its emphasis on the systemic character of sustainability challenges and the resulting need for similarly systemic solutions. The European Commission recently published its mid-term review of overall progress on the 8th EAP (EC, 2024a). The report noted that the EU's 2030 climate and environment targets are within reach if the actions planned are fully implemented. This is further discussed in Chapter 16 of this report.

This report is being finalised against a backdrop of recent European elections and some delay in implementing elements of the European Green Deal, in particular the Nature Restoration Law (Regulation 2024/1991), which has only recently come into force. Crises in political, economic and social spheres, including the wars in Ukraine and the Middle East, add to the complexity of maintaining political momentum on the green agenda, and ensuring that existing targets and instruments are implemented.

Adopted by the European Council in 2024, the Strategic Agenda 2024-2029² sets the EU's priorities for the next 5 years in line with Europe's ambition to become the first climate-neutral continent, focusing on green and digital industries and technologies. Agreed priorities include more support for scaling up Europe's manufacturing capacity for net zero technologies and products, while further simplifying rules on planning, tendering and permitting. There is a continued commitment in the Strategic Agenda 2024-2029 to protect nature, reverse the degradation of ecosystems and improve water quality.

Closer to home the third cycle of Ireland's River Basin Management Plan (known as the Water Action Plan) has just been published and the first revision of the National Planning Framework is at consultation stage. A central message of the 2020 State of the Environment Report was a call for a national policy position on the environment. Delivering this policy position remains critical to addressing complex and interrelated challenges on climate, biodiversity and pollution and prevent damaging lock-ins.

3. A different Ireland

Ireland has changed radically over the past 50 years since joining the EU (Figure 1.2).

Our population which now stands at 5.3 million people has grown by over 2.3 million over the past 50 years and is projected to grow to over 6.5 million and 7 million by 2057 in medium- and high-growth scenarios, respectively (CSO, 2024). Population growth and increased urbanisation impact the environment in a variety of ways, including changes in land use, increased traffic flows and the need for more infrastructure such as housing, water supply and sewerage.

Life expectancy has greatly increased, and almost all private dwellings now have a piped water supply. The number of people in employment has increased by 1.5 million. Since joining the EU, our economy has moved from one based on agriculture to one in which pharmaceuticals and chemicals and related products account for the majority of our total net sales (Chapter 13).

Car ownership has changed dramatically, and there are now almost 2.5 million more cars on the road than 50 years ago. This high car dependency has a very significant impact in terms of both greenhouse gas and air pollutant emissions.

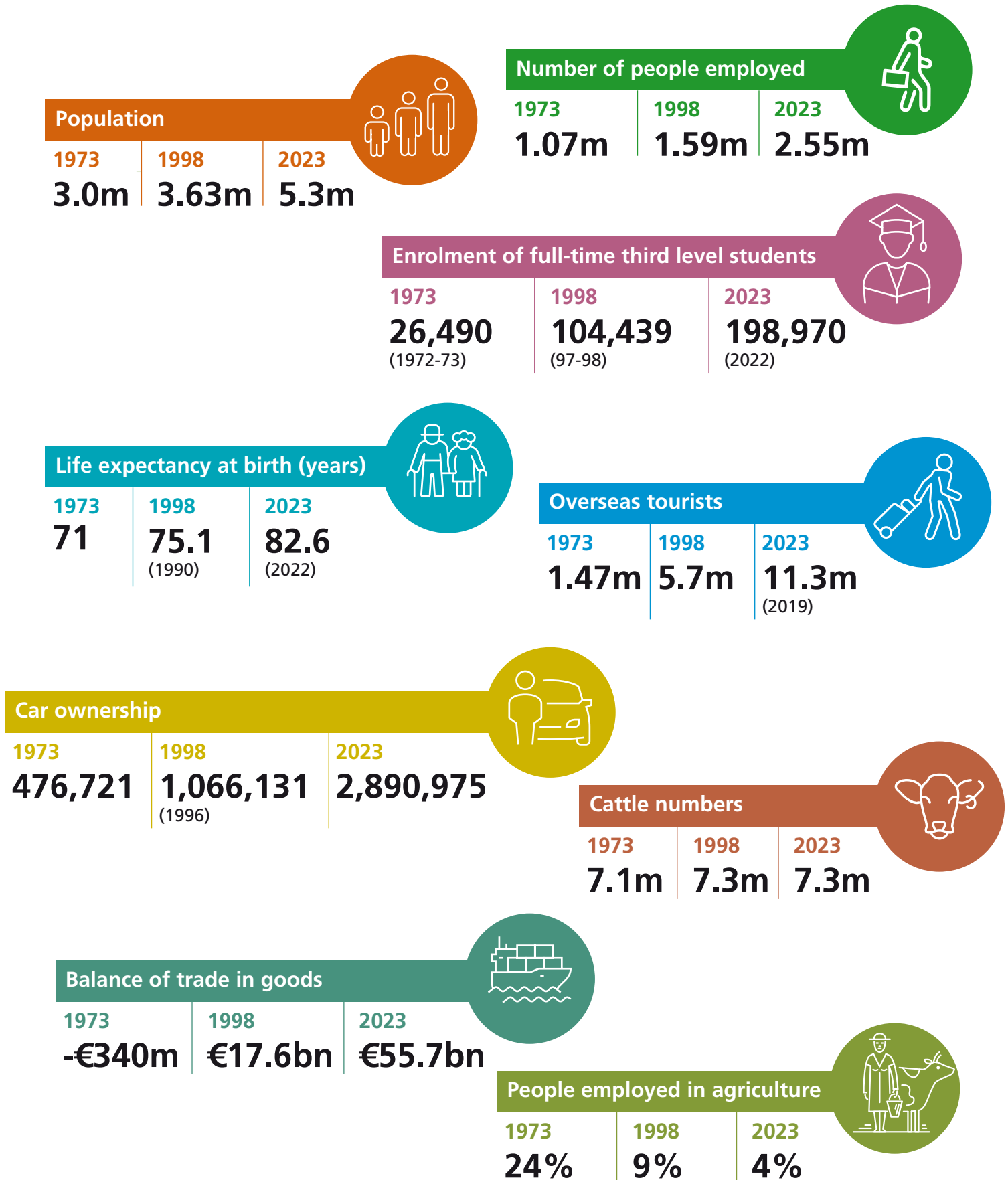
The tourism sector is very important for the Irish economy. However, a significant increase in tourist numbers has put pressure on the water, waste and road infrastructure in many popular tourist destinations.

Eurostat's most recent progress report on the Sustainable Development Goals (SDGs) (Eurostat, 2024) shows that Ireland is performing well on the SDGs associated with macroeconomic stability and fairness, but, concerningly, is performing poorly on a number of SDGs related to environmental sustainability. It is clear that, over the past 50 years, Ireland has become a modern and prosperous country and the gross pollution of our urban air environment and rivers has greatly reduced (Figure 1.2).

2 www.consilium.europa.eu/media/4aldqfl2/2024_557_new-strategic-agenda.pdf (accessed 15 July 2024).



Figure 1.2 Changes in socio-economic and environmental indicators in Ireland over a 50-year period^a





High quality river sites



1973	1998	2023
31.6% (1987)	25.7%	17.7%

Chemical and related products exports



1973	1998	2023
€74.5m	€8.54bn	€126bn

Private dwellings with piped water supply



1973	1998	2023
78.8% (1971)	98.6% (1991)	99.9% (2021)

Seriously polluted rivers



1973	1998	2023
7% (1971)	0.6%	0.1%

Lead emissions (t)



1973	1998	2023
700	85.1	7.1 (2022)

SOx emissions (kt)



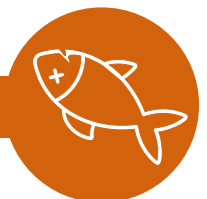
1973	1998	2023
190	179	9.5

SO₂ in Dublin city (µg/m³)



1973	1998	2023
83	14 (1999)	1.6

Fish kills (3 year moving average)^b



1973	1998	2023
23	61	28 (2021)

^a The information provided under the various years relates to the closest year in parenthesis where data is available.

^b The peak in fish kills reported in the 1980s coincided with an intensification of agriculture in Ireland (Matson and Kelly, 2024).

Sources: Numbers compiled from AFF, 1985; CSO, 2023; EPA, 2016; and various EPA data and publications



Figure 1.3 Restored landfill near Cork City



Focusing on changes in environmental indicators over the past 25 years or so in areas where there are more reliable environmental data yields interesting results (Table 1.1). There has been a large decrease in the number of discharges of untreated sewage in the past 20 years. Investment in waste water treatment infrastructure continues to bring improvements for our environment via fewer untreated waste water discharges, but it is concerning that Ireland has still not met all its obligations under the Urban Waste Water Treatment Directive (Council Directive 91/271/EEC), and raw sewage continues to be discharged to our waters.

Our air quality has improved significantly. Following on from bans on smoky coal and leaded petrol in the 1980s more stringent industrial regulation has seen air pollutants from combustion sources significantly reduced (primarily due to fuel switching in power generation and other industrial sectors).

In terms of waste management our dependence on landfill has been significantly reduced to three operational landfills at present, down from 35 in 2002 and 125 in 1996. Many of these historical waste disposal sites have been restored and transformed into amenity areas for the local community (Figure 1.3). Municipal waste generation has increased in the past 20 years, and an additional 2 million tonnes of municipal waste is recovered (Table 1.1).

Bathing water quality has remained of very high quality. However, over the past two decades, Ireland has consistently reported one of the highest incidences of serious gastrointestinal illness caused by a strain of *E. coli* (STEC/VTEC), which is of particular concern because of the high proportion of rural dwellers who rely on private wells.

We have established a prosperous nation and economy; however, this success has been heavily dependent on our environmental resources, particularly in sectors such as tourism, agriculture and industry. Consequently, we have depleted these finite resources to some extent. The combination of a growing economy and an increasing population will continue to exert pressure on the environment. In light of these circumstances, it is imperative that we make substantial investments in key infrastructure to prioritise environmental protection as a cornerstone of our future development.



Table 1.1 Changes in environmental indicators in Ireland over the past 25 years

PARAMETER	1998	2023
Greenhouse gas emissions (Mt)	65.5	55.0
Sulphur dioxide emissions (kt)	179	9.5
Discharges of untreated sewage (no.)	95 (1996)	16
Operational landfills (no.)	125 (1996)	3
Municipal waste generated (Mt)	3.0	3.2
Municipal waste recovered (Mt)	0.7	2.6 (2021)
Air quality exceedances (days) ^a	59	0
Bathing water compliance (%)	98.5%	97%
VTEC (incidence per 100,000 population)	1.4 (1999)	19.2 (2022)

^a Days when particulate matter levels exceeded $50 \mu\text{g}/\text{m}^3$ at one monitoring station in Dublin city centre. No exceedances recorded anywhere nationwide in 2023.

Source: VTEC incidence compiled from NDSC (1999) and HPSC (2024). All other data compiled from various EPA data and publications



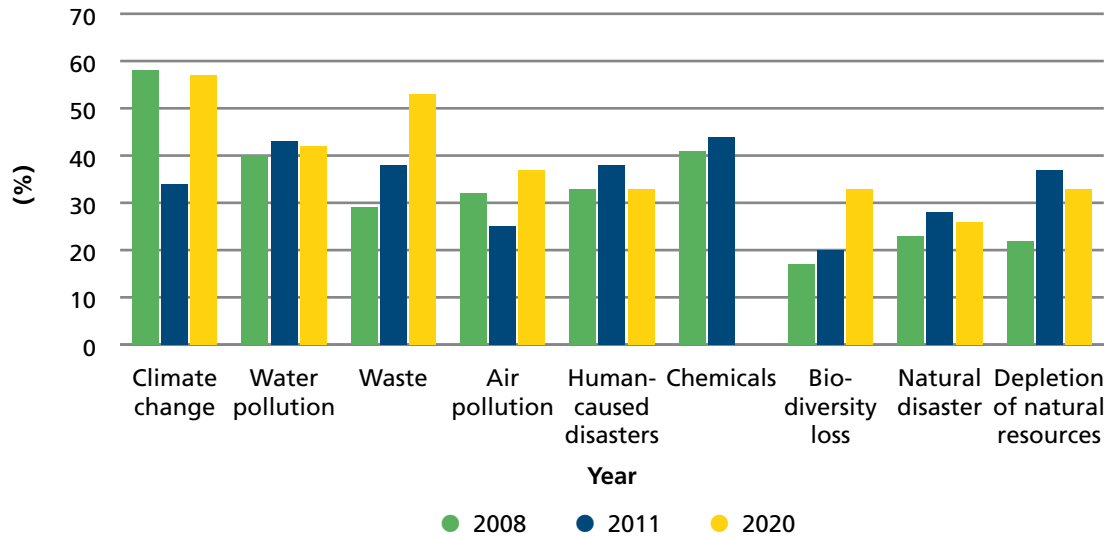
4. Public perceptions and the environment

Protecting our environment and becoming a more climate-neutral and climate-resilient society may often require policies and measures that place unwelcome demands on the public. Therefore, the better informed the public is on environmental matters and issues, the more likely it is that these policies and measures will be supported.

The environmental issues of most concern to Irish citizens in three Europe-wide surveys carried out over the past 16 years include climate change, water pollution and waste, followed by disasters caused by human activities and air pollution (Figure 1.3). Biodiversity loss (species decline) became more of a concern in the 2020 survey.



Figure 1.3 Environmental issues of most concern to Irish citizens



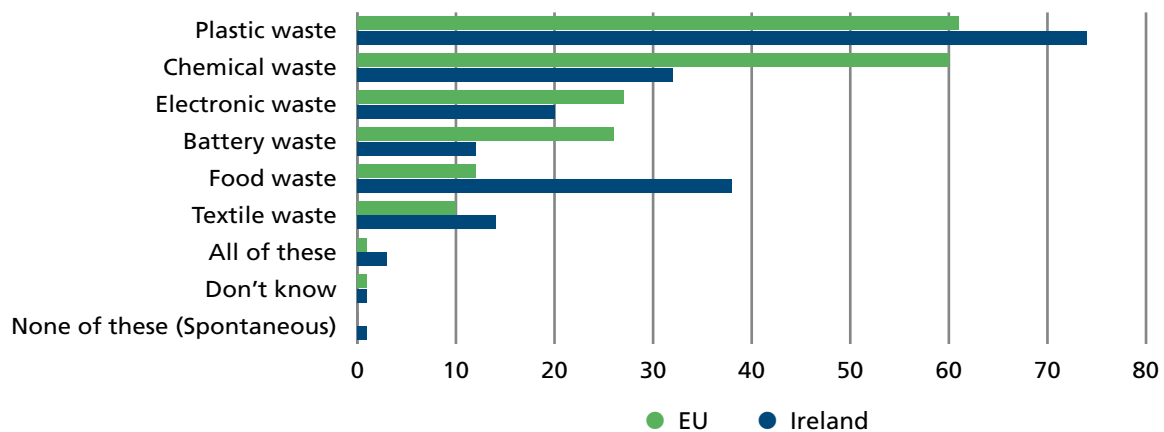
Sources: Compiled from EC,2008; EC 2011; EC 2020

About three-quarters of Irish (74%) and European (78%) citizens agree that environmental issues have a direct effect on their daily lives and their health (EC, 2024b). It is notable that, in several Eurobarometer surveys over the past decade, Irish people have consistently positively recognised the value of EU environmental legislation (values range from 80% to 88%) (EC, 2014, 2017, 2020, 2024b).

An interesting finding in the most recent Eurobarometer survey was much greater concern about plastic waste and food waste reported by Irish people than by other Europeans (Figure 1.4) (EC, 2024b).

The EPA’s Climate Change in the Irish Mind³ project shows that people in Ireland are positive about climate action (O’Mahony *et al.*, 2024). The findings indicate that 89% of people report that climate change is important to them personally and 79% say that climate change should be either a ‘very high’ or ‘high’ priority for government, with high overall support for a range of climate action policies. Moreover, Irish people think that climate action will increase economic growth and create jobs (56%) and that actions to reduce climate change will improve quality of life in Ireland (74%) (O’Mahony *et al.*, 2024).

Figure 1.4 Waste types considered most problematic in 2024 Eurobarometer survey (% of responses)



Source: EC, 2024b

3 See also Chapter 4 of this report.



5. Content of the report

This is the eighth State of the Environment Report published by the EPA since the first report in 1996, 28 years ago.

The report provides thematic assessments in Part 1, focusing on key trends in and challenges and actions for air, climate change, noise, water, marine, nature, land use and soil. Part 2 provides detailed integrated assessments of key economic sectors: transport, energy, agriculture, industry and the circular economy and the interactions between human health and the environment. Finally, Part 3 provides an in-depth assessment of how Ireland is performing in the area of environmental policy implementation. The report also provides mid-term commentary on the many plans and programmes in place that have 2030 in their sights (e.g. Climate Action Plan, SDGs).

Most of the key environmental issues that concern us have developed over lengthy time frames and are unlikely to be remedied in the short term. Our understanding of Ireland's environment is constantly changing as a result of evidence from ongoing monitoring programmes and supplementary novel research efforts. In this complex context, we will continue

to be guided by science that helps us understand the pressures on the environment and can provide the foundation for evidence-based decision-making. There are many examples throughout the report describing how we now have substantially developed national capability for monitoring air, radiation, waste water and the impacts of pollutants on ecosystems which are vital to characterise and describe the state of the environment.

Recognition of the importance of research and innovation (R&I) in informing and underpinning the green transition was prominent in the first R&I Strategy published by the Department of the Environment, Climate and Communications (DECC, 2024). An important key action of the strategy is a commitment to support the EPA, Inland Fisheries Ireland and the Sustainable Energy Authority of Ireland in performing their R&I functions and delivering policy-relevant research evidence. The continued strong investment in environmental research is crucial, as today's environmental research will become tomorrow's environmental protection (EPA, 2021).

Examples of national research are included throughout this report that highlight the valuable role research plays in environmental protection and in moving towards a sustainable future for Ireland.



Key chapter messages

1.

A national policy position for Ireland's environment is critical to addressing complex and interrelated challenges on climate, biodiversity and pollution and prevent damaging lock-ins.

2.

Our growing economy and population are increasing the pressure on our environment. We need to invest in our infrastructure to prevent this growth impacting on our natural environment.





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