

Chapter 16

Conclusions





Conclusions

1. Introduction

Four years from now, we envisage that the next state of the environment report will provide evidence of solutions to the environmental challenges outlined in this report being implemented, and at an accelerating pace. We hope to be reporting on improved compliance rates with environmental targets and presenting case studies about projects that are making a difference to the local environment and communities across the country. Solutions already exist in many cases; based on solid research they are articulated in national plans relating to climate, biodiversity, water and a circular waste economy, for example. If fully implemented, these plans will improve Ireland's environment. The focus in the short term now needs to be on accelerating the implementation of these plans.

Our report attests to a greater awareness of the problems and the challenges we face as well as a greater awareness about the positive benefits of a clean environment for health and wellbeing. Notwithstanding the difficulties people face during the on-going COVID-19 crisis that began in March 2020, we live in a time when there is societal momentum for change. The crisis has led many of us to redefine what we truly value and has shown us the importance of the natural environment in our local areas. Ireland's green and blue spaces are essential components of Ireland's health infrastructure and include urban parks, coasts, lakes and rivers, forests and bogs. Clean and protected green and blue spaces allow people to get out in nature and away from the everyday stresses to the benefit of health and wellbeing.¹

The environmental challenges that Ireland faces are giving rise to complex and systemic issues. These cut across different key environmental topics, such as water, air, soil, waste and biodiversity, and across organisations and sectors, business and all levels of society. They are taxing economically, technically, sociologically and administratively. Reducing greenhouse gas (GHG) emissions, adapting to climate change and protecting biodiversity are the main challenges. But there are other issues that require urgent attention, including managing the health risks from pollutants, chemicals and pathogens in the environment. Then there is the challenge around our consumption of resources and failing to maximise the value of the resources we have extracted. Integrated solutions will be needed to address these challenges,

bringing with them change, and associated losses and gains to sectoral interests. Many of the actions needed are linked; for example, there are synergies between biodiversity protection, land use and Ireland's transition to a climate-neutral, climate-resilient society.

Unspoilt areas are being squeezed out and we are losing our pristine waters and the habitats that provide vital spaces for biodiversity. New measures are needed to deal with many of these challenges, but, as this assessment shows, full implementation of, and compliance with, existing directives, legislation and plans could make a significant difference as well.

Ireland needs an overall integrated national policy position on the environment, or it risks existing environmental protection measures failing or competing with each other. This policy position could set out the ambition for protecting Ireland's environment in the short, medium and long term. It could also set out how the legacy of a protected environment for future generations to enjoy could be achieved, as well as emphasise the importance of a clean, safe and protected environment for health and wellbeing. It should be a national policy position that all government departments, agencies, businesses, communities and individuals can sign up to in order to play their part in protecting our environment.

This chapter will discuss an environmental scorecard for Ireland (section 2), Ireland's environment in a European context (section 3) and overall key SOE messages for Ireland (section 4). It concludes with a final section on the highlights from the individual chapters of this report (section 5).



¹ Using green and blue spaces will benefit both your physical and mental health <http://www.epa.ie/newsandevents/news/name,69592,en.html>



Existing Measures Have Been Only Partially Successful in Addressing Environmental Issues

The Environmental Protection Agency (EPA) 2016 state of the environment report outlined that Ireland was at a crossroads in terms of how it addressed the global environmental challenge of climate change (EPA, 2016). Four years on, projections show that Ireland will not meet its 2020 targets for reducing GHG emissions by domestic actions alone. The purchase of reductions is likely to be required to ensure compliance with EU requirements. The latest GHG data compiled by the EPA for 2019 show that Ireland exceeded its annual emissions allocation for 2019 under the EU's Effort Sharing Decision by almost 7 million tonnes, and is therefore not on the pathway required to meet its 2020 targets (EPA, 2020a). This follows an exceedance of 5 million tonnes in 2018. EPA projections on GHG emissions for reductions this decade out to 2030 indicate that it will be a serious challenge to meet these targets too; however, it could potentially be achieved if decisive action is taken now to implement the commitments and measures in the Climate Action Plan (EPA, 2020b; DCCAE, 2019).

Water quality in Irish rivers has further declined over the past 4 years. Biodiversity continues to be at risk due to habitat loss and damage. Too few of Ireland's sea areas have been designated as marine protected areas. Local authorities still receive tens of thousands of complaints each year about waste and litter issues.

We need a common understanding about what the circular economy means for how we consume and use raw materials and how we can maximise the value of materials and products during their lifespan and extract the maximum value of resources within waste. A large share of packaging waste is not currently recyclable in Ireland, and packaging recycling rates have been gradually declining since 2012. Sectoral plans for transport, energy and agriculture will need to demonstrate that they remain focused on achieving their environmental commitments through good-quality environmental data and evidence. These are all major systemic issues requiring immediate and relentless action. The Strategic Environmental Assessment process provides a mechanism for the environmental effects of sectoral plans to be assessed and monitored. What is lacking is an obligation to report on this monitoring. Better and more integrated implementation of existing legislation, plans and policies is needed to reverse the negative environmental trends outlined in this report, but new measures are also needed to change how the environment is viewed and protected.

Where there are Clear Policies, Commitment and Resources, there have been Positive Results for Environmental Protection

There are positive areas to highlight as well. Since the first of the series of Ireland's state of the environment reports was published in 1996, many examples of environmental improvement have been recorded. These include successes in the areas of industrial regulation and emissions, waste management and wastewater discharges. For the most part, these improvements are more apparent where site-specific problems were identified and where regulatory regimes, technological solutions and investment have been readily available. Over the last 20 years, 120 poorly operated landfills have been replaced by four modern facilities and we have moved from disposing of nearly 100 per cent of municipal waste to landfill to sending a residual of 15 per cent to landfill. The plastic bag levy has also altered behaviours. Industrial regulation is working efficiently with environmental information openly available on-line to all. There have also been improvements in the monitoring of drinking water and air quality.

National and community-level initiatives are now working well to improve the environment. They include initiatives to prevent food waste, work on Ireland's Citizens' Assembly climate module, the National Dialogue on Climate Action, integrated action to improve water quality in catchments, citizen science projects and nature conservation projects such as those covered by the European Innovation Partnership for Agriculture Productivity and Sustainability (DAFM, 2019), the LIFE and Leader programmes and other funding mechanisms. The EPA-coordinated and more widely coordinated, national environmental research projects provide expert scientific support and evidence for environmental policy development, implementation and broader decision-making. We need to better use the knowledge gained from best practice projects and research to help protect and improve our natural environment and human health.



Responding to Environmental Challenges in Uncertain Times

The response to the 2020 coronavirus pandemic is an example of a whole-of-government and whole-of-society response to tackling a public health emergency (Topic Box 16.1). A similar response between society and government is needed to tackle Ireland's key environmental issues, such as climate change and biodiversity loss. During the pandemic restrictions, people observed changes in their local environments – both positive and negative – that are linked to how Ireland's people, its communities and its economy go about business generally.

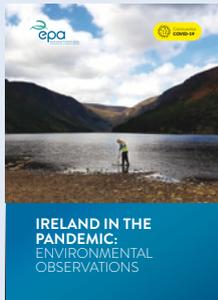
The transition out of the coronavirus crisis will provide an opportunity to deliver wider environmental and environmental health and wellbeing dividends. Quieter roads, less traffic and a better appreciation of local green and blue spaces, together with their biodiversity, including wildflowers, butterflies and birds, were valued as quality-of-life improvements that we should strive to maintain and improve on. At the very least, we need to ensure that economic interventions contribute to a more sustainable, less carbon-intensive economy; facilitate the development of a national infrastructure that is fully climate resilient; leave space and wild places for biodiversity, ecosystem services and people; and ensure that emissions and air pollutants are controlled to protect public health. As outlined in Chapter 1, any national economic stimulus package needs to have a strong green investment focus, allied to strong public awareness. This will present real opportunities to advance Ireland's environmental transition ambitions and its adaptive capacity while delivering enduring economic and social benefits.





Topic Box 16.1 The Environment During the Coronavirus (COVID-19) Pandemic

The Department of Health confirmed a total of 2010 COVID-19-related deaths and 69,473 cases of COVID-19 on 19 November 2020.² As well as affecting public health, the necessary restrictions to limit the transmission of the coronavirus very quickly gave rise to a severe recession and unprecedented levels of unemployment (Department of Finance, 2020). The coronavirus pandemic continues to affect many aspects of Irish society, including the environment.



The EPA report *Ireland in the Pandemic: Environmental Observations* (EPA, 2020c) details how environmental issues were affected during the COVID-19 mandatory 'stay at home' and subsequent restriction periods. Primarily, the combination of less traffic on the roads, the curtailment of industrial activities and flights and the increase in the number of people working from home led to changes in emissions and in the generation of waste. The report's findings were as follows:

- Air quality improved in urban areas, with a significant decrease in pollution from traffic, but no apparent change to date in pollution from burning solid fuels in the home. The situation in relation to emissions in urban areas from the burning solid fuels in the home could change as winter approaches.
- There was a sharp rise in household waste and a decrease in commercial and retail waste reflective of people being at home and closed commercial and retail premises. In tandem with the increase in domestic waste, there was evidence of an increase in illegal dumping, and enquiries to the EPA website increased fourfold in relation to illegal backyard burning.
- A large increase in environmental complaints was recorded during the initial restriction period. The EPA worked with local authorities and others to make sure that complaints were addressed. In addition, the EPA investigated complaints received from the public about licensed facilities.

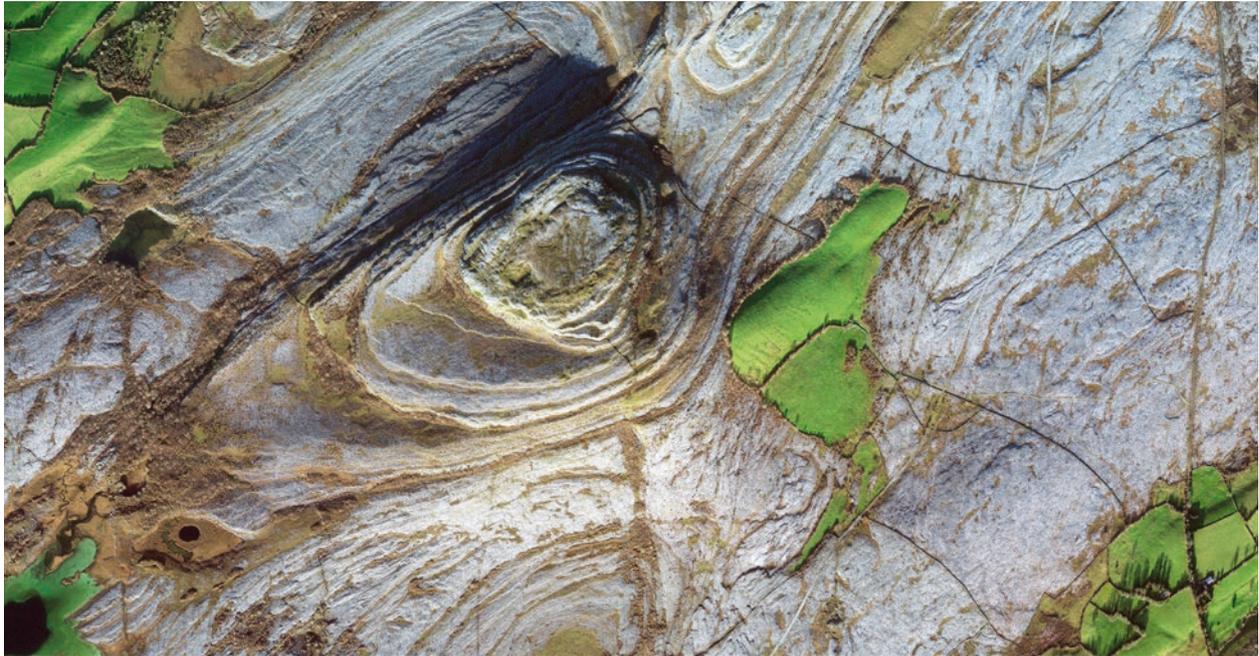


A further joint report from the EPA and the SEAI is expected to be published in 2020 covering GHG emissions during the COVID crisis. Ongoing work in the preparation of this report has indicated that there was a decrease in air pollutants and GHG emissions from the transport and energy sectors with agricultural emissions largely unaffected. Lower fuel prices may have an impact on efforts to decouple industrial emissions from economic growth as COVID restrictions ease (EPA, 2020d).

COVID-19 stay safe at work poster published by the Department of Health.

A small-scale research study, commissioned for this report, looked at the main environment-related impacts arising from the COVID-19 pandemic in Ireland, both positive and negative (O'Leary *et al.*, 2020a). This study provides a detailed assessment of data across several environmental areas for March and April 2020, which includes the time frame from the implementation of initial restrictions (12 March) to the start of the eventual lock-down (27 March). Data for May 2020 were also included where available (see Figure 1.1 in Chapter 1 for a summary of the findings). A further COVID-19-related research study examined issues around access to and use of blue and green spaces during the initial phases of the COVID-19 pandemic in Ireland (Kindermann *et al.*, 2020). This research highlights that 'the COVID-19 new normal presents a unique transformative opportunity to rapidly "reset the system", to alter behaviours and attitudes towards blue/green spaces for the betterment of our environments, and for our health and wellbeing'.

² <https://www.gov.ie/en/news/7e0924-latest-updates-on-covid-19-coronavirus/>.



Aerial view of parts of the Burren, Co. Clare

2. Environmental Scorecard for Ireland

A wide range of environmental regulations, plans and policies are now in place in Ireland to protect and improve the environment. The evidence presented in this report indicates that some legislation, plans and policies have been more effective than others at improving regulation and reporting and have been more successful at addressing very specific environmental issues. However, we are now dealing with different challenges where we need a much stronger focus on integrating the environment into sectoral policies and addressing wider systemic issues.

The summary scorecard analysis shown in Table 16.1 suggests that the scale of improvements now being made is insufficient to meet long-term objectives and targets, especially for more diffuse and systemic issues. The objective to deliver on people's expectations to live in a healthy and protected environment will not be met in the short or medium term (2030) without transformative changes. Table 16.1 summarises the trends and outlook for Ireland across selected policy areas.



Table 16.1 Current summary assessment and future outlook scorecard for Ireland for selected environmental policy areas (Source: EPA, 2020, based on evidence and assessments presented in this report)

POLICY AREA	CURRENT ASSESSMENT	OUTLOOK
Climate 	 <p>Continuing high emissions result in a 'very poor' current assessment, despite progress on renewable energy, ambitious climate action and adaptation plans and strategies, and new governance structures (e.g. the Climate Action Regional Offices). 2020 emissions reductions targets will not be met without relying on purchasing credits or allowances.</p>	 <p>Major transitions and system change is needed to become a climate-neutral economy and society by 2050. The Climate Action Plan is the first step in the right direction, but accelerating implementation is needed to meet longer term (2050) targets. Latest projections suggest that, if all Climate Action Plan measures are adopted and fully implemented, 2030 targets will be met. A focus is also needed on delivering on the ambitions outlined in the climate adaptation plans and strategies.</p>
Air Quality and Emissions 	 <p>While overall air quality in Ireland is good, there was an exceedance of nitrogen dioxide at one Dublin monitoring site in 2019. This exceedance is a warning about not being complacent in tackling air pollution. On occasions, air quality is not meeting all World Health Organization guideline values for some air pollutants (mainly particulates) that have serious potential health impacts. Ireland is not meeting EU targets on emissions of ammonia to air under the National Emissions Ceiling (NEC) Directive (2016/2284/EU); agriculture is the main source of ammonia emissions. Mixed progress in reducing the overall emissions to air from transport and energy sources.</p>	 <p>There is a risk of further exceedances of emissions targets set in the NEC Directive. Also, there is a risk of local exceedances of air quality standards if reductions are not made in home heating emissions from burning solid fuels and in transport emissions from vehicles in urban areas. The exceedance of the NEC Directive for ammonia will continue unless measures are adopted at farm level. The prospect of meeting air quality targets is heavily dependent on national measures being implemented.</p>
Water 	 <p>Overall, current assessment is poor. Trends are mixed with serious declines in pristine river sites. Just over 50% of surface water is in a satisfactory ecological condition. This means that almost half fails to meet the legal requirements of the Water Framework Directive (2000/60/EC). There have been deteriorating water quality trends over the past 20 years, especially for rivers, where there have been major decreases in the numbers of the cleanest and best quality rivers. Progress remains slow in improving urban wastewater treatment, eliminating untreated sewage discharges and reducing nutrient loss from agriculture.</p>	 <p>Outlook is mixed, and significant challenges remain to achieving full compliance and meeting policy objectives. Extensive targeted action on water catchments, enforcement of existing legislation and implementation of best practice policies could potentially turn around the deteriorating trends. This depends on environmentally sustainable improvements in agriculture, wastewater investment and better management of nutrients and other land use drivers. A key factor is balancing nutrient emissions from the intensive agriculture sector with the need for better environmental protection.</p>



POLICY AREA	CURRENT ASSESSMENT	OUTLOOK
Nature 	 <p>Overall, current assessment is very poor. Deteriorating trends dominate, especially for EU protected habitats, with 85% of EU protected habitats having an unfavourable status. The picture for EU protected species is mixed, but 15% are in decline, with freshwater species most at risk. Agricultural practices are a key pressure. Habitat changes point towards a deteriorating trend in overall biodiversity. Some species, such as the curlew and some freshwater species, are under threat; measures are needed to halt their decline.</p>	 <p>Largely not on track to meet policy objectives. The outlook for biodiversity is challenging unless there are fundamental changes. Climate change adds to the challenge. Transformative change is needed to achieve the vision in the National Biodiversity Action Plan 2017-2021.</p>
Waste and Circular Economy 	 <p>While Ireland is meeting current targets, recycling rates have levelled off for municipal waste and packaging and in some cases declined. Waste generation remains high and linked to economic activity, while circular use of material remains very low. Most of the environmental complaints from the public relate to waste and litter, which means that waste enforcement work is still a key function for local authorities. There have been improvements in waste management brought about through the introduction of waste licensing and producer responsibility legislation and the amount of waste we landfill has decreased in favour of energy recovery.</p>	 <p>Work is needed to move towards a life-cycle-driven 'circular' economy, preventing waste, maximising use of resources during their life cycle and, where waste is generated, increasing the amount that is recycled. Illegal dumping, littering and the level of plastic waste in our seas are concerns that demand solutions. The publication of a new national waste policy, a Waste Action Plan for a Circular Economy, is welcome and brings a renewed impetus for change. Achieving future EU recycling targets, dealing with capacity challenges and achieving the circular economy goals will be dependent on the implementation of waste legislation, policy initiatives and related measures.</p>
Radon 	 <p>A modest reduction in indoor concentrations of radon has been measured since the 1990s (13%). Awareness levels nationally are high, at 75%. A government-led National Radon Control Strategy was adopted in 2014 and this has had a legal basis since 2019. Work carried out under the strategy addresses prevention in new buildings, raising awareness, providing advice, supporting radon services and addressing radon in workplaces. This work is supported by a comprehensive research programme. However, testing and remediation rates have not improved.</p>	 <p>Testing and remediation rates remain low, with approximately 6% of private homes tested. Of those homes that have been tested and are above the reference level, only 20% of householders take action to reduce radon concentrations. Financial support is needed for householders to increase testing and remediation rates. Workplace testing and remediation should become routine in high-risk areas. Radon testing should be a requirement when selling or renting a home. Building regulations should require stronger preventative measures to protect new buildings. The national retrofit programme should include measures to ensure that radon concentrations are addressed.</p>



CURRENT ASSESSMENT: Summary assessment of current environmental performance, policy and implementation in Ireland

-  Very poor/significant environmental and/or compliance challenges to address
-  Poor/environmental and/or compliance challenges to address
-  Moderate/on track generally/local or occasional challenges
-  Good/mainly achieving objectives
-  Very good/fully achieving objectives

OUTLOOK: Current prospect of meeting policy objectives and/or targets

-  Largely not on track to meet policy objectives and targets. Significant challenges remain to achieving full compliance. Systemic and transformative change needed.
-  Partially on track to achieving full compliance or measures in place or planned that will improve the situation. However, the outlook is dependent on existing and planned actions, measures and plans being fully implemented and effective.
-  Largely on track to achieving full compliance. Measures in place provide prospect of meeting policy objectives and targets.

3. Ireland in a European Context

The 2020 state of Europe's environment report from the European Environment Agency (EEA) (published in 2019) adds to the growing body of evidence from international organisations advocating for more urgency in protecting the environment, safeguarding biodiversity and tackling climate change (EEA, 2019). The evidence in this EEA report resonates with that outlined in other recent significant publications, including the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) report on biodiversity (IPBES, 2019), Intergovernmental Panel on Climate Change (IPCC) reports on climate (IPCC, 2018, 2019) and the Green Deal from the European Commission (EC, 2019a). According to the EEA, 'the overarching challenge of this century is how we achieve development across the world that balances societal, economic and environmental considerations' (EEA, 2019).

Sustainability needs to become the guiding principle for ambitious and coherent policies and actions across society. The EEA report suggests that the focus now must be on scaling up, speeding up, streamlining and implementing the many solutions and innovations – both technological and social – that already exist, while stimulating additional research and development, catalysing behavioural shifts and, vitally, listening to and engaging with citizens.

The EEA outlines that 'achieving the EU's 2050 sustainability vision is still possible, but it will require a shift in the character and ambition of actions. That means both strengthening established policy tools and building on them with innovative new approaches to governance' (EEA, 2019). The EEA has identified seven key areas to get Europe back on track to achieve its 2030 and 2050 goals and ambitions (Topic Box 16.2). These seven key areas cover complex issues that Ireland is also grappling with, such as water quality, air quality in urban areas, resource use, climate change, biodiversity, ecosystem damage and environmental risks to health and wellbeing. The EEA's call for systemic change, founded on the principles of sustainable development, equally applies to Ireland.

The EEA also provides data that allow Ireland's environmental performance to be benchmarked against that of other European countries. This is done through its online environmental indicator series.³

³ https://www.eea.europa.eu/data-and-maps/indicators/#c0=30&c12-operator=or&b_start=0



Topic Box 16.2 The EEA Seven Key Areas to get Europe Back on Track to Achieve its 2030 and 2050 Goals and Ambitions

The seven key areas identified by the EEA are as follows (EEA, 2019):

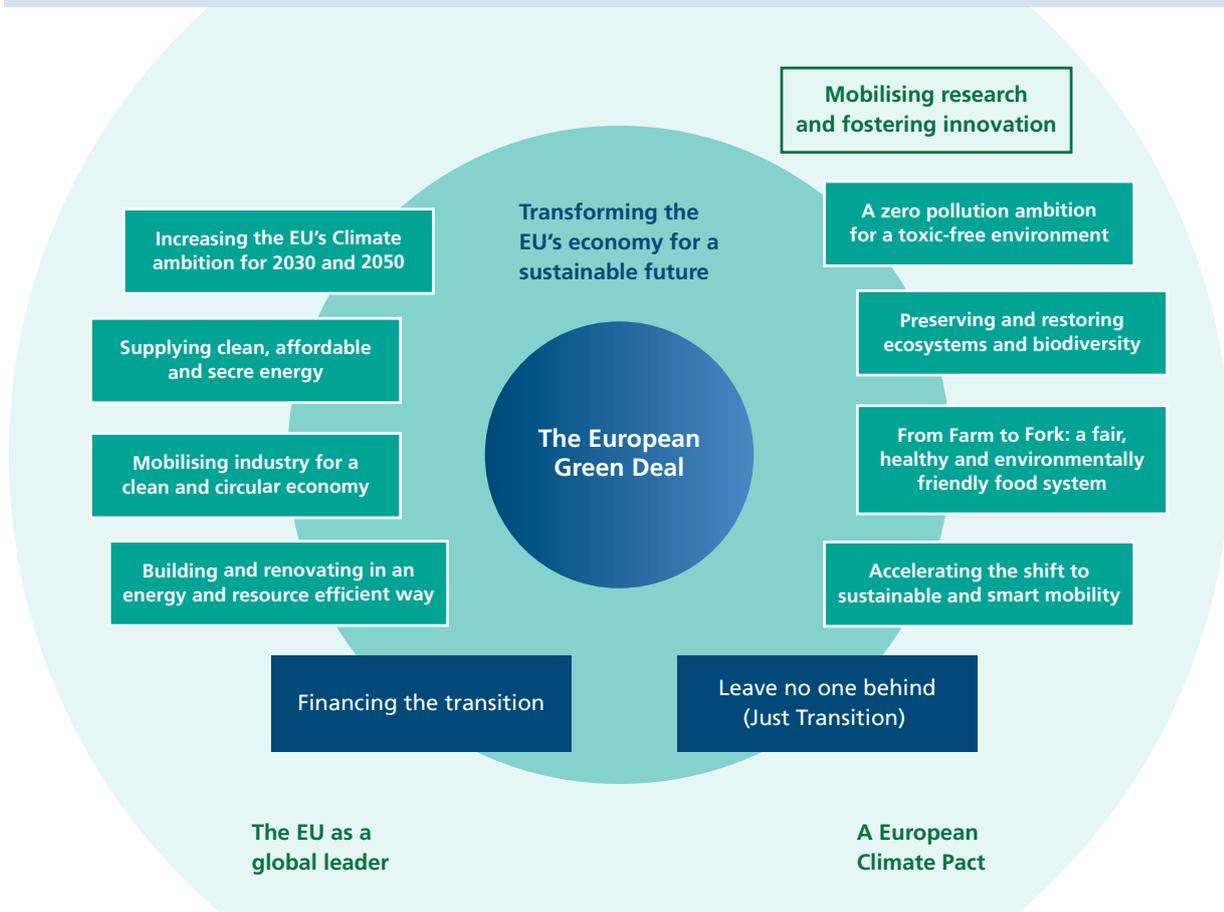
- 1. Strengthening policy implementation, integration and coherence.** Full implementation of existing policies would take Europe a long way towards achieving its environmental goals up to 2030.
- 2. Developing more systemic, long-term policy frameworks and binding targets.** The coverage of long-term policy frameworks needs to be extended to other important systems and issues, starting with the food system, chemicals and land use.
- 3. Leading international action towards sustainability.** Europe cannot achieve its sustainability goals in isolation. The EU has significant diplomatic and economic influence, which it can use to promote the adoption of ambitious agreements in areas such as biodiversity and resource use.
- 4. Fostering innovation throughout society.** Changing trajectory will depend critically on the emergence and spread of diverse forms of innovation that can trigger new ways of thinking and living.
- 5. Scaling up investments and reorienting finance.** Although achieving sustainability transitions will require major investments, Europeans stand to gain hugely – both because of avoided harms to nature and society and because of the economic and social opportunities that they create.
- 6. Managing risks and ensuring a socially fair transition.** Successful governance of sustainability transitions will require that societies acknowledge potential risks, opportunities and trade-offs, and devise ways to navigate them. Policies have an essential role in achieving ‘just transitions’.
- 7. Linking knowledge with action.** Achieving sustainability transitions will require diverse new knowledge, drawing on multiple disciplines and types of knowledge production. This includes evidence about the systems driving environmental pressures, pathways to sustainability, promising initiatives and barriers to change.

On an annual basis, the Central Statistics Office (CSO) in Ireland also publishes environmental information online that includes data comparing Ireland's performance with other countries. The latest report, *Environmental Indicators Ireland 2020*, provides indicators that compare Ireland with other EU Member States for the latest year for which data are available (CSO, 2020). In many cases, the CSO comparisons use data provided by the EPA and EEA. The global and environmental economy domains are also covered by the CSO. Some of the benchmarked areas highlighted by the CSO in its main findings include performance around air pollutant emissions, greenhouse gas emissions, land use, energy and biodiversity.





Figure 16.1 European Green Deal (Source: EC, 2019a)



At the European level, the new Green Deal from the European Commission promises a commitment to 'tackling climate and environmental-related challenges that is this generation's defining task' (EC, 2019a; Figure 16.1). The Green Deal includes policy documents on a Circular Economy Action Plan, a Farm to Fork Strategy and an EU Biodiversity Strategy for 2030. These initiatives are expected to shape environmental policy in Ireland for the next decade. They will also help to support a green recovery after the COVID-19 pandemic has passed and will have the capacity to deliver better environmental performance across all sectors. To succeed, these initiatives will need engagement and commitment from government, business, agriculture, local communities and individuals.

Linked to the implementation of the Green Deal the European Commission published a proposal in October 2020 for an 8th Environmental Action Programme.⁴ This proposal includes a new monitoring framework aimed at measuring and communicating whether the objectives of the Green Deal are being met. In the proposal the Commission outlines that 'the overarching aim of the 8th Environment Action Programme (EAP) is to accelerate the Union's transition to a climate-neutral, resource-efficient clean and circular economy in a just and inclusive way and achieve the environmental objectives of the United Nations' Agenda 2030 and its Sustainable Development Goals, fully endorsing the environmental and climate objectives of the European Green Deal'.

4 <https://ec.europa.eu/environment/pdf/8EAP/2020/10/8EAP-draft.pdf>



4. Key Environmental Messages for Ireland

The overall assessment from this report shows not only that there is a need for urgent approaches to address climate change and biodiversity decline, but also that there are other environmental priorities for Ireland, including tackling air and water pollution, investing in water services, improving recycling rates and improving air quality.

When Dáil Éireann declared a climate and biodiversity emergency in 2019, Ireland was acknowledged as one of the first countries to officially recognise the gravity of these challenges (Dáil Éireann, 2019). As defining concerns for this century, these problems are global challenges and have been highlighted in recent assessment reports from the United Nations Environment Programme (UNEP, 2019), the IPCC (2018, 2019) and the EEA (2019).

However, Ireland must also set priorities to tackle specific environmental challenges in other areas. Protecting water quality is one such area. Waste management is another. This report presents a mixed picture on many aspects of the state of the environment in Ireland. One emerging area that needs more attention is the environmental impact of chemicals. Action in this area will both protect health and deliver on the zero-pollution ambition for a toxic-free environment proposed in the European Green Deal.

Indeed, because of the multifaceted nature of many of the issues highlighted in this assessment's overall key SOE messages (Table 16.2) and chapter highlights (Table 16.3), the consequence of fixing an issue in one area will often lead to co-benefits for another area. For example, measures to reduce GHG emissions should also reduce other air pollutants, in turn benefiting public health.

Furthermore, a consistent call for better implementation and delivery of legislation, strategies, plans, programmes and policies runs throughout the messages in this report. There are plans and programmes in place for many areas, which, if fully implemented, would go a long way towards resolving persistent environmental issues. Moreover, if we are serious about protecting the environment, we need to resource it. Sustainable finance options are needed to fund solutions and investment in green technologies, as well as to provide funding for nature and community projects, monitoring, regulation and oversight.

The spatial aspect of environmental issues has been mentioned in several chapters. The indications are that much better approaches to managing conflicting land uses and practices are needed to protect the environment. For example, we need to leave space for nature, maintain setback spaces along rivers to protect water quality, consider nature-based solutions for flood mitigation,

promote areas best suited to high nature value farming and set out peatlands areas to be restored as spaces for carbon storage, flood attenuation and nature. We must step back from intensive agricultural and land use practices that are affecting or posing threats to the environment and human health.



Green, blue and quiet areas could be identified and protected in cities and large towns. However, at the same time we need to keep space for recreation and tourism and have spaces for farming to prosper; we also need to allow sustainable economic growth, housing and development. We need to identify the right locations for energy projects and industry. In relation to agriculture, we must recognise that there is a role for the 'right measure in the right place', including appreciating and recognising exemplary practice where it exists. However, these local variations must be underpinned by fundamental changes across the food system to address the core challenges. There needs to be a recognition that planned growth cannot be uniform across the country and that local environmental factors need to ultimately determine where growth takes place.

The EPA has identified chapter highlights at the end of each of the chapters in this report. These are collated and shown in Table 16.3 at the end of this chapter. These 'chapter highlights' cover thematic, sectoral and integrated messages. These have been used to identify the 'overall key messages from SOE 2020 for Ireland' (Table 16.2). Still relevant, the key actions for the protection of the environment in Ireland from the 2016 state of the environment report have also been accounted for when developing these overall key SOE messages.

Sustained progress in addressing the overall key SOE messages and the chapter highlights is necessary to meet people's rightful expectations to live in a healthy environment, for Ireland to evolve as a sustainable, carbon-neutral, climate-resilient economy, and to safeguard nature and protect people's health and wellbeing.



Figure 16.2 Overall key messages from the 2020 state of environment report for Ireland

We Need Vision and Implementation to Protect Ireland's Environment and our Health and Wellbeing



SOE 1: Environmental Policy Position

A national policy position for Ireland's environment.

ACTIONS – WHAT IS NEEDED?

There are many interlinkages and dependencies between environmental policies and legislation. These links could be better connected and reinforced through an integrated national policy position on protecting Ireland's environment.



SOE 2: Full Implementation

Full implementation of existing environmental legislation and a review of the governance around the coordination on environmental protection across public bodies.

ACTIONS – WHAT IS NEEDED?

Full implementation of, and compliance with, existing environmental directives and legislation is a must to protect the environment. A review of environmental governance is needed to develop structures to achieve full implementation. This review should also develop recommendations for governance structures that help with improving coordination and linking up environmental protection work across different departments, organisations and regulatory bodies.



SOE 3: Health and Wellbeing

Protecting the environment is an investment in our health and wellbeing.

ACTIONS – WHAT IS NEEDED?

Managing the environmental and radiological risks to health from chemicals and other pollutants is still a major part of environmental protection. Green and blue spaces as well as quiet areas also need to be protected as they provide social spaces for communities and enable a connection to nature, with evidence showing that spending time in such spaces is good for health.

Step Up to Protect the Environment Around Us as it is Under Increasing Threat



SOE 4: Climate

Systemic change is required for Ireland to become the climate-neutral and climate-resilient society and economy that it aspires to be.

ACTIONS – WHAT IS NEEDED?

More urgency is needed to deliver actions on climate mitigation and adaptation and to ensure that Ireland meets its international obligations to reduce greenhouse gas (GHG) emissions. While Ireland's GHG emissions, with full implementation of the Climate Action Plan, are projected to decrease by an annual average reduction of 3% between 2021 and 2030, further measures are required to meet national and EU ambitions to keep the global temperature increase to 1.5°C.



SOE 5: Air Quality

Adoption of measures to meet the World Health Organization air quality guideline values should be the target to aim for in the Clean Air Strategy.

ACTIONS – WHAT IS NEEDED?

The publication and implementation of the planned National Clean Air Strategy is needed to protect Ireland's air quality. The adoption of the World Health Organization guideline values as national air quality standards within the strategy would provide for a higher level of public health protection. Integrating air pollution controls, noise mitigation measures and climate action, for example in transport management, can bring multiple benefits.



SOE 6: Nature

Safeguard nature and wild places as a national priority and to leave a legacy for future generations.

ACTIONS – WHAT IS NEEDED?

Nature and wild places are at risk in Ireland and need to be better safeguarded, both locally and in protected areas. The next Biodiversity Action Plan needs to be more ambitious and identify the pathway to transformative change for nature protection in Ireland. It needs to develop and further strengthen the protection of our national network of protected areas for future generations and to reverse wider current trends in biodiversity and habitat loss.



SOE 7: Water Quality

Improve the water environment and tackle water pollution locally at a water catchment level.

ACTIONS – WHAT IS NEEDED?

The water quality in Ireland’s rivers, lakes and estuaries needs to be better protected through evidence-based measures, integrated water catchment-based projects and initiatives and by reducing the amount of nutrients ending up in water courses.



SOE 8: Marine

Reduce the human-induced pressures on the marine environment.

ACTIONS – WHAT IS NEEDED?

As an island nation with an extensive marine area, Ireland needs to ensure that robust governance and legal frameworks are in place to protect the marine environment.

System Change – Delivery on Sectoral and Societal Outcomes Needs to be Accelerated



SOE 9: Clean Energy

Ireland needs to move rapidly away from the extensive use of fossil fuels to the use of clean energy systems.

ACTIONS – WHAT IS NEEDED?

The emissions from the combustion of mainly imported fossil fuels are damaging for our health and our environment and drive climate change. The transition from reliance on fossil energy to a clean energy future for heating, electricity and transport is essential for the protection of human health, the climate and the environment and has multiple benefits for sustainable development and energy security.



SOE 10: Environmentally-sustainable Agriculture

An agriculture and food sector that demonstrates validated performance around producing food with a low environmental footprint.

ACTIONS – WHAT IS NEEDED?

A more holistic farm management and water catchment-level management approach, encompassing all environmental pressures, will be fundamental to progress towards a more environmentally-sustainable and carbon-neutral food production system.



SOE 11: Water Services

Drinking water and wastewater infrastructure must meet the needs of our society.

ACTIONS – WHAT IS NEEDED?

Action is needed nationally to address the underlying causes for the delays in delivering improvements in drinking water and urban wastewater infrastructure. Addressing the legacy of under-investment and fixing the shortcomings highlighted in successive EPA reports on drinking water and urban wastewater need to be prioritised. The resilience of water-related infrastructure must also improve to guard against the impacts of weather events and climate extremes on water services and the water environment.



SOE 12: Circular Economy

Move to a less wasteful and circular economy where the priority is waste prevention, reuse, repair and recycling.

ACTIONS – WHAT IS NEEDED?

Changing our behaviours on resource consumption, waste management and recycling are actions that everybody, from business to individuals, can take to protect the environment.



SOE 13: Land Use

Promote integrated land-mapping approaches to support decision-making on sustainable land use.

ACTIONS – WHAT IS NEEDED?

The development of an integrated national approach to land mapping could support better decision-making on land use and management practices. It could contribute significantly to mapping land use change and managing competing pressures on the environment, such as agriculture, urbanisation, tourism and recreation, energy projects, carbon sinks, ecosystem services and space for nature.



WE NEED VISION AND IMPLEMENTATION TO PROTECT IRELAND'S ENVIRONMENT AND OUR HEALTH AND WELLBEING

SOE 1: Environmental Policy Position

A National Policy Position for Ireland's Environment

There are many interlinkages and dependencies between environmental policies and legislation. These links could be better connected and reinforced through an integrated national policy position on protecting Ireland's environment.

Nationally we tend to examine separately how different parts of the environment function and how we address challenges such as climate, biodiversity, water, air and waste. The different environmental challenges are covered by different departments, public agencies/organisations and local authorities. Implementation is carried out under different pieces of national legislation, policies, plans and programmes. However, modern environmental problems are complex and cross-cutting and need to be tackled in an integrated way. Currently, there is no overall national policy position for Ireland's environment that joins up all

these areas. There are several examples internationally of national plans, objectives and strategies for the environment that could help with developing a national policy vision for Ireland on the environment. These are covered in a background research paper for this report (O'Leary *et al.*, 2020b).

The objective of the national policy position would be to deliver more effective protection of Ireland's environment through more comprehensive integrated policy development and effective implementation. We need to have policies that work together under one policy position to integrate all of these environmental components. We should look at a whole of system approach to environmental protection and we need to think more about how environmental systems fit together and interact. We need to have policies that work together under one umbrella to integrate all these functionalities. This could be done through a national policy position that covers all environmental issues.



Aerial view of Poulhasserry Bay, Co. Clare



WE NEED VISION AND IMPLEMENTATION TO PROTECT IRELAND'S ENVIRONMENT AND OUR HEALTH AND WELLBEING

SOE 2: Full Implementation

Full Implementation of Existing Environmental Legislation and a Review of the Governance Around the Coordination on Environmental Protection Across Public Bodies

Full implementation of, and compliance with, existing environmental directives and legislation is a must to protect the environment. A review of environmental governance is needed to develop structures to achieve full implementation. This review should also develop recommendations for governance structures that help with improving coordination and linking up environmental protection work across different departments, organisations and regulatory bodies.

The implementation of environmental legislation needs to improve across several directives, regulations and plans. There are currently 16 infringement cases and four European court cases being pursued against Ireland by the European Commission for breaches of environmental law across different areas (Chapter 15).

One recent example is the case that the European Commission is currently taking to the European Court of Justice against Ireland in relation to the designation of SACs under the Habitats Directive (92/43/EEC). The Commission is reporting that 154 Sites of Community Importance (out of 423) have not yet been designated as SACs in the Atlantic biogeographical region, that site-specific conservation objectives have not been established for 87 sites and that the necessary conservation measures have not been established at any of the 423 sites.⁵

Another infringement case is related to the slow progress being made in closing out the infrastructure improvements needed in sewage collection and treatment in order to meet the requirements of the Urban Waste Water Treatment Directive (91/271/EEC). In 2019 the Court of Justice of the European Union declared that Ireland has failed to fulfil its obligations under the Urban Waste Water Treatment Directive. Ireland now risks substantial fines if Irish Water does not promptly complete the works needed to ensure that waste water from all large urban areas is properly treated before it is released into rivers, estuaries and coastal waters.

The European Commission, in its Environmental Implementation Review (EIR) for Ireland (EC, 2019b), has mapped out national strengths, opportunities and weaknesses in how EU environmental policies and laws are applied. As outlined in Chapter 15, Ireland's EIR 2019 report notes that, in general, the country has good air quality, that soils are in good condition – except for peat

areas – and that important steps have been taken to move towards a circular economy. It found that progress has been made in several areas. The EIR stated that Ireland faces several significant environmental challenges, notably in the areas of water management, nature protection and access to justice. The assessment did not cover climate change.



At a local level the investigation of complaints and the enforcement of legislation is an essential part of protecting the environment. In 2018, local authorities, the NPWS and the EPA received approximately 80,000 environmental complaints (Chapters 6 and 15). Local authorities dealt with over 78,000 of these complaints, with waste and litter being the issues that local authorities received the most complaints about. These complaints data are striking as they show the scale of issues that environmental enforcement authorities deal with annually at a more local level.

The implementation of environmental legislation and environmental actions covered in national and sectoral plans needs to be measurable, verifiable and reportable. There is a need to further integrate indicator tracking and performance accounting across all plans and programmes. The performance data should be publicly available, for example, through the publication of annual indicator reports. This needs to be coupled with a focus on the full implementation and enforcement of existing environmental legislation. Chapter 15 provides some suggested enablers for improving Ireland's implementation, integration and monitoring of environmental legislation, policy, plans and programmes. A review of governance structures would allow for the identification of areas for improvement in the coordination of environmental protection work. The aim would be to develop recommendations for structures that work to achieve full implementation and enforcement of environmental legislation and policies and more effective protection of Ireland's environment. The review could cover the overall governance structures needed to ensure that Ireland's policies and governance structures are working together in an integrated way to protect Ireland's environment into the future.

5 https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1235



WE NEED VISION AND IMPLEMENTATION TO PROTECT IRELAND'S ENVIRONMENT AND OUR HEALTH AND WELLBEING

SOE 3: Health and Wellbeing

Protecting the Environment is an Investment in our Health and Wellbeing

Managing the environmental and radiological risks to health from chemicals and other pollutants is still a major part of environmental protection. Green and blue spaces as well as quiet areas also need to be protected as they provide social spaces for communities and enable a connection to nature, with evidence showing that spending time in such spaces is good for health.

Many environmental issues are associated with our daily lives and where we live: the quality of the air we breathe, the state of our local riverside walks or how we manage our waste. Often, they are linked to our own consumption patterns and the amount of unnecessary waste that we generate – be it food or herbicides, energy wastage or car exhaust emissions. Our most pressing environmental concerns often relate to losing something that is important to us. There are many examples, including the loss of the use of the local beach for swimming due to a restriction because of pollution, the loss of a drinking water supply because of contamination, the demise of a local pristine river for fisheries and wildlife or the absence of the call of an iconic species of wildlife such as the curlew. We need to recognise and better promote the benefits of a good-quality environment for health and wellbeing (Chapter 14). The provision of clean, safe and nature-friendly green and blue spaces is important for improving our health and wellbeing. The inclusion and maintenance of health-promoting environments and protection of quiet areas in urban planning are now recognised as important considerations. The benefits of these recreational areas for local communities were clearly demonstrated during the initial stay-at-home restriction period of the coronavirus pandemic.

There are emerging environmental and health risks that need to be considered. The risk that antimicrobials in the environment and antimicrobial resistance pose to health is now highlighted through Ireland's National Action Plan on Antimicrobial Resistance 2017-2020 (Chapter 14). An emerging area that needs more attention is chemicals in the environment and the measures needed to deliver on the zero-pollution ambition for a toxin-free environment, as outlined in the European Green Deal. The EEA has reported in its 2020 report *Healthy Environment, Healthy Lives: How the Environment Influences Health and Wellbeing in Europe* that 'a significant proportion of the burden of disease in Europe continues to be attributed to environmental pollution resulting from human activity' (EEA, 2020a). The report highlights how the quality of

Europe's environment plays a key role in determining our health and wellbeing. There will, however, need to be a clear focus on implementing the various aspects of the European Green Deal to resolve the issues identified.



In addition, we need to continue to make information more easily available to allow individuals to make informed decisions about protecting their health and the environment. Individual action is also important to protect citizens and households from avoidable health consequences linked to the environment (such as radon testing and building design, testing of private wells used for drinking water, septic tank maintenance and using cleaner choices of fuel for home heating). Exposure to radon results in an estimated 300 cases of lung cancer in Ireland each year; research has shown that better building practices have resulted in a 13 per cent reduction in the average radon concentration in Irish homes and that stronger regulation is the most effective way of protecting the population from radon exposure (Chapter 14).



STEP UP TO PROTECT THE ENVIRONMENT AROUND US AS IT IS UNDER INCREASING THREAT

SOE 4: Climate

Systemic Change is Required for Ireland to Become the Climate-neutral and Climate-resilient Society and Economy that it Aspires to Be

More urgency is needed to deliver actions on climate mitigation and adaptation and to ensure that Ireland meets its international obligations to reduce greenhouse gas (GHG) emissions. While Ireland's GHG emissions, with full implementation of the Climate Action Plan, are projected to decrease by an annual average reduction of 3 per cent between 2021 and 2030, further measures are required to meet national and EU ambitions to keep the global temperature increase to 1.5°C.

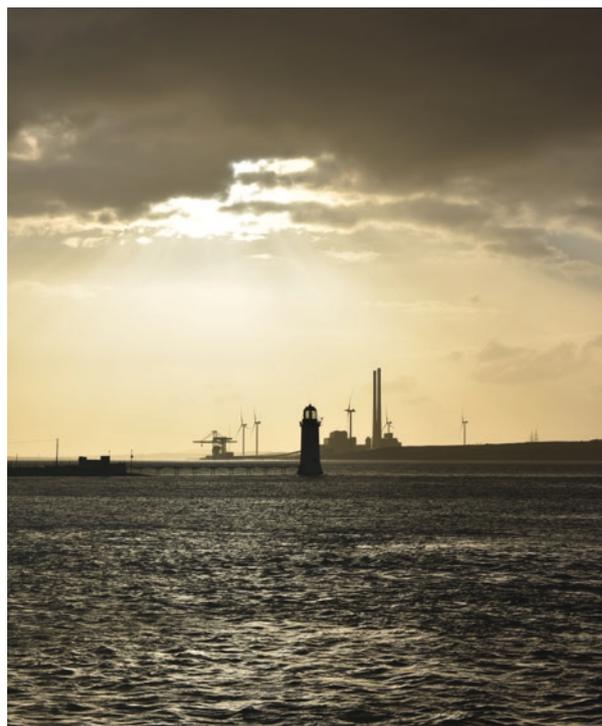
To become a climate-neutral economy and society, as well as to achieve carbon neutrality in the agriculture sector, Ireland needs to urgently accelerate its efforts to reduce GHG emissions, implement climate mitigation strategies and rollout adaptation plans (Chapters 2, 11, 12 and 13). An urgent and just transition to the use of cleaner fuels and renewables for electricity generation, heating and transport is needed. A just transition away from fossil fuels and reducing GHG emissions means that the change must be just and inclusive, putting people first, and must pay attention to the regions, industries and workers who will face the greatest challenges (Chapter 2). Implementation will require authoritative, coherent and rigorous and transparent oversight, with ownership across sectors and society. This transition will have benefits for other environmental areas such as air quality, human health and biodiversity.

Internationally, the Paris Agreement commits to GHG emissions reductions that are designed to keep global temperature increases this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C. Projections indicate that Ireland will not reach its 2020 obligations to reduce its share of GHG emissions (EPA, 2020b). The latest GHG data released by the EPA show that in 2019 Ireland exceeded its annual emissions allocation under the EU's Effort Sharing Decision by almost 7 million tonnes, and is therefore not on the pathway required to meet its 2020 targets (EPA, 2020a). This follows exceedance of 5 million tonnes in 2018 and 3 million tonnes in 2017. These figures again show that Ireland is falling short in terms of lowering our emissions, achieving carbon neutrality by 2050 and playing our part in responding to global climate change which requires holding the increase in the global temperature to well below 2°C above pre-industrial levels. As outlined for the past 2 years we need swift implementation of climate action measures to put Ireland on the right track to meet

its commitments. No one sector is the sole target of the required emissions cuts; rather, wider system changes are needed across economic sectors.

In Ireland, there is currently a significant gap between the allocated carbon budget for 2030 and the current situation in relation to GHG emissions. However, the latest EPA GHG emissions projections for the period 2019-2040 show that Ireland can meet its current EU target to reduce GHG emissions by 30 per cent by 2030 (EPA, 2020b). This will require full and accelerated implementation of the measures in the 2019 Climate Action Plan (DCCA, 2019) and if we succeed would result in a 3 per cent average annual emissions reduction from 2021 to 2030. This implementation needs to start now and will require proactive implementation and greater ambition across government, the economy, industry, agriculture and society to reach 2030 targets.

Ireland's land and seas are going to be important factors in meeting the GHG targets through carbon storage on land under the 'land use, land use change and forestry (LULUCF) regulation' and renewable energy generation from wind offshore (Chapters 5, 12 and 13). The use of the land as a carbon sink for carbon sequestration will need to be developed, with clear evidence-based spatial plans and time frames for this work. Research is ongoing around the topic of LULUCF, which will be one of the key initiatives to help Ireland achieve its GHG emissions targets in the future.





STEP UP TO PROTECT THE ENVIRONMENT AROUND US AS IT IS UNDER INCREASING THREAT

Peatland is an area that merits far more attention and protection in Ireland (Chapter 5). Peatlands are important in the Irish context for storing carbon, provided that the bog ecosystem is not degraded or dried out. However, many peatlands, even in protected areas, are in a poor state from drainage and peat harvesting and are acting as a large net source of carbon. Peatland restoration involves rewetting to reduce emissions. With community support and involvement in projects such as the Living Bog Project, there is recognition now that how we view the importance of these bogs is changing. The Living Bog Project is the largest raised bog restoration project ever undertaken in Ireland.⁶ Projects such as this could be an important part of Ireland's path to reducing carbon emissions by transforming large areas of land from a net source of carbon, as is currently the case, to a net carbon sink.

While we need to do more to reduce emissions, Ireland also needs to prepare for changes in its climate and to adapt to the consequences of climate change for its villages, towns and cities, services, agriculture and environment. While applicable throughout the country as a coastal nation our coasts and coastal communities are particularly vulnerable. Progress has been made over the past few years in developing a range of climate action, adaptation and mitigation plans (Chapter 2). Adaptation plans that set out the changes needed are now in place for local authorities and different sectors. Implementation of the actions and measures in these plans is the next step needed.

SOE 5: Air Quality

Adoption of Measures to Meet the World Health Organization Air Quality Guideline Values Should be the Target to Aim for in the Clean Air Strategy

The publication and implementation of the planned National Clean Air Strategy is needed to protect Ireland's air quality. The adoption of the World Health Organization guideline values as national air quality standards within the strategy would provide for a higher level of public health protection. Integrating air pollution controls, noise mitigation measures and climate action, for example in transport management, can bring multiple benefits.

Poor air quality is a significant cause of premature mortality and has a number of health impacts, especially in urban areas (EEA, 2020a). According to latest estimates, 1300 premature deaths in Ireland per year can be attributed to air pollution (EPA, 2020e; EEA, 2020b), linked mainly to levels of fine particulate matter (PM_{2.5}). While Ireland's air quality is generally good, there are concerning localised issues, including an exceedance of the annual average nitrogen dioxide EU limit value at one traffic monitoring location in Dublin city during 2019.

Meeting the air quality and health protection standards set by the World Health Organization (WHO) should be a priority in the government's planned clean air strategy (Chapter 3). In 2019, levels of air pollutants were above the WHO guideline values for health at 33 monitoring stations across Ireland – mostly as a result of the exceedances of the WHO guidelines values for particulates from the burning of solid fuel in cities, towns and villages.

Reductions in air pollutants are needed from the energy (including home heating), transport and agriculture sectors. The main sources of pollutants that contribute to local air quality in urban areas are transport and home heating. The burning of solid fuel for heating releases particulate emissions that contribute significantly to air pollution in towns and cities. A move towards cleaner and more efficient ways of heating our homes and restrictions and improved standards on the quality and use of these solid fuels would improve the situation.

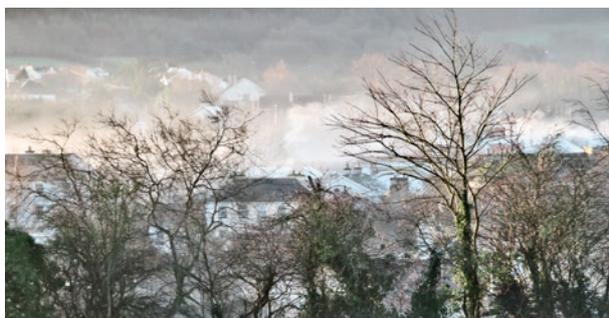
⁶ <http://raisedbogs.ie/>



STEP UP TO PROTECT THE ENVIRONMENT AROUND US AS IT IS UNDER INCREASING THREAT

More accessible information on air quality is being made available to inform the public about local air quality. This information is vital for vulnerable populations. The National Air Quality Monitoring Programme now has 84 monitoring stations providing real-time monitoring data for a range of locations across the country. The number of stations in the network has more than trebled since 2017.

There are many similarities between the solutions needed to tackle air pollution, climate action and noise pollution, particularly in relation to transport management. The integration of actions across these areas can bring many co-benefits. Strategic noise mapping provides details on transport-based noise exposure levels in our largest cities and in the vicinity of Ireland's busiest roads, rail and at Dublin airport (Chapter 4). The Project Ireland 2040 National Planning Framework includes an objective covering the proactive management of environmental noise where it is likely to have significant adverse impacts on health and quality of life (Government of Ireland, 2019). However, national noise planning guidance is required to implement this objective and to ensure that the right development takes place in the right locations. The need for good acoustic design to reduce environmental noise should be a planning consideration for residential developments near noisy locations.



SOE 6: Nature

Safeguard Nature and Wild Places as a National Priority and to Leave a Legacy for Future Generations

Nature and wild places are at risk in Ireland and need to be better safeguarded, both locally and in protected areas. The next Biodiversity Action Plan needs to be more ambitious and identify the pathway to transformative change for nature protection in Ireland. It needs to develop and further strengthen the protection of our national network of protected areas for future generations and to reverse wider current trends in biodiversity and habitat loss.

There is unprecedented pressure on nature and wild areas (Chapters 6, 7 and 8). There are global tipping points around the extent of biodiversity loss and Ireland is not immune to these. Expert reports from the National Parks and Wildlife Service (NPWS) have documented the status of Ireland's habitats and species (DCHG, 2019a,b). In Ireland habitats listed under the Habitats Directive are still in decline, 85 per cent of EU protected habitats are reported as being in unfavourable status with 46 per cent demonstrating ongoing declines, with no discernible improvements in this area over the past 6 years since NPWS last reported on status. It will take time for the fruits of some measures to be translated into the reversal of trends, such as the considerable investment that has been directed into raised bog restoration.

Nationally, Ireland needs to intensify its efforts to protect nature. According to the European Commission, Ireland needs to do more to ensure compliance with nature directives and protect designated areas (Chapter 15).

While protected habitats are in decline, in relation to listed species, the NPWS have reported that the situation is mixed. What is positive is that some species, such as the buzzard and pine marten, are holding their own or even extending their range. But species such as the curlew continue to be at risk of extinction as a breeding bird in Ireland. Conservation schemes have been set up to try and prevent this from happening. The protection of the curlew is a real test case for conservation in Ireland. If conservation schemes are not successful in protecting an iconic species such as the curlew, which is steeped in Irish heritage and folklore, then the outlook for other species that are also dependent on habitats such as low intensity grazing areas, late cut meadows, open bogs and wetlands might not be favourable.



STEP UP TO PROTECT THE ENVIRONMENT AROUND US AS IT IS UNDER INCREASING THREAT

The interim review of the implementation of the National Biodiversity Action Plan 2017-2021 has reported on areas where progress has been made and also on areas that need more work (Biodiversity Working Group, 2020). The review also notes that in relation to the decline in EU protected habitats, the main drivers of decline are agricultural practices which are negatively impacting over 70 per cent of habitats, particularly ecologically unsuitable grazing, abandonment and pollution. Areas identified in the interim review where progress has been made include the LIFE projects and the European Innovation Partnership projects, which are local-led projects, developed with farmers and communities and covering areas such as habitat and species protection (including hen harrier, freshwater pearl mussel, corncrake) on a range of farmland types. The review also reports on progress of raised bog restoration arising from funds from the Climate Action Plan. The interim review identified areas within the current biodiversity plan that need more emphasis including building on the success of the Burren Programme, developing new farming models to aid both the diversification of agriculture and an appropriate reduction in intensification in some areas, developing management plans for protected habitats and species, developing restoration plans for species in severe decline, and accelerating the establishment of Marine Protected Areas.

Nature protection work needs to be linked to public information and engagement campaigns that actively involve and engage citizens and foster a better appreciation of nature and its benefits to society. Data about species trends are collected not only through the NPWS, but also from citizen science projects such as those operated by the National Biodiversity Data Centre and Birdwatch Ireland. Resourcing of citizen science work is important for nature protection and needs to be further developed. This citizen science work provides an important evidence base on long-term trends in species. It gets people involved locally in nature protection and in recording changes about species distribution and breeding success.

It is not only protected areas that are at risk. Local impacts are evident too. For example, the excessive cutting of hedgerows, the overuse of herbicides and the infilling of small wetlands place multiple pressures on local environments. The functions of hedgerows, ponds and field drains as ecological reservoirs and corridors in the countryside need to be better understood, appreciated and protected.

Adopting biodiversity buffer distancing measures on farms by keeping activities back from hedges for field margins, leaving space for wildflowers and leaving space alongside streams and rivers could all help to protect our local wildlife. Overall, Ireland needs to prioritise actions to achieve the transformative change required to bend the curve of biodiversity loss. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services has recommended five interventions or levers (IPBES, 2019). These levers are: incentives and capacity-building; cross-sectoral cooperation; pre-emptive action; decision-making in the context of resilience and uncertainty; and environmental law and implementation. Action across these levers and other areas is needed now to address the challenges facing biodiversity in Ireland.





STEP UP TO PROTECT THE ENVIRONMENT AROUND US AS IT IS UNDER INCREASING THREAT

SOE 7: Water Quality

Improve the Water Environment and Tackle Water Pollution Locally at a Water Catchment Level

The water quality in Ireland's rivers, lakes and estuaries needs to be better protected through evidence-based measures, integrated water catchment-based projects and initiatives and by reducing the amount of nutrients ending up in water courses.

The EPA water quality in Ireland report, covering data from 2013 to 2018, shows that only around half of Ireland's surface water bodies are in a satisfactory ecological condition (EPA, 2019a) (Chapter 7). Estuaries are in the worst condition overall, and our rivers have suffered the greatest number of declines in ecological health in the recent reported period (2013-2018). There has also been an increase in nutrient concentrations, an increase in the number of water bodies given a poor or bad status, and a continued loss of high status sites (EPA, 2019a, b). Long-term trends show a significant loss of our most pristine river waters, the number of which has declined tenfold since the late 1980s. Currently there are only 20 such sites left in the country.

One-third of rivers and lakes and one-quarter of estuaries have excess nutrients in them. There is also evidence that nutrient concentrations in Ireland's rivers and nutrient inputs to its marine environment are increasing (EPA, 2020f). Nitrogen pollution in the south and south-east of the country is damaging the ecological health of many estuaries and nearshore coastal waters. Agriculture is the most common source of excess nutrients in waters. Urban wastewater is another major source. These nutrients are promoting algae growth and damaging the ecological health of rivers, lakes and estuaries. Other significant water issues that need to be tackled are physical changes and modifications to water courses. Weirs, changes to bankside habitats, drainage and changes to flows can all have an impact on biodiversity including the migration of fish species. More consideration needs to be given to using natural water retention measures on land and nature-based solutions in flood risk management and planning. The impacts of climate change and extremes in water temperatures and water flows are likely to exacerbate the damage caused by underlying water pollution.

There are initial signals indicating some improvements in river water quality in the 190 priority areas for action that were identified in the current National River Basin Management Plan 2018-2021 (Government of Ireland, 2018). These priority areas comprise 726 water bodies across all water categories. Further monitoring and assessment will be needed to confirm this trend and the specific reasons for the improvements. Overall however, river water quality has decreased in Ireland; a significant 5.5 per cent net decline since 2010-2015 has been recorded for the period 2013-2018, indicating that further actions are needed to reverse this trend (Chapter 7).

Targeted actions at a water catchment level, based on science and integrated catchment management and the targeted protection and restoration of good-quality rivers (blue dot sites), are now the main strategies being employed to tackle water pollution. But this work is a slow and resource-intensive process. Any further intensification of the agricultural sector, in the absence of effective strategies to reduce the loss of nutrients to waters, could potentially wipe out any of the improvements seen. Ireland also needs to foster the careful management of soil and land management practices to avoid nutrient and sediment losses into water catchments (Chapter 5).

What is clear is that there must be targeted, integrated and collaborative working between authorities, stakeholders and communities as part of the national water catchment-based approach if we are to make real progress in stopping the overall decline in water quality.





STEP UP TO PROTECT THE ENVIRONMENT AROUND US AS IT IS UNDER INCREASING THREAT

SOE 8: Marine

Reduce the Human-induced Pressures on the Marine Environment

As an island nation with an extensive marine area, Ireland needs to ensure that robust governance and legal frameworks are in place to protect the marine environment.

Ireland's offshore waters are in a good condition, but near-shore and estuarine waters are less so (Chapter 8). Additional measures and mitigation are required to protect our valuable marine ecosystems, habitats and species from anthropogenic pressures.

Of the commercial fish and shellfish stocks assessed by the Marine Institute, 34 are considered to be compatible with Good Environmental Status, while 44 are not (Chapter 8). The compatibility of 99 stocks with Good Environmental Status is unknown. Overall, the status of commercial fish and shellfish stocks is not fully compatible with Good Environmental Status. Crucial to protecting fisheries and the health of the associated food webs is a transition to sustainable fisheries and heeding scientific advice and catch limits. A number of non-commercial fish species are also threatened because of habitat loss/disruption and by-catch. Other species, such as some marine bird species and other top predators, migratory baleen whales and deep-diving cetaceans, remain vulnerable to environmental degradation from human activities.

Protecting the ecosystems in which marine species live should be a key part of the sustainability question. Ireland's marine environment is nearly 10 times the size of its land area.⁷ There is a target that 10 per cent of these coastal and marine areas should be conserved as Marine Protected Areas. At present, just over 2 per cent of these areas are designated. Ireland's seagrass and kelp beds are an important habitat for many types of marine life, as well as a store of carbon. These types of blue carbon stores are areas for further research in Ireland. Some of Ireland's estuaries are affected by eutrophication, which is caused by increased nutrients and excessive algae growth (EPA, 2019a). The specific factors causing the decline in ecological status of estuaries should be addressed through the action programmes developed under the Water Framework Directive.

A total of 1.9 million people live within 5 km of the coast, representing 40 per cent of the population and 40,000 people live less than 100 metres from the coast (CSO, 2019). Sea temperatures have been rising and future warming is expected to increase the intensity of storms (Desmond *et al.*, 2017). Sea level rises have already been recorded. Ireland as an island will need clear plans in place to adapt to these changes. The implications of climate change could be felt most closely along our coastal and marine areas. Climate change will put pressure on existing ecosystems as well as on the structure of the coastline itself and on coastal communities. Research is showing that nature-based solutions and the managed realignment of coastal habitats could be part of the measures to protect against sea level rise.

Ireland is not immune to the worldwide problem of marine plastic and litter. This turns up on our coastline from rivers and local land-based sources, recreation, from the fishing sector and from further afield, carried by the wind and ocean currents. Local clean-ups while beneficial are effective for only a short while. To really clean up and improve the situation there needs to be continued efforts to tackle the source of the waste in the first place.

In terms of policy development, the joined-up implementation of directives and policies where there are crossovers, such as those covering water quality (e.g. the Water Framework Directive and the Marine Strategy Framework Directive), nature directives, fisheries and those tackling waste, are areas for consideration to protect the marine environment.



⁷ <https://www.marine.ie/Home/site-area/irelands-marine-resource-real-map-ireland>



SYSTEM CHANGE – DELIVERY ON SECTORAL AND SOCIETAL OUTCOMES NEEDS TO BE ACCELERATED

SOE 9: Clean Energy

Ireland needs to Move Rapidly Away from the Extensive Use of Fossil Fuels to the Use of Clean Energy Systems

The emissions from the combustion of mainly imported fossil fuels are damaging for our health and our environment and drive climate change. The transition from reliance on fossil energy to a clean energy future for heating, electricity and transport is essential for the protection of human health, the climate and the environment and has multiple benefits for sustainable development and energy security.

Transport is a major driver of GHG emissions and air pollution because of its reliance on fossil fuels (Chapter 11). GHG emissions from this sector are increasing. This is not only a case of exceeding GHG targets, it is also a health and quality-of-life issue. Dublin is now ranked as one of the most congested cities in Europe for road traffic. There are plans to improve the emissions performance of the transport sector over the next decade by using electric vehicles, but public transport also needs to play a major role. Under the Climate Action Plan, the target is to increase the number of electric vehicles by 2030 to about one million. This requires a major shift in consumers' choice of transport, which needs to be strongly promoted. We also need to focus on the challenge of greening public transport. These are all positive from a GHG and air pollution perspective, but it does not solve all of the environmental impacts, such as noise emissions along busy motorways and land take for any additional road building programmes to tackle congestion.

'Avoid, shift and improve' is the hierarchy of change needed to transition to a sustainable transport system (Chapter 11). We should look at the avoidance of emissions through better spatial planning, more accessible low-carbon public transport and reducing unnecessary travel where possible. Technology and new working methods could also reduce the demand for travel, resulting in reduced emissions. Improvements include using more energy-efficient vehicles, electric vehicles and non-fossil fuels. A shift away from a reliance on personalised car use to low-carbon public transport, particularly in urban areas, is needed to reduce emissions, noise pollution and congestion. Simplest of all, spatial planning should be improved through the design of cleaner, greener and quieter towns and cities that facilitate and encourage more cycling and walking. This has been achieved in many places across Europe.



Energy from fossil fuel provides almost 90 per cent of the energy used in electricity generation, heating and transport (Chapter 12). To become carbon neutral, this trend will need to be reversed, with the bulk of energy needing to come from renewables in the future. Overall, the energy sector is the biggest source of GHG emissions, when fuel used for electricity generation, transport and heating is included. It is also the major pressure on local air quality. Ireland has abundant natural resources for the development of a modern, clean and efficient renewable energy sector that uses wind, solar and ocean energy. Any such transition will need to be implemented within a spatial planning framework that ensures the protection of human health and other national resources, including nature and landscape. It must have people at its core and plan for the changes to local areas and economies that come with this transition away from fossil fuels. The Climate Action Plan includes a target of 70 per cent electricity generated from renewable sources by 2030, the upgrading of 500,000 existing homes to a Building Energy Rating of B2 equivalent by 2030 and the phase-out of coal and peat electricity generation (DCCA, 2019). The achievement of these targets will require a concerted cross-sectoral and integrated approach to energy and land use planning and construction standards.



SYSTEM CHANGE – DELIVERY ON SECTORAL AND SOCIETAL OUTCOMES NEEDS TO BE ACCELERATED

SOE 10: Environmentally-sustainable Agriculture

An Agriculture and Food Sector that Demonstrates Validated Performance Around Producing Food with a Low Environmental Footprint

A more holistic farm management and water catchment-level management approach, encompassing all environmental pressures, will be fundamental to progress towards a more environmentally-sustainable and carbon-neutral food production system.

The core principle of Food Wise 2025 was that 'environmental protection and economic competitiveness are equal and complementary: one will not be achieved at the expense of the other' (DAFM, 2015). While the Food Wise 2025 strategy has delivered the intensification and growth that it promised, the pressures on the natural environment have increased, with as a consequence trends in water quality, GHG emissions, ammonia and biodiversity all going in the wrong direction.

The loss of nutrients from agriculture is severely affecting water quality (Chapter 7). The carbon balance for agriculture is negative, with more GHG emissions produced from the sector than are saved through carbon sinks associated with farmland and forestry (Chapter 13). Intensive agriculture and land use changes are having an impact on nature, habitats and species (Chapters 6 and 13). Ammonia emissions to air continue to rise, exceeding the EU limit in 2016, 2017 and 2018, driven by the expansion of the agricultural sector (Chapters 3 and 13). The food and drinks sector is the main industrial sector identified by the EPA for which improvements are needed to improve compliance with EPA licences (EPA, 2019c).



These deteriorating trends present a significant threat to Ireland's environment, which underpins our health and wellbeing and our economy; including to the agricultural sector, which depends on Ireland's reputation and marketing advantage as a food-producing nation with strong environmental credentials. It can be argued that the national agricultural intensification programme has failed to protect the environment, as the business side of the programme has outbalanced the environmental sustainability side. This shortcoming should be readdressed in the next agri-food strategy to 2030, currently in development. A key aspect for the next agri-food strategy will be to address the EU Farm to Fork Strategy⁸ and its targets to transform the EU's food system. Ireland's agri-food strategy will need to focus on breaking the link between animal numbers, fertiliser use and deteriorating water quality and resultant impacts on aquatic biodiversity. Such a move would also result in reductions in GHG and ammonia emissions and improved biodiversity. The strategy should encourage the promotion of more widespread high-nature-value farming initiatives, particularly in high status water body areas. It should also support and promote outcome-based agri-environmental schemes that would provide payments for results and ecosystem service activities rather than the current 'payments for costs incurred or income foregone' approach. An EPA submission, 'SEA Scoping for Agri-Food Strategy to 2030',⁹ provides further detail. Focusing on promoting the full and transparent integration of the findings of the Strategic Environmental Assessment into the agri-food strategy, the submission advocates that the key relevant environmental challenges for Ireland, as set out above, should be addressed in the strategy.

Measures and supports for farmers should be targeted and should aim to deliver multiple benefits for climate, air pollution and air quality, biodiversity, water quality and flood attenuation where possible. The introduction of a holistic farm planning approach would support farmers to achieve their business goals while meeting multiple environmental targets. Supportive programmes such as Teagasc guidance measures, the Smart Farming Programme and the Agricultural Sustainability Support and Advisory Programme need to be rolled out more widely to deliver quantifiable environmental outcomes. Measurable, reportable and verifiable data and evidence are needed to demonstrate that the agriculture sector is playing its part in reversing negative trends and making lasting environmental improvements.

⁸ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/farm-fork_en

⁹ EPA SEA submission are available here: <http://www.epa.ie/pubs/epasub/epasubmissionontheagri-foodstrategy2030.html>



SYSTEM CHANGE – DELIVERY ON SECTORAL AND SOCIETAL OUTCOMES NEEDS TO BE ACCELERATED

SOE 11: Water Services

Drinking Water and Wastewater Infrastructure must meet the Needs of our Society

Action is needed nationally to address the underlying causes for the delays in delivering improvements in drinking water and urban wastewater infrastructure. Addressing the legacy of underinvestment and fixing the shortcomings highlighted in successive EPA reports on drinking water and urban wastewater need to be prioritised. The resilience of water-related infrastructure must also improve to guard against the impacts of weather events and climate extremes on water services and the water environment.

Drinking water is a priority area for action to protect public health (Chapter 14). While the quality of public supplies remains high, it is not always secure from failures at treatment plants or, in some cases, treatment processes need upgrading to reduce risks to the supply. A total of 67 boil water notices were in place in 2019, affecting almost 700,000 people.¹⁰ Of those boil water notices, 59 were in place for more than 30 days, meaning they are classed as long-term notices requiring investment in infrastructure to address. Two boil water notices for over 600,000 consumers in 2019 highlights the vulnerability of our drinking water supplies. In 2020, 52 public supplies managed by Irish Water were on the EPA's Remedial Action List (RAL).¹¹ The RAL details those supplies in need of upgrades or improvements. For example, the RAL includes drinking water treatment plants that do not have appropriate treatment for the parasite *Cryptosporidium*. These supplies need to be prioritised for investment. However, delays and increasing uncertainty in Irish Water's planning and delivery of critical improvements to water treatment plants are making supplies vulnerable to failure, posing a risk to the health of a large proportion of the population (EPA, 2020g).

In addition to those served by public supplies, over one million people get their water from private supplies. Animal or human waste (as demonstrated by positive results for the bacterial indicator *E. coli*) was found in 62 small private supplies serving commercial or public buildings in 2018.¹² Improvements are needed in the management and disinfection of these supplies to eliminate risks to public health.

The increasing prevalence of the verocytotoxin-producing *E. coli* (VTEC) bacterial pathogen in household private wells in rural areas is a significant cause for concern. Those households in areas with septic tanks and their water supplies (such as wells or boreholes) should have these systems checked and maintained to safeguard against waterborne pathogens.

Improvements are needed in urban waste water treatment to protect water quality and in some areas to deal with untreated sewage discharges and overflows that could affect public health and bathing water (EPA, 2020h). Repeated delays in some essential projects mean that raw sewage discharges will continue past 2021 in 33 locations around the country (Chapter 14). The delays by Irish Water in treating these discharges is not acceptable as funding for these waste water projects is one of the top priorities mandated into Irish Water's Capital Investment Plan. Action is needed to prevent further delays in progressing these projects through the various project stages prior to construction. Irish Water needs to do more to deliver on its commitments and legal duty under EPA waste water authorisations to fix waste water issues, while ensuring that public information about plans to fix untreated sewage discharges is made available locally.

10 <http://www.epa.ie/newsandevents/news/pressreleases2020/name,69121,en.html>

11 RAL accessed 8 September 2020; see <http://www.epa.ie/water/dw/rall>

12 <http://www.epa.ie/newsandevents/news/pressreleases2020/name,67472,en.html>



SYSTEM CHANGE – DELIVERY ON SECTORAL AND SOCIETAL OUTCOMES NEEDS TO BE ACCELERATED

SOE 12: Circular Economy

Move to a Less Wasteful and Circular Economy Where the Priority is Waste Prevention, Reuse, Repair and Recycling

Changing our behaviours on resource consumption, waste management and recycling are actions that everybody, from business to individuals, can take to protect the environment.

Ireland has reached a plateau in relation to waste management; to further deliver the necessary waste prevention and circular economy ambitions will be a challenge. Recent waste statistics show that Ireland needs to do more on waste, with the decreases in the recycling rates for packaging waste a timely reminder of the continued requirement to evolve national waste management policies (EPA, 2020i,j). Overall municipal waste, construction and demolition waste, hazardous waste, waste electrical and electronic equipment and end-of-life vehicle waste generation is increasing with economic prosperity and population growth. A total of 14 million tonnes of waste was generated in Ireland in 2018 across all sectors. This is significant, and waste generation continues to be closely linked with economic growth, lifestyle and consumption patterns; these are links that have yet to be broken.



Plastic now makes up one-fifth of waste in household recycling and residual bins. We need to focus more on prevention and not just on the recycling and recovery of the waste that is produced. Campaigns such as Stop Food Waste are based on this approach. We are at a real point of transition in the waste area. New waste plans and strategies are expected over the next few years as Ireland starts to move to a more circular economy (Chapter 9). One such plan that has already been published in 2020 is the *Waste Action Plan for a Circular Economy* which covers national waste policy for the period 2020-2025 (Government of Ireland, 2020). There are also capacity issues to resolve. Landfill and waste-to-energy treatment is at capacity in Ireland and the country is highly dependent on export markets to treat residual, recyclable and hazardous wastes. Reductions in hazardous waste can be seen across some industrial sectors as companies change to clean production processes (Chapter 10).

Waste targets under the Climate Action Plan (DCCAE, 2019) and the Waste Action Plan for a Circular Economy are to reduce the percentage of municipal waste sent to landfill to 10 per cent by 2035, to reduce food waste by 50 per cent by 2030 and to recycle 70 per cent of packaging waste by 2030. Meeting the 2025 plastic recycling target of 50 per cent and the 2030 target of 55 per cent will be challenging (Chapter 9).

We need to continue to provide evidence-based information on consumption burdens, waste generation and impacts to allow sustainable choices to be made more easily. Consideration should be given to bringing forward a more informative eco-labelling scheme, as envisaged by the Green Deal, that presents clear signals to consumers and rewards more sustainable goods and services. In parallel with better signalling to consumers on products, it is essential to continue messaging on the quality of our consumption behaviours to remind us that our everyday lifestyles, activities and use of resources should not affect our health and that of our environment.

Measures to encourage changes in behaviour, as well as enforcement, are needed to deal with littering in both urban and rural areas, to prevent waste crime and to punish those who break the law. Illegal waste activity ranges from littering to backyard burning and large-scale unauthorised waste disposal. We need to step up enforcement efforts nationally to stamp out fly tipping and illegal dumping. Litter is still a major problem and results in thousands of complaints every year to local authorities. It also results in significant clean-up costs. It needs to become socially unacceptable to litter. Local authorities have a major role to play in tackling waste crime. There needs to be improved information sharing on waste enforcement to ensure that illegal waste activities can be quickly detected and prevented, remediated where necessary and penalised where they do occur.

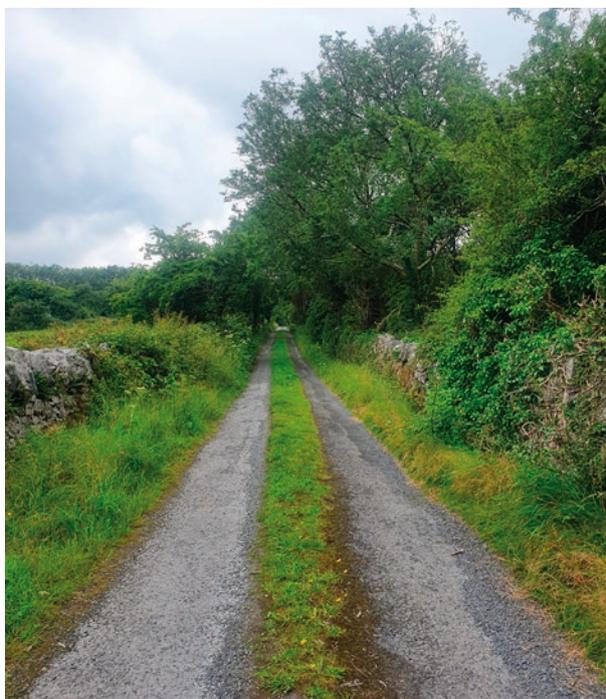
The circular economy approach should be central to any new waste strategies. To implement this, we will need targeted approaches to research and development, food waste, construction waste, plastics, hazardous waste and other priority waste streams. Regular data updates are needed on the sustainability of our waste practices and on where our waste ends up for final disposal or recovery. This information will help to reassure the public that when they make the effort to recycle their waste there are checks and balances in place to ensure that it is managed properly.



SYSTEM CHANGE – DELIVERY ON SECTORAL AND SOCIETAL OUTCOMES NEEDS TO BE ACCELERATED

SOE 13: Land Use**Promote Integrated Land-mapping Approaches to Support Decision-making on Sustainable Land Use**

The development of an integrated national approach to land mapping could support better decision-making on land use and management practices. It could contribute significantly to mapping land use change and managing competing pressures on the environment, such as agriculture, urbanisation, tourism and recreation, energy projects, carbon sinks, ecosystem services and space for nature.



EPA land cover mapping uses satellite imagery data to develop CORINE (Coordination of Information on the Environment) land cover maps (Chapter 5). These maps tell us a lot about the changes in Ireland's land cover over the past decades. They have documented the loss of wetlands, especially peatlands, which is evident when the long-term trends are looked at. They also show that forest cover is low overall compared with other European countries.

The use of earth observation and detailed satellite-based mapping, for example through further developments of the CORINE land cover maps, is expected to play a more important role in environmental protection in Ireland in the future. An important project led by Ordnance Survey Ireland, in partnership with the EPA and others, is now under way to make this happen. Using satellite data, the project team are developing a new detailed National

Land Cover Map that could help with monitoring the environment by charting changes within river catchments and quantifying the extent of and changes to carbon sinks such as bogs and forests, for example.

An Environmental Sensitivity Mapping Webtool has already been developed for use in Ireland.¹³ While developed mainly for Strategic Environmental Assessment work, this webtool has wider applications. The mapped outputs from this webtool allow users to 'highlight the relative environmental sensitivity of different areas' and can be used to provide early warnings, inform the potential for land use conflicts and 'provide a critical evidence basis for sectoral planning discussions and for developing alternatives that avoid or minimise potentially incompatible or unsustainable zonings'.

A vision for the future could be a network of integrated catchment and land use management plans that could form the basis of a more integrated collaborative and cooperative approach to the environmental management of Ireland's countryside (Chapter 13). It is not only the countryside where land mappings approaches can be used. These approaches also have relevance in urban areas, for example in tracking the extent of green and blue space for recreation and for the assessment of noise and air pollution from traffic sources.

'The world is changing, and Ireland is changing too. The best way for our country to address the changes that we will continue to face, is to plan for the change' – this is one of the messages from Project Ireland 2040 (Government of Ireland, 2019). This National Planning Framework has been put in place to guide Ireland's development and investment over the next two decades. It provides for an expected population growth of one million people in the next two decades.

To ensure balanced, sustainable development to 2040, national policy objectives in the framework on climate, environmental protection and natural resources will need to be progressed. The development of a coordinated, integrated national approach to land mapping, land cover and land use and management practices could help with the sustainable delivery of this project, as well as other national and sectoral plans. To achieve all of this we also need to inform, engage and support communities, farmers, businesses and sectors in the transition to sustainable and resilient land use practices.

13 <https://www.enviromap.ie/>



5. Conclusions

Overall, Ireland needs a national policy position for its environment that connects the various environmental challenges and guides the protection of the environment.

The overarching message from this report is that change is needed in how we look after our environment. However, economy or society cannot make the right sustainable choices if the systems or policies around them make it difficult to implement measures to protect the environment. Collaboration, integration and better connectivity across the different systems and policies are needed, as many are interlinked. Ireland has many sectoral plans in place with environmental commitments, but the environment continues to be affected and at risk – what we need is implementation, monitoring of plans and projects, and accountability to ensure that plans/projects are being carried out in the right way, in the right place and at the right time. A national policy position for Ireland's environment could help to achieve all of this.

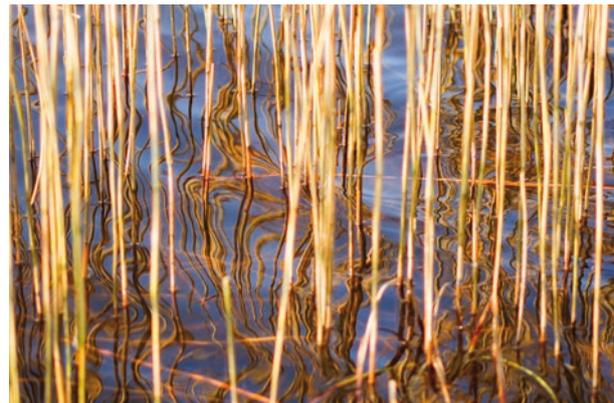
Research has demonstrated that our health and the state of the environment are intrinsically linked. System changes are needed in the energy, transport and agriculture sectors to improve sustainability and reduce emissions, which are damaging our environment and our health. We need to accelerate the implementation of measures needed to meet climate action commitments. Ireland needs to improve its performance in protecting nature and natural resources at community and national levels. Improvements are also needed in implementing environmental legislation and policy.

Evidence-based policy decisions using assessment tools such as integrated environmental assessment, system-based approaches, spatial planning, the precautionary principle and ecosystem services assessment should play a central part in protecting Ireland's environment into the future. The United Nations Sustainable Development Goals could also be considered when dealing with complex and interlinked environmental challenges.¹⁴ As post-COVID-19 national economic stimulus packages are being developed, now is also a good time to consider opportunities to leverage enduring environmental and public health benefits that address the challenges raised in this report.

We know that environmental protection is a local issue with global consequences. Ireland's environment is what connects us to our local places. It is part of our natural heritage and is where we live. When added together, the solutions taken at home, in businesses or at a field level can result in local improvements to global problems. Such local perspectives and community engagement, linked with national policies, leadership and direction, are part of the transition needed to protect Ireland's environment into the future.

Finally, it is useful to reflect again here on the 45 chapter highlights covering thematic, sectoral and integrated areas that have been identified in the report. They outline the scale of the challenges that need solutions. These 45 key chapter highlights are shown in Table 16.3.

Stay safe and keep the environment safe. It is our health and environment that matter, and this decade will be pivotal to how we deal with the challenges around protecting both.



¹⁴ <https://www.gov.ie/en/policy-information/ff4201-17-sustainable-development-goals/>



Table 16.3 The 45 chapter highlights covering thematic, sectoral and integrated areas from Ireland’s Environment – An Integrated Assessment 2020

NUMBER	CHAPTER HIGHLIGHTS
Introduction (1)	The absence of an overarching national environmental policy position is negatively affecting integration and progress across multiple environmentally related strategies, plans and programmes: the sum of the parts do not make up a coherent whole.
Introduction (2)	As Ireland emerges from the COVID-19 pandemic crisis and looks to stimulate economic recovery, it needs to apply a ‘green investment’ approach and avoid lock-in, or a return, to carbon-intensive consumption and unsustainable production behaviours, services and technologies. A clean environment provides the opportunity to deliver on health and economic dividends that will assist resilience and support recovery.
Introduction (3)	Protection of our waters, air, soil, ecosystems and biodiversity should not just be an ambition driven by altruism, as these systems and species provide essential supporting services for our wellbeing and our economy. The delivery of trusted and actionable knowledge about our environment is essential to allow Ireland to plan with any degree of certainty for a better future.
Climate (1)	Ireland’s climate is changing. Mitigation and adaptation action that is planned, coordinated and prioritised is required to build the resilience of society and the economy in the face of current and projected climate change impacts.
Climate (2)	The next decade needs to be one of major developments and advances in relation to Ireland’s response to climate change. We need to start implementing ambitious policies now. Full and early implementation of ambitious policies and measures can deliver Ireland’s current and future commitments to a climate-neutral economy and climate-resilient society by 2050.
Climate (3)	The scale and pace of greenhouse gas emissions reductions must accelerate. Reducing emissions requires far-reaching transformative change across the whole economy, including in agriculture, energy, transport, waste, land use, food, buildings and industry. Ireland’s greenhouse gas emissions profile – with over one-third of emissions coming from agriculture and a high dependency on fossil fuels – is particularly challenging. Ireland must also maximise the use of land as carbon stores, for example through grasslands, wetlands and forestry, to meet targets.
Air (1)	Monitoring and research show that Ireland has air quality issues that need to be resolved. Poor air quality has implications for public health. Identified solutions need to be implemented for the causes of poor air quality, which mainly relate to the residential use of solid fuels for home heating, emissions from transport, especially from diesel and petrol engine passenger cars, and ammonia-related emissions from livestock farming.
Air (2)	Using home heating choices that reduce air emissions, along with improved standards for the quality of solid fuel available, will help to minimise local air quality impacts. Reducing our reliance on diesel- and petrol-fuelled passenger cars and the adoption of best practices to reduce agricultural ammonia emissions on farms will have co-benefits for air quality, the climate, human health and biodiversity. In addition, the implementation of the commitments in the government’s Climate Action Plan will have co-benefits for air quality.
Air (3)	The need for a National Clean Air Strategy supported by WHO standards is more pressing than ever. The publication and roll-out of actions as part of the National Clean Air Strategy will be a necessity. The adoption of the WHO guideline values as national air quality standards would provide for a higher level of public health protection.
Noise (1)	National noise planning guidance for local authorities is needed. This will support and promote the proactive management of noise where it is likely to have significant adverse impacts on health and quality of life. The guidance will also help to implement the noise objective in Project Ireland – National Planning Framework 2040 and should also consider the 2018 WHO noise and health guidelines.



NUMBER	CHAPTER HIGHLIGHTS
Noise (2)	Noise pollution complaints from the public have been increasing and current measures do not always allow for them to be adequately addressed. Local authorities need to take a much stronger leadership role in dealing with noise issues, particularly in more urban areas.
Noise (3)	Integrating air pollution and noise mitigation measures (and climate actions), particularly in transport management, can bring many benefits. Such integration of options could be explored under the plans for a clean air strategy for Ireland. Local authorities should also designate quiet areas in their cities for health and wellbeing value.
Land and soil (1)	Our soils and land need to become net sinks for capturing and storing carbon dioxide. The facilitation of further carbon storage will require widespread rehabilitation and protection of peatlands, increased levels of forestry and woodland, and changes to land management practices. Where land management is providing a store for carbon, this should be maintained or enhanced. Where land management is resulting in emissions of carbon dioxide, this source should be reduced or eliminated, and where land is degraded or has lost its ability to absorb or store carbon dioxide it should be restored. Nationally, there needs to be a concerted effort to fully implement the commitments of the strategies and plans to protect and restore peatlands.
Land and soil (2)	A progressive approach to land cover, land use and land management is required to promote land practices that are sustainable and right for our environment and our people. Implementing such an approach will help coordinate, prioritise and measure Ireland's response to significant environmental issues such as climate change and the decline in nature across multiple sectors. An integrated national approach to land mapping will be needed to support this work.
Land and soil (3)	We need to continue to improve our knowledge of soils and the functions and services they provide. Careful management of soil enrichment and land management activities will avoid or minimise GHG emissions into the air, as well as nutrient and sediment losses into water catchments. This needs to happen from the national policy level to the local management scale, covering cross-sectoral activities on farms, forest plantations and peatlands and within both urban and rural areas.
Nature (1)	Ireland needs to prioritise actions to protect nature. The challenges facing vital pollinators such as bumblebees, and the extensive loss of the curlew as a breeding bird species, should be the alarm calls needed nationally to focus on the transformative changes required in how we value and protect nature. More engagement on nature protection across stakeholder groups is needed, together with a review of governance, with solutions fast-tracked at policy and regulatory levels to protect habitats and halt biodiversity loss.
Nature (2)	The challenges involved in protecting Ireland's habitats and species are now more serious than ever and need urgent action. But nature can bounce back under the right conditions. Implementing national biodiversity policies, such as the National Biodiversity Action Plan, requires an increased level of collaboration and coordination across multiple sectors and the whole of society. This can also give rise to indirect co-benefits for other sectors and environmental issues such as climate change and water quality.
Nature (3)	Education, monitoring and citizen science initiatives are vital steps in protecting biodiversity. To promote more proactive and widespread engagement we need to continue to systematically survey habitats and species, track threats from invasive species and develop collaborative projects between scientists, farming sectors and the public. Regulatory aspects also need to be in place, with conservation plans for the management of Natura 2000 areas.



NUMBER	CHAPTER HIGHLIGHTS
Water (1)	Ireland has seen a continuing decline in high status water bodies and an increase in the number of water bodies in poor ecological health. Even more stark is the dramatic reduction in the number of our most pristine rivers, which have fallen in 30 years from over 500 sites in 1990 to only 20 sites in 2020. Rapid action is needed to protect our remaining pristine sites before they are lost. More urgent focus also needs to be given to protecting our estuaries, as these water bodies have the worst status overall and specific measures for their improvement and protection should be identified and implemented.
Water (2)	The decline in river water quality is being driven primarily by nutrient pollution coming from agriculture and wastewater systems. Fertiliser spreading, slurry spreading and other nutrient losses that are causing pollution need to be covered by tighter measures in the next River Basin Management Plan and Nitrates Action Programme. Irish Water must ensure that the necessary wastewater infrastructure is in place and is not causing pollution, as legally required in EPA authorisations.
Water (3)	Overall, water quality has declined in Ireland, despite the actions taken to date to reverse this trend. Continued targeted action at local water catchment level that is based on science is key to improving water quality. The Local Authority Waters Programme and Agricultural Sustainability Support and Advisory Programme have key roles in implementing this targeted action and providing guidance at water catchment and farm levels to improve water quality. There also needs to be a national focus on measures to deliver solutions that protect and restore all water bodies.
Marine (1)	Ireland's marine waters are clean and reasonably healthy but not as biologically diverse and productive as they could be. They are affected by several human-induced pressures including fishing, climate change and marine litter such as plastics.
Marine (2)	The area covered by Marine Protected Areas needs to be expanded significantly to meet the international requirement to conserve 10 per cent of all coastal and marine areas, rising to 30 per cent in future targets under the EU Biodiversity Strategy 2030. The expansion will promote the remediation of environmental damage and the protection of marine ecosystems and biodiversity.
Marine (3)	As an island nation with an extensive marine area, Ireland needs to ensure that robust governance and legal frameworks are in place to protect marine ecosystems and the services they provide to society. There needs to be governance systems in place that coordinate and integrate the implementation of directives where there are crossovers, such as those covering marine strategy, marine spatial planning, water quality, waste, biodiversity and protecting fish stocks.
Waste (1)	Ireland needs to do more to prevent waste at all stages of a product's life cycle, incentivise reuse and repair, increase recycling and extract the maximum resources from waste that cannot be recycled. Implementing the policy initiatives under the <i>Waste Action Plan for a Circular Economy</i> will be central to delivering the systemic changes needed.
Waste (2)	Strong, consistent, multi-agency enforcement and campaigns to change public behaviour are needed to effectively target littering in urban and rural areas, to prevent waste crime and to ensure that those who break the law are held accountable.
Waste (3)	How we manage and recycle our waste needs to be reviewed. Municipal and packaging waste recycling rates have stagnated or declined but improved segregation of kerbside bins could bring about significant improvement in rates. Landfill and waste-to-energy treatment in Ireland is at capacity and the country is highly dependent on export markets to treat residual, recyclable and hazardous wastes. We need to build in resilience to Ireland's waste management capacity in the event of emergencies.



NUMBER	CHAPTER HIGHLIGHTS
Industry (1)	Pollutant emissions to air from industry represent a significant proportion of Ireland's total air emissions. However, releases of air pollutants by industry have significantly decreased (by over 70%) during the past decade. Overall, environmental regulation and improved pollutant abatement technology, among other factors, have delivered significant reductions in pollution and will continue to do so under new tighter standards up to 2030.
Industry (2)	The food and drink sector continues to face many challenges in maintaining environmental compliance as the industry adapts to increased agricultural production and intensification. This sector has featured strongly on the EPA priority sites list. Investment is needed to ensure that facilities in the food and drink sector meet their environmental obligations set out in EPA licences covering areas such as odour controls, noise limits and the operation of wastewater treatment systems.
Industry (3)	Environmental regulation provides a requirement that industry modernises and meets best practice in relation to controls on waste and emissions, as these actions taken to reduce emissions contributes a large dividend in terms of environmental and human health improvements. Industry can gain competitive advantages and more local support from being sustainable and having a good environmental compliance history.
Transport (1)	The transport sector has a significant impact on the environment, including being responsible for 20 per cent of Ireland's greenhouse gas emissions. A sustainable mobility transformation is required, with the next decade crucial, whereby necessary journeys are made by sustainable modes such as walking, cycling and public transport, followed by using electric vehicles where unavoidable. For this transformation to happen we need to start fast-tracking the measures in the Climate Action Plan and other necessary measures.
Transport (2)	Long-term, integrated spatial and transport planning can achieve compact development and move trips to rail, bus, cycling and walking. Shifting to these modes is an essential part of a sustainable and climate-neutral transition for the transport sector.
Transport (3)	While challenging, the long-term changes required in transport can deliver multiple benefits in reducing greenhouse gases, tackling growing traffic congestion, reducing air pollution and noise emissions, and enhancing our wellbeing and the economy.
Energy (1)	Almost 90 per cent of Ireland's total energy use is provided by combustion of, mostly imported, fossil fuels. This is not sustainable. The resultant emissions are damaging for our health and our environment and continue to drive climate change. To transform this situation, we need to start fast-tracking the measures in the Climate Action Plan and other necessary solutions. Strategic planning is required to transform this situation by 2050, including accelerated actions to 2030.
Energy (2)	Transitioning to a clean energy future is essential for the protection of human health, climate and the environment, while having many benefits for sustainable development. The investment and implementation of currently available solutions to enhance efficiency and utilise Ireland's renewable energy potential needs to be urgently rolled out.
Energy (3)	Current fossil carbon lock-ins in electricity generation, but particularly in buildings and transport, need to be assessed, quantified and managed as part of the rapid transition away from these energy sources. Such a transition will require effective frameworks for investment. The redirection of fossil fuel subsidies can contribute to this process.
Agriculture (1)	Agricultural practices are identified in EPA reports as being one of the main pressures responsible for the decline in water quality nationally. Moreover, the agriculture sector is responsible for approximately one-third of national greenhouse gas emissions and over 99 per cent of national ammonia emissions. Biodiversity is also under pressure from land use changes and intensive farming. Ireland's reputation as a food producer with a low environmental footprint is at risk of being irreversibly damaged. Outcome-focused and activity metrics are required to allow for tracking of the sector's performance and accountability in improving sustainability and protecting the environment.



NUMBER	CHAPTER HIGHLIGHTS
Agriculture (2)	Economic growth in the agri-food sector in recent years is happening at the expense of the environment, as evidenced by trends in water quality, emissions and biodiversity all going in the wrong direction. Business-as-usual scenarios will not reverse these trends. New measures must go beyond improving efficiencies and focus on reducing total emissions by breaking the link between animal numbers, fertiliser use and deteriorating water quality. Measures are also needed to address new EU strategies including the Farm to Fork Strategy, which sets ambitious but sustainable targets to 'transform the EU's food system'.
Agriculture (3)	The adoption of a more holistic farm and catchment-level approach, encompassing all environmental pressures, will be fundamental to progress towards more environmentally sustainable and carbon-neutral food production.
Health and wellbeing (1)	A good-quality, well-protected environment has significant health and wellbeing benefits; research has shown that access to clean green and blue spaces in our environment is good for us. The provision of health-promoting environments in urban planning is central to Ireland's transition to more compact and urban living.
Health and wellbeing (2)	Greater individual action needs to be taken to proactively tackle avoidable health consequences linked to the environment. Actions include radon testing, testing private wells, maintaining septic tanks, eliminating use of smoky fuels, reducing wasteful consumption, preventing littering and making sustainable commuting decisions.
Health and wellbeing (3)	There are risks to our environment and our health from climate disruption, chemical exposure, and underinvestment in drinking water and wastewater treatment infrastructure. These risks must be addressed through state investment in targeted research, in monitoring and enforcement actions, and through investment by Irish Water in the necessary water services infrastructure.
Environmental performance, tracking plans and programmes (1)	Many of Ireland's agreed environmental targets will not be met in the short term or will be delivered late. Despite progress in some areas, the scale and speed of improvements being made are insufficient to meet long-term EU and national objectives such as those covering water quality, air quality, nature protection, reducing emissions to air and the ambition for a climate-neutral economy and climate neutrality by 2050. To improve implementation, sustained improvements are needed in how the performance of environmental and sectoral plans, policies and strategies are coordinated and tracked, their effectiveness is measured and the outputs of such measurements are fed back into reviews and future updates.
Environmental performance, tracking plans and programmes (2)	The successes in environmental policy implementation to date, for example around industrial emissions and waste management, were hard won. These successes are being offset by increased levels of population growth, unsustainable patterns of production/consumption and climate change, resulting in a net decline in the state of Ireland's environment. To reverse these trends, Ireland needs to improve the implementation and enforcement of existing environmental legislation and policy at all scales, from national to local levels. This can be supported through more effective governance structures, greater focus on monitoring and performance evaluation, enhanced oversight and enforcement, and higher levels of investment.
Environmental performance, tracking plans and programmes (3)	Tackling the complex and interlinked challenges facing the environment will require the development of more integrated, coherent and ambitious environmental policy frameworks and a clear national policy position for Ireland's environment.



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