

Chapter 1

Introduction





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Today's environmental challenges, including the protection of the health of our citizens, ecosystems and the economy, are forcing a fundamental reconsideration of how we produce and consume, how we invest and how we plan for the future. As we emerge from the pandemic crisis of 2020 and look to stimulate economic recovery, we need to do so through a 'green investment' lens and avoid lock-in, or a return, to carbon-intensive and otherwise unsustainable consumption and production behaviours and technologies.

We live in a time of great uncertainty. Climate change, ecosystem loss and resource constraints, and the disruption that will flow from them, are challenging the established economic, social and natural structures of our world. This will alter our collective futures in ways that are not yet fully understood. Social and economic inequalities combined with natural climatic variations will mean that certain areas and communities will be disproportionately impacted. Today's environmental challenges are demanding a fundamental reconsideration of how we produce and consume, how we invest, how we develop and how we plan for the future. We are also witnessing the erosion of biodiversity at an unprecedented scale and seem unable to stem this tide of destruction. We know collectively that this must change, which is reflected in global agreements such as the Paris Agreement, the United Nations Sustainable Development Goals and the United Nations Convention on Biodiversity; in European initiatives such as the Environment Action Programmes (EAP)¹ and the European Green Deal; and in national initiatives such as the declaration of a climate and biodiversity emergency, the 2019 Climate Action Plan, Ireland 2040 and the many other plans and programmes in place to improve and protect our natural environment.

Ireland, the Environment and the Pandemic

The coronavirus (COVID-19) pandemic of 2020 has challenged public and institutional structures in relation to our social, technical and administrative abilities to cope with societal disruption. It has also awakened a stronger appreciation of our connectedness to global events, as well as to the environment on a local scale (within 5 km of where we live). Media reports over this year of confinement are full with examples of young and old re-engaging with their environment, enhancing their appreciation for nature and benefiting from access to it. Research undertaken for the Environmental Protection Agency (EPA) demonstrated that, among the citizens surveyed, the previously stated barriers to engaging with their local environment (lack of time from being at work, busy at home and poor weather) diminished in importance during the first half of 2020 (Kindermann *et al.*, 2020). The results of this survey also noted increases – in early 2020 relative to 2019 – of between 30 per cent and 45 per cent in the time spent in blue and green spaces for physical and mental health, with nearly half of the respondents reporting discovering new, or rediscovering old, green and blue spaces in their community.



¹ The 7th EAP is operational until the end of 2020 <https://ec.europa.eu/environment/action-programme/>. The European Commission in October 2020 launched a proposal for an 8th EAP <https://ec.europa.eu/environment/pdf/8EAP/2020/10/8EAP-draft.pdf>.



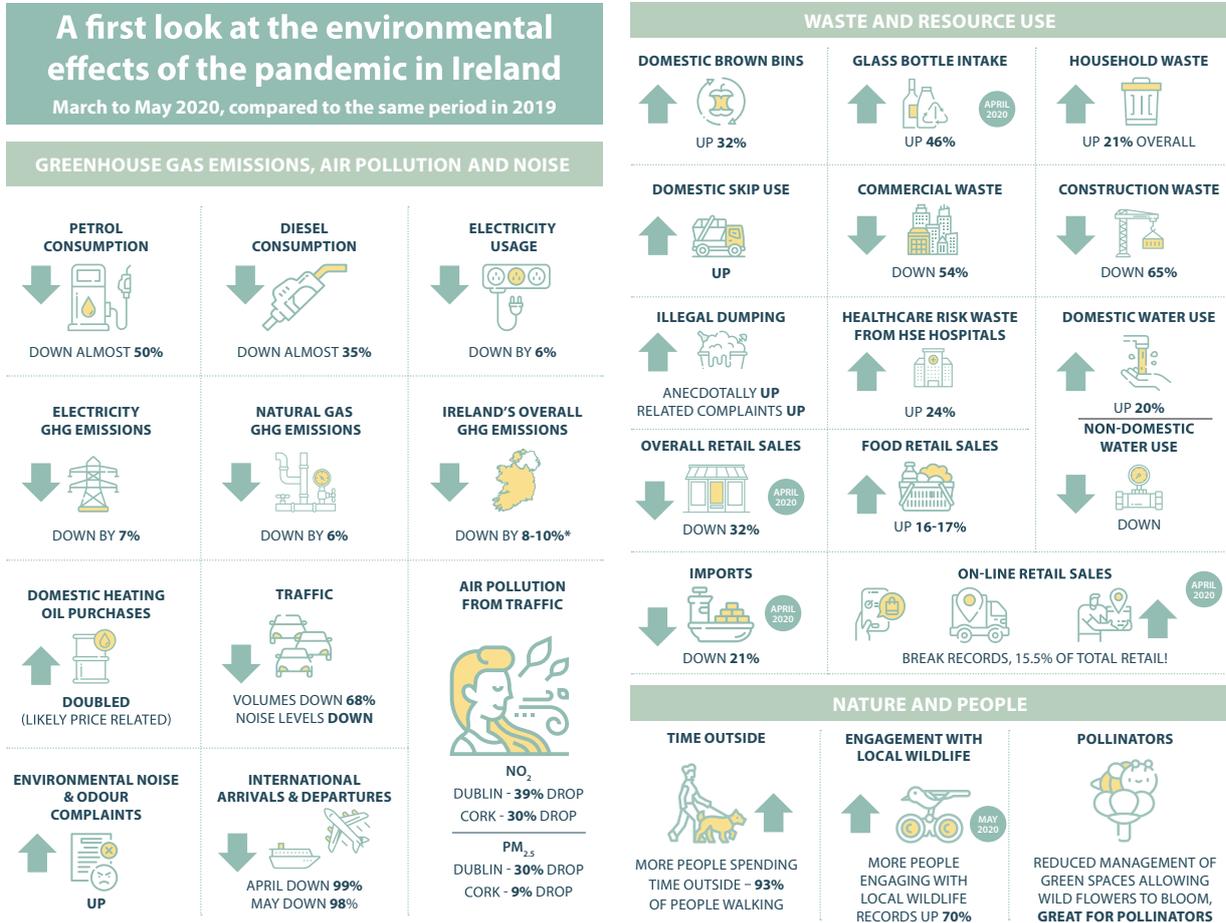
A positive outcome from the national response to the COVID-19 pandemic is a notable increase in the standing of science and trust in professional evidence-based assessment in informing public policy and citizens' behaviour. These authoritative voices have been important in guiding us through the challenges and solutions. There are useful lessons for safeguarding the environment agenda in this too. The pandemic challenge, although acute in nature, provides some knowledge that can be applied to chronic and incremental societal risks, in particular the need for whole-of-government and whole-of-society collaborative and integrated action on interconnected environmental challenges.

The COVID-19 outbreak has had a significant impact on Ireland's society and economy – the tragic loss of life and the distress that flows from that, the social disruption and the impact on businesses. The business impact has been seen not only in the specific sectors that were closed, but also in workplaces that remained open, in terms of the increased risk mitigation costs, and in the increased healthcare costs. The degree to which these acute stresses will impede national environmental policy ambitions – including the climate-neutral transition – remains to be seen.

In addition to a reported re-engagement with nature, the pandemic has had some notable environmental consequences. In April, the Irish Waste Management Association reported a reduction of over 50 per cent in commercial waste and a reduction of up to 70 per cent in construction and demolition waste (O'Leary *et al.*, 2020). As expected, healthcare risk waste has increased, but other notable increases associated with confinement were seen in domestic waste collections, as well as in public use of civic amenity sites. Our cities became quieter and were less polluted by traffic, and there was an increase in environmental complaints (EPA, 2020a; O'Leary *et al.*, 2020). Some of these observations are summarised in Figure 1.1.



Figure 1.1 Ireland in the pandemic – environmental indicators (Source: O’Leary, *et al.*, 2020, with updates on overall greenhouse gas (GHG) emissions from EPA)



*Ongoing work, subject to revision

It is imperative as we emerge from the pandemic crisis and look to stimulate economic recovery that we do so through a 'green investment' lens and so avoid recovery- and growth-promoting technical and infrastructural spending that locks us into carbon-intensive and otherwise unsustainable consumption and production behaviours and technologies. A clean environment, including one in which radiological risks from natural (e.g. radon) and technological (e.g. electromagnetic fields) sources are managed, provides the opportunity to deliver health and economic dividends that will assist resilience and support recovery. We have an opportunity in this 'reset' of our economy to pivot away from unsustainable practices and deliver lasting changes that support the climate-neutral transition, as well as other environmental ambitions. This is also known as 'building back better' (OECD, 2020).

International research by Bhattacharya *et al.* (2020) for the Coalition of Finance Ministers for Climate Action, the OECD (2020) and Hepburn *et al.* (2020) suggests that green recovery packages have many benefits over non-environmentally friendly recovery packages. First, they

are an effective mechanism to advance a climate-neutral society and economy; and, second, they have positive wellbeing and economic returns in both the immediate and the future horizons. Hepburn *et al.* (2020) examined a variety of possible policy options and surveyed over 200 central bank officials, finance ministry officials and other economic experts from G20 countries to investigate the optimal green recovery pathway. From this they identified five key policy areas that have the highest potential for creating positive economic multipliers and positive low-carbon and resilience impacts, namely:

1. clean physical infrastructure investment in the form of renewable energy assets, storage (including hydrogen), grid modernisation and carbon capture and storage technology
2. building efficiency retrofits
3. investment in education and training to address immediate unemployment as a result of the COVID-19 pandemic and to address structural shifts from decarbonisation



4. natural capital investment for ecosystem resilience and regeneration, including restoration of carbon-rich habitats and climate-friendly agriculture
5. clean research and development spending, including rural support scheme spending, particularly that associated with sustainable agriculture.

The OECD's (2020) *Building Back Better* report on the opportunity to embrace a more sustainable recovery articulates five dimensions of 'better' that can act to guide policy decisions (Figure 1.2).

Figure 1.2 Five dimensions of *Building Back Better* (after OECD, 2020)



Research by the OECD (2020), Bhattacharya *et al.* (2020), de Bruin and Monaghan (2020) and others suggests that investment in a green recovery package in the aftermath of the COVID-19 crisis is rational and will yield substantial economic returns and outperform its less green counterparts on a number of important policy metrics, and also deliver wellbeing co-benefits. The European Commission has made a clear commitment to a green recovery – proposing a €750 billion economic stimulus plan – and has articulated a sustainable finance taxonomy in support of this. This green taxonomy aims to ensure that investments correspond to a predefined set of environmental objectives (EU, 2020).

2. Wider Context to Protecting Ireland's Environment

Protection of our waters, air, soil, ecosystems and biodiversity should not be considered as merely an ambition driven by altruism, as these systems and species provide essential supporting services for our wellbeing and our economy. It is time for a holistic approach through the articulation of an overarching national policy position for the environment that will drive commitment and underpin coherence.

Since the publication of the EPA's sixth state of the environment report in 2016 (EPA, 2016), there is a much greater level of awareness in Ireland and globally that humanity has already significantly damaged and altered the planet on which we depend. More than 80 per cent of Irish citizens surveyed for the recently published Eurobarometer (EC, 2020) agreed that environmental issues have a direct effect on their daily life and their health – with no strong urban/rural difference. This survey also reported that, in Ireland, climate change is ranked as the most important environmental concern (57% of respondents), followed by waste (53%), water pollution (42%) and air pollution (37%). Twenty-nine per cent of Irish respondents expressed concern about agricultural pollution and 81 per cent agreed that their consumption habits adversely affect the environment in Europe and the rest of the world.

And yet, we remain locked into fossil fuel dependency, which in turn is adding more heat to the planet and will result in even greater problems in the future unless we radically reduce our reliance on such fuels. As an island in the North Atlantic Ocean, Ireland is particularly vulnerable to rising sea levels and changing weather patterns and has a major stake in ensuring that the world acts now to decarbonise our energy systems and to protect humanity and the natural world on which we depend from the inevitable consequences of the changes already made to our climate. These challenges are put rather starkly in the recently published *Climate Change Adaptation Plan for the Health Sector (2019-2024)* (Government of Ireland, 2019), which states that:

Without decisive adaptation action, climate change will have profound impacts for the health and wellbeing of people in Ireland, for the smooth delivery of our health and social care services, and for our critical infrastructure.



Europe is leading the way in setting a course for change with the European Green Deal (EC, 2019), which resets the European Union (EU) commitment to tackling climate- and environment-related challenges. The overarching vision for Europe's environment and society is set out in the Green Deal in the following stated aims:

- *To transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use: this transition must be just and inclusive.*
- *To protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts.*

This is the prize, but there is much work to be done by many actors – including citizens – to get us onto a collective pathway that will get us there. And where does Ireland fit into this? The declared ambition of Ireland's government is that Ireland will be a leader in responding to the challenges of climate change. However, the evidence shows that there is clearly a gap between aspiration and reality. Yet Ireland has much to gain from taking a leadership position, as the choice facing our country in 2020 is to be either a leader or a follower, a champion and beneficiary of change or a victim of circumstance.

This is the seventh state of the environment report published by the EPA since its first report in 1996, 24 years ago. We live in a very different Ireland now, with more than 1.3 million additional people living here according to Central Statistics Office (CSO) data, an increase of 36 per cent from 1996. The Irish population is projected to continue to grow by another million people between now and 2040 (CSO, 2018); this is against a backdrop of a much more modest population increase across the EU family of 28 nations (as was) of approximately 6.5 per cent between 1995 and 2019 (Eurostat, 2019). In spite of this, Ireland remains one of the least densely populated regions in the EU, with a population density of just over half of the European average (World Bank, 2019). Ireland has also become a far wealthier country, with CSO data indicating that gross national product has increased fourfold over the last 20 years (CSO, 2004, 2020). These economic and population changes have inevitably brought about changes in our natural environment. The increasing population and increasing levels of unsustainable production and consumption place pressures on water quality, air quality, biodiversity and land, and this is largely at the root of the continuing deterioration in environmental quality since the previously published integrated assessment of Ireland's environment in 2016. It is notable that in the recent Eurobarometer survey the two measures that are seen by Irish citizens as potentially the most effective at tackling environmental problems are (1) changing the way we consume (33%) and (2) changing the way we produce and trade (31%) (EC, 2020).

This seventh state of the environment report is being published by the EPA at a time when Ireland is starting to sow the seeds of climate change and wider environmental and sustainable development leadership. It provides the up-to-date environmental, radiological protection and wider sustainable development evidence base on which such leadership can be built.

People are not immune to the demands placed on our environment, as evidenced through the results of a Red C poll on public attitudes to the environment commissioned by the EPA and undertaken in 2020 (EPA, 2020b). It reported that an overwhelming majority of adults (87%) in Ireland recognise the importance of the environment as an asset to the country. Media coverage in the last 24 months in relation to climate change and biodiversity loss, including much space given to strong voices from national and international advocates, attests to this growing awareness and engagement.

Ireland's environment is also given standing through our nation's commitments to international processes, including the United Nations Sustainable Development Goals and the United Nations Conventions on Climate Change, Biological Diversity, Nuclear Safety, Long-range Transboundary Air Pollution, and the Law of the Sea, as well as a raft of obligations flowing from our membership of the EU. These processes provide essential context and all act to advance the ambition of protecting and enhancing our environment and the health of everybody who depend on it.

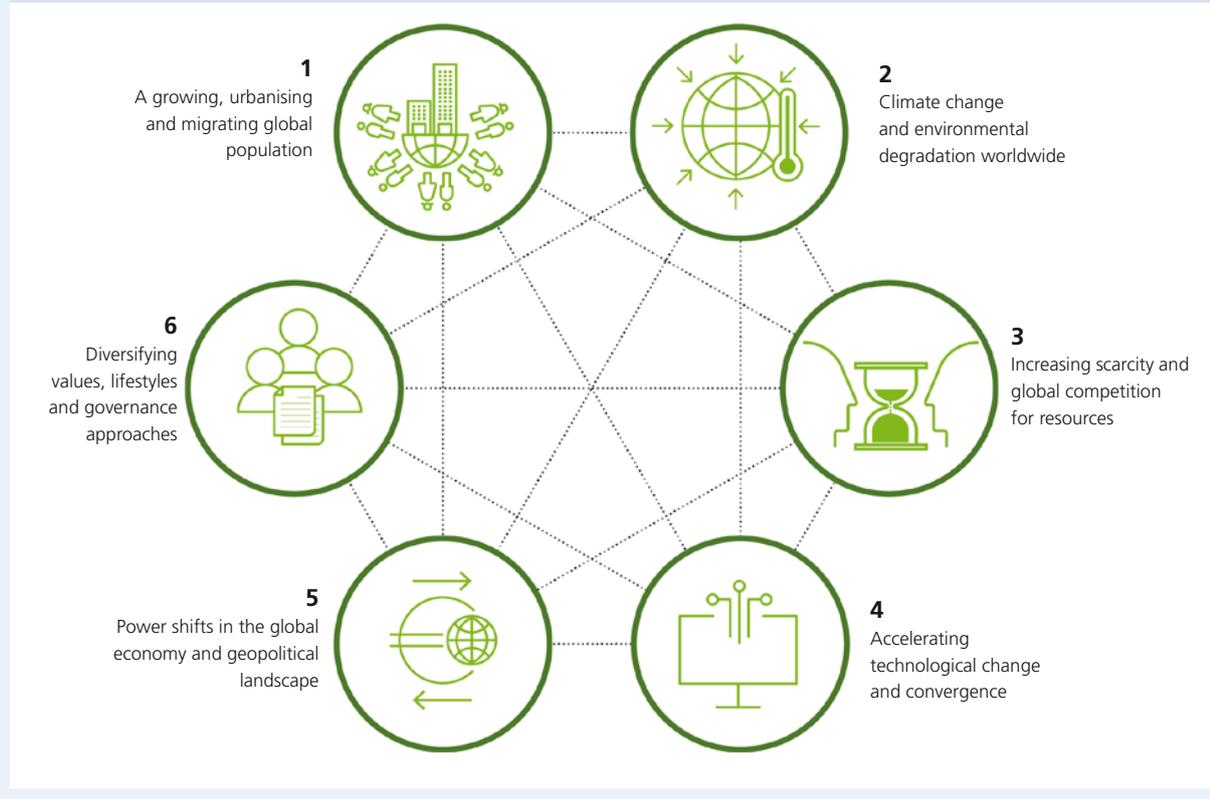
Recent international reports, including the 2020 state of environment report from the European Environment Agency (EEA, 2019) (Topic Box 1.1) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services report (IPBES, 2019), outline stark warnings and an urgency around environmental protection challenges. They speak about the need to balance development covering society, economy, transport, energy and food systems with the need to protect the environment and human wellbeing. These reports call for urgent action on the protection of the environment, and especially actions to address climate change and biodiversity loss. They advocate not just for small changes but for a systemic change in how we look after our environment.



Topic Box 1.1 The EEA's State of Europe's Environment Report 2020

According to the EEA (2019), 'the overarching challenge of this century is how we achieve development across the world that balances societal, economic and environmental considerations'... Sustainability needs to become the guiding principle for ambitious and coherent policies and actions across society.' A wide range of drivers of change on the environment have been identified, which put unprecedented pressure on resources (Figure 1.3).

Figure 1.3 Clusters of drivers of change (Source: EEA, 2019)



Many of the issues highlighted at European and international levels mirror the challenges we are facing here in Ireland. They include complex issues in the areas of water quality, air quality in urban areas, resource use, climate change, biodiversity, ecosystem damage and environmental risks to health and wellbeing. Many national plans and programmes have been introduced to address these challenges, with many notable successes; however, we need to close the gap in implementation in order to deliver the full intent and potential of these policies. These multiple plans and programmes also suffer from a coherence challenge as they are devised in the absence of a single overarching national environmental policy position.

Perhaps the greatest positive change to our natural environment over the past 25 years has been a marked reduction in the gross pollution of water, air and land (the 'worst of the worst'). However, in parallel with this achievement there has been a loss of the most pristine and unspoilt water and terrestrial habitats (the 'best of the best'). The reduction in the 'worst of the worst' has largely been driven by stronger regulation and investment in environmental protection technology, such as wastewater treatment, air emissions abatement, soil remediation and landfill engineering, while the loss of the 'best of the best' has largely been driven by changing land management practices, diffuse pollution and human activity in areas previously relatively untouched by human intervention. Protection of biodiversity and ecosystems should not be considered as merely an ambition driven by altruism, as these systems and species provide essential supporting services for our wellbeing and our economy.



The challenge facing us over the next decade is to halt any further deterioration of our natural environment while our population continues to grow; secure the improvements in our natural environment that we have made through regulation and investment; integrate radiological protection into our built environment; start restoring some of the precious habitats and water bodies that we have lost; leverage growing public engagement on environmental issues and accelerate action to decarbonise and green our economy and society; and protect ourselves against the inevitable consequences of climate disruption for our island.

As noted earlier in this chapter, an immediate task facing Ireland in the context of this assessment of our national environment is to consider what opportunities there are through post-COVID-19 national economic stimulus packages to leverage enduring environmental and public health benefits that address the concerns raised here. At the very least, we need to ensure that economic interventions do not contribute to the 'locking in' of unsustainable high-carbon technologies; lead to the development of national infrastructure that is not climate resilient; compromise biodiversity and ecosystem services; contribute to a health burden for the population through emissions from poorly considered choices and from radiological sources; and generate irreversible environmental and cultural losses. Research and assessment undertaken by the CSO (2019) and the Economic and Social Research Institute (Morgenroth *et al.*, 2018) has identified that there exists within the national taxation and subsidy system a series of reliefs that are environmentally harmful. It will be essential that such market failures are identified and removed from the taxation code and subsidy schemes as they are incompatible with sustainable recovery ambitions.

National economic stimulus packages that are environmentally framed (i.e. through the EU green taxonomy; EU, 2020), allied to strong public awareness, present a real – and rational – opportunity to advance our transition ambitions and our adaptive capacity while delivering enduring economic and social benefits.



3. Content of the Report

The environment must be seen in its totality if we are to understand our impact on it, both positive and negative. Therefore, our assessments go beyond simply looking at individual parts of the environment and consider the interconnections that link them together and the human activities that can affect them.

This report, in common with the previous six reports, provides an overview of the current condition of Ireland's environment and whether it is getting better or worse. The EPA is required by law to periodically report on an integrated assessment of Ireland's natural environment, including radiological aspects. The EPA's evidence capability, comprising its expertise, experience, data, research and technologies, together informs and supports this assessment. We have also engaged with, and benefited from the input of, key national agencies with core knowledge and data relevant to sections of this report.

What do we mean by an integrated assessment? The environment must be seen in its totality if we are to understand our impact on it, both positive and negative. For example, measures to tackle climate change can have a negative impact on air quality and water quality if not planned carefully; and biodiversity can be affected by water quality, air quality and climate change. This means that our assessments have to go beyond simply looking at individual parts of the environment; rather, they must also consider the interconnections that link them together and the human activities that can affect them.

This report is therefore structured into two main parts: thematic assessments covering climate, air, noise, soil and land cover, nature and the freshwater and marine environment; and integrated assessments covering waste, the economy/industry, transport, energy, agriculture and the interactions between the environment and human health and wellbeing. For 2020, we have included a new chapter called 'Tracking Plans and Programmes', which addresses how Ireland is doing in the area of environmental policy implementation. The report concludes with a chapter covering integrated assessment and the key messages.



Chapter Highlights for Introduction



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.



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.



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.



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