INS301-02: Review of divergence in environmental regulation in Northern Ireland relating to nutrient management

Office for Environmental Protection

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Miller Research

Miller Research is a specialist research and evaluation consultancy firm with extensive experience of qualitative and quantitative research, stakeholder engagement, and analysis around environmental governance, green and blue infrastructure, climate change mitigation and adaptation, and the circular economy. We offer more than 20 years' experience in research and support in policy design, delivery and evaluation and have a wealth of experience in developing, managing, and delivering innovative research projects.

Miller Research is committed to accelerating a just and equitable net zero transition through collaborative, flexible, and ethical practices. We work with individuals, governments and companies who actively support environmentally conscious practices and take pride in developing solutions that promote sustainability, provide tangible outcomes, and leave positive legacies. We are proud to be a certified B Corp™ organisation, and our certification recognises our commitment to the highest standards of performance, accountability, and transparency in environmental, social and governance practice.

Environmental Justice Network Ireland (EJNI)

The Environmental Justice Network Ireland was launched in June 2019 as an independent, non-profit platform for collaborative working between academics, representatives of civil society and environmental NGOs with the goal of addressing the root causes of social and environmental justice deficits which exist in Northern Ireland, across the island of Ireland and within the EU. EJNI is delivering its goal through an innovative, transdisciplinary model of collaboration which draws together diverse stakeholders and decision-makers who usually operate in almost completely separate spheres to enhance knowledge exchange and facilitate more effective and strategic research, advocacy and action.

Our responsive research outputs include reports, briefings and social media campaigns which translate complex research into accessible formats and

which are created to academic, peer-reviewed standards with the core goal of driving forward positive change. Our research has thus contributed to knowledge, stimulated new and emerging conversations around environmental and social justice and connected local and grassroots concerns to national and international developments. EJNI has developed into a unique convening platform for collaborative online and in-person activism and action designed to enhance cooperation across borders and between diverse stakeholders to deliver strategic, real-world impact.

Institute for European Environmental Policy UK (IEEP UK)

The Institute for European Environmental Policy UK (IEEP UK), is a not for profit, sustainability think tank based in the UK with over 40 years' experience in assessing and influencing long-term and effective environmental policies at a European and also UK level. This includes sectoral policies that have a major impact on the environment, like agriculture. IEEP UK, together with its sister organisation in Brussels, has established a strong reputation among international, European and national policy-makers, industry and non-governmental organisations, both for its expertise on environmental and sectoral policies and for the independence and integrity of its work. IEEP UK has functioned independently since 2022, but continues to operate as part of the broader IEEP family and benefits from European scale intelligence, research and experience that this brings.

IEEP UK works with universities, agencies and professional associations, research institutes and consultancies to conduct impactful research and policy analysis. Staff follow policy developments in the UK and EU and stay in regular contact with officials in the relevant institutions. A particular strength of IEEP is that it covers the full breadth of environmental policy, but it has developed strong expertise on agricultural policy as well. We have undertaken a wide range of studies on the environmental dimension of EU agricultural policy design and implementation, including evidence-based evaluations of the impacts of the policy in different countries, including the UK. Since the UK has left the EU, IEEP UK has turned increasing attention to informing the evolution and governance of policy instruments affecting the sustainable

management of land in the four parts of the UK, including work focused on water pollution.

Executive Summary

Introduction and Project Background

This report was commissioned by the Office for Environmental Protection (OEP) to investigate how actual and potential regulatory divergence may impact nutrient management and environmental protection in Northern Ireland (NI). Divergence refers to the growing differences in regulatory approaches between the UK, EU, NI, and Ireland following Brexit. Given NI's unique position – sharing a land border with an EU member state and being partially aligned with EU law under the Windsor Framework – these issues carry particular significance.

Nutrient enrichment is a major environmental concern in NI, impacting both aquatic and terrestrial ecosystems. Despite previous and ongoing efforts to address the problem, it remains persistent. This study aims to inform OEP's position on managing divergence risks, regulatory challenges, and cross-border cooperation, particularly in relation to nutrient management.

Methodology

The research was delivered through five interconnected tasks:

- Task A reviewed the historical and current environmental regulatory background in NI.
- Task B explored the concept of divergence, identifying three types:
  - UK-EU divergence
  - Intra-UK divergence
  - NI-Ireland divergence
- Task C assessed agricultural and wastewater nutrient management regulations across the UK, EU, and Ireland.
- Task D examined potential future scenarios, including policy tightening or relaxation.
- Task E considered key risks and opportunities for nutrient regulation in NI.

Each task included a desk-based legal and policy review and was supported by interviews with government officials.

Environmental Regulation in Northern Ireland

Northern Ireland's environmental regulation has evolved through three major periods: pre-1972 devolution, direct rule (1972–1998), and post-Good Friday Agreement devolution. It is widely felt that environmental governance has long suffered from underinvestment and institutional weaknesses. This situation has been exacerbated by the regulatory complexity introduced by Brexit and the Windsor Framework.

Regulatory responsibility primarily rests with the Northern Ireland Environment Agency (NIEA), under the Department of Agriculture, Environment and Rural Affairs (DAERA). However, concerns remain about regulatory conflicts of interest and the capacity of NIEA, especially given its dual responsibility for agriculture and environmental protection. At the time of writing, the Minister has initiated a review of environmental governance.

The Protocol on Ireland/Northern Ireland (now revised as the Windsor Framework) results in continued application of certain EU laws in NI, especially those concerning the movement of goods. This creates regulatory alignment with the EU in some domains, but the limited scope of this alignment opens the door for divergence. Furthermore, cross-border cooperation mechanisms envisaged in the Good Friday Agreement have not been fully realised due to political instability, limiting environmental coordination across the island.

Regulatory Divergence and the Environment in Northern Ireland

Defining Divergence

Divergence refers to scenarios where two or more jurisdictions develop different legal or policy approaches to similar issues. In the post-Brexit context, three primary forms of environmental divergence are discussed:

- UK-EU Divergence: As the UK moves away from EU regulations, new environmental standards in the EU may not be matched by the UK. For example, the EU’s new Urban Wastewater Treatment Directive (2024) requires stricter rules on small agglomerations and stormwater management, which the UK has no obligation to adopt.
- Intra-UK Divergence: Devolved administrations like NI may pursue different environmental standards than those in England. For instance, England has largely discontinued cross-compliance regulations, while NI still adheres to legacy EU standards.
- NI-Ireland Divergence: This refers to differences in policy between NI and the Republic of Ireland. While both jurisdictions previously operated under shared EU frameworks, divergence is increasing. A key example includes differences in the treatment of agricultural nitrates: Ireland’s derogation under the Nitrates Directive was reduced in 2024

due to water quality failures, while NI continues to apply higher nitrogen application limits.

To systematically track divergence, the report developed a “Divergence Register”, categorizing divergences across regulatory domains, specifying the scale (minor, moderate, significant), and assessing their potential impacts.

Summary of Key Findings and Conclusions

Across the thematic areas of nutrient management, wastewater, soil health, air quality, and habitat protection, the report reveals a complex and evolving picture of regulatory divergence.

In agriculture, differences in the designation of Nitrate Vulnerable Zones, manure application limits, storage standards, and nutrient planning frameworks show divergence between Northern Ireland (NI), Ireland, and other parts of the UK. NI’s regulatory framework still closely aligns with EU-derived standards, but future policy changes could either widen or narrow this gap depending on domestic political choices and environmental pressures.

For wastewater, the newly adopted EU Urban Waste Water Treatment Directive introduces several enhancements – including expanded requirements for collection, tertiary treatment, and stormwater management – which NI is not obliged to adopt. This is likely to create substantial UK-EU divergence in the coming years.

On soil health, the lack of comprehensive legislation in any of the jurisdictions reviewed highlights a shared policy gap. However, NI continues to apply cross-compliance standards rooted in previous EU frameworks, unlike England, which has moved toward a looser regulatory model. Ireland, meanwhile, is moving forward with EU-driven reforms in this space.

Air quality and international obligations are also an area where divergence is emerging due to differing definitions and enforcement mechanisms, particularly with respect to ammonia and nitrogen emissions. Habitat assessments reflect a divergence in appropriate assessment procedures, especially in relation to shared Natura 2000 sites across borders.

Taken together, these findings illustrate a landscape in which divergence – whether regulatory, interpretative, or implementation-based – is a growing reality. Northern Ireland’s partial alignment with EU law under the Windsor Framework provides some continuity, but the limited scope of that alignment, coupled with differing policy ambitions between NI, Ireland, and other parts of the UK, means divergence is likely to expand.

This report is a factual review of regulation as it stands and identifies existing and potential divergence, it did not attempt to identify where divergence may have a positive impact on the regulation of the environment. If Northern Ireland chose to adopt more ambitious environmental regulations than its

neighbours this could result in environmental improvement, while also being classified as divergence. On the other hand, if Ireland adopted more ambitious environmental regulations than Northern Ireland, the potential risks of additional regulations such as industry competitiveness may be mitigated allowing Northern Ireland to adopt the same regulations. In this case divergence from one party may drive environmental ambitions in a “race to the top”. The report concludes that while some divergence is inevitable, strategic coordination – particularly between NI and Ireland – is essential for effective cross-border environmental governance and the protection of shared ecosystems.

It is important to note that this report is accurate at the time of publication. At the time of writing Northern Ireland is finalising the latest iteration of its delayed Nutrient Action Programme which could not be considered within this research.

1. Introduction

The Office for Environmental Protection (OEP) was created in November 2021 to fill the governance gap created by the exit from the European Union (EU) by the United Kingdom (UK). It is an executive non-departmental public body which helps to protect and improve the environment by holding government and other public authorities, including the Northern Ireland (NI) government, to account. Its role involves monitoring the progress of Environmental Improvement Plans, goals, and targets, developing policies covering environmental protection, and the enforcement of environmental laws and their compliance.

The UK decision to leave the EU has led to a particularly complex regulatory environment for Northern Ireland, with environmental law and regulation being a case in point.

In the years since this decision there is evidence for a divergence in this policy developing, not only between EU and UK, but between NI and the UK administrations.

Whilst many EU regulations prior to the UK leaving the EU have been transposed into UK law, the subsequent divergence poses a particular problem for NI as the only part of the UK sharing a land border with the EU. This is particularly acute for those environmental issues which require cross border management, including nutrient enrichment. The recognition of this as a priority problem for NI to tackle is well documented and supported by the OEP's report Drivers and Pressures Impacting Biodiversity in Northern Ireland (October 2024)[1]. Despite much work to tackle nutrient enrichment the OEP has assessed that 'it remains a widespread and persistent issue in both aquatic and terrestrial ecosystems in Northern Ireland'.

Given this, this report was commissioned by the OEP to support it in reaching informed positions on the issues, risks and opportunities posed by actual or potential regulatory divergence on environmental protection, specifically nutrient management, in Northern Ireland, with particular consideration of its management between jurisdictions across the island of Ireland.

This will be achieved through review and consideration of the following areas:

- Regulatory background impacting NI, with specific focus on the environment.
- Current understanding/position of regulatory divergence relevant to the environment.

[1] Drivers and pressures affecting terrestrial and freshwater biodiversity in Northern Ireland (2024). https://www.theoep.org.uk/report/drivers-and-pressures-northern-ireland#:~:text=The%20report%20finds%20that%20the,of%20pollution%20having%20an%20impact.

- Regulation relevant to nutrient management, particularly agricultural and wastewater.
- Forward look at potential options and likely scenarios.
- Key risks and opportunities for environmental regulation, and particularly nutrient management, in Northern Ireland.

This report focuses on policy divergence between NI, Ireland, the EU and the UK. The UK is considered at UK level where the policy areas are reserved, and English policy where the policy area is devolved. This criteria has been chosen to reflect the fact that UK Government policy in both restricted and devolved areas has a greater influence on devolved policy than attempts to align with other devolved governments.

This report includes:

- Section 2 – Methodology
- Section 3 – Environmental Regulation in Northern Ireland
- Section 4 – Regulatory Divergence and the Environment in Northern Ireland
- Section 5- Agricultural Nutrient Management
- Section 6 – Wastewater
- Section 7 – Soil Health
- Section 8 – International Agreements & Air Quality
- Section 9 – Habitats and Appropriate Assessments
- Section 10 – Conclusion: Divergence now and in the future

2. Methodology

Inception

The project began with an inception meeting with the OEP to discuss the context of the research, the outlined approach, required outputs, risk management, and the timeline. An inception report was produced which served as a project manual throughout the project.

Delivery

The research was divided into five tasks each conducted via desk-based review and supplemented by interviews with officials from the Department of Agriculture, Environment and Rural Affairs, and the Northern Ireland Environment Agency. The interviews were used to identify relevant legislation, policy areas for nutrient management, and discuss the researchers' interim findings. The tasks were;

- Task A – Review of the regulatory background impacting NI, with specific focus on the environment
- Task B – Review the current understanding/position of regulatory divergence relevant to the environment
- Task C – Review of the regulation relevant to nutrient management, particularly agricultural and wastewater
- Task D – Forward look at potential options and likely scenarios
- Task E – Review of key risks and opportunities for environmental regulation, and particularly nutrient management, in NI

Task A – Review of the regulatory background impacting NI, with specific focus on the environment

Task A was carried out by EJNI with Section 3 of the report focussing on an explanation of the regulatory architecture and regulatory context of contemporary Northern Ireland (NI) and how it came to be. It briefly discusses NI's pre-1998 regulatory history; the regulatory role of the 1998 Belfast 'Good Friday' Agreement institutions; and the regulatory implications of North-South cooperation on the island of Ireland. Finally it sets out the complexities arising from NI's newly unique regulatory position due to the Protocol on Ireland / Northern Ireland (or Windsor Framework) and its interaction with UK-wide regulatory dynamics and those that flow from the UK-EU relationship in particular, alongside the UK's international relations and obligations more generally.

Task B – Review the current understanding/position of regulatory divergence relevant to the environment

Task B was similarly conducted by EJNI beginning with by defining 'divergence' broadly, and then more specifically in the context of post-EU Exit Northern Ireland, and its natural environment. Drawing on the regulatory review provided under Task A, this aspect of the research outlined and explained three different types of environmental divergence that has had and/or may have effect in the UK(NI). These types are: (i) UK-EU divergence, (ii) intra-UK divergence, and (iii) NI-IRE divergence. Each divergence type includes a policy case study to demonstrate the likely/potential processes and impacts that could arise in/from all three.

A register of environmentally relevant policy areas (and key legislation) where these three types of divergence have already or may possibly arise was developed with this process described in detail in Section 4.

Task C – Review of the regulation relevant to nutrient management, particularly agricultural and wastewater

Nutrient management is a critical aspect of environmental regulation, playing a pivotal role in mitigating nutrient pollution and promoting sustainable environmental stewardship. It encompasses policies and regulations designed to control and reduce nutrient inputs, particularly nitrogen and phosphorus, from agricultural activities and wastewater sources to protect water, soil, and air quality. Following the UK's departure from the European Union, the governance of nutrient management has become increasingly complex, reflecting a shifting regulatory landscape and evolving implementation practices across multiple jurisdictions.

Task C began by defining the parameters for examining nutrient management, with a focus on policies regulating agricultural and wastewater nutrient inputs as primary sources of concern. Nutrient management was defined as the framework of policies, practices, and regulations aimed at the efficient and sustainable use of nutrients—primarily nitrogen and phosphorous—to maximise agricultural productivity while minimising their environmental impacts. It addresses the control, monitoring, and reduction of nutrient inputs from agricultural activities, wastewater sources, and other sectors to protect the quality of water, soil, and air, and to ensure ecosystem health. This includes the following key components;

<u>Agricultural Nutrient Inputs (Section 5):</u>

- Fertiliser Application: Regulating the timing, method, and amount of fertiliser use to prevent nutrient leaching and runoff.
- Manure and Slurry Management: Ensuring appropriate storage, handling, and application of livestock waste to minimise pollution risks.

- Nutrient Planning: Requiring farmers to develop and implement nutrient management plans that balance crop needs with environmental protection.

Wastewater and Industrial Nutrients (Section 6):

- Wastewater Treatment: Implementing processes to remove nitrogen and phosphorus before discharge into water bodies.
- Stormwater Management: Addressing combined sewer overflows and nutrient runoff from urban areas.

Terrestrial and Atmospheric Considerations:

- Soil Health (Section 7): Managing soil nutrient levels to prevent degradation and over-enrichment.
- Ammonia and Nitrogen Emissions (Section 8): Controlling atmospheric emissions that contribute to air pollution and secondary water pollution through deposition.

For each of these areas a desk-based review of relevant legal texts was conducted, including international agreements, EU legislation, UK-wide laws, and jurisdiction-specific regulations. Particular attention was paid to the Nitrates Directive , the Nutrient Action Programme Regulations (Northern Ireland) 2019 , and other key instruments to map the regulatory landscape and highlight areas of alignment and divergence.

The findings were systematically classified by type of divergence (UK-EU, intra-UK, and NI-Ireland), scale of divergence (minor, moderate, or significant), and anticipated impact. This process will enable the identification of potential consequences for water quality, policy coherence, and cross-border collaboration.

Task D – Forward look at potential options and likely scenarios

Task D included an options appraisal of the potential policy trajectories of each of the components considering the potential for stricter regulation, business as usual, and more relaxed regulation in each of the jurisdictions to develop an understanding of the potential scenarios in which divergence may emerge.

Task E – Review of key risks and opportunities for environmental regulation, and particularly nutrient management, in NI

Task E was carried out through internal workshops and analysis of the existing divergence summaries, the policy trajectories and a desk-based analysis of official policy documents and informed analysis. This resulted in a summary of the current direction of travel around environmental regulation and the presence and/or possibility for alignment/divergence.

3. Environmental Regulation in Northern Ireland

Introduction

Environmental regulation in contemporary Northern Ireland is predominantly the responsibility of the Northern Ireland Environment Agency (NIEA), an Executive Agency within the Northern Ireland devolved government Department of Agriculture, Environment and Rural Affairs (DAERA). There is also an array of other bodies with regulatory responsibilities relevant to the environment – including some established under the Belfast/Good Friday Agreement (the 1998 Agreement) that operate on a cross-border basis on the island of Ireland.

To understand how contemporary regulatory arrangements operate in Northern Ireland, and the impact of Brexit on these arrangements, it is useful to consider regulatory history in the jurisdiction both before and after the 1998 Agreement. This is particularly important because environmental regulation in Northern Ireland has been the subject of significant and sustained criticism for decades. The UK's decision to leave the EU has created new challenges. The impact of Brexit on cross border cooperation on the environment on the island of Ireland has been explored in detail elsewhere,[2] as have concerns about the loss of important oversight and scrutiny roles played by the European Commission and European Court of Justice.[3] A recurrent concern, however, is the potential for regulatory divergence and how this will impact environmental regulation.

Part A will establish the regulatory context ahead of a detailed examination of the issue of regulatory divergence in Part B, together these sections provide necessary background to more detailed consideration of regulatory divergence as it pertains to nutrient management in Part C.

Pre-Brexit environmental regulation

Pre-1972 regulatory arrangements

Northern Ireland has a longer history of devolution than any other part of the UK. Devolution began in 1920 under the *Government of Ireland Act 1920* (the 1920 Act) which granted a newly established Northern Ireland Parliament and Government the 'power to make laws for the peace order and good government' of the place.[4] In effect, the 1920 Act devolved almost complete legal freedom to the Northern Ireland Parliament on 'domestic' issues while control over 'imperial' issues and those concerning external trade and the UK

[2] Ciara Brennan, Finbarr Brereton, Mary Dobbs, Viviane Gravey, Hannah Gould, Alison Hough & Lisa Whitten (2023) 'Linking the Irish Environment: Final Report' Environmental Justice Network Ireland Research Report, June 2023. https://ejni.net/wp-content/uploads/2023/06/Linking-the-Irish-Environment-Final-Report-24-May-2023.pdf

[3] Gravey, V., Dobbs, M., & Brennan, C. (2019). Out of the frying pan, into the fire? Environmental governance vulnerabilities in post-Brexit Northern Ireland. Environmental Law Review, 21(2), 84-110. https://doi.org/10.1177/1461452919843646

[4] 1920 Act c.67 s.4 https://www.legislation.gov.uk/ukpga/1920/67/pdfs/ukpga_19200067_en.pdf

internal market were 'reserved' by Westminster.[5] The 1920 Act did not explicitly state which powers were devolved, however, these clearly included town and country planning, pollution control, local government and agriculture which together encompass those policy areas which would subsequently be considered environmental governance.[6]

Notwithstanding the early transfer from Westminster of responsibility for policy, legislation and regulation to Northern Ireland for the environment, its protection was not a policy priority for Stormont during its first fifty years of operation. Despite an avowed commitment on the part of the (perpetually) Unionist Northern Ireland Government, to ensure parity of standards and services with Great Britain, Stormont demonstrated an unswerving commitment to economic development throughout this first period of devolution, often to the detriment of environmental protection. As a result, by 1972 there was already a divergence in standards of environmental protection and regulation in Great Britain and Northern Ireland with the latter lagging behind.[7]

The Northern Ireland Government collapsed in 1972 amid the outbreak of an internecine conflict known as 'The Troubles' and was officially dissolved, along with the NI Parliament, the following year. A period of 'direct rule' from Westminster ensued. Although intended to be temporary, direct rule lasted over two decades, notwithstanding successive attempts to reinstate devolution. Under direct rule, legislation for Northern Ireland (in areas previously devolved or reserved) was passed by Order in Council in Westminster. In practice, therefore, under direct rule the majority of laws that applied in Northern Ireland were made in the form of delegated legislation, via a procedure that did not allow for amendment, and which left almost no room for parliamentary scrutiny. Under these arrangements, the power to determine the political direction of new legislation in Northern Ireland was vested in the NI Secretary and up to five junior British Government ministers; scrutiny of their powers happened in Westminster, on a limited basis and with almost no input from NI representatives.[8] From an environmental perspective, although responsible UK Ministers, and senior civil servants retained powers to act in this field during the period of conflict and direct rule in practice, as the next

[5] Reserved matters came in three types – those reserved on a permanent basis, those reserved pending the creation of an all-Ireland parliament (for which the 1920 Act provided) and those reserved for a specified number of years. Examples of permanently reserved powers include: the Crown; the making of peace or war; the military; international agreements and foreign relations; dignities and honours; treason; trade outside the island of Ireland. Examples of areas reserved pending a potential all-Ireland parliament include: the supreme court, the postal service and public records office. Examples of areas temporarily reserved include: the regulation of elections, policing and land purchases. See 1920 Act s.4 and s.9.

[6] Hadfield, B. *Northern Ireland, Politics and the Constitution* (Buckingham: OUP, 1992).

[7] Turner, S. 'Transforming Environmental Governance in Northern Ireland. Part One: The Process of Policy Renewal' *Journal of Environmental Law* (2006) 18(1): 55–87.

[8] Notably, there was no select committee on NI affairs during direct rule. For more detail on this period and related constitutional developments see Whitten, L. C. 2024. *Northern Ireland and the United Kingdom Constitution* (London: Haus Publishing).

section details, environmental protection was generally viewed as a luxury Northern Ireland could not afford.[9]

1972-1998 regulatory arrangements

Throughout the 1970s and 1980s environmental regulation in Northern Ireland lagged significantly behind other parts of the UK. Northern Ireland failed to keep pace with waves of reform occurring elsewhere including via the evolution of European Community (as it was then known) environmental laws. Northern Ireland did not implement a series of important EC directives which were driving forward the modernisation of environmental regulation in other parts of the UK and across other members of the EC.[10] Direct rule from Westminster for 26 consecutive years between 1972 and 1998 also meant that the relatively remote UK Government was insulated against any public pressure stemming from citizens in Northern Ireland with regard to environmental failures.

With 'The Troubles' ongoing, peace and security concerns dominated the Westminster-led political and policy debates about Northern Ireland and during this period, environmental law and regulation in Northern Ireland essentially entered a period of stasis. An effective stimulus for reform eventually emerged, however, in 1990 with the publication of a highly critical report by the House of Commons Environment Select Committee, which examined the legal framework and regulatory structures governing the environment in Northern Ireland.[11] This report, which became known as the 'Rossi Report' after one of its primary authors highlighted the UKG's neglect to transpose environmentally-focused EU Directives in Northern Ireland and underlined that this not only constituted a breach of the UK's international law obligations but also made the UK vulnerable to potentially significant enforcement action on the part of the European Commission. Moreover, the Committee argued that disparities between regional and national standards of environmental protection ought not to be permitted on the grounds that the environment itself does not acknowledge jurisdictional differences.[12] Addressing the security situation in Northern Ireland directly the Report stated:

The existence of the 'troubles' did not remove the need for dealing effectively with the environmental problems of the Province, which are as great as, and in some respects greater than those of the rest of the UK… The people of Northern Ireland deserve to have the same level of attention given to the

[9] S. Turner (2006) 'Transforming' Environmental Governance in Northern Ireland. Part One: The Process of Policy Renewal' Journal of Environmental Law (2006) 18(1): 55–87. https://doi.org/10.1093/jel/eqi052
[10] Turner, S., 2000. Modernising the Regulation of Water Pollution in Northern Ireland-Part One: The Stimulus for Reform & the Principle of Pollution Prevention. N. Ir. Legal Q., 51, p.65. https://nilq.qub.ac.uk/index.php/nilq/article/view/610/467
[11] House of Commons Environment Committee, Environmental Issues in Northern Ireland HC (1990-91) 39 (London: HMSO).
[12] HCEC 'Environmental Issues in Northern Ireland' para. 31.

questions of environmental pollution and environmental quality as obtained elsewhere in the United Kingdom.[13]

The extent of regulatory and legal dysfunction unveiled by this analysis prompted the UK Government to commit to an extensive – and protracted – programme of reform in Northern Ireland designed to bring environmental law, policy, and its implementation, into line with the rest of the UK and the EC, in respect to both the transposing of EC Directives and the introduction of national frameworks for pollution control.[14]

The key regulatory structures during this time were almost all located within the Northern Ireland Department of the Environment (DOE NI) which presided over environmental law and policymaking, but also over the delivery of environmental regulation. Structures within the DOE were adjusted, renamed and reorganised a number of times over the years. From a regulatory perspective, the DOE NI's pollution control function was originally exercised by the Department's Environmental Protection Division. In 1990 the EPD was subsumed into the Environment Service, which in turn was combined with the Conservation Service to form the Environment and Heritage Service (EHS) which was established as a 'Next Steps Agency' of the DOE NI in 1996. By this stage, the location of the primary environmental regulator within a central government department was out of step with regulatory arrangements in all other parts of the UK and in Ireland – where 'independent' environmental regulators had been established throughout the 1990s.[15] There were also very significant conflicts of interest inherent within Northern Ireland's regulatory arrangements at this time, for example in the DOE's dual role as the provider of water and sewage services and as the regulatory body responsible for water pollution enforcement. However, despite multiple EU enforcement proceedings for failure to transpose and implement key EC environmental directives being underway, political focus on the intensifying negotiations which would eventually lead to the 1998 Agreement delayed any meaningful reforms.

The impact of the 1998 Agreement

The 1998 Belfast/Good Friday Agreement established a new basis of devolved government in Northern Ireland and arrangements and mechanisms for co-operation between Northern Ireland and Ireland, as well as between Ireland, the UK, and its constituent territories. The Agreement is divided into three interlinked strands:

[13] HCEC 'Environmental Issues in Northern Ireland' para. 1.
[14] Ciara Brennan, The Enforcement of Environmental Regulation in Northern Ireland: A Story of Politics, Penalties and Paradigm Shifts? (PhD thesis, Queen's University Belfast 2013)
[15] S Turner, 'Transforming Environmental Governance in Northern Ireland: Part One: The Process of Policy Renewal' (2006) 18 Journal of Environmental Law 55–87. https://doi.org/10.1093/jel/eqi052

- Strand 1 concerns internal governance in Northern Ireland and provides the basis of the structure of devolved governance in Northern Ireland.
- Strand 2 establishes a North-South cooperative mechanism (the North-South Ministerial Council (NSMC)) and areas and bodies for cooperation.
- Strand 3 creates an East-West axis of co-operation, establishing the British-Irish Intergovernmental Conference (BIIC) a body for UK-Ireland co-operation and the British-Irish Council (BIC) to deliver co-operation between England, Ireland, Northern Ireland, Scotland, Wales, the Channel Islands, and the Isle of Man.

The role of the 1998 Agreement in the context of the environment and Brexit is explored in depth in a 2019 report commissioned by the Environment Pillar and the Northern Ireland Environment Link.[16] This report explains that significant cooperation on the environment was envisaged in the Agreement. In Strand 2, agriculture, transport, environment, waterways, EU programmes, inland fisheries, aquaculture and marine matters as well as urban and rural development were all explicitly named among the 12 priority areas nominated for cross-border cooperation. In addition, the environment forms part of the remit of the North-South Ministerial Council, which oversees the 12 areas of co-operation and the six all-island bodies for co-operation: Intertrade Ireland; Waterways Ireland; the Food Safety Promotion Body; the Loughs Agency; Special EU Programs Body; and the Language Body. Additionally, in Strand 3, the environment is specifically mentioned as part of the remit of the BIC, a regional co-operation body for the representatives of Ireland, United Kingdom, Scotland, Wales, Northern Ireland, the Channel Islands, and the Isle of Man.

When the new devolved government emerged in 1999 it was immediately confronted with the consequences of decades of environmental regulatory neglect, not only with regards to the declining environmental quality, but also with the mounting risk of EC infringement proceedings for non-transposition and non-implementation of EU environmental law. The fact that any financial sanctions imposed as a consequence of infringement proceedings would now be the responsibility of the Stormont Executive incentivised a substantial programme of legislative reform in the early 2000s.[17] From a regulatory perspective, evidence of the scale of the problems facing the nascent devolved institutions emerged only weeks after the signing of the Agreement,

[16] Alison Hough BL. (2019) *Brexit, the Good Friday/Belfast Agreement, and the Environment: Issues arising and possible solutions* https://www.researchgate.net/publication/332766321_Brexit_the_Good_FridayBelfast_Agreement_and_the_Environment_Issues_Arising_and_Possible_Solutions

[17] To demonstrate, in 2001, transposition of approximately 25 environmental Directives was ever not started or incomplete in Northern Ireland; transposition deadlines for a further six Directives were due in 2002, and EC negotiations were advanced on 17 other Directives with transposition deadlines then anticipated to be before 2004; see Turner, 2006. Transforming Environmental Governance in Northern Ireland: Part One: The Process of Policy Renewal' (2006) 18 Journal of Environmental Law 55–87': 59. https://doi.org/10.1093/jel/eqi052

when the Northern Ireland Audit Office (NIAO) published the first detailed analysis of the state of water pollution regulation in the region, cataloguing in excruciating detail the regulatory failures which characterized the control of water pollution in Northern Ireland.[18] However, this report was only the first in a series of highly critical reports published by the Audit Office, the Public Accounts Committee (PAC), the Northern Ireland Affairs Committee (NIAC) and the Criminal Justice Inspectorate (CJI) during the period 1998 to 2007 concerning the quality of environmental regulation in the region.[19] As Turner and Brennan have highlighted, 'their cumulative critique laid bare a landscape of enduring and serious failure by the DOE NI to discharge almost every aspect of its duty as environmental regulator'.[20] Almost all of these scrutiny reports highlighted the urgent need for structural reform – in particular through externalisation of the environmental regulator from the central NI government department.[21]

Devolution in Northern Ireland collapsed in October 2002, and amid intense pressure from Northern Ireland's environmental NGO community, the direct rule environment minister eventually commissioned an independent review of environmental governance in 2005.[22] The report of the independent Review of Environmental Governance (REGNI) was published in June 2007, months after devolution was restored following an almost 4-year hiatus.[23] The overarching finding of the Review was that 'present institutional arrangements for environmental regulation in Northern Ireland did not reflect the standards expected of modern environmental governance'.[24] In line with previous scrutiny reports, the REGNI recommended that immediate action be taken to establish an independent environmental protection agency to deliver far more robust environmental regulation. The response to REGNI by the newly restored devolved government has been outlined in detail elsewhere;[25]

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[18] Northern Ireland Audit Office (NIAO), Control of River Pollution in Northern Ireland, HC (1997–1998) 693.
[19] NIAO, Control of River Pollution in Northern Ireland(HC 1997–98, 693); NIAO, Areas of Special Scientific Interest(HC 2003–2004, 499); NIAO, Northern Ireland's Waste Management Strategy (HC 2005–06, 88). House of Commons NIAC, Waste Management Strategy in Northern Ireland(HC 2004–05, 349-I). Northern Ireland Assembly PAC, Control of River Pollution in Northern Ireland (Third Report 2001) http://archive.niassembly.gov.uk/public/reports/report3-00r.htm; Criminal Justice Inspectorate, Enforcement in the Department of the Environment (2007) www.cjini.org/getattachment/6e35e56d-68e5-41d3-b099-c33586abf0dd/Enforcement-in-the-Department-of-Environment.aspx.
[20]' Sharon Turner and Ciara Brennan 'Modernising environmental regulation in Northern Ireland: a case study in devolved decision-making' (2012) Northern Ireland Legal Quarterly 63 (4) 509-32. https://ejni.net/wp-content/uploads/2021/03/Turner-and-Brennan-2012.pdf
[21] Ciara Brennan, Ray Purdy and Peter Hjerp, 'Political, Economic and Environmental Crisis in Northern Ireland: The True Cost of Environmental Governance Failures and Opportunities for Reform' (2017) Northern Ireland Legal Quarterly 68(2) 123-157. https://ejni.net/wp-content/uploads/2019/08/Brennan-et-al-2017.pdf
[22] Sharon Turner and Ciara Brennan 'Modernising environmental regulation in Northern Ireland: a case study in devolved decision-making' (2012) Northern Ireland Legal Quarterly 63 (4) 509-32, available. https://ejni.net/wp-content/uploads/2021/03/Turner-and-Brennan-2012.pdf
[23] REGNI, Foundations for the Future: The Review of Environmental Governance (2007). See also S Turner, 'Laying the Foundations for a Sustainable Northern Ireland' (2007) 58 Northern Ireland Legal Quarterly 422–58.
[24]' Sharon Turner and Ciara Brennan 'Modernising environmental regulation in Northern Ireland: a case study in devolved decision-making' (2012) Northern Ireland Legal Quarterly 63 (4) 509-32, available. https://ejni.net/wp-content/uploads/2021/03/Turner-and-Brennan-2012.pdf
[25] Sharon Turner and Ciara Brennan 'Modernising environmental regulation in Northern Ireland: a case study in devolved decision-making' (2012) Northern Ireland Legal Quarterly 63 (4) 509-32. https://ejni.net/wp-content/uploads/2021/03/Turner-and-Brennan-2012.pdf ; Ciara Brennan, The Enforcement of Environmental Regulation in Northern Ireland: A Story of Politics, Penalties and Paradigm Shifts? (PhD thesis, Queen's University Belfast 2013).

however in summary, instead of establishing an independent regulator, in 2008 the DUP Environment Minister, then Arlene Foster, announced a rebranding of the EHS which has since been known as the Northern Ireland Environment Agency (NIEA). As of the start of 2025, the NIEA continues to operate as an executive agency within a central NI government department, however in late 2024 a further review of environmental governance was announced which may lead to reform of these arrangements.

A further development of note is the merger of the Northern Ireland environment and agriculture departments as part of the redesign of the power-sharing arrangements which occurred in 2016. This involved the merging of the DOE (Department of the Environment) with DARD (Department of Agriculture and Rural Development) to create DAERA (Department of Agriculture and Rural Development), the department in which the NIEA now exists.[26] This merger has arguably created an inherent conflict of interest at Departmental level because the same minister is now simultaneously responsible for development of policy around both protecting the environment and protecting agricultural interests, with agricultural discharges representing one of the largest sources of pollution in Northern Ireland.

Within this wider environmental context, there are some notable features of Northern Ireland's environmental governance arrangements that have particular significance in the context of nutrient management in policy areas relating to agriculture, planning and water. An important point to note is that all of these areas have had longstanding divergences from policy elsewhere in the UK which preceded and was not a consequence of Brexit. This divergence is in part a function of the extreme delays in updating environmental law and in modernizing environmental regulation, but also of the unique arrangements for devolved governance of the environment created by the 1998 Agreement. Notable differences between NI and other parts of the UK include:

- Agriculture
- Planning
- Water

North South Cooperation[26]

Under the 1998 Agreement structure (and echoing earlier periods of devolution) the majority of powers regarding environmental governance and regulation are devolved to Northern Ireland. Because structures set up under

[26] The Departments Act (Northern Ireland) 2016 reduced the number of government departments from 12 to 9. See Ray McCaffery, 'The Executive Departments (NI) Bill,' (NI Assembly Research and Information Service Bill Paper, Paper 134/15, December 2015) <https://niopa.qub.ac.uk/bitstream/NIOPA/3647/1/13415.pdf> accessed 2nd May 2024.

Strand 2 of the Agreement provide for cooperation between Northern Ireland and Ireland in accordance with the scope of executive authority enjoyed by both administrations, the NI Executive and Irish Government have considerable powers to act jointly in environmental matters, should they opt to do so. Notwithstanding the presence of such powers, however, since 1998 joint action in the field of environmental governance has been limited. This is due both to a general lack of political will to pursue significant N-S cooperation as well as the fragile nature of the Strand 1 institutions, which have proven to be vulnerable to collapse. This has resulted in periods of prolonged stasis, inhibiting the work of Strand 2 bodies, in particular the NSMC which relies on a functioning NI Executive to operate.

This is not to suggest a complete lack of N-S environmental cooperation and/or coordination. Indeed, on a structural level, although the environmental laws in Ireland and Northern Ireland vary there are also considerable similarities between relevant frameworks in the two jurisdictions. For example, the nature protection regimes in both Ireland and Northern Ireland are dual regimes combining EU and domestic derived legal frameworks.[27] Another example concerns the structure of land law and land ownership – which is essential for environmental governance – and which is similarly complex on both sides of the land border due to the shared and parallel histories on the island.[28] Alongside some similarities in environmental legislation, numerous environmental policies and projects have been taken forward in both Ireland and Northern Ireland.[29] There has, for example, been considerable cross-border and all-island cooperation regarding both invasive species and pollinators. The All-Island Pollinator Plan, coordinated by the National Biodiversity Data Centre in Ireland, is supported across the island; the AIPP announced in April 2023 that all local councils and local authorities in Ireland and Northern Ireland had formally signed up to the plan.[30]

Exceptions notwithstanding, it is clear that the potential for cross-border and all-island environmental cooperation that flows from the 1998 Agreement has not been fully realised. In this respect, political contestation and instability has consistently constrained what is theoretically possible. For the same reason, the shared obligation of the UK and Ireland to implement the evolving body of EU environmental laws, since 1998, has played a very significant role in ensuring a minimal level of equivalence in environmental standards on either

[27] Key domestic legislation in Ireland includes the Wildlife Act 1976 and Wildlife (Amendment) Act 2000; while in Northern Ireland this includes Nature Conservation and Amenity Lands (NI) Order 1985 and the Environment (NI) Order 2002; in both jurisdictions these provisions run in parallel to EU conservation designations and related EU acts; see section 3.
[28] For example, in Northern Ireland land law is made up of a combination of pre-1925 English law and specific Irish concepts (such as conacre and agistment) as well as some homegrown NI components (for example under the Property (NI) Order 1997); the first two components are shared land law legacy in Ireland.
[29] Brennan, C., Brereton, F., Dobbs, M., Gravey, V., Gould, H., Hough, A. and Whitten, L. (2023) 'Linking the Irish Environment' ejni.net Available: https://ejni.net/wp-content/uploads/2023/06/Linking-the-Irish-Environment-Final-Report-24-May-2023.pdf
[30] See 'All-Ireland Pollinator Plan' *pollinators.ie* Available: https://pollinators.ie/; an all-island 'Invasive Species Ireland' project also previously operated across NI and IRE but drew to a close in March 2013 due to lack of funding.

side of the Irish land border. The UK's decision to withdraw from the EU – Brexit – disrupted this.

The impact of Brexit on environmental regulation

The UK's withdrawal from the EU has had a profound impact on the regulatory landscape of Northern Ireland, including but not limited to environmental regulation. This is primarily but not exclusively a consequence of the differentiated treatment of Northern Ireland provided for in the EU-UK Withdrawal Agreement's Protocol on Ireland/Northern Ireland (the Protocol) when compared to the wider UK-EU relationship provided for in the Trade and Cooperation Agreement.

The Protocol is a semi-permanent arrangement in that (a) it can be replaced by agreement of the UK and the EU and (b) the continued operation of its core provisions on the movement of goods is subject to the consent of members of the NI Assembly, potentially every four years.[31] It has also proved to be the subject of much political contestation and opposition. In response, the UK and EU agreed in 2023 the 'Windsor Framework', a package of measures for the Protocol's revised operation; the Protocol is consequentially now referred to as the Windsor Framework.

Although the environment is not an explicit focus of the Protocol/Windsor Framework, its provisions and the context of its implementation have significant implications for environmental governance and regulation in Northern Ireland, in the UK and on the island of Ireland. On this basis, this section briefly sets out the general provisions and regulatory implications of the Protocol/Windsor Framework before considering its implications on environmental law and regulation in more detail.

The Original Protocol on Ireland / Northern Ireland

On the basis of its geography, its conflicted history and its post-1998 multi-levelled three-stranded governance system, Northern Ireland was uniquely exposed to the outworkings of Brexit.[32] In view of these vulnerabilities and cognizant of the logistical impossibility of implementing a border regime of the kind required at external EU borders along the winding 500km land border on the island of Ireland, the UK and EU agreed a bespoke arrangement for Northern Ireland. The objective of the resultant *Protocol on Ireland / Northern Ireland* is to set out "arrangements necessary" to address the "unique circumstances" on the island of Ireland in the context of Brexit. More specifically, its purpose is:

[31] In accordance with Article 18 of the Protocol/WF. The first vote of this kind took place on 10 December 2024; the motion on continuation of Articles 5 to 10 of the Protocol/WF was passed by a simple majority (50%+1) of MLAs meaning the next vote will take place in December 2028 and an Independent Review on the operation of the Protocol/WF will be carried out and report in July 2025.
[32] Whitten, L. C. 2023. *Brexit and the Northern Ireland Constitution* (London: OUP).

"…to maintain necessary conditions for continued North-South cooperation, to avoid a hard border, and to protect the 1998 Agreement in all its dimensions."[33]

Under its terms, Northern Ireland remains part of the UK customs territory but is subject to the EU customs code and EU laws concerning the movement of goods[34], VAT and excise[35], electricity markets[36] and state aid[37]. The Protocol also provides for the continuation of the Common Travel Area[38], ensures 'no diminution' in the rights of individuals set out in the 1998 Agreement due to Brexit[39], and requires that its provisions are implemented in such a way as to 'maintain the necessary conditions for North-South cooperation' on the island of Ireland, including in respect to the environment and agriculture.[40]

Earlier versions of the UK-EU Withdrawal Agreement and Protocol would have resulted in continued alignment of Northern Ireland to a greater number of EU environmental laws. Throughout the course of EU-UK negotiations, however, many significant EU law instruments concerning the environment were removed from draft texts.[41] The (eventually) agreed Protocol (including as amended by the Windsor Framework, see 3.2) therefore provides for only a narrow selection of EU environmental laws to continue to apply to Northern Ireland (for detail see Divergence Register XX). At the same time, the agreed Protocol also contains a commitment *in principle* to continued North-South cooperation in respect to the environment, broadly understood, despite many EU rules that previously facilitated cross border environmental cooperation ceasing to apply.[42] Before further exploring the implications on environmental law it is necessary to set out some further context on the evolution of the original Protocol.

The Windsor Framework and Changes to the Original Protocol

Following a prolonged and often contested period of talks between the UK and EU on the Protocol and its effects, the two sides jointly presented the 'Windsor Framework' – a repackaged version of the Protocol incorporating some new provisions and several important amendments to the terms and context for its implementation. Broadly, the changes introduced fall into two categories: those related to the movement of goods from Great Britain to

[33] WA *Protocol* Article 1(3).
[34] Ibid: Article 5.
[35] Ibid: Article 8.
[36] Ibid: Article 9.
[37] Ibid: Article 10.
[38] Ibid: Article 3. CTA.
[39] Ibid: Article 2. WFA2.
[40] Ibid: Article 11.
[41] Moore, B. (2019) 'Loosening the constraints: The environment in the revised Brexit deal' *brexitenvironment.co.uk* https://www.brexitenvironment.co.uk/2019/10/17/revised-brexit-deal/
[42] Whitten, L. C. (2022) 'North-South Cooperation and the Protocol On Ireland/Northern Ireland' *Post Brexit Governance NI.* https://www.qub.ac.uk/sites/post-brexit-governance-ni/ProjectPublications/Explainers/North-SouthCooperationandtheProtocolonIrelandNorthernIreland/

Northern Ireland (GB–NI) and those related to NI-participation in the governance of the Protocol, now renamed 'Windsor Framework'.

On GB–NI Movement of Goods: the Windsor Framework provided for the establishment of a new system for the movement of certain goods that relies on differentiation according to destination. For 'retail goods' entering NI from GB for use or consumption in NI and which were being moved by 'trusted traders' these could avail of a (then named) 'green lane' process[43] characterised by simplified certification procedures and non-application of some EU rules and regulations otherwise in scope of the Windsor Framework. For 'retail goods' being moved from GB to NI that are or may be for use or consumption in Ireland or elsewhere in the EU, all checks, controls, rules and regulations required under the originally agreed Protocol apply. The Windsor Framework definition of 'retail goods' is narrow. It includes pre-packaged products of plant or animal origin, food and food contact goods, plants (other than for planting), ready to sell pet food and dog chews as well as composite food products. Use of the 'green lane' on the part of traders is conditional on prior-authorisation, data-sharing, labelling and surveillance.[44]

On NI-participation in Governance of the Windsor Framework: a series of changes were agreed between the UK and EU to allow for greater involvement of NI representatives in bodies and institutions set up to oversee its implementation. These include new provisions for direct EU-NI engagement as well as in the context of UK-EU bodies already set up. Among the most significant changes of this kind relates to so-called 'Stormont Brake' mechanisms which allows members of the legislative assembly (MLAs) in NI to vote on aspects of the Windsor Framework particularly as regards the continued alignment with EU laws in its scope. The Stormont Brake comes in two forms: one which relates to amendments and replacements of most of the EU laws that already apply under Article 5 and Annex 2 of the Windsor Framework concerning movement of goods; and another that relates to the proposed addition of new EU laws to those that already apply under any provision of the Windsor Framework.[45]

In regulatory terms, the changes brought in under the Windsor Framework introduce more possibility for divergence of varying kinds.[46] The disapplication

[43] Subsequently renamed the 'United Kingdom Internal Market Scheme' following the Safeguarding the Union deal between the UKG and DUP.
[44] The WF also made a series of specific provisions to address particular issues that had arisen these included: supply of medicines to NI and GB-NI movements of pets, parcels, certain plants, and seed potatoes.
[45] Phinnemore, D. and Whitten L. C. (2022) *Democratic Consent and the Protocol on Ireland/Northern Ireland.* Queen's University Belfast. https://www.qub.ac.uk/sites/post-brexit-governance-ni/ProjectPublications/Explainers/DemocraticConsentandtheProtocolonIrelandNorthernIreland/
[46] One of the indirect aims of the Windsor Framework was to provide a basis on which the DUP would agree to re-enter power-sharing government in Northern Ireland. In February 2022 the then DUP First Minister resigned in protest over the implementation of the Protocol. Notwithstanding several attempts to restore the Stormont institutions, the NI Executive and (later) the NI Assembly did not function for two years due to continued DUP opposition. Following the conclusion of the Windsor Framework, the UKG held talks with the DUP leadership in pursuit of consensus on terms for the Protocol/Windsor Framework implementation sufficient to convince the party to re-enter

of approximately 60 of the 200 or so EU laws that apply under Article 5 and Annex II of the Protocol/WF to certain goods moving GB-NI for use and consumption in NI creates the possibility and probability of two sets of standards applying to certain (primarily agri-food) goods available for sale in NI. While this risk is calculated and narrow it nonetheless has implications for environmental standards, broadly understood (e.g., food safety and animal welfare standards). At the same time, the Stormont Brake mechanisms that dually allow for updates to EU rules on goods *not* to apply in Northern Ireland as well as new EU acts deemed in scope of the Protocol/WF objectives *not* to apply in Northern Ireland, the Windsor Framework changes provide more opportunity for N-S divergence including in environmental standards, to the extent these are otherwise covered by the Protocol/WF.

The Impact on Post-Brexit Environmental Regulation

When read together with the terms of the wider post-Brexit UK-EU relationship, the impact of the Protocol/WF on environmental regulation comes in three parts. First, the Protocol/WF provides for regulatory alignment of Northern Ireland, by default, with EU environmental laws and standards in scope of the Protocol/WF and those EU rules it makes applicable. Second, the Protocol/WF introduces an in-principle commitment for its implementation and application to be such that conditions for continued N-S cooperation in respect to the environment is maintained; this commitment is subject to constant review. Third, the narrow scope of Protocol/WF applicable EU law compared with the substantial scope of EU environmental law as a whole, introduces the possibility of divergence in environmental laws and standards between the two jurisdictions on the island of Ireland; the extent to which this scenario is realised will depend on the nature of the wider UK-EU relationship as well as policy trajectories pursued in London and Brussels respectively.

Protocol/WF Applicable EU Environment Laws

The scope of EU laws made applicable under the Protocol/WF, and which concern environmental regulation (broadly understood) are indicated in Table 3.1. Most of these provisions fall under Article 5 and Annex II of the Protocol/WF concerning movement of goods; a smaller number fall under Article 9 and Annex IV concerning the Single Electricity Market on the island of Ireland.

devolved government. In January 2024 the UKG published details of a deal it had brokered with the DUP entitled Safeguarding the Union (SU). The content of the SU served as a basis for the DUP to re-enter the NI Executive with the restoration of devolution taking place in February 2024; it does not substantially change the regulatory implications of the Protocol/WF.

Table 3.1: Summary of EU Laws Applicable Under the Protocol/Windsor Framework and Relevant to the Environment or Environmental Management

Applies Under	Subject Area*	No. of Relevant EU Acts
Article 5 Annex II	Motor Vehicles, including Agricultural and Forestry Tractors	1
	Gas Appliances	2
	Pressure Vessels	2
	Construction Products, Machinery, Cableways, Personal Protective Equipment	1
	Medicinal Products	1
	Chemicals and Related	8
	Pesticides and Biocides	3
	Waste	5
	Environment, Energy Efficiency	20
	Marine Equipment	1
	Food – General	4
	Food – Hygiene	3
	Food – Ingredients, Traces, Residues, Marketing Standards	22
	Food Contact Material	2
	Food – Other	7
	Feed – Products and Hygiene	5
	GMOs	4

	Live Animals, Germinal Products and Products of Animal Origin	4
	Animal Disease Control, Zoonosis Control	5
	Animal Identification	1
	Animal Breeding	1
	Animal Welfare	2
	Plant Health	1
	Plant Reproductive Material	12
	Official Controls, Veterinary Checks	1
	Sanitary and Phytosanitary	2
	Fisheries and Aquaculture	12
Article 9 Annex IV	Single Electricity Market	7

*Subheadings as used in the official Protocol/WF text to indicate subject area.

Although changes brought in under the Windsor Framework introduce the possibility of *some* divergence between Northern Ireland and the EU (including IRE) in these areas in future, overall, the prospect for significant divergence on a N-S axes in areas covered by Protocol/WF applicable EU law, is limited.[47] Whereas Northern Ireland remains subject to the EU environmental laws listed in Table 3.1, the rest of the UK does not; there is therefore potential for intra-UK divergence in these same areas.

Protocol/WF Implementation and N-S Environmental Cooperation

Under Article 11(1) of the Protocol/WF its provisions are to 'implemented and applied' in such a way as to enable the continuation of N-S cooperation including on the environment. This is a principled commitment and therefore

[47] The possibility for N-S divergence in Protocol/WF applicable EU laws follows from and is in accordance with the potential for the two forms of the Stormont Brake to be exercised. In regard to amendments and replacements of the majority of EU acts made applicable under Protocol/WF Article 5 and Annex 2, exercise of the Stormont Brake (via 30 MLAs successfully triggering the mechanism in accordance with Article 13(3)(a)) could be expected to result in N-S divergence as the relevant update or amendment would apply in Ireland but not in Northern Ireland; similarly, in the event of a proposed addition of a new EU act to those already applicable under the Protocol/WF, in accordance with domestic UK law concerning Protocol/WF Article 13(4), if the NI Assembly do not pass an 'Applicability Motion' with cross-community consent, then the UKG will normally not agree to the addition of the new EU act to the Protocol/WF; again, in this scenario the new EU act would apply in Ireland but not in Northern Ireland.

likely to be difficult to enforce legally. Nonetheless it does create the *possibility* for further development of the Protocol/WF scope as regards supporting the continuation of N-S environmental cooperation in future. In this respect it is notable that Article 11(2) places a duty on the UK-EU Joint Committee tasked with oversight of the implementation of the Protocol to 'keep under constant review' the extent to which necessary conditions for N-S cooperation are being maintained. Further, under Article 14 of the Protocol/WF, institutions established under Strand 2 of the 1998 Agreement, including the North-South Ministerial Council and N-S Implementation Bodies, may submit proposals for consideration of the UK-EU Specialised Committee which supports the work of and inputs to the UK-EU Joint Committee overseeing the implementation of the Protocol/WF. Hypothetically, therefore, representations and proposals to strengthen the Protocol/WF support for cross-border environmental cooperation, including via addition of EU environmental laws not currently in its scope, could be made via the Strand 2 bodies in future.

Table 3.2: Areas of N-S Cooperation Previously Reliant on Shared EU Law and Policy Frameworks and *not* Fully Covered by Protocol/WF Applicable EU Laws

Area of N-S Cooperation	**Pre-Brexit Underpinning EU Acts***	
Areas of N-S Cooperation *Not Fully Covered* by Protocol/WF Applicable EU Laws		
Common Agricultural Policy	NI does not continue to participate in the CAP; however, one of three EU laws that implement the CAP in EU Member States partially applies under the Protocol/WF	
Natural Gas	Applies: Regulation (EC) No 713/2009 (Agency Regulation)	Does Not Apply: Directive 2009/73/EC (Gas Directive); Regulation (EC) No 715/2009 (Gas Regulation); Regulation (EU) 2017/459 (Gas Transmission Systems Regulation); Regulation (EU) No 994/2010 (Gas Security of Supply Regulation)

Waste Management	Applies: Directive 1994/62/EC (Packaging Waste Directive) and Directive 2006/66/EC (Batteries and Accumulators Directive)	Does Not Apply: Directive 2008/98/EC (Waste Framework Directive) and Directive 2012/19/EU (Waste and Electrical Equipment Directive)
Plant Health and Regulatory Checks	Applies: Directive 2000/29 (Plant Health Directive)	Does Not Apply: Directive 2004/103 on checks other than point of entry; Directive 98/22/EC on minimum conditions for plant health checks
Checks on Third Country Products of Animal Origin	Applies: Regulation 882/2004/EC and Council Directive 97/78/EC	Does Not Apply: Commission Decision 94/360/EC
Transmissible Spongiform Encephalopathies (TSE) and Animal By-Products (ABP)	Applies: Regulation (EU) 2001/999 and Regulation (EU) 1069/2009	Does Not Apply: Commission Regulation 142/2011
Animal Health and Welfare Working Groups	Applies: Directives (EC) 1/2005, (EC) 1790/2000, (EC) 21/2004, and 2008/71/EC and Regulation (EU) 2016/429	Does Not Apply: Directives (EC) 494/98, (EC) 1082/2003, (EC) 911/2004, (EC) 1505/2006 and Regulation (EU) 2017/949
Checks on Food Not of Animal Origin	Applies: Council Regulation (EU) 1236/2005, Directive 2009/43/EC and Council Regulation (EC) 428/2009	Does Not Apply: Regulations (EU) 884/2014, (EU) 885/2014, (EU) 2016/166, (EU) 2015/175; Commission Decision 2010/381/EU, 2013/287/EU and 2004/407/EC; Council

		Regulations (EC) Nos 787/2004, 2073/2005 and 2075/2005.
Checks on Live Animals	Applies: Council Directives, 89/556/EEC, 90/429/EEC, 2009/158/EC, 92/65/EEC, 92/118/EEC, 97/78/EC, 2006/88/EC and Council Regulations (EC) Nos 2406/96, 999/2001, 1069/2009, 2160/2003, 852/2004, 853/2004, 854/2004, 882/2004.	Does Not Apply: Commission Decision 2004/407/EC and Council Regulations (EC) 2065/2001, 878/2004, 2073/2005 and 2075/2005.

Areas of N-S Cooperation *Not Covered At All* by Protocol/WF Applicable EU Laws	
Loughs Agency | Waterways Ireland	Directive 2000/06/EC (Water Framework Directive)
Water Pollution and Water Catchment | Water Quality | Water Regulation | River Basin Management	Directive 2000/06/EC (Water Framework Directive)
Habitats and Birds Directive | All-Island Pollinator Plan | All-Island Marsh Fritillary Group	Directive 2009/147/EC (Habitats Directive) and Directive 92/43/EEC (Birds Directive)
Flood Risk Management	Directive 2007/60/EC (Floods Directive) and Directive 2011/92 (Environmental Impact Assessment)
Air Quality Issues	Directive (EU) 2016/2284 (National Emissions Ceilings) and Directive 2008/50/EC (Ambient Air Quality)
Strategic Environmental Assessment	Directive 2001/42/EC (SEA Directive)

Landscape Monitoring	UK/Ireland Interagency Landscape Monitoring Group was founded the European Landscape Convention which was implemented by EU law.

*Terminology used to refer to EU law instrument reflects the language used in a UKG 2017 Scoping Document on N-S cooperation; it does not always reflect citation conventions.

As Table 3.2 indicates, there are 16 areas of N-S environmental cooperation which pre-Brexit relied on shared EU law and policy frameworks, but which, post-Brexit, are not fully covered by Protocol/WF applicable EU laws. If Article 11, potentially together with Article 14, was to be used in future as described, the areas listed in Table 3.2 would likely be candidates for consideration of the Specialised Committee and/or Joint Committee.

UK-EU Relations and Environmental Standards

Outside of the narrow selection of EU laws made applicable under the Protocol/WF and absent any realisation of the potential for Article 11 to serve as a mechanism to strengthen the Protocol/WF environmental credentials, the future of environmental alignment and/or divergence on the island of Ireland will depend to a significant degree on the nature of the wider UK-EU relationship.

The EU-UK Trade and Cooperation Agreement operates alongside the Protocol/WF. While the TCA does include some content on environmental protection, it does not require either the UK as a whole or Northern Ireland specifically to comply with or maintain any specific individual laws; it does nonetheless include some valuable, albeit limited, environmental provisions.[48] Examples include provisions on EU-UK cooperation on animal welfare, antimicrobial resistance and sustainable food systems along with shared targets of net-zero by 2050; none of these, however, are accompanied by alignment of specific standards.[49] Further, the Agreement provisions on level playing field include elements regarding environmental protection through a non-regression commitment and a form of alignment. On non-regression, Article 7.2 provides that neither the EU nor the UK shall:

"*weaken or reduce, in a manner affecting trade or investment between the Parties, its environmental levels of protection or its climate level of protection below the levels that are in place at the end of the transition period, including by failing to effectively enforce its environmental law or climate level of protection."*[50]

[48] Dobbs, Mary & Gravey, Viviane. (2022). Environment and Trade. http://dx.doi.org/10.1017/9781009109840.021
[49] TCA Part 2, Title I and Title XI
[50] TCA Part 2, Title XI Article 7.2(2)

Both the UK and EU are further obliged to "strive to increase" their respective levels of environmental and climate level of protection.[51] While these shared UK and EU commitments on non-regression of environmental protection are important, they are also: focused narrowly on trade and investment; focused on the UK and EU as a whole rather than constituent states/territories; and are likely to be very difficult to enforce given the (broad and vague) nature of the legal drafting. To underline this latter point, Article 9.4 of the relevant section of the TCA makes provision for either the UK or EU to take "appropriate rebalancing measures" in the event that "significant divergences" arise in level playing field provisions including as regards environmental protection;[52] the fact of this provision indicates that the TCA does not prohibit significant divergence in standards of environmental protection between the UK and EU, notwithstanding that (if it impacts trade and investment) there may be retaliatory consequences if it does arise.

Contemporary Environmental Legal Obligations in Northern Ireland

This section sets out the key pieces of legislation adopted in the UK in view of the legal implications of its withdrawal from the EU, including the new potential for regulatory divergence. Although not exhaustive, the purpose of this section is to provide necessary context for more detailed and specific analysis of environmental divergence (in Part B) and nutrient management divergence (in Part C).

The **European Union (Withdrawal) Act** 2018 (as amended) is the primary legislative mechanism for the domestic implementation of UK withdrawal from the EU. Under section 1 of the EUWA 2018 the European Communities Act 1972, which was (pre-Brexit) the legal conduit for the implementation of EU law in the UK, ceased to have effect on 1 January 2021 at the end of the UK Transition Period (or 'IP completion date'). In an attempt to avoid the uncertainty of a legal 'cliff edge', the EUWA 2018 provided for all EU law that had effect in the UK up until IP completion date to continue to apply in the UK as 'retained EU law' (or REUL). Additionally, the EUWA 2018 granted UK Ministers power to amend the majority of REUL via secondary legislation passed to that end. The EUWA 2018 also provided that UK Courts would continue to interpret REUL in accordance with (a UK version of) EU general principles, including supremacy, as well as CJEU case law, notwithstanding that the UK was no longer under the jurisdiction of the EU Courts nor would REUL be automatically updated after IP completion date to reflect changes being made to EU versions of (substantively) the same laws.

From the perspective of environmental protection, the EUWA 2018 in general and its provision regarding REUL in particular provided a very significant

[51] TCA Part 2, Title XI Article 7.2(5)
[52] TCA Part 2, Title XI Article 9.4(2)

safeguard against what otherwise could have been the automatic disapplication of the majority of (EU-derived) domestic legislation in the field of environmental policy. The EUWA 2018 provision of broad regulation-making powers for UK Ministers to amend, revise or revoke the same (EU-derived) domestic environmental legislation (REUL) with limited oversight, however, also introduced new deregulatory risks. In view of the removal of EU environmental principles and the decoupling of (pre-Brexit) EU laws from the principles and institutions of the EU, without a UK initiative to replace these, implementation of the EUWA 2018 alone *may* have led to a severe decline in domestic protections; as it happened, however, the UK did bring in its own landmark new environment legislation.

The **Environment Act**[53] **(EA) 2021**, adopted in November 2021 and approved for application in NI in March 2022[54], is the primary piece of UK legislation that makes provision in view of the removal of EU law and governance mechanisms specifically relating to environmental protection. A key intention underlying the Act was to avoid an environmental governance gap in the wake of Brexit.[55] To this end it introduced domestic environmental principles and an obligation for UK Ministers to publish policy statements regarding their application in policy-making processes (s17-19).[56] The EA 2021 also mandated the setting of long-term environmental targets in 'priority areas' of air, water, biodiversity, resource efficiency and waste reduction (s1-7); as well as mandating the preparation of Environmental Improvement Plans (EIPs) on the part of UK Ministers (s8-15). On governance, the EA 2021 provided for the establishment of an Office for Environmental Protection (OEP) to scrutinise, advise, and perform some enforcement functions regarding the implementation of aspects of EA 2021, and the targets/EIPs developed under it, in England and in Northern Ireland.[57]

The implementation of the provisions of EA 2021 is at different stages in England and Northern Ireland. The UK Government has published long-term environmental targets for England in the 25 Year Environment Plan as well as an update on these in the Environmental Improvement Plan 2023[58]. In addition, England has published an Environmental principles policy statement[59]. The Northern Irish Executive adopted an Environmental Improvement Plan in 2024 which included targets to drive the delivery of the

[53] Environment Act 2021 c. 30. https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted
[54] The Environment (2021 Act) (Commencement and Saving Provision) Order (Northern Ireland) 2022 NISR 2022/54. https://www.legislation.gov.uk/nisr/2022/54/contents/made
[55] C. Burns and V. Gravey, ' The Environment Act: Finally here but what comes next for UK environmental governance?', 23 November 2021, Brexit and Environment, https://www.brexitenvironment.co.uk/2021/11/23/finally-uk-environment-act/.
[56] The environmental principles introduced by EA 2021 are: the principle that environmental protection should be integrated into the making of policies; the principle of preventative action to avert environmental damage; the precautionary principle, so far as relating to the environment; the principle that environmental damage should as a priority be rectified at source; and the polluter pays principle (s17(5)).
[57] See Office for Environmental Protection (2023) 'What we do' *theoep.org.uk* https://www.theoep.org.uk/what-we-do (Accessed 16 Sept 2023)
[58] UK Government, Environmental Improvement Plan 2023
[59] UK Government, Environmental principles policy statement (2023)

plan[60]. However, while it is not a requirement of the EA 2021 Northern Ireland diverges from England in not having legally binding targets[61]. Finally, despite publishing a consultation for the adoption of an Environmental Principles Policy Statement for Northern Ireland in September 2024 a statement is yet to be adopted[62].

The passing of the EA 2021 was an important milestone in UK environmental law. Its introduction of statutory obligations for long-term targets and improvement plans accompanied by a new oversight and enforcement body are welcome from the perspective of environmental protections and reduction of harms. Crucially, however, EA 2021 is not as comprehensive in policy terms as the EU environment laws (in whose absence it was passed) nor are its provisions for enforcement as stringent as those that apply in the EU context. UK targets developed under the EA 2021 to implement UK environmental principles are not legally binding; instruments of EU law developed under EU Treaties to implement EU environmental principles are legally binding. Additionally, the oversight powers of the OEP are limited to 'public authorities' and do not allow actions of individuals or businesses to be monitored in relation to EIPs or long-term targets.

The **United Kingdom Internal Market Act** 2020 (UKIMA) is another important landmark piece of legislation passed in view of Brexit and its domestic legal implications which is of contextual relevance for environmental protections. In view of the removal of the regulatory scaffolding of EU law and policy frameworks and the consequential potential for intra-UK regulatory divergence, the UKIMA introduced two new 'market access principles' to govern trade between England, Scotland, Wales, and Northern Ireland – subject to the obligations of the Protocol/Windsor Framework being upheld in regard to NI. Under the UKIMA principles of mutual recognition and non-discrimination, goods and services that are recognised as and available for sale in one part of the UK must be recognised as and available for sale in another part of the UK. The UKIMA market access principles do not, however, apply to the production and sale of goods in NI due to the requirements of the Protocol/WF and the continued application of EU laws concerning goods. Changes introduced under the Windsor Framework are, however, potentially important insomuch as they provide for partial and conditional non-application of *some* EU laws that otherwise apply under the Protocol/WF if those goods enter the NI market from GB via the 'green lane' or 'UKIM Scheme' procedure and are therefore sold or used in NI and do not travel on into the IRE/EU market.

While the primary impact of UKIMA concerns trade, in practice it is likely to have an indirect effect on levels of environmental protection across the UK.

[60] DAERA (2024) Environmental improvement Plan for Northern Ireland
[61] The OEP (2025, Submission to Panel Review of Environmental Governance
[62] DAERA, (2024), Consultation on a Draft Environmental Principles Policy Statement for Northern Ireland

The logic is as follows – the market access principles are likely to create a 'lowest common denominator' regulatory environment whereby if authorities in one part of the UK wish to introduce higher regulatory obligations for traders/producers (including for the purpose of environmental protection) they will be required to do so in the knowledge that those traders/producers are likely to be disadvantaged by the inflow of goods and services from elsewhere in the UK where the regulatory obligations are lower. Under the original iteration of the Protocol, the market in NI was protected from this 'lowest common denominator' effect of UKIMA in relation to goods regulation. With the revisions to the Protocol introduced as a consequence of the Windsor Framework, the NI market is newly exposed to the deregulatory preference of the UKIMA albeit still only in a specified area of goods trade, primarily agri-food products moving GB-NI. Nonetheless the UKIMA, read together with the revised Protocol/WF, creates the possibility of goods being sold on the NI market which have been produced according to and comply with lower standards of environmental protections than those which existed pre-Brexit.

The **Retained EU Law (Revocation and Reform) Act 2023** (REUL) has similarly indirect implications for environmental protections in NI as those of the UKIM Act. Under the REUL Act as passed a specific list of (previously) retained EU law has been revoked in the UK and the general principles of EU law that had continued (under EUWA 2018) no longer apply to REUL (as was); the Act also made provision for (previously) REUL to hitherto be known as 'assimilated law'. At the same time the REUL Act granted new powers to UK Ministers to amend, revise, restate or revoke what was REUL and is now assimilated laws via secondary legislation. Notably, under the REUL Act, any revision or replacement of (previously) REUL cannot cause an increase in regulatory 'burden' which, under the Act, is broadly defined as to include: a financial cost; an administrative inconvenience; an obstacle to trade or innovation; an obstacle to efficiency, productivity, or profitability; a sanction affecting lawful activity (s14(10)).The powers created by the REUL Act therefore introduce a strong deregulatory preference to policy-making in areas of (pre-Brexit) EU competence, including in respect to environmental law. For environmental protections in NI the significance of the REUL Act is twofold: (1) it makes EU-derived environmental standards less secure due to the removal of supremacy and general principles; and (2) creates a statutory deregulatory preference in areas of environmental law and policy.

4. Regulatory Divergence and the Environment in Northern Ireland

Introduction

Section 4 will begin by defining what is meant by divergence in a policy-making context, before exploring the specific types of divergence that may or may not arise in the context of the environment in post-EU exit Northern Ireland. Practical examples of UK-EU divergence, intra-UK divergence and NI-IRE divergence will be used to illustrate likely and potential processes and impacts that could arise in each of these scenarios. This section provides the context for a detailed register of environmental policy areas and legislation where these different types of divergence have already or may in the future arise.

Defining Divergence

In policy-making 'divergence' refers to a scenario in which two or more executive authorities pursue different policy objectives and/or legal mechanisms to achieve them. In the context of the UK's withdrawal from the EU, 'divergence' can be used to describe the result of: (1) the exercise of the UK's new ability to change laws previously governed by its obligation to follow rules set by the EU; or (2) the development of new EU laws after the end of the UK Transition Period which do not therefore apply in the UK.[63]

Divergence in post-Brexit Northern Ireland

Post-Brexit Northern Ireland is the primary touching point for the regulatory regimes and legal orders of both the UK and the EU. This creates additional complexities and greater potential for divergence of various types in Northern Ireland as compared to other parts of the UK.

Types of Environmental Divergence

This section presents a series of case studies of divergence or alignment in/for Northern Ireland in the field of environmental policy, broadly understood. To demonstrate the different categories of divergence and alignment that are possible, examples are provided regarding divergence and alignment between the UK and EU; between Northern Ireland and Ireland; and between the constituent parts of the UK.

Although the case studies are organised according to the category of divergence and alignment to which they most clearly pertain, it should be noted that changes in any one of these three contexts – either UK-EU, or North-South, or intra-UK – can be expected to impact the other two.[64] In addition, it is important to note that while the three types of divergence are

[63] Except where the relevant new EU applies to Northern Ireland under the Protocol/WF; see section XX.
[64] A descriptive overview of the template used for the examples in the tables below can be found in Appendix 1.

distinct in terms of their respective likely cause, scope, and effect, it is also worth underlining from the outset that there will be overlaps in their substance in terms of policy areas (potentially) impacted. Where overlaps occur, these are indicated in the Task B register of environmentally relevant areas of actual or potential divergence and alignment.

UK-EU divergence.

This refers to differences in environmental regulation applicable in the UK and EU following and as a consequence of the former's departure from the latter.

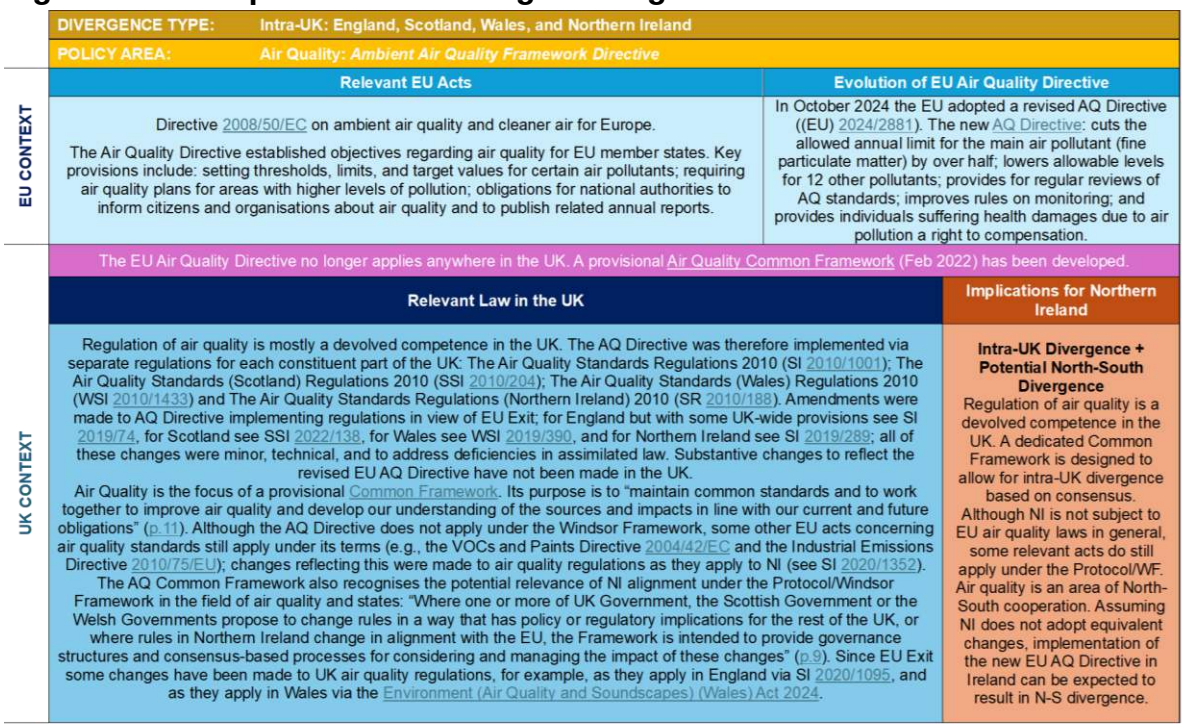
Figure 4.1 Example UK-EU divergence register

	DIVERGENCE TYPE:	**Protocol/Windsor Framework: EU(+NI)-UK**		
	POLICY AREA:	**Chemicals Regulation: *REACH***		
EU CONTEXT	**Relevant EU Act**	**Evolution of EU Reach**		**Future of EU REACH**
	The REACH Regulation ((EC) 1907/2006) The purpose of the REACH regulation is to provide a comprehensive legislative framework for chemicals that are manufactured and used in the EU and to ensure the industry is responsible for the safety of chemicals produced, imported, sold, and used in the EU	Since the end of the UK Transition Period, the REACH Regulation has been amended via the adoption of ten acts of tertiary EU law from 2021 to 2024. These include Commission Implementing Regulation (EU) 2021/876, Commission Implementing Decision (EU) 2022/326, and Commission Regulations (EU) 2023/2482, (EU) 2023/2055, (EU) 2023/1464, (EU) 2023/1132, (EU) 2023/923, (EU) 2024/1328, (EU) 2024/2929 and (EU) 2024/2462. Amendments introduced by these ten acts respectively concern: applications for authorisation of substances used in the production of legacy spare parts; provisional measures taken in France regarding restriction of creosote treated and related substances; the use of bis(2-ethylhexyl) phthalate (DEHP) in medical devices; the use of synthetic polymer microparticles; use of formaldehyde and formaldehyde releasers; substances classified as carcinogenic, mutagenic, or reproductive toxicants; the use of lead and its compounds in PVC substances; restriction on the use of certain chemicals (D4, D5 and D6) in cosmetic products; correction to the French language version of the REACH Regulation; and the targeted restriction of the use of chemical PFHxA and related substances. Amendments introduced by the ten EU tertiary acts are technical in nature and often reflect updates deemed necessary in view of scientific developments, evidence of risk, and to comply with the EU's chemicals strategy for sustainability.		A European Commission review of the EU REACH regulation in 2018 concluded that certain aspects would need to be revised. As part of its European Green Deal, the European Commission published a *Chemicals Strategy for Sustainability* in October 2020; a proposed revision of the EU REACH regulation was among the 80+ actions set out in the strategy. The European Commission has not yet published a draft proposal for the revised REACH regulation but has carried out a public/stakeholder consultation exercise. Following the EP elections, the reinstated EC President reiterated the commitment to "put forward a new chemicals industry package" to simply REACH.
UK CONTEXT	REACH Regulation applies in Northern Ireland under Article 5 and Annex 2 of the Protocol/WF; amendments to it therefore apply by default.			
	Act within scope of:	Article 13(3a) (Stormont Brake)	Yes: no relevant use to date	UK Internal Market System 'disapplication' / No
	Relevant Law in the UK in respect of Great Britain			**Implications for Northern Ireland**
	An assimilated law version of EU REACH applies in GB as 'UK REACH' (see UK Regulation 1907/2006 and SI 2008/2853) – various updates were made prior to end of Transition Period (see SI 2019/758, SI 2020/1577, SI 2021/904) to reflect EU Exit. No substantive updates or revisions have been made since, but future changes are planned. UK REACH was amended in 2023 (SI 2023/722) to extend the time period during which UK traders and distributors can continue to import chemicals from EU without submitting a full registration on the UK REACH system; new deadlines are intended to provide 'sufficient time for government to develop and introduce' a new registration model. In November 2023 proposals for the 'alternative transition registration model' (ATRm) for UK REACH were published; they had been developed in response to 'concerns raised by the chemicals industry about the significant costs' of completing registrations. Rather than replicate the approach of EU REACH, the new UK(GB) system will instead 'adopt a more targeted approach' by 'refining' and 'reducing' the information required. A consultation on the ATRm for UK REACH was opened in May 2024 and closed in July 2024. 241 responses were received on which the UKG plans to report in 2025. After this, UKG plan a second consultation accompanied by draft statutory instrument and impact assessment.			**Limited Current Divergence + Anticipated Future Divergence** Changes made to EU REACH since 31 December 2020 apply in Northern Ireland but do not apply in GB. The HSENI is the responsible authority for the purposes of implementing REACH in NI; it provides regular HSENI updates to NI stakeholders. UK REACH applies in GB and, while it has not been updated with post-2021 changes, it also has not been substantively revised away from EU REACH. Planned changes in both EU REACH and UK REACH can be expected to increase GB–NI divergence as well as UK–EU(+NI) divergence in this area.

Intra-UK divergence

This refers to differences in environmental regulation and/or the nature of its implementation between England, Scotland, Wales and Northern Ireland; there is much more potential for this type of intra-UK divergence following and as a consequence of Brexit.

Figure 4.2 Example Intra-UK divergence register

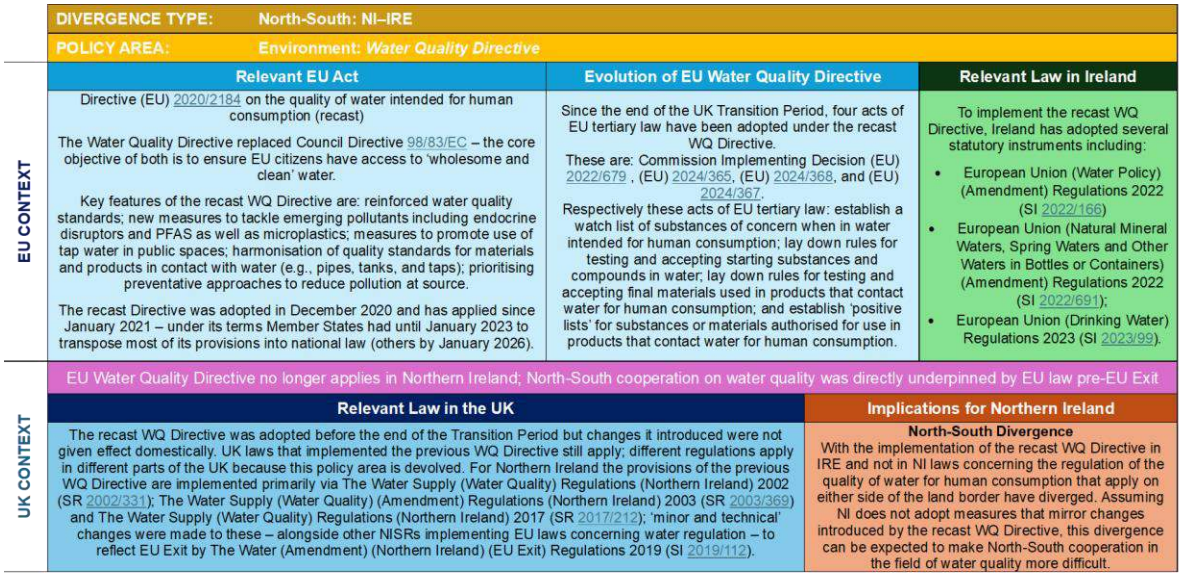


	DIVERGENCE TYPE:	**Intra-UK: England, Scotland, Wales, and Northern Ireland**
	POLICY AREA:	**Air Quality: *Ambient Air Quality Framework Directive***
EU CONTEXT	**Relevant EU Acts**	**Evolution of EU Air Quality Directive**
	Directive 2008/50/EC on ambient air quality and cleaner air for Europe. The Air Quality Directive established objectives regarding air quality for EU member states. Key provisions include: setting thresholds, limits, and target values for certain air pollutants; requiring air quality plans for areas with higher levels of pollution; obligations for national authorities to inform citizens and organisations about air quality and to publish related annual reports.	In October 2024 the EU adopted a revised AQ Directive ((EU) 2024/2881). The new AQ Directive: cuts the allowed annual limit for the main air pollutant (fine particulate matter) by over half; lowers allowable levels for 12 other pollutants; provides for regular reviews of AQ standards; improves rules on monitoring; and provides individuals suffering health damages due to air pollution a right to compensation.
UK CONTEXT	The EU Air Quality Directive no longer applies anywhere in the UK. A provisional Air Quality Common Framework (Feb 2022) has been developed.	
	Relevant Law in the UK	**Implications for Northern Ireland**
	Regulation of air quality is mostly a devolved competence in the UK. The AQ Directive was therefore implemented via separate regulations for each constituent part of the UK: The Air Quality Standards Regulations 2010 (SI 2010/1001); The Air Quality Standards (Scotland) Regulations 2010 (SSI 2010/204); The Air Quality Standards (Wales) Regulations 2010 (WSI 2010/1433) and The Air Quality Standards Regulations (Northern Ireland) 2010 (SR 2010/188). Amendments were made to AQ Directive implementing regulations in view of EU Exit; for England but with some UK-wide provisions see SI 2019/74, for Scotland see SSI 2022/138, for Wales see WSI 2019/390, and for Northern Ireland see SI 2019/289; all of these changes were minor, technical, and to address deficiencies in assimilated law. Substantive changes to reflect the revised EU AQ Directive have not been made in the UK. Air Quality is the focus of a provisional Common Framework. Its purpose is to "maintain common standards and to work together to improve air quality and develop our understanding of the sources and impacts in line with our current and future obligations" (p.11). Although the AQ Directive does not apply under the Windsor Framework, some other EU acts concerning air quality standards still apply under its terms (e.g., the VOCs and Paints Directive 2004/42/EC and the Industrial Emissions Directive 2010/75/EU); changes reflecting this were made to air quality regulations as they apply to NI (see SI 2020/1352). The AQ Common Framework also recognises the potential relevance of NI alignment under the Protocol/Windsor Framework in the field of air quality and states: "Where one or more of UK Government, the Scottish Government or the Welsh Governments propose to change rules in a way that has policy or regulatory implications for the rest of the UK, or where rules in Northern Ireland change in alignment with the EU, the Framework is intended to provide governance structures and consensus-based processes for considering and managing the impact of these changes" (p.9). Since EU Exit some changes have been made to UK air quality regulations, for example, as they apply in England via SI 2020/1095, and as they apply in Wales via the Environment (Air Quality and Soundscapes) (Wales) Act 2024.	**Intra-UK Divergence + Potential North-South Divergence** Regulation of air quality is a devolved competence in the UK. A dedicated Common Framework is designed to allow for intra-UK divergence based on consensus. Although NI is not subject to EU air quality laws in general, some relevant acts do still apply under the Protocol/WF. Air quality is an area of North-South cooperation. Assuming NI does not adopt equivalent changes, implementation of the new EU AQ Directive in Ireland can be expected to result in N-S divergence.

NI-IRE divergence

This refers to differences in environmental regulation and/or the nature of its implementation between the two jurisdictions on the island of Ireland, largely but not exclusively as a consequence of Brexit and its outcomes, including the Protocol/WF.

Figure 4.3 Example NI-IRE divergence register



	DIVERGENCE TYPE:	**North-South: NI–IRE**	
	POLICY AREA:	**Environment: *Water Quality Directive***	
EU CONTEXT	**Relevant EU Act**	**Evolution of EU Water Quality Directive**	**Relevant Law in Ireland**
	Directive (EU) 2020/2184 on the quality of water intended for human consumption (recast) The Water Quality Directive replaced Council Directive 98/83/EC – the core objective of both is to ensure EU citizens have access to 'wholesome and clean' water. Key features of the recast WQ Directive are: reinforced water quality standards; new measures to tackle emerging pollutants including endocrine disruptors and PFAS as well as microplastics; measures to promote use of tap water in public spaces; harmonisation of quality standards for materials and products in contact with water (e.g., pipes, tanks, and taps); prioritising preventative approaches to reduce pollution at source. The recast Directive was adopted in December 2020 and has applied since January 2021 – under its terms Member States had until January 2023 to transpose most of its provisions into national law (others by January 2026).	Since the end of the UK Transition Period, four acts of EU tertiary law have been adopted under the recast WQ Directive. These are: Commission Implementing Decision (EU) 2022/679 , (EU) 2024/365, (EU) 2024/368, and (EU) 2024/367. Respectively these acts of EU tertiary law: establish a watch list of substances of concern when in water intended for human consumption; lay down rules for testing and accepting starting substances and compounds in water; lay down rules for testing and accepting final materials used in products that contact water for human consumption; and establish 'positive lists' for substances or materials authorised for use in products that contact water for human consumption.	To implement the recast WQ Directive, Ireland has adopted several statutory instruments including: • European Union (Water Policy) (Amendment) Regulations 2022 (SI 2022/166) • European Union (Natural Mineral Waters, Spring Waters and Other Waters in Bottles or Containers) (Amendment) Regulations 2022 (SI 2022/691); • European Union (Drinking Water) Regulations 2023 (SI 2023/99).
UK CONTEXT	EU Water Quality Directive no longer applies in Northern Ireland; North-South cooperation on water quality was directly underpinned by EU law pre-EU Exit		
	Relevant Law in the UK		**Implications for Northern Ireland**
	The recast WQ Directive was adopted before the end of the Transition Period but changes it introduced were not given effect domestically. UK laws that implemented the previous WQ Directive still apply; different regulations apply in different parts of the UK because this policy area is devolved. For Northern Ireland the provisions of the previous WQ Directive are implemented primarily via The Water Supply (Water Quality) Regulations (Northern Ireland) 2002 (SR 2002/331); The Water Supply (Water Quality) (Amendment) Regulations (Northern Ireland) 2003 (SR 2003/369) and The Water Supply (Water Quality) Regulations (Northern Ireland) 2017 (SR 2017/212); 'minor and technical' changes were made to these – alongside other NISRs implementing EU laws concerning water regulation – to reflect EU Exit by The Water (Amendment) (Northern Ireland) (EU Exit) Regulations 2019 (SI 2019/112).		**North-South Divergence** With the implementation of the recast WQ Directive in IRE and not in NI laws concerning the regulation of the quality of water for human consumption that apply on either side of the land border have diverged. Assuming NI does not adopt measures that mirror changes introduced by the recast WQ Directive, this divergence can be expected to make North-South cooperation in the field of water quality more difficult.

Developing a 'Divergence Register'

A detailed register of actual and potential divergence in environmental law is available alongside the report. LINK TO REGISTER HERE

User Guidance

This register documents areas of actual and/or potential divergence in environmental law and policy after EU Exit across multiple jurisdictions. Three different axes are considered: divergence between the UK and the EU (**UK-EU**); divergence between Northern Ireland and Ireland (**N-S**); and divergence between one or more of the constituent UK territories (**intra-UK**).

Where relevant, any overlaps in examples of (actual/potential) divergence across one of the three axes (UK-EU, N-S, intra-UK) to other axes are indicated.

To track **UK-EU divergence** relevant entries on the register first list those EU acts (regulations, directives and decisions) in the field of the environment and environmental governance. To indicate where changes have been made in listed EU acts, the Register notes any changes (e.g., repeal, replacement, or expiry) made at EU level to the relevant act (i) since the Protocol/WF was first concluded in October 2019 and more particularly since the end of the UK Transition Period in December 2020. Following this, the Register then provides a record of domestic implementing legislation for the given EU act that applies in Ireland. The next section then provides information on domestic implementing or related legislation in the UK in respect of Northern Ireland, followed by the UK in respect of Great Britain or its constituent parts. Where changes have been made to domestic legislation in any of the state or sub-state jurisdictions since the end of the Transition Period, this is indicated. The final section of the Register provides an assessment of the presence or absence of divergence for the specific case and, where relevant, includes an indicative statement on impact.

To track **intra-UK divergence** relevant entries on the Register focus on those areas of policy most impacted by the removal of EU law and policy frameworks. The relevant policy area is indicated alongside (where relevant) the previous relationship of EU law to its operation in the UK during its EU membership. From here the Register then lists relevant implementing legislation in the UK in respect of Great Britain (or its constituent parts) and the UK in respect of Northern Ireland, including (where relevant) the continued application or non-application of EU law under the Protocol/WF. The final section of the Register provides an assessment of the presence or absence of divergence for the specific case and, where relevant, includes an indicative statement on impact.

To track **North-South divergence** relevant entries on the Register focus on those areas of policy in scope of N-S cooperation under the 1998 Agreement in view of (in particular) the scope of powers devolved to Northern Ireland.

The relevant policy area is indicated alongside (where relevant) the previous relationship of EU law to its operation in the UK during its EU membership. From here the Register then lists relevant implementing legislation in the UK in respect of Great Britain (or its constituent parts) and the UK in respect of Northern Ireland, including (where relevant) the continued application or non-application of EU law under the Protocol/WF. The final section of the Register provides an assessment of the presence or absence of divergence for the specific case and, where relevant, includes an indicative statement on impact.

5. Agricultural Nutrient Management

Introduction

Approaches to Nutrient Management over the last thirty years have been shaped by the Nitrates Directive, as well as the Water Framework Directive, which has attempted to reduce pollution released into water from agricultural activities. For all EU member states this has taken the form of the designation of Nitrate Vulnerable Zones which states are required to delineate following criteria outlined in the Directive. The transposition and implementation of the Directive requires member states to make regulations restricting the activities of farmers within Nitrate Vulnerable Zones, and a voluntary code of practice for those not operating in Nitrate Vulnerable Zones. Member states are required to develop and apply successive Action Plans applying to vulnerable zones, every four years. The following sections outline the regulatory positions of each jurisdiction in relation to Nutrient Management from Agriculture. This begins with a high level overview of the aims and objectives of each jurisdiction alongside any established targets, identification of the key legislation, an in-depth comparison of the regulatory position for each of the requirements originally set out in the Nitrates Directive, and additional areas that the relevant jurisdictions have legislated to manage nutrients; these additional areas are:

- Nitrate Vulnerable Zones and Derogations
- Fertiliser Application
- Manure, Slurry and Silage Storage
- Nutrient Management Planning

Aims, Objectives and Targets

European Union (EU)

The European Union has set targets to reduce nutrient losses by 50% by 2030, which is expected to result in a 20% reduction in fertiliser use. These targets are set under the 'Farm to Fork'[65] Strategy, a centre pillar of the European Green Deal[66]. These targets will be implemented through enforcement of regulations including the Nitrates Directive and agri-environmental schemes.

Ireland

Ireland's Fifth Nitrates Action Programme (2022-2025)[67] is given effect by the European Union (Good Agricultural Practice For Protection Of Waters)

[65] 'Farm to fork' strategy for a fair, healthy and environmentally friendly food system (2020). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52020DC0381
[66] The European Green Deal (2019). https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN
[67] Ireland's Fifth Nitrates Action Programme 2022-2025. https://www.gov.ie/en/publication/f1d01-fifth-nitrates-action-programme-2022-2025/#view-the-programme

Regulations 2022[68], and aims to protect water from agricultural nutrient pollution.

Northern Ireland (NI)

The Nutrient Action Programme Regulations (Northern Ireland) 2019[69] are the current mechanism for enshrining the Nitrates Directive[70] into domestic legislation, seeking to ensure that land managers implement measures to protect surface and groundwater from agricultural nutrient pollution. These regulations are intended to meet the standards required in the Nutrients Action Programme[71], the most recent of which – 2019-2022 – is under review by the Department of Agriculture, Environment and Rural Affairs (DAERA) in preparation for an updated programme for 2025[72].

England

The UK Government has set targets for reducing agricultural nutrient pollution by 40% by 2038, as outlined in the Environment Act 2021[73]. An interim target of 10% reduction in nitrogen, phosphorus, and sediment pollution from agriculture has been set for 2028. The current regulatory mechanisms to help meet these targets are the Farming Rules for Water[74] and the Nitrate Pollution Prevention Regulations[75]. They are complemented by the introduction of Environmental Land Management Schemes and other support for capital investment on farms which include schemes to incentivise reductions in ammonia emissions and investment in slurry storage infrastructure[76]. As elsewhere, there are also farm advisory measures and voluntary schemes, for example relating to the use of urea fertiliser.

Key Legislation

- European Union: The Nitrates Directive[77]

[68] European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022. https://www.irishstatutebook.ie/eli/2022/si/113/made/en/print
[69] The Nutrient Action Programme Regulations (Northern Ireland) 2019. https://www.legislation.gov.uk/nisr/2019/81/contents/made
[70] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31991L0676
[71] Nutrients Action Programme 2019-2022 Guidance Booklet (daera-ni.gov.uk) https://www.daera-ni.gov.uk/sites/default/files/publications/daera/20.21.177%20Nutrients%20Action%20Programme%202019-2022%20Guidance%20Booklet%20Final.PDF
[72] Update on NAP Review and related actions in the Lough Neagh Action Plan (daera-ni.gov.uk) https://www.daera-ni.gov.uk/publications/update-nap-review-and-related-actions-lough-neagh-action-plan
[73] Environment Act 2021. https://www.legislation.gov.uk/ukpga/2021/30/contents
[74] The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018. https://www.legislation.gov.uk/uksi/2018/151/contents/made
[75] The Nitrate Pollution Prevention Regulations 2015. https://www.legislation.gov.uk/uksi/2015/668/contents
[76] Nutrient pollution: reducing the impact on protected sites (gov.uk) https://www.gov.uk/government/publications/nutrient-pollution-reducing-the-impact-on-protected-sites/nutrient-pollution-reducing-the-impact-on-protected-sites#:~:text=Through%20our%20Environment%20Act%202021,2038%20(against%20a%202018%20baseline)
[77] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31991L0676

- Ireland: European Union (Good Agricultural Practice For Protection Of Waters) Regulations 2022[78] or '**GAP Regulations'**
- Northern Ireland: The Nutrient Action Programme Regulations (Northern Ireland) 2019[79] or '**NAP Regulations'**
- England: The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010[80] or '**SSAFO (England) Regulations**'; The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018[81] or '**Farming Rules for Water'**; The Nitrate Pollution Prevention Regulations (2015)[82] or '**NVZ Regulations'**

Nitrate Vulnerable Zones (NVZs) and Derogations

This section outlines the territorial designations of Nitrate Vulnerable Zones and derogations (exemptions) from the regulations that apply within them.

EU

The Nitrates Directive[83] specifies that EU Member States must designate certain areas of land as Nitrate Vulnerable Zones (NVZs). These areas are defined as those where ground or surface waters are or are likely to be polluted to a level greater than 50mg/l of nitrates. This includes areas which are eutrophic or likely to become so. Within NVZs, landholders must not exceed the 170kg/ha per year nitrogen application limit from organic manure; outside these zones, Member States must undertake (voluntary) measures to protect ground and surface waters from agricultural diffuse pollution[84].

Holdings may apply for a derogation from the 170kg/ha limit, provided they can justify that higher application limits do not lead to higher pollution.

Ireland

Ireland has adopted a whole-territory approach to NVZs[85], whereby the GAP Regulations apply to all agricultural holdings within the state. A holding is defined as "*an agricultural production unit and, in relation to an occupier, means all the agricultural production units managed by that occupier*".

[78] European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022. https://www.irishstatutebook.ie/eli/2022/si/113/made/en/print
[79] The Nutrient Action Programme Regulations (Northern Ireland) 2019. https://www.legislation.gov.uk/nisr/2019/81/contents/made
[80] The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010. https://www.legislation.gov.uk/uksi/2010/639/contents
[81] The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018. https://www.legislation.gov.uk/uksi/2018/151/contents/made
[82] The Nitrate Pollution Prevention Regulations 2015. https://www.legislation.gov.uk/uksi/2015/668/contents
[83] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31991L0676
[84] Musacchio, A., Re, V., Mas-Pla, J., & Sacchi, E. (2020). EU Nitrates Directive, from theory to practice: Environmental effectiveness and influence of regional governance on its performance. Ambio, 49(2), 504–516. https://doi.org/10.1007/s13280-019-01197-8. https://pmc.ncbi.nlm.nih.gov/articles/PMC6965048/
[85] Article 10 Report for Ireland for the Period 2020-2023 (epa.ie) https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/Nitrates-Article-10-Report-for-Ireland-2020-2023.pdf

Occupiers cannot apply more than 170kg/ha of nitrogen from livestock manure, except in the case of a derogation.

Ireland has been granted a derogation[86] from these regulations, allowing farmers to exceed the 170kg/ha/year limit up to a maximum of 220 kg/ha/year, subject to following stricter rules – including the preparation of fertilisation plans. Ireland moved from a 250kg/ha/year derogation to 220 kg/ha/year in January of 2024, due to worsening trends in nutrient pollution revealed in a two-year review[87].

NI

Similarly to Ireland, NI has adopted a whole-territory approach in designating its NVZ and in its NAP Regulations, meaning all holdings – defined as "*all the agricultural area managed by that controller"* - within NI must follow the 170kg/ha/year nitrogen application limit.

However, Northern Ireland has been granted a series of four-year derogations from the full requirements of the Directive, as in the ROI. The Nutrients Action Programme (NAP) Derogation[88] allows farmers to apply livestock manure on grazing land at a rate above 170 kg/ha/year N up to a limit of 250 kg/ha/year N, provided they meet certain key criteria. Though the Nutrients Action Programme 2019-2022 has technically expired, the current 2025 derogation follows the rules set out in the 2019-2022 NAP[89].

England

In England the approach is different with only a portion of farmland designated as within NVZ boundaries. The NVZ Regulations specifically provide for the designation of certain areas as nitrate vulnerable zones (NVZs), within which limits on fertiliser application are imposed. These zones need to be reviewed every four years, and currently account for 55% of land in England[90]. These regulations define holdings as "*all the land located within a nitrate vulnerable zone and its associated buildings which are at the disposal of the occupier and which are used for the growing of crops in soil or rearing of livestock for agricultural purposes"*.

[86] Commission Implementing Decision (EU) 2022/696 of 29 April 2022. https://eur-lex.europa.eu/eli/dec_impl/2022/696/oj/eng
[87] Commission Implementing Decision (EU) 2022/696 of 29 April 2022. https://eur-lex.europa.eu/eli/dec_impl/2022/696/oj/eng
[88] Nutrients Action Programme Derogation 2019-2022. https://www.daera-ni.gov.uk/publications/nutrients-action-programme-nap-derogation-2019-2022
[89] Online system for NAP derogation 2024 applications and submission of 2023 records now open (daera-ni.gov.uk) https://www.daera-ni.gov.uk/news/online-system-nutrients-action-programme-nap-derogation-2024-applications-and-submission-2023-records-now-open
[90] Nitrate Vulnerable Zones (gov.uk) https://www.gov.uk/government/collections/nitrate-vulnerable-zones

The NVZ Regulations set limits of 170kg/ha of livestock manure per year for the whole holding, and a maximum of 250kg/ha of organic manure on any given hectare of land. However, occupiers may apply for a derogation from this limit, provided 80% or more of their agricultural area is sown with grass and they meet other conditions. Each of the following rules from the Nitrate Pollution Prevention Regulations 2015 applies only to those within an NVZ.

All three jurisdictions align with the Nitrates Directive, however, NI and ROI operate full territory NVZs meaning that all farmers are regulated, England only has 55% of the territory as NVZs at present meaning that many English farmers operate to different rules presenting a potential existing economic divergence.

Alignment - High

Fertiliser Application

'Fertiliser application' in this report means the regulation of the timing, method, and amount of fertiliser use to prevent nutrient leaching and runoff.

Definitions

EU

The Nitrates Directive defines 'fertiliser' as "any substance containing a nitrogen compound or nitrogen compounds utilised on land to enhance growth of vegetation; it may include livestock manure, the residues from fish farms and sewage sludge".

It further defines 'chemical fertiliser' as "any fertiliser that is manufactured by an industrial process".

Ireland

The GAP Regulations[91] for Ireland use the same definition of 'fertiliser' and 'chemical fertiliser' as those defined in the Nitrates Directive.

However, they further define 'organic fertiliser' as "*any fertiliser other than that manufactured by an industrial process and includes livestock manure, dungstead manure, farmyard manure, slurry, soiled water, silage effluent, spent mushroom compost, non-farm organic substances such as sewage sludge, industrial by-products and sludges and residues from fish farms*".

NI

[91] European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022. https://www.irishstatutebook.ie/eli/2022/si/113/made/en/print

The NAP Regulations[92] define 'fertiliser' as "*any substance containing plant nutrients utilised on land to enhance growth of vegetation and may include livestock manure, the residues from fish farms and sewage sludge*". This definition aligns very closely with those employed by the EU and Ireland, although 'nitrogen compound(s)' is replaced with 'plant nutrients' – possibly accounting for the incorporation of the Phosphorus (Use in Agriculture) Regulations (Northern Ireland) 2014, to include phosphorus-based fertilisers.

NI further defines 'chemical fertiliser' as being "*any fertiliser in which the declared plant nutrients are in the form of minerals obtained by extraction or by physical or chemical industrial processes*" and 'chemical nitrogen fertiliser' as "*any fertiliser containing one or more nitrogen compounds which is manufactured or blended by an industrial process*".

England

The Farming Rules for Water[93] don't explicitly define fertiliser but separate manufactured and organic fertilisers:

- 'Manufactured fertiliser' is "*fertiliser made by an industrial process*"
- 'Organic manure' is "*fertiliser derived from one or more animal, plant or human source, including - anaerobic digestates and liquors; ash from meat, poultry litter or biomass; bone meal; livestock manure; paper crumble; silage effluent; sludge, and slurry*".

The NVZ Regulations[30] define 'nitrogen fertiliser' as "*a substance containing one or more nitrogen compounds used on land to enhance growth of vegetation*" and 'phosphate fertiliser' as "*any substance containing one or more phosphorus compounds used on land to enhance growth of vegetation*".

They further define 'organic manure' as "*a nitrogen fertiliser or phosphate fertiliser derived from animal, plant or human sources (and includes livestock manure)*".

Definitions broadly aligned across territories, with Ireland and England specifically defining organic fertiliser or manure.

Alignment - High

The next section outlines the rules specific to each jurisdiction's regulation(s) regarding fertiliser application. The subsections are as follows:

[92] The Nutrient Action Programme Regulations (Northern Ireland) 2019. https://www.legislation.gov.uk/nisr/2019/81/contents/made
[93] The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018. https://www.legislation.gov.uk/uksi/2018/151/contents/made

- ‘When to apply’: What rules exist around the timing of fertiliser application.
- ‘Where to apply’: Where can fertilisers be or not be applied according to the regulations.
- ‘How to apply’: How must fertilisers be applied according to the regulations; i.e. what methods should be used.
- ‘How much/often to apply’: What are the limits on fertiliser application amounts/concentrations and frequency according to the regulations.

When to apply

EU

The Nitrates Directive instructs member states to draw up codes of good agricultural practice (implemented voluntarily by farmers) which designate periods, locations and conditions under which fertiliser application is inappropriate.

Ireland

The GAP Regulations place restrictions on applying organic and chemical fertilisers and soiled water to land which is: waterlogged; flooded or likely to; snow-covered or frozen, or forecast to receive heavy rain within 48 hours.

Fertiliser application is also prohibited for designated periods between September and January; the exact dates vary by county.

NI

Northern Ireland has similar restrictions to Ireland in that fertiliser application is prohibited when the land/soil is: waterlogged; flooded or likely to; frozen; snow-covered, or forecast to receive heavy rain within 48 hours.

Fertiliser application is prohibited for certain periods, depending on fertiliser and land type:

- Chemical nitrogen and phosphorous fertiliser applications to grassland are prohibited between 15th September and 31st January of the following year; the same restriction applies for crop applications, unless there is a demonstrable crop requirement during that time.
- Organic manure application – excluding farmyard manure and dirty water – is prohibited between 15th October and 31st January.
- Farmyard manure application is prohibited between 31st October and 31st January.

England

Under The Farming Rules for Water, organic manure and manufactured fertiliser application is prohibited on soil which is: waterlogged, flooded or snow-covered, or frozen for more than 12 hours in the previous 24 hours.

The NVZ Regulations restrict nitrogen fertiliser application under the above conditions, as well as outlining further restrictions on when fertiliser can be applied. These include designated 'closed periods' for application of "*organic manure with high readily available nitrogen*":

- For sandy or shallow soil, fertiliser application is prohibited between 1st September and 31st December for Grassland and between 1st August and 31st December for Tillage land.
- For all other soils, fertiliser application is prohibited between 15th October to 31st January for Grassland and between 1st October and 31st January for Tillage land.
- These restrictions may be disregarded if the next crop sown on the land is sown on or before 15th September.

For manufactured nitrogen fertiliser, the 'closed period' runs from 15th September to 15th January for grassland and from 1st September to 15th January for tillage land. This excludes designated crops which may have fertiliser applied, so long as maximum nitrogen rates are not surpassed.

For organic holdings, organic manure with highly readily available nitrogen can be applied on designated crop varieties and/or with advice from a Fertiliser Advisers Certification and Training Scheme (FACTS) adviser. However, each hectare of spreading land can receive no more than 150kg for total nitrogen from the start of the closed period until the following February. Additional restrictions apply for certain crop varieties.

Border counties of Donegal, Monaghan, Cavan and Louth vary in prohibited application dates, but all fall within 2 weeks of the dates prohibited in NI with ROI tending to have longer prohibited periods.

Alignment - Medium

Where to apply

EU

The Nitrates Directive instructs member states to draw up codes of good agricultural practice (these are voluntary) which designate locations where fertiliser application is inappropriate; this information is not included in the Directive itself.

Ireland

The GAP Regulations prohibit chemical fertiliser application within 2 metres of any surface waters. For organic fertiliser, application distances vary depending on water source, land incline and local authority designation; these details are outlined in the regulations themselves. Organic and chemical fertilisers are prohibited from being applied under the following conditions: *"the ground slopes steeply and there is a risk of water pollution having regard to factors such as surface runoff pathways, the presence of land drains, the absence of hedgerows to mitigate surface flow, soil condition and ground cover."* Chemical fertiliser is prohibited from being spread on commonage land.

NI

Similarly for Northern Ireland, chemical fertiliser application is prohibited within 2 metres of any waterway; organic manure application distances depend on water source and land incline. Fertiliser application is prohibited on steeply sloping land where there is a "*significant risk off causing water pollution*", or under conditions which would make it *"likely that the fertiliser will directly enter a waterway or water contained in any underground strata".*

England

The Farming Rules for Water and the NVZ Regulations prohibit fertiliser application under the following conditions:

- Manufactured fertiliser is prohibited within 2 metres of inland freshwaters, coastal waters, springs or boreholes
- Organic manure is prohibited within 10 metres of inland freshwater or coastal waters (except under certain designated conditions where it may be permitted) and within 50m of a spring, well or borehole.

Rules in NI, England and ROI are highly aligned, except forthe inclusion of an additional regulation for common land in ROI.

Alignment - High

<u>How to apply</u>

EU

Codes of good agricultural practice, as required under the Nitrates Directive, must include procedures for fertiliser application which ensure that nutrient losses to water are maintained at a suitable level.

Ireland

The GAP Regulations state that manure, organic fertilisers, effluents, soiled water and chemical fertilisers should be *"applied to land in as accurate and uniform a manner as is practically possible."*

Low-emission spreading equipment is required for application of slurry and livestock manure for holdings with grassland stocking rates between 100-170kg per hectare. Certain methods of application for organic fertilisers or soiled water are prohibited, including: "*an umbilical system with an upward-facing splashplate, (b) by use of a tanker with an upward-facing splashplate, (c) by use of a sludge irrigator mounted on a tanker, or (d) from a road or passageway adjacent to the land*". Soiled water cannot be applied in volumes exceeding 50,000 litres per hectare within 42 days or by an irrigation rate above 5mm per hour.

NI

Similarly for Northern Ireland, fertiliser application should be done "*in an accurate and uniform manner*"[94]. Slurry may only be applied by spreading close to the ground using the following methods: "*inverted splash plate spreading, bandspreading, dribble bar, trailing hose, trailing shoe, soil incorporation or soil injection methods, except where certain requirements are met".* These methods constitute low-emission methods of fertiliser application[95] and so align with the recommendations made in Ireland.

Anaerobic digestate may only be applied if a nutrient content analysis has been conducted and should not exceed recommended levels as outlined in the regulations.

England

The Farming Rules for Water direct that fertiliser application should be done in such a way to avoid exceeding the needs of the soil and crop or causing significant diffuse pollution; the land manager should consider all factors which may contribute to pollution risk and take all reasonable precautions to avoid this when planning for fertiliser application. This includes maintaining spreading equipment and ensuring fertilisers are incorporated into the soil within 12 hours after application.

[94] The Nutrient Action Programme Regulations (Northern Ireland) 2019. https://www.legislation.gov.uk/nisr/2019/81/contents/made
[95] New NAP measures information for farmers (daera-ni.gov.uk). https://www.daera-ni.gov.uk/sites/default/files/publications/daera/new-nap-measures-information-for-farmers-11-July-2019.PDF

The NVZ Regulations also require the land manager to consider risks when planning fertiliser application. Fertiliser must be applied as accurately as possible and restrictions around slurry spreading using broadcasting equipment are outlined in the regulations.

Rules in NI, England and ROI are highly aligned excluding the inclusion of an additional regulation for anaerobic digestate in NI.

Alignment - High

How much/often to apply

EU

In areas already polluted by nitrates, the Nitrates Directive prescribes that the highest amount of nitrogen from manure that can be applied annually is 170 kg/ha. Derogations allowing more than 170kg/ha to be applied may be requested provided countries can justify that it will not lead to higher pollution.

Ireland

The GAP Regulations enforce those laid out in the Nitrates Directive, prescribing that the total amount of livestock manure applied to land each year – including that deposited by the animals themselves – should not exceed 170kg/ha. For commonage land, this amount should not exceed 50kg/ha. The Nitrates Derogation[96] allows farmers to exceed the limit of 170 kg of livestock manure nitrogen per hectare set down in the GAP regulations up to a maximum of 220kg/ha per year, subject to adherence to stricter rules.

NI

Northern Ireland follows a similar rule, whereby the total amount of nitrogen in livestock manure and anaerobic digestate applied to the land – including that applied by the animals themselves - should not exceed 170kg/ha per year.

The amount of available nitrogen applied to grassland should be "*in proportion to the crop requirement for nitrogen of the holding"* while not exceeding defined limits. The same applies for land other than grassland, including that cultivated for crops. Limits for nitrogen and phosphorus fertiliser application set out in the fertiliser technical standards should be followed. Organic manure containing more than 0.25kg of total phosphorus per 1kg of total nitrogen should not be applied to land unless the land manager can demonstrate that total available phosphorus applied does not exceed the fertiliser technical standards.

[96] Commission Implementing Decision (EU) 2022/696 of 29 April 2022. https://eur-lex.europa.eu/eli/dec_impl/2022/696/oj/eng

The Nutrients Action Programme (NAP) Derogation[97] allows farmers to apply livestock manure on grazing land above 170 kg/ha/year N up to a limit of 250 kg/ha/year N, provided they meet certain key criteria.

England

The Farming Rules for Water do not set fertiliser application limits.

The NVZ Regulations set limits for areas designated as Nitrate Vulnerable Zones. These limits are 170kg/ha of livestock manure per year for the whole holding, and a maximum of 250kg/ha of organic manure on any given hectare of land. The 170kg/ha limit does not apply where the occupier has been granted a derogation. Occupiers may apply for a derogation if 80% or more of their agricultural area is sown with grass.

There are further limits set for nitrogen spread on different types of crops, with additional allowances if certain conditions are met, as outlined in the

Rules in NI, England and ROI are highly aligned excluding the inclusion of additional specific regulations for slurry and poultry manure in England.

Alignment - High

regulations. There are also limits on slurry and poultry manure application outside the closed periods, whereby a maximum of 30 cubic metres per hectare of slurry may be applied and 8 tonnes per hectare of poultry manure may be applied.

Manure, Slurry and Silage Storage

Definitions

Storage

EU

The EU offers no definition of storage facility or storage vessels.

Ireland

‘Storage facilities’ in Ireland include “*out-wintering pads, earthen-lined stores, integrated constructed wetlands and any other system used for the holding or treatment of livestock manure or other organic fertilisers*.”

NI

[97] Nutrients Action Programme Derogation 2019-2022. https://www.daera-ni.gov.uk/publications/nutrients-action-programme-nap-derogation-2019-2022

Northern Ireland does not have a general definition of a 'storage facility' only a 'midden' which is defined as "*a storage facility with an impermeable base for solid, stackable organic manure*".

In Northern Ireland there are additional definitions including of a 'slurry storage system', a 'slurry storage tank' and a 'silo. A slurry storage system is defined as: (a) a slurry storage tank; (b) any reception pit and any effluent tank used in connection with the slurry tank; and (c) any channels and pipes used in connection with the slurry storage tank, any reception pit or any effluent tank. Further, 'reception pit' is defined as a pit used for the collection of slurry before it is transferred into a slurry storage tank or for the collection of slurry discharged from such a tank. A 'slurry storage tank' is defined as a lagoon, pit (other than reception pit) or tower used for the storage of slurry. A silo is defined as any structure used for making or storing silage.

England

England applies the same definitions[98] as Northern Ireland.

ROI offers a more flexible approach to defining storage facilities while Northern Ireland and England offer more technical definitions. The referenced examples in ROI legislation such as out-winter pads may not align with NI as effluence from an out-wintering pad would be classified as slurry while the pad itself may not be classified as a storage facility. Additional farm structures such as out-wintering pads are subject to planning permission.

Alignment - Medium

Manure

EU

In the EU, 'livestock manure' means waste products excreted by livestock or a mixture of litter and waste products excreted by livestock, even in processed form.

Ireland

In Ireland, 'livestock manure' means waste products excreted by livestock or a mixture of litter and waste products excreted by livestock, even in processed form. 'Farmyard manure' means a mixture of bedding material and animal excreta in solid form arising from the housing of cattle, sheep and other livestock excluding poultry.

[98] The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010. https://www.legislation.gov.uk/uksi/2010/639/contents

NI

In Northern Ireland, 'farmyard manure' means a mixture of bedding material and animal excreta in solid form arising from the housing of cattle, sheep and other livestock, excluding poultry manure, but including spent mushroom compost and the stackable solids fraction from mechanical separation of slurry excluding pig slurry. 'Livestock manure' means waste products excreted by livestock, or a mixture of litter and waste products excreted by livestock, even in processed form.

England

In England, the definition for 'organic manure' is a nitrogen fertiliser or phosphate fertiliser derived from animal, plant or human sources (and includes livestock manure)[99].

Definitions across jurisdictions are similar with additional content in Northern Ireland.

Alignment - High

Slurry

EU

The EU does not define slurry in the Nitrates Directive.

Ireland

The definition of 'slurry' includes: "*excreta produced by livestock while in a building or yard"* and *"a mixture of such excreta with rainwater, washings or other extraneous material or any combination of these, of a consistency that allows it to be pumped or discharged by gravity at any stage in the handling process but does not include soiled water*".

NI

In Northern Ireland the definition of 'slurry' includes: : (a) excreta produced by livestock whilst in a yard or building; (b) a mixture of such excreta with bedding, rainwater, seepage, washings or any other extraneous material from a building or yard used by livestock or in which livestock manure is stored; or (c) any other organic manure or any combination of these, of a consistency that allows it to be pumped or discharged by gravity at any stage in the

[99] The Nitrate Pollution Prevention Regulations 2015. https://www.legislation.gov.uk/uksi/2015/668/contents

handling process and includes dirty water that is stored with slurry or mixed with slurry.

England

In England, 'slurry' means excreta produced by livestock (other than poultry) while in a yard or building (including any bedding, rainwater or washings mixed with it) that has a consistency that allows it to be pumped or discharged by gravity (and in the case of excreta separated into its liquid and solid fractions, the slurry is the liquid fraction)[100].

Definitions aligned across territories, however, NI includes dirty water while ROI does not include soiled water.

Alignment - High

What does the regulation cover?

EU

The regulations outlined in the Nitrates Directive cover: "*the capacity and construction of storage vessels for livestock manures, including measures to prevent water pollution by run-off and seepage into the groundwater and surface water of liquids containing livestock manures and effluents from stored plant materials such as silage*".

Ireland

For Ireland, the regulations cover: "*general obligations as to storage facilities and manner for livestock manure and silage and silage effluent, obligations on specific enterprises including pig and poultry, storage of slurry and storage of farmyard manur*e".

NI

Similarly for Northern Ireland, the regulations cover: "*General obligations as to storage facilities and manner for livestock manure and silage and silage effluent, obligations on specific enterprises including pig and poultry, storage of slurry, storage of farmyard manure, storage of poultry litter and anaerobic digestate fibre, and storage of dirty water*".

England

[100] This definition originates from the NVZ Regulations while Farming Rules for Water and SSAFO offer slightly diverging yet similar definitions.

The regulations in England simply refer to the storage of organic manure, slurry and silage[101].

> The regulations of all three jurisdictions cover the areas required of them by the Nitrates Directive, however, they each have additional requirements related to their own policy needs.
>
> Alignment - High

Storage capacity

EU

There are timescale restrictions in the context of the capacity of storage vessels for livestock manure; this capacity must exceed that required for storage throughout the longest period during which land application in the vulnerable zone is prohibited, except where it can be demonstrated to the competent authority that any quantity of manure in excess of the actual storage capacity will be disposed of in a manner which will not cause harm to the environment.

Ireland

The capacity of storage facilities for livestock manure and other organic fertilisers, soiled water and effluents from dungsteads, farmyard manure pits, silage pits or silage clamps on a holding shall be adequate to provide for the storage of all such substances as are likely to require storage on the holding for such period as may be necessary as to ensure compliance with these Regulations and the avoidance of water pollution.

An occupier shall ensure to have the storage capacity likely to be required during periods of adverse weather conditions when, due to extended periods of wet weather, frozen ground or otherwise, the application to land of livestock manure or soiled water is precluded.

Reduced storage capacity may be allowed under certain circumstances, specifically in reference to manure being stored outside of the holding or treated by another party, or in cases where live-stock may be out-wintered at appropriate rates.

NI and England

The Nutrient Action Programme Regulations aligns with Ireland regarding general rules, although, England specifies an additional one week's manure

[101] The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010. https://www.legislation.gov.uk/uksi/2010/639/contents

as a contingency as opposed to the approach of NI and Ireland to include an overarching principle.

Table 5.1 Manure storage durations

Type	Ireland	NI	England[102]
Livestock Manure Cattle	16-22 weeks depending on county	22 weeks	22 weeks
Pig or Poultry	26 weeks	26 weeks	26 weeks
Pig (special conditions)	16-22 weeks if less than 100 pig places and sufficient area	22 weeks if less than 10 breeding sow and 150 finishing pigs	26 weeks
Poultry (special conditions)	16-22 weeks if tillage/grassland farming, less than 2000 places and sufficient area	22 weeks if less than 500 poultry places	26 weeks
Mixed poultry, pig and other livestock holdings	Pig and poultry 26 weeks and 22 weeks for other	Pig and poultry 26 weeks and 22 weeks for other	Pig and poultry 26 weeks and 22 weeks for other
Deer, goats and sheep	6 weeks	No specific rule	22 weeks

There is an existing divergence in relation to pigs and poultry between ROI and NI due to NI's more restrictive stock limits and uniform storage periods.

Alignment -Medium

Location

Each of the jurisdictions lays out requirements for the geographic location of storage facilities which are outlined in the table below.

Table 5.2 Manure storage location requirements

[102] These time-periods are based on The Nitrate Pollution Prevention Regulations 2015, Part 6 Regulation 25(7) which defines the storage period as (a)in the case of pigs and poultry, the period that begins with 1st October and ends with the following 1st April; (b)in any other case, the period that begins with 1st October and ends with the following 1st March.

Type	Ireland	NI	England[103]
Farmyard Manure	Not within: (a) 250m of the abstraction point of any surface waters or borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying $10m^3$ or more of water per day or serving 50 or more persons; (b) 50m of any other borehole, spring or well used for the abstraction of water for human consumption other than a borehole, spring or well specified at paragraph (a); (c) 20m of a lake shoreline or a turlough likely to flood; (d) 50m of exposed cavernous or karstified limestone features (such as swallow-holes and collapse features), or (e) 20m of any surface waters (other than a lake or surface waters	Not within: (a) 50m of lakes; (b) 20m of any waterway, including open areas of water, open field drains or any drain which has been backfilled to the surface with permeable material such as stone or aggregate; (c) 50m around a borehole, spring or well; (d) 250m from any borehole used for a public water supply, or (e) 50m of exposed, cavernous or karstified, limestone features (such as swallow holes and collapse features).	In the case of solid manure which can be stacked on a temporary field site, the temporary field site must not be: (a) in a field liable to flooding or becoming waterlogged; (b) within 50m of a spring, well or borehole or within 10m of surface water or a land drain (other than a sealed impermeable pipe); (c) located in any single position for more than 12 consecutive months; (d) located in the same place as an earlier one constructed within the last two years, or (e) on land having a slope of 12 degrees or more which is within 30 metres of surface water.

[103] The Nitrate Pollution Prevention Regulations 2015. https://www.legislation.gov.uk/uksi/2015/668/contents

	specified at paragraph (a)).		
Poultry litter or anaerobic digestate fibre		Not within: (a) 100m of lakes; (b) 40m of any waterway, including open areas of water, open field drains or any drain which has been backfilled to the surface with permeable material such as stone or aggregate; (c) 50m around a borehole, spring or well; (d) 250m from any borehole used for a public water supply, or (e) 50m of exposed, cavernous or katstified limestone features (such as swallow holes and collapse features).	Solid poultry manure that does not have bedding mixed into it and is stored on a temporary field site must be covered with an impermeable material.
Slurry		No part of the system can be situated within 10m of a waterway, this changes to 50m if construction commences after 31 December 2019 (if an above ground tank).	You must not put slurry storage tanks, effluent tanks, channels or reception pits within 10m of inland or coastal waters without written agreement from the Environment Agency[104].

[104] The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010. https://www.legislation.gov.uk/uksi/2010/639/contents

ROI and NI are closely aligned with regards to farmyard manure, however, NI appears to be more restrictive in relation to the distance from lakes. In addition, NI have further requirements in relation to poultry litter, anaerobic digestate fibre and slurry.

Alignment - Medium

Nutrient Management Planning

For the purposes of this section, we define Nutrient Management Planning as the requirement for farmers to develop and implement nutrient management plans that balance crop needs with environmental protection.

EU

The Nitrates Directive requires member states to draw up codes of good agricultural practice; within these, land managers are required to establish fertiliser plans on a farm-by-farm basis and keep records of their fertiliser use. Land managers must also implement land management actions such as crop rotation and minimum vegetation cover to uptake nitrogen from the soil, preventing nitrate run-off into groundwater. The Directive also includes requirements on accurately measuring nitrogen compounds and nitrate concentrations.

Ireland

The GAP Regulations require land managers in Ireland to "*take as far as is practicable all such steps for the purposes of preventing the application to land of fertilisers in excess of crop requirement on the holding."* This includes developing a liming programme for holdings with stocking rates of 170kg nitrogen per hectare to maintain pH levels.

Additionally, an occupier must keep records of the holding, which include information on: cropping regimes; livestock numbers and types; annual fertiliser requirement; a copy of any Nutrient Management Plan prepared for the holding; quantities and types of livestock manure; organic and chemical fertilisers kept on the holding; the results of any soil tests carried out on the holding; facilities for storing organic fertilisers or concentrated livestock feed, and the location of abstraction points of water for human consumption. Records should be prepared by 31st March of the following year and retained for at least five years and these should be provided to authorities upon request.

Authorities have the right to inspect holdings to collect evidence if they suspect these Regulations may have been breached; anyone who breaches

designated Regulations under Schedule 5 may be liable to a fine or imprisonment.

Land managers who are subject to a derogation[105] are required to prepare a fertilisation plan, which is defined as "*an advance calculation about the planned use and availability of nutrients*". The fertilisation plan must include details of crop rotations and planned applications of manure and other fertilisers. Land managers are required to keep fertilisation accounts – defined as "*the nutrient balance based on the real use and uptake of nutrients*" – which include information on the management off nitrogen and phosphorus inputs and soiled water. A liming programme should also be adopted based on a nutrient management plan and soil analysis results for the holding. Soil analyses for nitrogen and phosphorus should be done for grassland farms at least once every four years, and for each five hectares of land.

NI

The NAP Regulations require fertilisation plans to be drawn up by land managers when the following fertilisers are applied: anaerobic digestate, chemical phosphorous fertiliser, and organic manure containing more than 0.25kg of phosphorus per 1kg of nitrogen.

Fertilisation plans should include descriptions of "*crop rotation and the planned application of nitrogen and phosphorus fertilisers to their agricultural area"* and should be made available on the holding each year. The Regulations outline requirements for what should be included in the plans: the number of livestock on the holding; the amount of nitrogen and phosphorus from livestock manure produced on the holding; crop rotation details; the holding's predicted crop requirement for nitrogen and phosphorus; the quantity of organic manure moved on or off the holding; any soil analysis results relating to nitrogen and phosphorus content, and the amount of nitrogen and phosphorus from chemical and organic fertilisers and manure applied in each area of the holding. Where changes to the plan are implemented, these records should be revised within seven days of that change.

Records must be kept pertaining to cropping regimes, soil nitrogen indexes, number of livestock, manure storage details, and the amount and nitrogen content of any chemical fertilisers and organic manures applied to the holding. These records should be prepared for each calendar year and submitted to the Department of Agriculture, Environment and Rural Affairs (DAERA) by 31st January of the following year. Records should be kept for at least five years from the date of preparation and made available for inspection where required.

[105] Commission Implementing Decision (EU) 2022/696 of 29 April 2022. https://eur-lex.europa.eu/eli/dec_impl/2022/696/oj/eng

Similarly to Ireland, DAERA has the right to inspect a holding if they suspect these Regulations may have been breached; anyone who breaches designated regulations may be liable to a fine or imprisonment.

Land managers subject to a Nutrient Action Programme Derogation under the 2019-2022 Nutrients Action Programme[106] are required to prepare a fertilisation plan by 1st March for each year. This plan is defined as detailing "*your proposed farming plans for the coming calendar year as regards cropping and fertilisation, projected stock numbers and manure production, housing and manure storage capacity"* and must include details of stock numbers, manure storage and production, cropping rotations, nitrogen and phosphorus requirements for crops, soil analysis results, and planned nitrogen and phosphorus fertiliser – organic and chemical – applications over each area. These requirements align closely with those laid out in the derogation granted to Ireland.

England

Under The Farming Rules for Water, land managers are required to ensure that any fertiliser application is planned so as to not exceed the needs of the soil and crop or cause agricultural diffuse pollutions. Land managers must account for the results of soil sampling and analysis when considering fertiliser applications.

Under these regulations the Environment Agency has the right to impose sanctions on land managers who fail to comply with regulations 3 to 10; these sanctions may include: "*restoration notice, compliance notice, stop notice, fixed monetary penalty, variable monetary penalty or accept an enforcement undertaking".*

The NVZ Regulations require land managers to calculate the amount of available nitrogen in the soil and the optimum amount to be applied to a crop prior to application of nitrogen fertiliser. They should also produce a fertilisation plan, defined as "*a plan for the spreading of nitrogen fertiliser for the growing season*". The plan should include details of: crop type, soil type, previous crop on the land, the month in which the crop will be planted and its expected yield, and the results of the calculations pertaining to available soil nitrogen and optimum nitrogen application for that crop. Land managers are required to keep records of nitrogen fertiliser and organic manure applications, including details of the area and amount spread.

Similarly for organic manure, land managers must calculate the available nitrogen from the manure to be spread, along with the quantity, timing and area over which it will be spread, the type of manure and its total nitrogen content. Land managers applying organic manure are required to produce

[106] Nutrients Action Programme (NAP) Derogation Guidance Booklet 2019-2022. https://www.daera-ni.gov.uk/sites/default/files/publications/daera/20.21.147%20NAP%20Derogation%20Guidance%20Book%202019-2022%20Final%20V2.PDF

'risk maps' which show the location of surface waters, boreholes, springs, wells, as well as conditions of the land which may contribute to diffuse pollution including soil type and incline.

Records of fertiliser application must be kept for at least five years. Any land manager who fails to comply with the requirements of specific regulations may be charged with an offence and is liable to pay a fine.

ROI and NI are highly aligned regarding fertilizer planning, record keeping and enforcement. However, as England has areas that are not NVZ's, farmers operating in those areas are not required to produce explicit fertiliser or nutrient management plans.

Alignment - Medium

Soiled Water/Dirty Water

Definitions

NI

Dirty water is defined as "*water contaminated by organic manure, urine, effluent, milk and cleaning materials with a Biochemical Oxygen Demand (BOD) no greater than 2000 mg/litre and total nitrogen and dry matter contents*".

Ireland

Soiled water includes water from concreted areas, hard standing areas, holding areas for livestock and other farmyard areas where such water is contaminated by contact with livestock faeces or urine or silage effluent, chemical fertilisers, washings such as vegetable washings, milking parlour washings or washings from mushroom houses and water used in washing farm equipment. It does not include liquids that have a biochemical oxygen demand exceeding 2,500 mg per litre or a dry matter content exceeding 1% (10 g/L).

Regulations

Ireland

The spreading of soiled water to land is prohibited between the following dates: (a) Between 21st December and 31st December for all milk producers from 2022; (b) Between 10th December and 31st December for all milk producers from 2023; (c) Between 1st December and 31st December from 2024 onwards for all milk producers with the exception of winter/liquid milk[6]

producers, and (d) Between 1st December and 31st December from 1st January 2025 onwards for all milk producers including winter/liquid milk[1] producers.

The storage capacity for soiled water should exceed all soiled water likely to arise on the holding during a period of 10 days, while from 1st December 2023, a minimum of 3 weeks' storage capacity shall be in place on the holding and from 1st December 2024, a minimum of 4 weeks' storage capacity shall be in place on the holding except for winter/liquid milk producers where this storage must be in place by 1st December 2025.

NI

In NI, dirty water may only be applied by "*spreading close to the ground using inverted splash plate spreading, bandspreading, dribble bar, trailing hose, trailing shoe, soil injection, soil incorporation or irrigation methods*". The maximum application of dirty water is 50 cubic metres per hectare at one time, and application cannot be repeated within two weeks. NI also includes the requirement that safe storage of dirty water should be available for when: soil is waterlogged; land is flooded or likely to flood; the soil is frozen; land is snow covered, and heavy rain is falling or forecast within 48 hours.

England

England has no regulations specifically regarding dirty water.

This area has been highlighted due to the existing divergence where ROI specifically regulates the spreading of soiled/dirty water, whereas NI and England do not.

Alignment - Low

Livestock Feeding

NI

From 1st January 2020 onwards supplementary feed sites shall not be located within 20 metres of any waterway "*where there is a significant risk of pollution*". From 1st January 2022 this changed to 10 metres, and 20 metres from waters generally with the added provision they must not be located on bare rock.

Ireland

Supplementary feeding points shall not be located within 20 metres of waters and shall not be located on bare rock.

England

The land manager must ensure that a livestock feeder is not positioned on agricultural land within 10 metres of inland freshwaters or coastal waters, or within 50 metres of a spring, well or borehole[107].

Regulations around the location of supplementary feed sites are somewhat aligned, as the ROI regulation was passed in 2022 the divergence here is the limit to 10 metres for those waterways where "there is a significant risk of pollution". They are not aligned with England which has more specific requirements.

Alignment - Medium

Policy Trajectory

EU

Policy trajectory: business as usual – moving towards tightening regulations

Current regulations on fertiliser uses and nutrient pollution prevention falls under the Nitrates Directive for all EU member states. This includes regulations around: fertiliser storage, planning and application; slurry, silage and manure, and soiled/dirty water. In December 2023, the European Commission launched a public consultation to evaluate the Nitrates Directive and whether it remains fit for purpose[108]. The result of the evaluation, including any amendments to the Directive, are planned for publication in the first quarter of 2025.

The EU's Farm to Fork Strategy[109], a central pillar of the Green Deal[110] contains objectives to reduce nutrient losses by at least 50%, which is expected to entail a 20% reduction in fertiliser use by 2030. This is mirrored by the EU's Zero Pollution Action Plan[111]. An Integrated Nutrient Management Action Plan, as proposed in the Farm to Fork strategy, is yet to be developed, despite undergoing public consultation in 2022[112]. A legislative framework to support the Farm to Fork Strategy and set formal objectives and requirements

[107] The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018. https://www.legislation.gov.uk/uksi/2018/151/contents/made
[108] Protecting waters from pollution caused by nitrates from agricultural sources – Evaluation (ec.europa.eu) https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14051/public-consultation_en
[109] A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system. https://food.ec.europa.eu/system/files/2020-05/f2f_action-plan_2020_strategy-info_en.pdf
[110] The European Green Deal (2019). https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN
[111] Pathway to a Healthy Planet for All EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil'. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0400&qid=1623311742827
[112] EU stalls on strategy to curb nutrient losses. https://www.euractiv.com/section/agriculture-food/news/eu-stalls-on-strategy-to-curb-nutrient-losses/

for Member States was expected to be released at the end of 2023[113]; however, delays and political pushback on these policies produces uncertainty in their direction and potential for future divergence. At present the orientation in the European Commission is such that new regulatory initiatives introducing additional environmental obligations on farmers seem unlikely in the next few years.

The current Common Agricultural Policy model[114] applying in 2023-2027 requires Member States to develop CAP Strategic Plans and includes environmental conditions applying to farmers who receive direct payments per hectare – who are the great majority. Some of these conditions apply to the water environment but the Commission is in the process of slimming them down. In principle Member States should utilise measures within their plans to help meet EU goals such as a doubling in the area of organic production by 2027[115], and reducing fertiliser and pesticide application. Beneficiaries of the CAP payments have to meet statutory requirements and good agricultural and environmental conditions (GAEC) targets which include measures to reduce nutrient pollution. Farmers are encouraged to use the Farm Sustainability Tool[116] (FaST) for nutrient management which will provide customised recommendations on fertiliser application and nutrient planning.

In February 2025, the European Commission launched its Vision for Agriculture and Food[117], based to some degree on the recommendations of the Dialogue on the Future of Agriculture[118], which collated evidence from key stakeholders meeting during 2024. The Vision will be an important input into future thinking around agrifood policy, including simplifying the Common Agricultural Policy from 2027. One of the proposed actions under the pillar, 'A future-proof sector', is to ensure better implementation, streamlining and enforcement of existing legislation; no specific references to nutrients are made.

The above legislative and strategic changes indicate a direction of travel which is **stricter** with regards to nutrient management; however, uncertainty remains with the proposed amendments to the Nitrates Directive and future of the CAP beyond 2027.

Policy trajectory: relaxing regulations or failing to enforce

[113] Legislative framework for sustainable food systems, EU Commission. https://www.europarl.europa.eu/legislative-train/spotlight-JD%2023-24/file-sustainable-eu-food-system#:~:text=To%20help%20with%20the%20effective,the%20EU%20food%20system%2C%20including
[114] Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 (eur-lex.europa.eu) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R2115
[115] Development of organic production in the EU: 2021-2027 action plan (europarl.europe.eu) https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/696182/EPRS_BRI(2021)696182_EN.pdf
[116] New knowhow for the Farm Sustainability Tool for Nutrients (ec.europa.eu) https://ec.europa.eu/enrd/news-events/news/new-knowhow-farm-sustainability-tool-nutrients_en.html
[117] EU Vision for Agriculture and Food (2025). https://agriculture.ec.europa.eu/vision-agriculture-food_en
[118] Strategic Dialogue on the Future of EU Agriculture (2024). https://agriculture.ec.europa.eu/document/download/171329ff-0f50-4fa5-946f-aea11032172e_en?filename=strategic-dialogue-report-2024_en.pdf

Despite the ambitions of the legislation outline, historical failures[119] in enforcement of the Nitrates Directive could be repeated. A 2023 report by the European Court of Auditors found that implementation and enforcement of the Nitrates Directive was insufficient, with member states failing to adequately report fertiliser application data and comply with cross-compliance requirements under the CAP[120]. Without a significant change, we can expect insufficient implementation of the Nitrates Directive and cross-compliance measures under CAP to be continued, with knock-on impacts for the divergence relationship between Ireland and NI. If Ireland, as a member state, is not held to sufficient regulatory standards under the Nitrates Directive, then divergence is possible if NI concurrently strengthens their nutrient management regulations.

One proposed amendment to the Nitrates Directive has the potential to relax rules around fertiliser application. In 2024, a public consultation was held on an amendment to Annex III of the Nitrates Directive, to allow 'recovered' nitrogen products, known as ReNure, to be exempted from the 170kg N/ha manure spreading limit, including in Nitrate Vulnerable Zones[121]. This move has been pushed back on by Environmental Law Ireland[122], citing concerns over the legal basis for the amendment and the consequences it could have on human and environmental health. Consultation for the amendment closed in May 2024, and no further updates have been published.

If adopted, the consequences of this amendment would be felt across EU member states, including Ireland. This has the potential to trigger divergence in fertiliser application between Ireland and NI, as NI has not indicated any move to change regulations around recycled nitrogen fertilisers. This would impact on shared water bodies between Ireland and NI if Ireland is able to apply higher volumes of nitrogen-based fertilisers to agricultural land.

Ireland

Policy trajectory: business as usual – moving towards tightening regulations

The GAP Regulations lay out a phased approach to the delivery of the Nitrates Action Programme, with certain rules changing from January 2025. These include the requirement for low emission slurry spreading equipment

[119] van Grinsven, H. J. M., ten Berge, H. F. M., Dalgaard, T., Fraters, B., Durand, P., Hart, A., Hofman, G., Jacobsen, B. H., Lalor, S. T. J., Lesschen, J. P., Osterburg, B., Richards, K. G., Techen, A.-K., Vertès, F., Webb, J., and Willems, W. J.: Management, regulation and environmental impacts of nitrogen fertilization in northwestern Europe under the Nitrates Directive; a benchmark study, Biogeosciences, 9, 5143–5160 (2012). https://bg.copernicus.org/articles/9/5143/2012/v; Musacchio, A., Re, V., Mas-Pla, J. et al. EU Nitrates Directive, from theory to practice: Environmental effectiveness and influence of regional governance on its performance. Ambio 49, 504–516 (2020). https://link.springer.com/article/10.1007/s13280-019-01197-8

[120] European Court of Auditors Special Report: EU efforts for sustainable soil management (2023). https://www.eca.europa.eu/ECAPublications/SR-2023-19/SR-2023-19_EN.pdf

[121] Nitrates – updated rules on the use of certain fertilising materials from livestock manure (RENURE). https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14242-Nitrates-updated-rules-on-the-use-of-certain-fertilising-materials-from-livestock-manure-RENURE-_en

[122] Feedback from: Environmental Law Ireland (2024). https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14242-Nitrates-updated-rules-on-the-use-of-certain-fertilising-materials-from-livestock-manure-RENURE-/F3466543_en

(LESSE) to be compulsory on farms stocked at 100kgN/ha or above, an extended closed period for soiled water application to land for the whole of December 2025, and further restrictions on manure storage capacity.

An interim review of the Nitrates Action Programme, which the GAP regulations give effect to, was undertaken in 2023 and 2024. A suite of proposed additional measures for the Fifth Nitrates Action Programme[123] were presented for public consultations in November 2024. The proposals outlined changes to **strengthen** the Nitrates Action Programme in response to water quality reports from the Environmental Protection Agency[124] indicating increasing nitrogen concentrations in some waters. The outline proposals include regulatory measures which would require amendments to the GAP regulations including reduced stocking rates, a 5% reduction in the chemical fertiliser application limit, and stricter regulations around movement of organic fertiliser between holdings[125]. The proposals also contain non-regulatory measures, which would presumably not be enforceable.

Similarly, the 'nitrates derogation', which has allowed Ireland to surpass the Nitrate's Directive 170kg N/ha manure limit up to 250 kg N/ha, is undergoing change. Ireland's current Nitrates Derogation, granted in 2022, required Ireland to undertake a two-year review of water quality in 2023. All areas that failed the review had their derogation limit reduced to 220kg N/ha from January 2024[126]. This derogation is due to expire in 2026; the Department of Agriculture, Food and the Marine (DAFM) has applied for a renewal of the derogation beyond 2026[127].

Policy trajectory: relaxing regulations and enforcement in line with EU

The direction of travel for Ireland appears to align with some of the ambitions in the EU, with a strengthening of regulations around nutrient management. However, it is unknown whether the amendment to the Nitrates Directive to allow for recycled nitrogen fertiliser or 'ReNure' application above the usual limit would be transposed into the GAP Regulations for Ireland, and therefore result in divergence with NI.

Similarly to the EU more widely, Ireland has historically struggled to enforce the Nitrates Directive (as transposed through the GAP Regulations), resulting

[123] Proposed Additional Measures for the Fifth Nitrates Action Programme: Public Consultation (2024). https://www.gov.ie/pdf/?file=https://assets.gov.ie/310816/d94ee6f6-3c90-4bf8-9ce9-036fec912a16.pdf#page=null
[124] EPA Water Quality in 2022: An Indicators Report. https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/Water-Quality-2022-Indicator-Report-Web.pdf; EPA Water Quality in 2023: An Indicators Report. https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/EPA-Water-Quality-Indicator-Report-2023-web-11June2024.pdf
[125] Proposed Additional Measures for the Fifth Nitrates Action Programme: Public Consultation (2024). https://www.gov.ie/pdf/?file=https://assets.gov.ie/310816/d94ee6f6-3c90-4bf8-9ce9-036fec912a16.pdf#page=null
[126] European Commission Implementing Decision (EU) 2022/696. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022D0696v
[127] Water and Agriculture, a collaborative approach (DAFM, 2024). https://www.gov.ie/pdf/?file=https://assets.gov.ie/302943/336ad802-691d-48bc-8169-b9612cfe1b49.pdf#page=null; Government outlines plan to secure nitrates derogation renewal (rte.ie, 2025). https://www.rte.ie/news/ireland/2025/0307/1500699-nitrates-derogation-renewal/

in worsening water quality[128]. A Joint committee report from the Irish National Parliament revealed that stakeholders felt the Nitrates Action Programme has been ineffective, complex, and difficult for farmers to implement[129]. The Committee made recommendations to better enforce the existing regulations and improve reporting from farmers. The proposed non-legislative additional measures to the Fifth Nitrates Action Programme centre around building awareness and compliance; however, these are not to be enshrined in the GAP Regulations.

If Ireland continues a relaxed approach to implementation of the GAP regulations and NI concurrently tightens regulations, divergence between the two territories could result in management issues around shared water bodies, and competitive disadvantages to NI due a higher regulatory burden and associated on-farm costs[130].

NI

Policy trajectory: business as usual – moving towards tightening regulations

Northern Ireland's NAP Regulations give effect to the Nutrients Action Programme, the most recent of which (2019-2022[131]) is still in effect but under review prior to an updated programme being produced[132]. The Nutrients Action Programme should be reviewed every four years according to the supporting legislation[133]; the delay by Northern Ireland to undertake this review has been criticised by the OEP[134]. However, in June and November 2024 DAERA held stakeholder events[135] which included discussions of a near-completed review of the Nutrients Action Programme, and a proposal to launch a public consultation for an updated Programme in January 2025[136]. While no official announcement has been made, Agriculture Minister Andrew

[128] EPA Water Quality in 2022: An Indicators Report. https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/Water-Quality-2022-Indicator-Report-Web.pdf; EPA Water Quality in 2023: An Indicators Report. https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/EPA-Water-Quality-Indicator-Report-2023-web-11June2024.pdf

[129] Joint Committee on Agriculture, Food and the Marine. Compliance with the Nitrates Directive: Implications for Ireland, August 2024. https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_agriculture_food_and_the_marine/reports/2024/2024-08-16_compliance-with-the-nitrates-directive-implications-for-ireland_en.pdf

[130] OECD Regulatory Compliance Cost Assessment Guidance (2014). https://www.oecd.org/content/dam/oecd/en/publications/reports/2014/04/oecd-regulatory-compliance-cost-assessment-guidance_g1g400de/9789264209657-en.pdf

[131] Nutrients Action Programme 2019-2022 Guidance Booklet (daera-ni.gov.uk). https://www.daera-ni.gov.uk/sites/default/files/publications/daera/20.21.177%20Nutrients%20Action%20Programme%202019-2022%20Guidance%20Booklet%20Final.PDF

[132] Update on NAP Review and related actions in the Lough Neagh Action Plan (daera-ni.gov.uk) https://www.daera-ni.gov.uk/publications/update-nap-review-and-related-actions-lough-neagh-action-plan

[133] The Nutrient Action Programme Regulations (Northern Ireland) 2019. https://www.legislation.gov.uk/nisr/2019/81/contents/made

[134] Review of Nutrient Action programme in NI a 'Matter of Urgency' as Deadline Missed (theoep.org.uk) https://www.theoep.org.uk/report/review-nutrient-action-programme-ni-matter-urgency-deadline-missed

[135] Stakeholder Meeting on the Nutrients Action Programme – June 2024 (daera-ni.gov.uk) https://www.daera-ni.gov.uk/articles/nutrients-action-programme#toc-6 ; Stakeholder Meeting on the Nutrients Action Programme – November 2024 (daera-ni.gov.uk) https://www.daera-ni.gov.uk/articles/nutrients-action-programme#toc-7

[136] Update on the NAP Review and related actions in the Lough Neagh Action Plan (daera-ni.gov.uk) https://www.daera-ni.gov.uk/sites/default/files/2025-01/Update%20on%20NAP%20Review%20and%20related%20actions%20in%20the%20Lough%20Neagh%20Action%20Plan.pdfv

Muir informed media that the public consultation, though delayed, should be published in the spring of 2025[137].

The stakeholder event in 2024 included a presentation[138] outlining the NAP review's findings, including results of water quality data suggesting nitrogen and phosphorus pollution of water bodies remains too high. The proposals include language around "*additional measures*" and strengthening implementation and compliance through education and awareness raising, as outlined in the related Lough Neagh Action Plan[139]. It also suggests that the NAP Regulations will be updated; current indications suggest the regulations may be strengthened or expanded to improve compliance, however this is not confirmed. This may include an update to the method of calculating nitrogen and phosphorous excretion from fairy cattle[140], and the introduction of temporary closed periods during weather warnings[141]. The Lough Neagh Action Plan also includes recommendations to consult on restricting chemical fertiliser application to grassland and incentivise Low Emission Slurry Spreading Equipment (LESSE) – this would align with Ireland's rules around LESSE being compulsory for farms with stocking rates above 100kgN/ha.

In addition to the NAP review, in November 2024 Agriculture Minister Muir announced an independent review of environmental governance in Northern Ireland – including the potential for developing an Independent Environmental Protection Agency[142]. The review is expected to be completed by summer of 2025[143]. Without predicting the outcome of the review there may be significant changes to the regulation of Agricultural Nutrient Management as a result with the potential for;

- Changes of status of the NIEA
- Changes to policy and regulatory approach currently adopted by NIEA

[137] Muir defends makeup of new TB group, February 2025 (farmersjournal.ie) https://www.farmersjournal.ie/muir-defends-makeup-of-new-tb-group-855124
[138] Update on the NAP Review and related actions in the Lough Neagh Action Plan (daera-ni.gov.uk) https://www.daera-ni.gov.uk/sites/default/files/2025-01/Update%20on%20NAP%20Review%20and%20related%20actions%20in%20the%20Lough%20Neagh%20Action%20Plan.pdfv
[139] The Lough Neagh Report - Blue Green Algae and Water Quality in Northern Ireland (2024) https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Lough%20Neagh%20Report%20and%20Action%20Plan.pdf
[140] Nutrient Action Programme – Stakeholders meeting: Nitrogen and Phosphorus Excretion from Dairy Cattle, November 2024 (AFBI) https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Review%20of%20Nitrogen%20and%20Phosphorus%20Excretion%20Rates%20for%20Dairy%20Cows.PDF
[141] Nutrient Action Programme – Stakeholders meeting: Decision Support for Slurry Spreading Temporary Forecast-based Closed Periods in NI. https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Decision%20Support%20Information%20System%20for%20Slurry%20Spreading.PDF
[142] Minister Muir announces independent review to strengthen environmental governance (daera-ni.gov.uk) https://www.daera-ni.gov.uk/news/minister-muir-announces-independent-review-strengthen-environmental-governance
[143] Environmental Governance Review Terms of Reference for Panel (daera-ni.gov.uk) https://www.daera-ni.gov.uk/publications/environmental-governance-review-terms-reference-panel

- Changes to the scope of the agency in relation to both NIEA and OEP which could see it be more critical of Northern Irish policy more generally.

Policy trajectory: relaxing regulations

The current NAP Derogation[144] follows the rules set out in the 2019-2022 NAP; no specific information is available on whether this will be extended, but the November 2024 stakeholder discussion and presentation included a statement that *"all measures in the current NAP will be retained for the next Programme with some proposed changes to existing measures to provide clarity and help implementation or to reflect current scientific evidence[145]".* This suggests that a derogation will remain available moving forward, although this cannot be guaranteed. There remains potential for divergence between NI and Ireland if either of the territories' derogations change; the Ireland derogation has undergone change to reduce the application limit for those farms struggling to meet water quality standards, whereas the NI derogation has not undergone such change. This could result in differing impacts on shared water bodies between the two territories, with NI possibly having higher rates of application and nutrient pollution than Ireland. Similarly, if the EU does not grant the derogation request[146] for Ireland beyond 2026, NI farmers will be able to apply significantly higher rates of fertiliser to land, impacting on shared water bodies and potentially making trade between the two territories more difficult.

England

Policy trajectory: business as usual – maintaining existing regulations

The UK Government has set targets for reducing agricultural nutrient pollution by 40% by 2038 in England, as outlined in the Environment Act 2021[147]. In addition, they have set interim targets of 10% reduction in nitrogen, phosphorus, and sediment pollution from agriculture has been set for 2028 and a 15% reduction in catchments containing protected sites in unfavourable condition due to nutrient pollution by 31 January 2028[148]. However, IEEP analysis[149] indicates that progress towards these targets is patchy and that

[144] Nutrients Action Programme Derogation 2019-2022: https://www.daera-ni.gov.uk/publications/nutrients-action-programme-nap-derogation-2019-2022
[145] Update on the NAP Review and related actions in the Lough Neagh Action Plan (daera-ni.gov.uk) https://www.daera-ni.gov.uk/sites/default/files/2025-01/Update%20on%20NAP%20Review%20and%20related%20actions%20in%20the%20Lough%20Neagh%20Action%20Plan.pdfv
[146] Water and Agriculture, a collaborative approach (DAFM, 2024) https://www.gov.ie/pdf/?file=https://assets.gov.ie/302943/336ad802-691d-48bc-8169-b9612cfe1b49.pdf#page=null
[147] Environment Act 2021 : https://www.legislation.gov.uk/ukpga/2021/30/contents
[148] Environmental Improvement Plan 2023 (gov.uk) https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64fffa/environmental-improvement-plan-2023.pdf
[149] An evaluation of the ability of existing policies to achieve UK nitrogen reductions within national statutory targets and international commitments (ieep.uk) https://ieep.uk/publications/report-an-evaluation-of-nitrogen-policies-targets-uk/

the UK Government is not on track to meet its target of 40% nutrient pollution reduction by 2038.

The establishment of the Nutrient Management Expert Group following The Clean Air Strategy 2019, and that groups subsequent report on 'Improving policy and practice for agricultural nutrient use and management' in May 2024 offers the clearest indication of the future direction of policy in the UK Government[150]. At present, however, it is not clear that Defra has the appetite for putting forward a programme of this kind. They have outlined an approach to nutrient management which includes;

- Increased investment
- Co-design of schemes
- Promotion, advice, and support for nutrient management planning
- Incentivisation and regulatory change where necessary, with an emphasis on flexible supportive policy
- The establishment of targets for soil
- Development of a national Nutrient Management Strategy

Defra's most recent review of the designation of NVZs maintained existing designations as the scale of pollution remained broadly unchanged[151]. They have increased enforcement capacity in terms of farm visits by the Environment Agency - however, this is from a historically low level due to a decade of budget cuts. Indications suggest that tackling the issue of nutrient pollution in England will continue to rely upon voluntary efforts through mechanisms such as the Catchment Sensitive Farming programme, capital grant schemes and voluntary ELM schemes, including the Sustainable Farming Incentive. The latest update to the Agricultural Transition Plan[152] stated that this will be supported by the provision of advice, and investment support which Defra suggests is "time-limited" with the aim that "farming regulation will be the main method for preventing pollution arising from slurry management in future." Further, they have stated that to meet their targets they will need "universal adoption of farming regulatory standards and at least 70% of farmers and land managers undertaking environmental land management actions". Finally, the agricultural policy Transition Plan when discussing regulation focusses on more effective implementation, rather than regulatory changes. When taken as a whole these statements suggest that

[150] Report of the Nutrient Management Expert Group (NMEG) Improving policy and practice for agricultural nutrient use and management. https://assets.publishing.service.gov.uk/media/663234c42ea7c8bba6ebe14a/Report_of_the_Nutrient_Management_Expert_Group.pdf
[151] Collection: Nitrate vulnerable zones (gov.uk) https://www.gov.uk/government/collections/nitrate-vulnerable-zones
[152] Agricultural Transition Plan update January 2024: https://www.gov.uk/government/publications/agricultural-transition-plan-2021-to-2024/agricultural-transition-plan-update-january-2024

the UK Government is satisfied with the regulations as they are and is unlikely to change them other than in relatively minor ways.

Conclusion

Ireland, through internal policy demands and possible policy developments in the EU, is likely to develop stricter regulations regarding nutrient management, as is NI due to internal policy demands and increasing environmental pressures. As shown above NI and Ireland both have pre-existing (prior to EU Exit) divergences despite operating within the same framework under the EU Nitrates Directive. It is likely that these divergences will continue, and may widen unless NI actively aligns with EU and Ireland policy as it develops. There is no requirement for NI, or the UK Government, to actively follow EU policies in this area, and it appears as though the UK Government will not do so due to their own approach. Therefore, regardless of the approach taken in NI, divergence between NI and England will continue to be the norm and will likely increase. This is due to the significantly different agriculture sectors, environmental pressures, regulatory approaches and available budgets. This may impact upon the ability of NI farmers to compete in the UK market due to higher regulatory costs, however, they are also operating under a different agri-food sector making any direct comparison of the impacts of regulation difficult.

As shown in the previous section changes to the existing programmes, and to regulations, are generally based on a mixture of evidence from existing policy application, technological change and political preferences in a sensitive sector. If this is the basis for regulation changes it is possible that policies will develop in a similar direction in both Ireland and NI.

The main effect of EU Exit on the possibility of increased divergence is on the derogations applied to farmers in NVZs. Ireland's derogation will be subject to lower limits going forward due to the requirements set by the EU in order to grant the derogation. NI's derogations will not have these lower limits unless NI decide to actively change their regulations; this is the major change, that decisions made will be decided in NI rather than EU, and therefore, subject to NI policy ambition and political landscape. Whether derogations will continue in the future is unknown. Both NI and Ireland are politically supportive of the derogations, however, only NI has the ability to grant one itself. This leaves open the likelihood of significant divergence between NI and Ireland, unless NI chooses to actively align.

Table 5.3 Chapter 5 Summary

Jurisdiction	Summary of Regulation	Policy Trajectory	Divergence Risk	Summary Implication

Fertiliser Application				
EU	Requires NVZs, limits N to 170kg/ha; encourages Codes of Good Practice	Tightening	Low	Sets the benchmark; member states must comply
Ireland	Whole-territory NVZ, strict timing/location/method rules, 220kg N/ha with derogation	Tightening	Medium	Moving toward stricter use; LESSE required on many farms
NI	Whole-territory NVZ, 250kg N/ha derogation, similar controls to Ireland but with minor definitional variations	Tightening (in review)	High	Retains higher derogation; regulatory updates expected but unclear
England	Partial NVZs (55% land), stricter timing/location rules, no derogation	Static / light tightening	Medium	Heavily reliant on voluntary compliance, lower regulatory burden
Manure, Slurry and Silage Storage				
EU	Requires adequate storage to avoid pollution during closed periods	Tightening (via enforcement)	Low	Minimum standard but vague definitions
Ireland	Strict requirements on capacity, location, type of storage; phased increases in required storage	Tightening	Medium	Strong infrastructure expectations; definitions clear and enforced
NI	Similar obligations; uses terms like 'midden' and has detailed definitions for systems/components	Static / under review	Medium–High	Some gaps in enforcement and interpretation; updates may follow NAP review
England	Similar to NI in definition and structure; includes temporary stacking rules for solid manure	Static	Medium	Strong emphasis on location-specific conditions; less ambitious than Ireland
Nutrient Management Planning				
EU	Requires fertiliser plans in NVZs,	Tightening	Low	Sets standard, but

	monitoring of nutrient input/output			implementation varies across member states
Ireland	Mandatory nutrient plans and soil testing; tight integration with derogation and CAP payments	Tightening	Medium	Strong monitoring requirements; linked to compliance and funding
NI	Plans required only for certain fertilisers or derogated farms; NAP includes soil analysis provisions	Likely tightening (NAP)	High	Partial requirements; likely to become more aligned with Ireland in future
England	Fertiliser planning only required in NVZs; 'Farming Rules for Water' rely on judgment and voluntary action	Static	Medium	Least prescriptive; relies on land manager discretion and enforcement capacity
Soiled Water / Dirty Water				
EU	No standalone regulation on soiled water; general inclusion under manure management	Neutral	Low	No detailed standard provided
Ireland	Detailed definition and phased introduction of stricter storage and spreading bans	Tightening (2025 deadline)	Medium	Clear schedule for storage capacity increases; enforcement via GAP Regulations
NI	Specific rules on spreading methods, volume, intervals; includes adverse weather exceptions	Static / tightening	Medium–High	More prescriptive than England but not aligned with Ireland's new phased restrictions
England	No standalone regulation; soiled/dirty water covered implicitly	Static	High	Absence of rules is a notable gap and key divergence area

6. Wastewater

Introduction

Achieving 'good ecological status' in 70% of the water bodies in Northern Ireland by 2027 appears to be highly unlikely[153]. DAERA and NIEA have determined that there has been little improvement since 2015 of overall water bodies status (38% at 'good or better' status in the latest assessments versus 37% in 2015)[154]. The gap is significant, and several challenges remain not least in funding and investment, but also in "specific and tangible programme of measures"[155] needed to translate ambition into reality. With just a few years to go, only the most optimistic of observers would suggest that Northern Ireland will meet these objectives.

Yet, Northern Ireland is not alone. In fact, it is far from alone in struggling to meet targets set under the Water Framework Directive, not only in England[156], but also in Ireland and across the EU[157]. The management of nutrients is in many cases a significant contributory factor to many water bodies failing the criteria set by the directive[158].

Northern Ireland is currently implementing actions set under the 1st and 2nd cycle river basin management plans. It has drafted a 3rd cycle plan which has not, at the time of writing, been formally approved. Whilst England has completed its 3rd cycle river basin management plans[159], (noting that England was also late in delivering its 3rd cycle plans[160]), several EU Member states have not[161].

Despite agriculture being the main cause of nutrient pressure, point source pollution from wastewater treatment in the UK and Ireland are a significant pressure too on the water environment, and make up a significant minority

[153] To note that the original target of achieving good status in 70% of water bodies was set in the 2nd cycle river basin management plans and was planned for attainment by 2021. DAERA have subsequently proposed to revise this target date to 2027 but this target date also appears highly unlikely.
[154] Northern Ireland Environment Agency, 'Draft 3rd Cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027)' (2021), www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%203rd%20cycle%20River%20Basin%20Management%20Plan%20for%20Northern%20Ireland%202021-2027_0.PDF
[155] A review of implementation of the Water Framework Directive Regulations and River Basin Management Planning in Northern Ireland, https://www.theoep.org.uk/report/implementation-water-framework-directive-northern-ireland, pp. 5.
[156] Office for Environmental Protection, *A review of implementation of the Water Framework Directive Regulations and River Basin Management Planning in England*, https://www.theoep.org.uk/sites/default/files/reports-files/A%20review%20of%20the%20implementation%20of%20River%20Basin%20Management%20Planning%20in%20England_Accessible.pdf
[157] European Commission: Directorate-General for Environment, Fribourg-Blanc, B., Dhuygelaere, N., Berland, J. and Imbert, F., *12th technical assessment of UWWTD implementation – Final version*, Publications Office of the European Union, 2024, https://data.europa.eu/doi/10.2779/318637
[158] This chapter focuses more on phosphorus (P), the main cause of eutrophication in freshwaters and as a leading source of point source wastewaters, rather than nitrogen (N).
[159] https://www.gov.uk/guidance/river-basin-management-plans-updated-2022
[160] OEP Press Release: Delayed River Basin Management Plans (RBMPs) to be published this week, 19 December 2022, https://www.theoep.org.uk/news/delayed-river-basin-management-plans-rbmps-be-published-week
[161] European Commission Press Release: Commission decides to refer BULGARIA, IRELAND, SPAIN, MALTA, PORTUGAL and SLOVAKIA to the Court of Justice of the European Union for failure to finalise the revision of their water plans, 07 February 2024, https://ec.europa.eu/commission/presscorner/detail/en/ip_24_265

cause for failure of water bodies to meet good status. In Northern Ireland, where over 60% of phosphorus (P) losses to water bodies come from agriculture[162], industrial discharges and septic tanks are also a significant contributory factor. In Ireland, the EPA have reported that several challenges exist such as sewage treatment works for large agglomerations failing to meet the required standards and some towns discharging raw sewage into watercourses[163]. In England, "[T]he greatest quantities of P come from urine (44%) and faeces (24%)[164]" with domestic laundry detergents, dishwasher detergents, food waste, food and drink additives, phosphorus dosing of water supplies also contributing.

Furthermore, urban development can stretch already under-pressure sewerage infrastructure. For example, the 3rd river basin management plan explicitly refers to, "capacity issues in over 100 locations across Northern Ireland with the sewage network and Wastewater Treatment Works at or near their full capacity. This increases the risk of flooding from sewers, especially during storm events"[165]. This has also led to delays for new developments being made because they cannot be connected to the sewer network. In addition, budgetary constraints have seen significant delays and cancellations of major infrastructure improvements which can be seen from the indefinite deferral of the 'Living with Water Programme'[166].

In England, there has been significant controversy over both storm water overflows (SWO) and 'nutrient neutrality' rules, the latter of which for example has been blamed on preventing housebuilding, particularly in the south of England, which has led the last [Conservative] government and the current [Labour] government to want to amend such rules to enable housebuilding to proceed despite the additional pressure that increased population would bring to the sewerage network[167].

Legislative underpinnings

The main pieces of legislation related to nutrient discharges from wastewater which have a significant impact on nutrient pollution are as follows.

European Union

[162] Draft 3rd Cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027), pp.91.
[163] Environmental Protection Agency, *Urban Wastewater Treatment in 2023,* https://www.epa.ie/publications/monitoring--assessment/waste-water/urban-wastewater-treatment-in-2023.php
[164] GOV.UK, *Phosphorus: challenges for the water environment,* 22 December 2022, https://www.gov.uk/government/publications/phosphorus-challenges-for-the-water-environment
[165] Draft 3rd cycle River Basin Management Plan: For the North Western, Neagh Bann and North Eastern River Basin Districts (2021 – 2027), https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%203rd%20cycle%20River%20Basin%20Management%20Plan%20for%20Northern%20Ireland%202021-2027_0.PDF, pp.94.
[166] The Living with Water Programme, NI Water, https://www.niwater.com/major-infrastructure-detail/10034/The-Living-with-Water-Programme-LWWP/
[167] The Environment Agency reported in 2022 (see footnote 11 above) that, "The largest source of P to rivers is sewage effluent (about 60 to 70% of the total for England)… [and] Within sewage… the greatest quantities of P come from urine (44%) and faeces (24%)."

- Urban Wastewater Treatment Directive (EU) 2024/3019[168]
- Water Framework Directive 2000/60/EC[169]

United Kingdom (in respect of England and Wales):

- Urban Waste Water Treatment (England and Wales) Regulations 1994[170]
- The Urban Waste Water Treatment (England and Wales) (Amendment) Regulations 2003[171]
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017[172]
- The Floods and Water (Amendment etc.) (EU Exit) Regulations 2019[173]
- Environment Act 2021[174]

Northern Ireland

- The Urban Waste Water Treatment Regulations (Northern Ireland) 2007[175]
- The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017[176]
- The Water (Amendment) (Northern Ireland) (EU Exit) Regulations 2019[177]

Ireland

- European Communities (Water Policy) Regulations 2003 722/2003[178]
- Urban Waste Water Treatment Regulations, 2001 254/2001[179]

[168] Directive (EU) 2024/3019 of the European Parliament and of the Council of 27 November 2024 concerning urban wastewater treatment**:** https://eur-lex.europa.eu/eli/dir/2024/3019/oj/eng
[169] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy: https://eur-lex.europa.eu/eli/dir/2000/60/oj/eng
[170] The Urban Waste Water Treatment (England and Wales) Regulations 1994: https://www.legislation.gov.uk/uksi/1994/2841/contents
[171] The Urban Waste Water Treatment (England and Wales) (Amendment) Regulations 2003: https://www.legislation.gov.uk/uksi/2003/1788/contents
[172] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017: https://www.legislation.gov.uk/uksi/2017/407/contents
[173] The Floods and Water (Amendment etc.) (EU Exit) Regulations 2019 https://www.legislation.gov.uk/uksi/2019/558/contents
[174] Environment Act 2021: https://www.legislation.gov.uk/ukpga/2021/30/contents
[175] The Urban Waste Water Treatment Regulations (Northern Ireland) 2007: https://www.legislation.gov.uk/nisr/2007/187/contents/made
[176] The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017: https://www.legislation.gov.uk/nisr/2017/81/contents/made
[177] The Water (Amendment) (Northern Ireland) (EU Exit) Regulations 2019: https://www.legislation.gov.uk/uksi/2019/112/contents
[178] S.I. No. 722/2003 - European Communities (Water Policy) Regulations 2003 https://www.irishstatutebook.ie/eli/2003/si/722/made/en/print
[179] S.I. No. 254/2001 - Urban Waste Water Treatment Regulations, 2001 https://www.irishstatutebook.ie/eli/2001/si/254/made/en/

Legislation related to water and sewage treatment are devolved competences. In the UK, particularly between England and Northern Ireland, legislation has remained essentially the same, and there has been no intra-UK divergence since EU Exit. Ireland has transposed the Water Framework Directive into Irish law and is implementing the EU directive, though the European Commission has referred Ireland to the Court of Justice of the EU over several concerns about its transposition of the law[180].

However, on sewage treatment a revised directive was adopted by the EU in 2024[181], and this raises the prospect of significant divergence between the EU and UK. Ireland has not yet transposed this into domestic law. The following sections discuss the elements of the Urban Wastewater Treatment Directive (UWWTD) which most relate to nutrient management. The UWWTD has specific requirements relating to treatment to remove nitrogen and/or phosphorous. It is, however, important to note that other requirements also contribute to reducing nutrient discharges from waste water. The requirements for what waste water is collected are important. Furthermore, treatment, such as secondary treatment, does remove some nutrients, so this all contributes in part.

Collection of wastewaters

The 1991 directive (Article 3) required that all agglomerations above 2,000 population equivalents (p.e.) are provided with collecting systems for urban wastewater by the end of 2005. This is now amended in the 2024 directive to apply also to agglomerations between 1,000 and 2,000 p.e. by 31 December 2035. There are provisions for Member States enabling them to derogate from this deadline under specific conditions. This extension of the waste water collection system coverage is a divergence with the UK and in itself would pose a significant challenge had the UK been required to implement the new directive.

The 1991 directive stated, “Where the establishment of a collecting system is not justified either because it would produce no environmental benefit or because it would involve excessive cost, individual systems or other appropriate systems which achieve the same level of environmental protection shall be used.” The 2024 directive clarifies this (Article 4) in that “environmental benefit” includes health benefits and that individual systems are to be subject to “regular inspections or other means of regular checks or

[180] European Commission Press Release: Commission decides to refer IRELAND to the Court of Justice for failing to correctly transpose Water Framework Directive protecting waters from pollution, 26 January 2023. https://ireland.representation.ec.europa.eu/news-and-events/news/commission-decides-refer-ireland-court-justice-failing-correctly-transpose-water-framework-directive-2023-01-26_en

[181] New rules for more thorough and cost-effective urban wastewater management enter into force (environment.ec.europa.eu) https://environment.ec.europa.eu/news/new-rules-urban-wastewater-management-set-enter-force-2024-12-20_en

control of those systems, on the basis of a risk-based approach, are carried out by the competent authority".

As before, Member States need to justify their use of individual systems to the European Commission, but the 2024 directive includes a new provision that Member States must demonstrate that the use of such systems complies with the environmental requirements of the Water Framework Directive. In the directive it states: "that the use of the individual systems does not prevent Member States from complying with the environmental objectives established in Article 4 of Directive 2000/60/EC."

As Northern Ireland or other nations of the UK have no requirement to implement the 2024 directive there are multiple divergences to note.

First, the amendments to population agglomerations under the directive are stricter meaning smaller settlements should be captured by the directive. Second, where these smaller settlements are not captured and may use 'individual systems or other appropriate systems', the requirement to conduct regular checks / inspections on a risk basis would likely lead to significant added administrative resource and cost. Third, and linked to this last point, the requirement to ensure that individual systems or other appropriate systems satisfy environmental requirements under the Water Framework Directive is an added challenge.

Given that the use of septic tanks (which would fall within the definition of 'individual or other appropriate systems') has been identified as a key source of pollution by DAERA and the NIEA already, the divergence in law would appear to be more significant. Despite the cost, requiring risk-based inspections or checks as well as legally mandating that they do not prevent the achievement of environmental objectives of the Water Framework Directive, these measures would appear to be important actions to take.

Collection of wastewater is an area of high divergence between EU member states and England / Northern Ireland, with the EU implementing strict measures for storage mechanisms – including septic tanks – and monitoring, which England and Northern Ireland are not required to comply with.

Alignment - Low

Treatment of wastewaters

The 1991 directive stated "Member States shall ensure that urban wastewater entering collecting systems shall before discharge into sensitive areas be subject to more stringent treatment than that described in Article 4, by 31

December 1998 at the latest for all discharges from agglomerations of more than 10 000 p.e.”.

The 2024 directive (Article 7) now refers to “tertiary treatment” specifically. It also extends the requirements for tertiary treatment beyond sensitive areas. With intermediate deadlines, it requires “that all urban wastewater treatment plants treating a load of 150 000 p.e. and above meet the relevant requirements for tertiary treatment”. Furthermore, also with intermediate deadlines, tertiary treatment is required for agglomerations above 10,000 p.e. by 2045. There are possible temporary derogations from these deadlines and

The EU restrictions on wastewater treatment represent a divergence from the UK approach, with specific definition of ‘tertiary treatment’ and stricter requirements beyond sensitive areas.

Alignment - Low

also the option (as in the 1991 directive) for a whole Member State approach to reducing nitrogen and/or phosphorus discharges. However, the amount to be reduced at a whole Member State level is much tougher than in the 1991 directive. Overall, this represents a major extension in the use of tertiary treatment and divergence from the UK.

Integrated Urban Wastewater Management Plans & storm overflows

In England, the topic of storm overflows has received much attention over recent years. On 24 February 2025, the UK Government passed The Water (Special Measures) Act[182], which amends the Water Industry Act 1991[183]. The aim of the bill is to tackle pollution incidents from sewage discharges. The basic legal obligations regarding collection and treatment remain unchanged. Rather, the amendments strengthen enforcement and monitoring and require water companies to publish annual Pollution Incident Reduction Plans, setting out steps they are taking to address their pollution incidents (though some consider that some of these provisions are available under existing legal powers, however).

The 2024 UWWTD requires (in Article 5) that by 31 December 2033 Member States (including Ireland of course), are required to draw up an integrated urban wastewater management plan for agglomerations of 100,000 p.e. and above. It also sets outs the need for such plans to analyse pressures from stormwater overflows (SWO) and list where agglomerations (between 10,000

[182] Water (Special Measures) Act 2025: https://www.legislation.gov.uk/ukpga/2025/5/contents
[183] Water Industry Act 1991: https://www.legislation.gov.uk/ukpga/1991/56/contents

and 100,000 p.e., sewage pollution is a 'problem'. Furthermore, Annex V of the directive sets out what the plan should contain, including for example an analysis of the drainage area and sewage capacity and expected flows in different rainfall conditions leading to an estimation of pollution loads. The plan also ought to include objectives for the reduction of pollution from SWOs, the measures to be taken to achieve these objectives and by when, what measures have already been identified to be taken and what further action are to be taken and who will carry out such actions.

In England, the 2021 Environment Act (Part 5 Water[184]) requires the Secretary of State to produce a stormwater overflow plan[185], though in reality it pushes this requirement onto England's water companies to produce plans for their administrative area and requires specific details about SWOs, the problems and measures to be taken.

Divergence of storm water management between the 2024 directive and England (via the Environment Act 2021) is set out in detail in (Farmer 2024[186]). However, the requirements on stormwater overflows in England do not apply to Northern Ireland and are consequently leading to significant intra-UK divergence.

Divergence exists between the EU and UK in terms of urban wastewater management plans, with the EU implementing a more ambitious strategy - though England is strengthening monitoring and enforcement. Stormwater overflow regulations in England do not apply to Northern Ireland, leading to further divergence.

Alignment - Medium

Cross border considerations

Both the Water Framework Directive (Article 3) and the UWWTD (Article 12 of the 2024 directive and Article 9 of the 1991 directive) cover transboundary cooperation or coordination. This is particularly important of course in river basins which cross territorial boundaries and is particularly important on the island of Ireland where an EU member state borders a non-EU member state.

[184] Environment Act 2021: https://www.legislation.gov.uk/ukpga/2021/30/part/5
[185] Defra, *Storm Overflows Discharge Reduction Plan*, 25 September 2023, https://assets.publishing.service.gov.uk/media/6537e1c55e47a50014989910/Expanded_Storm_Overflows_Discharge_Reduction_Plan.pdf
[186] Farmer, A. (2024) 'Diverging Wastewater Policy – The Implications of changes to EU Policy for the UK', Report, Institute for European Environmental Policy, UK, pp. 21-22. https://ieep.uk/wp-content/uploads/2024/10/UK_EU_Divergence_Urban_Wastewater_October_2024_Final.pdf

In the revised, 2024 UWWTD which EU member states including Ireland will be obligated to implement, there is slightly more detail than the 1991 directive, (which the UK has implemented), but it does not add much substantial to existing requirements.

However, the main significance with regard to cross border considerations is with regard to sensitive area designations.

In the 1991 directive, EU member states were required to identify water bodies as sensitive if they are to be found to be eutrophic or if they may become so in the near future. In which case, more stringent rules around wastewater discharges in or near those areas apply. The 2024 directive goes further by adding tighter rules still.

Northern Ireland have designated approximately 86% of their territory as sensitive[187], large parts of which border with Ireland. In Ireland, sensitive areas are listed in the Urban Waste Water Treatment (Amendment) Regulations, 2010 (48/2010)[188] and do not appear to mirror designations in Northern Ireland. With overlapping river basins in North Western and Neagh Bann river basin districts[189], and some water courses flowing into Northern Ireland, there appears to be a discrepancy.

The 1991 directive requires that sensitive areas are reviewed at no more than 4 year intervals (Article 5). Northern Ireland's last review in 2015 is already overdue. Similarly, in Ireland, it does not appear this has been done since 2010. Both Northern Ireland and Ireland publish their information about sensitive areas and use data viewers to display this information online [190].

Ireland and Northern Ireland are somewhat aligned in identifying sensitive areas which fall under tighter restrictions for wastewater discharges; both are falling behind on reviewing these designations. Exact geographical designations between the two states differ.

Alignment - Medium

Conclusion

[187] DAERA, *Review of Sensitive Areas*, https://www.daera-ni.gov.uk/articles/review-sensitive-areas#toc-5, accessed 13.02.25; DAERA, *Urban Waste Water Treatment Directive Sensitive Areas – Northern Ireland* (Map), https://www.daera-ni.gov.uk/sites/default/files/publications/doe/map-of-all-designated-sensitive-areas-in-northern-ireland-2015.PDF, accessed 13.02.25

[188] S.I. No. 48/2010 - Urban Waste Water Treatment (Amendment) Regulations, 2010. https://www.irishstatutebook.ie/eli/2010/si/48/made/en/print

[189] For an illustration of this, see Northern Ireland Environment Agency River Basin Management Plan Summary, December 2015, https://www.daera-ni.gov.uk/sites/default/files/publications/doe/water-report-neagh-bann-river-basin-plan-2015.pdf pp. 7.

[190] For Northern Ireland see, https://gis.daera-ni.gov.uk/arcgis/apps/webappviewer/index.html?id=16fddc459bd04d64b9e8f084f3a8e14a & for Ireland see, https://gis.epa.ie/EPAMaps/

The Urban Waste Treatment Directive

The UK Government (for England) and Northern Ireland transposed the Water Framework Directive and 1991 Urban Waste Water Treatment Directive and have been implementing domestic regulations related to those since before EU Exit. Neither are required to transpose and implement the revised 2024 UWWTD. Ireland on the other hand will be required to put in place the changes required by the revised 2024 UWWT directive.

The costs of implementing the new provisions in the UWWTD will no doubt be significant in many EU Member States, not just in Ireland. In the UK there is debate about the costs to implement the provisions of the existing law (even though it is over 30 years old). If the UK were still in the EU, and had to implement this new directive, adding the costs of the new provisions in the 2024 directive would be a significant additional challenge to UK water companies, which are struggling to already comply with the 1991 directive (and, as the Office for Environmental Protection has shown [191], this has resulted in problems complying with the Water Framework Directive).

There are many elements within the 2024 UWWTD not discussed here as they do not relate specifically to nutrient management. However, taken together these represent significant divergence between the EU and UK. They illustrate how broad such divergence can become in a short period of time. While one might imagine EU law becoming "stricter" and potentially leaving the UK behind, the 2024 directive is much more than this. Its provisions on collection and treatment are much "stricter", but it also adds many new provisions and takes the law on wastewater treatment into new areas – EPR for medicine and cosmetic producers for example.

Legal divergence has therefore now occurred between the EU and UK with regard to the treatment of sewage – the UWWTD, though it must be noted that Ireland has not yet passed its own domestic legislation to transpose the new directive and does not need to do so until 31 July 2027. Divergence *in practice*, or in the way the law is implemented is more difficult to gauge. Many of the requirements in the revised 2024 directive have deadlines attached to them and there is greater emphasis on monitoring and evaluation so it is reasonable to assume that divergence in practice will begin to be seen by the end of the 2020's assuming the UK and/or its constituent territories do not change their own laws.

It is also worth noting that this is likely to represent a form of *passive* divergence whereby one party, in this case the EU, has legislated post EU

[191] OEP (2024). A Review of Implementation of the Water Framework Directive Regulations and River Basin Management Planning in England. *OEP finds 'deeply concerning' issues with how the laws in place to protect England's rivers, lakes and coastal waters are being put into practice,* https://www.theoep.org.uk/report/oep-finds-deeply-concerning-issues-how-laws-place-protect-englands-rivers-lakes-and-coastal

Exit and the other (in this case, the UK) has not, or does not intend, to keep pace.

Due to significant costs in implementing existing provisions in England and Northern Ireland it is highly unlikely that either the UK government for England or the Northern Ireland Assembly would amend (wholesale) urban wastewater regulations the law to 'keep pace' with the EU. What is more likely are specific amendments to elements of UWWT law, such as around introducing extended producer responsibility requirements for certain industries as the EU has done for cosmetics and pharmaceutical producers.

In other words, 'getting the basics right' and getting the existing law right in the UK is more likely to take precedence over making new law more challenging and/or expanding upon requirements on water and sewerage undertakers.

The Water Framework Directive

There are no known planned changes to the Water Framework Directive. As such there is alignment in legal terms between the UK and EU. There is less alignment however when it comes to implementation. For example, EU Member States are currently working to implement the 3rd cycle river basin management plans. Whereas England have published their updated plans[192], Northern Ireland has not. However, it is not alone in not having either completed and/or reported fully to the European Commission yet, which includes Ireland[193].

Table 6.1 Chapter 6 Summary

Jurisdiction	Summary of Regulation	Policy Trajectory	Divergence Risk	Summary Implication
Wastewater Collection				
EU	2024 Urban Waste Water Treatment Directive (UWWTD) requires collection systems for agglomerations ≥1,000 p.e.	Tightening	Low–Medium	Expands obligations to smaller settlements; stricter inspection & performance standards

[192] River basin management plans: updated 2022 https://www.gov.uk/guidance/river-basin-management-plans-updated-2022
[193] Other EU member states include Spain, Malta, Portugal and Bulgaria. See: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_265

Ireland	Transposing 2024 UWWTD; expected to introduce stricter controls and monitoring for wastewater systems	Tightening	Medium	Enforcement and implementation improving but under scrutiny by EC
NI	2007 UWWT Regulations still apply; 2024 EU updates not adopted; many systems outdated or at capacity	Static	High	Infrastructure gaps and lack of updates limit progress and create divergence risks
England	1994 UWWT Regulations apply; 2024 EU Directive not adopted; uses “Water Special Measures Bill” for stormwater	Partial tightening (enforcement-focused)	High	Focus on enforcement, not infrastructure upgrade; diverging from EU/Ireland
Treatment Standards				
EU	Mandatory tertiary treatment by 2045 for ≥10,000 p.e.; stricter national reduction targets	Expanding scope	Low	Ambitious treatment targets to reduce N and P pollution
Ireland	Adopting new tertiary treatment rules; major infrastructure investments needed	Tightening	Medium	Likely alignment with EU targets, but financial and capacity challenges persist

NI	No legal obligation for tertiary treatment beyond sensitive areas; 86% of NI is designated sensitive	Static	High	Behind EU requirements; divergence growing as EU raises standards
England	Focus on stormwater overflows via domestic enforcement; no tertiary treatment mandate	Enforcement-led, not standards-led	High	Prioritises pollution enforcement, not expansion of treatment levels
Stormwater Overflows				
EU	Requires Urban Wastewater Management Plans by 2033; includes SWO analysis and reduction targets	Tightening	Low	Legally binding plans expected from all member states
Ireland	Will need to comply with SWO obligations under new Directive; historical issues in untreated discharges	Tightening	Medium	New legal pressures may accelerate long-needed reforms
NI	No equivalent management plans; many locations at or beyond	Static / Struggling	High	Underinvestment and lack of legal drivers stall progress

	capacity; Living with Water Programme delayed			
England	Water companies required to develop Pollution Incident Reduction Plans (PIRPs) under Water Special Measures Bill	Static (focus on enforcement)	Medium–High	No integrated plans like in EU; fragmented implementation
Cross-border Coordination				
NI/IRE	EU 2024 UWWTD includes provisions for transboundary cooperation; divergence in sensitive area designations	Likely increasing	High	Misalignment in sensitive area designations & legal requirements risks cooperation
NI/GB	No formal coordination; diverging enforcement and investment approaches	Weak	High	Regulatory and funding gaps widen divergence across UK

7. Soil Health Management

Introduction

Maintaining healthy soils and preventing soil erosion through better farm management practices is important for reducing nutrient leaching and there are many farming practices that can either improve or degrade soil health. Despite the significance of soil health to nutrient pollution (and many other issues) there is relatively little regulation specifically covering it in the EU, Ireland, NI or England, especially when compared to air and water pollution concerns.

At an EU level there was an attempt to address the dearth of soil regulation via the European Soil Framework Directive, which was initially proposed in 2006[194], but it faced consistent opposition from five Member States, including the UK, and was eventually withdrawn by the Commission in 2014[195]. More recently, in July 2023, the European Commission proposed a new EU Soil Monitoring Directive with more limited ambitions, which is well advanced through the EU decision making cycle, but has not yet been adopted.

In the absence of overarching regulator requirements for the management of agricultural soils, the main mechanisms for influencing related farm practices at an EU level have been through the combination of conditions imposed on key Common Agricultural Policy (CAP) support mechanisms (often known as "conditionality" or "cross-compliance") and an array of voluntary agri-environment incentive schemes for farmers, which are applied in a variety of ways by Member States. Conditionality has two components. First, Good Agricultural Environmental Conditions[196] (GAECs) that apply to recipients of a range of Common Agricultural Policy schemes - including direct payments - and secondly, the Statutory Management Requirements (SMRs)[197], which must be complied with even if farmers are not receiving payments. Some of these are relevant to soil health.

Both GAECs and SMRs continue to apply in NI but they have not kept up with changes in the conditions set out in the CAP rules since EU Exit. The cross-compliance system no longer applies in England, but English farmers do still need to comply with relevant legislation, including the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018[198], which include some of the same obligations relating to soil in a less

[194] Proposal for a Directive of the European Parliament and of the Council establishing a framework for the protection of soil and amending Directive 2004/35/EC https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52006PC0232
[195] Heuser, D.I. (2022) *Soil Governance in current European Union Law and in the European Green Deal.* Soil Security, 6.https://doi.org/10.1016/j.soisec.2022.100053
[196] Glossary: Good agricultural and environmental conditions (GAEC) https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Good_agricultural_and_environmental_conditions_(GAEC)
[197] Conditionality (agriculture.ec.europa.eu) https://agriculture.ec.europa.eu/common-agricultural-policy/income-support/conditionality_en#smr
[198] Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 https://www.legislation.gov.uk/uksi/2018/151/made/data.pdf

prescriptive manner. The scope of these regulations is not confined to farmers receiving direct payments since they apply generally.

GAEC rules are such that Member States (and devolved authorities including NI) can tailor them to their own circumstances and so vary between regions so there was always allowance for some divergence in the details of the requirements.

There are also both current and proposed agri-environment schemes that aim to reward practices that contribute to good soil management in NI, Ireland and England and all these jurisdictions offer support to organic farming via voluntary agri-environment schemes. The proportion of farmed land that is enrolled in schemes with a substantive element bearing on improved soil management is difficult to estimate.

Understanding the chemical and physical state of soils through soil testing is an important step in managing soil nutrients, since it helps farmers understand its current condition and the likely impact of particular practices, and to better match their fertiliser and manure applications to the needs of the soil. Soil testing is an area where there is significant policy development in all the jurisdictions reviewed here with some differences in the approaches taken.

Aims, Objectives and Targets

The EU Soil Strategy for 2030[199] sets out a vision to achieve healthy soils across the EU by 2050.

Northern Ireland's Environmental Improvement Plan aims to:

- achieve the sustainable management and efficient use of natural resources including water & soils by 2031.
- provide soil sampling, analysis, run off risk maps and nutrient management training for farmers throughout NI who are participating in the Soil Nutrient Health Scheme by 2027[200].

England's Environmental Improvement Plan has a target to:

- bring 40% of agricultural soils into sustainable management by 2028 and;
- increase this to 60% by 2030[201].

Key Legislation

[199] Soil Strategy for 2030 (environment.ec.europa.eu) https://environment.ec.europa.eu/topics/soil-and-land/soil-strategy_en

[200] Environmental Improvement Plan for Northern Ireland, p24-25: https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Environmental%20Improvement%20Plan%20for%20Northern%20Ireland.PDF

[201] UK Gov Environmental Improvement Plan 2023: https://assets.publishing.service.gov.uk/media/65fd7129a6c0f70011ef9271/CD1.G_The_Environmental_Improvement_Plan_2023__EIP_2023__Extract_Goal_6.pdf

EU

- EU Nitrates Directive (91/ 676/ EEC)
- Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the common agricultural policy (CAP Strategic Plans)[202]
- Regulation (EU) 2021/2116 of the European Parliament and of the Council of 2 December 2021 on the financing, management and monitoring of the common agricultural policy[203]
- Commission Delegated Regulation (EU) 2022/1172 of 4 May 2022 supplementing Regulation (EU) 2021/2116 of the European Parliament and of the Council with regard to the integrated administration and control system in the common agricultural policy and the application and calculation of administrative penalties for conditionality[204]
- Commission Implementing Regulation (EU) 2022/1173 of 31 May 2022 laying down rules for the application of Regulation (EU) 2021/2116 of the European Parliament and of the Council with regard to the integrated administration and control system in the common agricultural policy[205]

UK

- Direct Payments to Farmers (Legislative Continuity) Act 2020[206]
- The Nitrate Pollution Prevention Regulations (SI, 2015; SI, 2016)

[202] Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the common agricultural policy (CAP Strategic Plans): https://eur-lex.europa.eu/eli/reg/2021/2115/oj/eng
[203] Regulation (EU) 2021/2116 of the European Parliament and of the Council of 2 December 2021 on the financing, management and monitoring of the common agricultural policy: https://eur-lex.europa.eu/eli/reg/2021/2116/oj/eng
[204] Commission Delegated Regulation (EU) 2022/1172 of 4 May 2022 supplementing Regulation (EU) 2021/2116 of the European Parliament and of the Council with regard to the integrated administration and control system in the common agricultural policy and the application and calculation of administrative penalties for conditionality: https://eur-lex.europa.eu/eli/reg_del/2022/1172/oj/eng
[205] Commission Implementing Regulation (EU) 2022/1173 of 31 May 2022 laying down rules for the application of Regulation (EU) 2021/2116 of the European Parliament and of the Council with regard to the integrated administration and control system in the common agricultural policy: https://eur-lex.europa.eu/eli/reg_impl/2022/1173/oj/eng
[206] Direct Payments to Farmers (Legislative Continuity) Act 2020: https://www.legislation.gov.uk/ukpga/2020/2/contents

- The Agriculture Act 2020[207]

Northern Ireland

- Nutrient Action Programme Regulations (Northern Ireland) 2019[208]

England

- Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018

EU Withdrawal and Farm Payment Rules Summary

The Withdrawal Agreement setting the terms for the withdrawal of the UK from the EU disapplied the EU direct payments regulation (Regulation No. 1307/2013[209]) and associated regulations in the UK from the 2020 scheme year. EU direct payment regulations were reapplied in UK law by the Direct Payments to Farmers (Legislative Continuity) Act 2020 and as amended by secondary legislation made under the Direct Payments to Farmers (Legislative Continuity) Act 2020[210] and the Agriculture Act 2020[211]. Schedule 6[212] of the Agriculture Act 2020 specifically outlined the continuation of farm payments in Northern Ireland and enabled DAERA to make amendments to the rules governing them.

Farmers in Northern Ireland continue to be subject to Cross Compliance[213] requirements (both SMR and GAEC) if they are participating in most farm support schemes[214].

Both the GAEC and the SMR requirements are based on EU requirements applying in Northern Ireland prior to the current EU version and therefore do not mirror the those in the Ireland. However, there are parallels.

In England Cross Compliance requirements ceased to apply after December 2023, when the Basic Payment Scheme was replaced with delinked payments[215]. Therefore, English farmers no longer need to comply with the

[207] Agriculture Act 2020: https://www.legislation.gov.uk/ukpga/2020/21/contents
[208] The Nutrient Action Programme Regulations (Northern Ireland) 2019: https://www.legislation.gov.uk/nisr/2019/81/contents/made
[209] Regulation (EU) No 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy: https://eur-lex.europa.eu/eli/reg/2013/1307/oj/eng
[210] Direct Payments to Farmers (Legislative Continuity) Act 2020: https://www.legislation.gov.uk/ukpga/2020/2/contents
[211] Agriculture Act 2020: https://www.legislation.gov.uk/ukpga/2020/21/contents
[212] Agriculture Act 2020, Schedule 6: https://www.legislation.gov.uk/ukpga/2020/21/schedule/6
[213] Northern Ireland Cross-Compliance Verifiable Standards, 2025: https://www.daera-ni.gov.uk/sites/default/files/2024-12/2025%20Cross-Compliance%20Verifiable%20Standards%20-%20Full%20Version_0.pdf
[214] Basic Payment Scheme; Farm Sustainability Transition Payment; Young Farmers' Scheme; Environmental Farming Scheme; Forestry Expansion Scheme; Forest Protection Scheme; Woodland Investment Grant; Protein Crops Scheme; Small Woodland Grant Scheme; Farm Woodland Premium Scheme (arrangements signed after 01/01/07); Beef Carbon Reduction Scheme; Suckler Cow Scheme
[215] UK Gov: Cross compliance guidance: https://www.gov.uk/guidance/cross-compliance

GAECs in order to receive farm support. They are still required to follow binding domestic legislation, including the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018, which is more limited in coverage of soil requirements.

Rules on Specific Actions Relating to Soil

The following sections cover different areas of regulation around soil health comparing the requirements of Ireland, NI and England.

- Compaction, poaching and sacrifice paddocks
- Ploughing/tillage, herbicides and green cover
- Stubble
- Soil Monitoring

Compaction, poaching and sacrifice paddocks

Soil compaction reduces its ability to filter nutrients and makes it more vulnerable to erosion. It can be caused by heavy machinery and by overstocking land.

Poaching, which is the breakdown of soil due to the presence of heavy animals and the action of their feet, can occur even when land is not overstocked, if animals gather on particular areas of the land, for example for feeding and watering.

Sacrifice paddocks are fields that are where animals are kept in times when damage is likely such as over winter to “save the rest of the farm”, with nothing done to prevent damage in that field.

Ireland

SMR 2: Protection of Waters Against Pollution Caused by Nitrates[216], which covers all farms regardless of whether they receive financial support, prohibits:

- Severe poaching.
- Sacrifice paddocks.
- Placing supplementary feeding points within 20m of a watercourse.

GAEC 5: Tillage Management to Reduce the Risk of Soil Degradation and Erosion prohibits:

- Overgrazing or otherwise using sand dunes and/or grassland resulting in erosion.

[216] Legislated for in the EU Nitrates Directive (91/ 676/ EEC) and Ireland’s Nitrates Action Programme and detailed in the Department of Agriculture, Food and Marine Explanatory Handbook for Conditionality Requirements https://www.teagasc.ie/media/website/environment/DAFM-Explanatory-Handbook-for-Conditionality-Requirements.pdf

GAEC 5 requires:

- Taking necessary steps to minimise any damage which could lead to the erosion of soil where catch crops (crops grown specifically to catch available nitrogen in the soil) are grazed in situ. This includes provision of an adequate lie-back area which is always accessible to grazing livestock.
- Using only suitable machinery, vehicles and trailers to avoid damaging the soil structure in unfavourable weather conditions which can lead to soil erosion.
- Managing outwintering livestock to prevent poaching e.g., moving feeders, reduce the stocking rate and moving livestock to other parts of the farm.

NI

SMR 1 Protection of Waterways Against Nitrates Pollution, requires all farms to carry out crop and soil management to minimise soil erosion and nutrient run-off. However, there is significantly less detail on rules applying to soil than its equivalent in Ireland (SMR 2).

Sacrifice areas are not prohibited in NI, but GAEC 5: Minimum Land Management Reflecting Site Specific Conditions to Limit Erosion, states that they will only be permitted on improved grassland/arable land where the land is flat. They must be located:

- 10 metres from waterways
- 50 metres from boreholes or wells
- 250 metres from boreholes used for a public water supply.

GAEC 5 aims to protect soil as a resource by preventing soil erosion and requires farmers to:

- Protect soils from erosion and maintain soil structure by preventing land from being excessively trampled, poached or rutted including on bank sides and along water courses.

Exceptions:

- Poaching of soil is a necessary consequence of works that are required to ensure the welfare of humans or animals.
- The area is an established track to land that is not waterlogged;
- Exceptions will be granted where it is necessary for the protection of animal welfare during periods of extreme weather conditions.

GAEC Grazing requirements:

- Avoid overgrazing grassland, semi-natural habitat, or archaeological sites with livestock in such numbers which would

damage the growth, quality or species composition of vegetation on that land to any significant degree.

- Rotate supplementary feeding sites and manage them to prevent excessive trampling, poaching or vehicle rutting to minimise soil erosion and must not cause runoff to waterways. These areas must be ploughed and reseeded the following spring.

Exceptions:

- The standards do not apply on land where these requirements conflict with the management required by Areas of Special Scientific Interest, SPAs, Special Areas of Conservation and/or Agri-environment scheme agreements.
- The standards do not apply to areas within five metres around gateways/laneways provided this land is not a semi-natural habitat, archaeological site within 10 metres from waterways, or 50 metres from boreholes or wells, or 250 metres from boreholes used for a public water supply.
- It is necessary for the protection of animal welfare during periods of extreme weather conditions.
- DAERA has granted a temporary exemption from this rule because of extreme weather conditions.

England

Under Section 10 of the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018[217], Farmers must:

- Ensure that poaching is prevented within 5 metres of inland freshwaters or coastal waters.
- Ensure that a livestock feeder is not positioned on agricultural land:
  - within 10m of inland freshwaters or coastal waters, or
  - within 50m of a spring, well or borehole.
- Take reasonable measures to prevent diffuse agricultural pollution, in relation compaction and poaching this includes:
  - breaking up compacted soil
  - moving livestock regularly,
  - erecting fencing around inland freshwaters or coastal waters, and

[217] The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018: https://www.legislation.gov.uk/uksi/2018/151/made/data.pdf

- wintering livestock on well-drained, level fields.

Some divergence between NI and Ireland; whilst starting from very similar frameworks and overarching rules, the details of requirements are different in each territory. Ireland has stricter rules around compaction, particularly on sacrifice paddocks. There is more significant divergence between NI and England, with the latter having relatively few rules related to preventing compaction and nothing on sacrifice paddocks.

Alignment - Medium

Ploughing/tillage, herbicides and green cover

Soil with a high nutrient status poses a significant risk where such soil becomes detached and enters water. Bare soils, particularly on sloping ground, during periods of heavy rainfall and/or poor growth are most vulnerable to erosion.

Ireland

SMR 2 Protection of Waters Against Pollution Caused by Nitrates[218] prohibits:

- Ploughing between 16th of October and 30th of November.
- Removing green cover before the 1st of December by either ploughing or by using a non-selective herbicide, unless a crop is sown within 2 weeks of the grass removal.
- Ploughing or cultivating non-grass crops within 3m of a watercourse.
- Finely tilled soils not in the process of crop establishment. Land ploughed between the 1st of December and 15th January must be maintained with a rough surface prior to a crop being sown.

SMR 2 requires:

- Measures that support the emergence of green cover to be taken within 14 days of ploughing, where arable land is ploughed between the 1st of July and 30th of November.
- Measures that support the emergence of green cover from a sown crop where grassland is ploughed between 1st of July and 15th of October.

[218] Legislated for in the EU Nitrates Directive (91/ 676/ EEC) and Ireland's Nitrates Action Programme and detailed in the Department of Agriculture, Food and Marine Explanatory Handbook for Conditionality Requirements https://www.teagasc.ie/media/website/environment/DAFM-Explanatory-Handbook-for-Conditionality-Requirements.pdf

- There must be green cover within 6 weeks of the herbicide's use where a non-selective herbicide is used between 1st of July and 30th of November.[219]
- Shallow cultivation of post-harvest stubble must take place within 10 days of baling of straw, or within 10 days of harvest where straw is chopped.
- In all circumstances, shallow cultivation must take place within 14 days of harvesting.

GAEC 5: Tillage Management to Reduce the Risk of Soil Degradation and Erosion prohibits leaving land bare for longer than 4 months.

It also prohibits:

- Ploughing of grassland with a slope of 20% or more, between 1st December and 31st December.
- The ploughing of arable land with a slope of 15% or more, between 1st December and 31st December.
- Inappropriate land reclamation works, which lead to inadequate soil cover.

Exceptions: shallow cultivation is not required:

- On certified organic holdings;
- After the harvesting of root crops or late harvested crops;
- Where cereals are under sown with another crop, where cereals; or
- Beans harvested after 15th of September, or on lands destined for winter combinable crops which are sown before the 31st of October.

NI

Section 26 of The Nutrient Action Programme Regulations (Northern Ireland) 2019[220] requires that "*where grass leys are grown in rotation with arable crops the first crop shall be sown as soon as possible after the grass has been ploughed*."

GAEC 4: Minimum Soil Cover aims to protect soil as a resource by ensuring minimum soil cover to prevent soil erosion.

It requires that:

- After harvesting a crop farmers must establish minimum soil cover by ensuring that, from harvest until 15th January in the following

[219] In the case of seed crops and crops for human consumption and where the contract prohibits the use of non-selective herbicide pre-harvest the requirement to provide green cover is reduced to 75% of the contract area where the herbicide is applied after 15th October.
[220] The Nutrient Action Programme Regulations (Northern Ireland) 2019: https://www.legislation.gov.uk/nisr/2019/81/regulation/26

year, one of the following conditions is met on that land at any time:

- The stubble of the harvested crop remains in the land; or
- The land is sown with a crop which will take up nitrogen or where soil or weather conditions prevent a subsequent crop from being sown, appropriate measures are put in place to limit soil erosion. Appropriate measures could include chisel ploughing (where soil conditions are favourable) or, where soils are waterlogged, leaving residues undisturbed.

GAEC 4 prohibits:

- Growing brassica fodder crops in steeply sloping fields with a high soil erosion risk (as these are grazed in winter and will not hold the soil as well as grass).

GAEC 5: Minimum Land Management Reflecting Site Specific Conditions to Limit Erosion, prohibits

- Any cultivation if water is standing on the surface, or if the soil is waterlogged. Cultivations include any mechanical field operation, for example, harvesting, manure spreading, ploughing or discing.
- Burn heather, gorse, whin or fern between 15th April and 31st August to prevent erosion.

Exceptions:

- The soil is waterlogged only within five metres of a gateway or other access point and access is required to an area of land that is not waterlogged.
- Mechanical operations are required to improve the drainage of the land.

England

Under Section 10 of the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018, farmers must:

- Take reasonable measures to prevent diffuse agricultural pollution, in relation to ensuring soil cover this includes:
  - establishing crops early in autumn months, and during dry conditions,
  - planting headland rows and beds across the base of any sloping land,
  - under sowing or sowing a cover crop to stabilise soil after harvest,

- establishing grass buffer strips in valleys, along contours or slopes, field edges or gateways

Divergence between Ireland and NI on ploughing timing and distance from waterways, as well as green cover requirements, with Ireland implementing stricter requirements. In England there are far fewer requirements, and they are much less detailed.

Alignment - Medium

Burning Stubble & Residues

Burning stubble and other plant residue releases CO2 and damages soil organic matter. Soil organic matter plays an important role in preserving soil structure and stability, soil nutrient availability, and water infiltration and holding capacity, reducing its makes soil more prone to erosion and loss of nutrients.

Ireland

GAEC 3 prohibits the burning arable stubble and straw.

Exceptions: when a plant is burned strictly for plant health reasons only. Prior authorisation from the Department of Agriculture, Food and the Marine is required, and the prescribed burning code of practice must be followed.

NI

Section 25 of The Nutrient Action Programme Regulations (Northern Ireland) 2019[221] requires that following a harvest, stubble remains on the land.

GAEC 6: Maintenance of Soil Organic Matter Level through Appropriate Practices prohibits burning any of the following crop residues:

- Cereal straw;
- Cereal stubble;
- Residues of oil-seed rape;
- Field beans harvested dry or peas harvested dry;

Exceptions:

- burning is for the purposes of disease control or the elimination of plant pests; and
- a notice has been served under Article 32 of the Plant Health Order (Northern Ireland) 2006

England

[221] The Nutrient Action Programme Regulations (Northern Ireland) 2019: https://www.legislation.gov.uk/nisr/2019/81/regulation/26

The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 state that reasonable precautions should be taken to prevent significant soil erosion and runoff due to land management and cultivation practices. Whilst this includes practices related to stubble and residues, there are no specific restrictions or requirements in relation to dealing with stubble.

Rules relating to burning stubble and residue are very similar in NI and Ireland, albeit with more detail in NI. However, there has been significant divergence with England, where there only broad principles in relation to preventing erosion and no longer any prescriptive restrictions or requirements.

Alignment - Medium

Soil Monitoring

Ireland

Although the EU Soil Monitoring Law is still in development (see below), there are already requirements on Irish farmers in relation to soil monitoring.

SMR 2: Protection of Waters Against Pollution Caused by Nitrates, requires soil sampling on all arable land and for all livestock farms with a grassland stocking rate above 130kg N ha before N exports.

Any farm that has not yet tested their soil, must be assumed to have excess phosphorus levels until they test their soil.

Farmers are required to keep the results of any soil tests (including both copies of the results and a location map clearly identifying the areas from which they were taken and size of those areas).

NI

Under SMR 1 Protection of Water against Nitrates Pollution; which derives from The Nutrient Action Programme Regulations (Northern Ireland) 2019[222]; farms that have been granted a derogation[223] from the Nutrients Action Programme must test for phosphorus every 4 years.

Northern Ireland is rolling out the Soil Nutrient Health Scheme between 2022 and 2026, claimed to be one of the most comprehensive regional soil monitoring programmes in the world[224]. Participation in the scheme is a condition of being eligible for new Farm Sustainability and Farming with

[222] The Nutrient Action Programme Regulations (Northern Ireland) 2019: https://www.legislation.gov.uk/nisr/2019/81
[223] Nutrient Action Programme (NAP) Derogation - Terms and Conditions: https://www.daera-ni.gov.uk/publications/nutrient-action-programme-nap-derogation-terms-and-conditions
[224] AFBI The Soil Nutrient Health Scheme: https://www.afbini.gov.uk/articles/soil-nutrient-health-scheme

Nature Payments. The scheme aims to conduct soil tests on every field on every farm in Northern Ireland, as of December 2024 50% of fields had been tested and 70% of farms signed up[225]. As well as testing, the scheme requires farmers to undertake training[226] to understand nutrient management and develop a nutrient management plan based on the results of the tests.

Soil test results include pH, phosphorus (P), potassium (K), magnesium (Mg) and sulphur (S), together with crop specific lime and fertilizer recommendations and an estimate of soil organic matter[227]

The focus of the is to ensure farmers are better informed about the state of their soil, including concentrations of nutrients, and that this should guide them to make better decisions about applying fertiliser and other soil amendments.

England

Under section 5 of the Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018[228] farmers are required use the results of soil tests to inform their fertiliser application (applies to both organic and synthetic fertiliser). The tests must be conducted at least every 5 years and must include the pH of the soil and the levels of nitrogen, phosphorous, magnesium and potassium present. Despite this requirement, there is still relatively little known about the state of English soil overall[229] and compliance with this soil testing requirement is very low.[230]

Northern Ireland has gone significantly further with the ambition of its soil testing requirements than either Ireland or England. Whilst both England and Ireland are expected to have more comprehensive soil monitoring programmes in future, with more data publicly available, neither Government has committed to the level of ambition seen in NI.

Alignment - Low

Future Plans for soil monitoring

Ireland/EU

[225] Half of NI fields tested in world-first soil scheme: https://www.bbc.co.uk/news/articles/ce8xvlz8nvdo
[226] CAFRE launch options for completion of the Soil Nutrient Health Scheme Training: https://www.daera-ni.gov.uk/news/cafre-launch-options-completion-soil-nutrient-health-scheme-training and Soil Nutrient Health Scheme Training: https://www.cafre.ac.uk/business-support/agriculture/environment/soil-nutrient-health-scheme/
[227] https://www.afbini.gov.uk/articles/soil-nutrient-health-scheme
[228] Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 https://www.legislation.gov.uk/uksi/2018/151/made/data.pdf
[229] House of Commons, Environment, Food and Rural Affairs Committee, Soil health First Report of Session 2023–24 https://committees.parliament.uk/publications/42415/documents/210844/default/
[230] IEEP (20244) *An evaluation of the ability of existing policies to achieve nitrogen-reductions within national statutory targets and international commitments* https://ieep.uk/wp-content/uploads/2024/10/Evaluation-of-the-ability-of-existing-policies-to-achieve-nitrogen-reductions-Sep24.pdf

The EU is expected to bring in a Soil Monitoring Law, which aims for all EU soils to be in healthy condition by 2050. Measures to achieve this include:

- Implementing a monitoring framework for all soils across the EU.
- Requiring Member States to define which practices should be implemented by soil managers, and which should be banned because they cause soil degradation.
- Requesting that Member States identify potentially contaminated sites and address the risk.

However, whilst a legislative proposal for this was adopted by the Commission in 2023, negotiations to adopt a final version of this as a Directive are ongoing. Even when it has passed it will not have direct effect, meaning Member States need to transpose it into national law to enact it.

Despite the 2050 aim, the current proposal does not include any legally binding targets or direct action by farmers. Its purpose is to provide information to enable public bodies to adopt better approaches to soil management. There are also no associated obligations on either Member States or farmers to restore unhealthy soils to good health[231].

NI

Northern Ireland will continue to roll out its Soil Nutrient Health Programme across the territory, train farmers and require them to submit farm plans based on the results.

England

Going forward there will likely be an increase in the amount of monitoring activity and associated data available on soils in England. The previous Conservative Government committed to publishing a soil health map by 2028 as part of their Natural Capital and Ecosystem Assessment within the Environmental Improvement Plan[232]. The new Labour Government recently conducted a rapid review of the Environmental Improvement Plan and is expected to publish amendments. However, the interim statement on the review[233] did not explicitly refer to the soil health map or Natural Capital and Ecosystem Assessment.

Note on Agri-environment schemes

Northern Ireland, Ireland and England all have agri-environment programmes which include various actions relating to improving soil health. These are

[231] EPA State of the Environment Report: Chapter 6, Soil (p.154) https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/EPA-SOER-2024-Chapter-06-Soil.pdf
[232]Environmental Improvement Plan 2023 (gov.uk) https://assets.publishing.service.gov.uk/media/64a6d9c1c531eb000c64fffa/environmental-improvement-plan-2023.pdf
[233] Interim statement on the EIP rapid review : https://www.gov.uk/government/publications/environmental-improvement-plan-rapid-review/interim-statement-on-the-eip-rapid-review

voluntary, and there is no guarantee of how many farmers might take them up meaning it is very difficult to gauge what their impact on soil health will be. For this reason, this report has not explored the various actions and rewards or the divergence. Whilst the GAECs are also technically conditions of financial support rather than regulations, the fact that they apply or have applied to the vast majority of farms and land, means that it is worth including them.

Conclusion

Despite acknowledgements of the importance of soil health from all three jurisdictions, no explicit plans for comprehensive legislation protecting and improving soil health could be found in any. In the immediate future it seems that the requirements will remain a patchwork of regulations and conditions that include but are not primarily concerned with soil health.

The significant increase in soil testing that is expected in all three may well lead to additional legislation. In Northern Ireland in particular, where comprehensive testing is already underway, there could be an increase in regulation, if voluntary measures and farmer training and farm planning do not significantly improve the status of soils.

One question in England will be whether additional measures are put in place in order to increase the probability of meeting the EIP targets mentioned above, which may be necessary given the scale of improvement envisaged.

Table 7.1 Chapter 7 Summary

Jurisdiction	Summary of Regulation	Policy Trajectory	Divergence Risk	Summary Implication
Aims & Targets				
EU	EU Soil Strategy aims for healthy soils by 2050.	Tightening	Medium	Framework for long-term improvement; implementation varies.
Ireland	Soil health via CAP conditions and support schemes.	Tightening	Medium	Policy tools tied to CAP structure.
NI	Environmental Improvement Plan and Soil Nutrient Health Scheme.	Tightening (delayed)	High	Adopts legacy CAP requirements; updates pending.

England	Target to manage 40% of soils sustainably by 2028.	Transitioning	High	Shifting away from CAP conditionality; relies on new schemes.
Compaction & Poaching				
Ireland	Regulated under GAEC and SMR with site-specific rules.	Tightening	Medium	Prescriptive management actions to limit soil degradation.
NI	GAEC permits sacrifice areas under restrictions.	Static	High	More permissive; guidance varies.
England	Covered generally under diffuse pollution rules.	Static	High	Limited regulatory detail.
Ireland	Regulated under GAEC 5; practices must prevent erosion and minimise risk of runoff.	Tightening	Medium	Tillage management includes restrictions and buffer zones.
Ploughing & Tillage				
Ireland	Regulated under GAEC 5; practices must prevent erosion and minimise risk of runoff.	Tightening	Medium	Tillage management includes restrictions and buffer zones.
NI	Limited GAEC guidance on tillage practices; erosion risks acknowledged.	Static	Medium–High	Fewer prescriptive controls compared to Ireland.
England	General requirements under diffuse	Static	High	Lacks detailed tillage standards; relies

	pollution regulations; minimal prescriptive rules.			on advisory guidance.
Burning of Stubble/Residues				
Ireland	Generally prohibited under SMR/GAEC except in limited cases with approval.	Stable	Low	Clear ban supports soil conservation goals.
NI	Prohibited unless under licence for plant health; rarely permitted.	Stable	Low	Similar restrictions as Ireland.
England	Prohibited except for specific crops (e.g. oilseed rape, linseed) under limited conditions.	Stable	Medium	Rules less strict than Ireland and NI in some areas.
Soil Monitoring				
Ireland	Mandatory testing linked to compliance.	Tightening	Medium	Part of broader agri-environment obligations.
NI	Voluntary testing through Soil Nutrient Health Scheme.	Expanding	High	May increase alignment if made mandatory.
England	Encouraged under incentive schemes, not mandatory.	Static	Medium	Non-compulsory testing approach.

8. International Agreements & Air Quality

Introduction

As indicated in section 2 of this report, policy areas relevant to nutrient management span both reserved and devolved competencies. This sub-section focuses on those areas of policy in which legislative powers are subject to international commitments (which are, by definition a reserved competence in the UK) which therefore limits the scope for divergence at sub-national (in the UK) and member state (in the EU) level.

The main focus of this sub-section is air quality regulation. In the EU and in the UK relevant legislation incorporates international commitments, EU law and assimilated law, as well as domestic legislation in both the UK and EU Member States. In keeping with the parameters of nutrient management (as defined in section X) this sub-section focuses on those aspects of air quality regulation that are most relevant to ammonia and nitrogen emissions in view of the contribution atmospheric emissions can make to secondary water pollution through deposition.

Aims/Objectives/Targets

EU Approach

International agreements such as the UNECE Water Convention[234], Gothenburg Protocol[235], and Sustainable Development Goals[236] (SDGs) are integrated into EU laws such as the National Emissions Ceiling Directive (EU NECD).[237] The current EU NECD was updated in 2016 as part of the EU's Clean Air Package and in line with the objectives and targets set out in its 2013 Clean Air Programme for Europe.[238] The EU Clean Air For Europe Directive[239] (EU CAFE Directive) also sets out obligations and requirements regarding air quality and reduction of pollutants.

[234] 'Convention on the Protection and Use of Transboundary Watercourses and International Lakes' Helsinki, 17 March 1992. https://treaties.un.org/doc/Treaties/1992/03/19920317%2005-46%20AM/Ch_XXVII_05p.pdf
[235] 'Convention on Long-Range Transboundary Air Pollution 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, amended on 4 May 2012'. https://unece.org/environmental-policy/air/protocol-abate-acidification-eutrophication-and-ground-level-ozone
[236] 'Sustainable Development Goals: 17 Goals to Transform our World': https://www.un.org/en/exhibits/page/sdgs-17-goals-transform-world
[237] Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC OJ L344 17.12.2016 p.1-31. https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32016L2284
[238] 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions' COM/2013/0918 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52013DC0918
[239] Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe OJ L152 11.6.2008 pp. 1- 44. https://eur-lex.europa.eu/eli/dir/2008/50/oj/eng

Under the Green Deal[240], the EU is strengthening targets for pollutant reductions. A relevant example is the adoption of a revised version of the Industrial Emissions Directive (EU IED) in April 2024.[241]

UK Approach

While the UK was an EU Member State it was party to several international agreements by dint of its membership. In view of its planned EU Exit and the consequential cessation of application of relevant agreements, the UK ratified and/or acceded to several international agreements that had previously had domestic effect only via EU law.

In 2018 the UK ratified the Gothenburg Protocol[242], but it has not (yet) ratified the UNECE Water Convention which it signed in 1992 but never ratified – the Gothenburg Protocol however provides for most of the UNECE Water Convention provisions regarding emissions (and therefore nutrient management) to be implemented.[243] As a member of the UN the UK is obliged to align with the SDGs regardless of EU membership or its absence.[244]

An assimilated law version of National Emissions Directive (UK NECD) still has effect in the UK although it has been amended since EU Exit and is not being updated in line changes in the EU NECD.[245] There is no assimilated law version of the revised new EU IED however the two previous EU acts concerning industrial emissions and landfill waste that the new EU IED replaces continue to apply in the UK as assimilated law.

The UK approach to air quality is guided by its 2019 Clean Air Strategy[246] which was produced to fulfil obligations under the NECD for the (then EU Member State) UK to establish a national air pollution programme (NAPCP) by April 2019.[247] The UK government and devolved governments published a revised UK National Air Pollution Control Programme[248] (NACAP) in February 2023; this was produced to fulfil obligations under the UK NECD. Both policy

[240] 'The European Green Deal': https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
[241] 'Directive (EU) 2024/1785 of the European Parliament and of the Council of 24 April 2024 amending Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control) and Council Directive 1999/31/EC on the landfill of waste' OJ L 2024/1785 15.7.2024. https://eur-lex.europa.eu/eli/dir/2024/1785/oj/eng
[242] 'Explanatory Memorandum On The Amendment Of Annex I To The 1999 Protocol To Abate Acidification, Eutrophication And Ground-Level Ozone And The Amendment Of The Text Of And Annexes II To IX To The 1999 Protocol To Abate Acidification, Eutrophication And Ground-Level Ozone And The Addition Of New Annexes X And XI'.
https://assets.publishing.service.gov.uk/media/5afae64140f0b622dae8de85/EM_Misc_6_Amend_1999_Protocol.pdf
[243] United Nations Treaty Collection 'Chapter XXVII ENVIRONMENT Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki, 17 March 1992).
https://treaties.un.org/pages/viewdetails.aspx?src=treaty&mtdsg_no=xxvii-5&chapter=27&clang=_en
[244] 'UK and the Sustainable Development Goals': https://www.gov.uk/government/topical-events/uk-voluntary-national-review-of-progress-towards-the-sustainable-development-goals
[245] 'The National Ceilings Regulations 2018' SI 2018/129: https://www.legislation.gov.uk/uksi/2018/129/contents
[246] 'Clean Air Strategy 2019': https://www.gov.uk/government/publications/clean-air-strategy-2019
[247] Under NECD Article 6.
[248] 'United Kingdom National Air Pollution Control Programme' 2023.
https://assets.publishing.service.gov.uk/media/63e508428fa8f50509bdd926/Revised_National_Air_Pollution_Control_Programme__NAPCP_.pdf

papers set out a comprehensive assessment of sources of air pollution in the UK – for nutrient management the most relevant sections outline actions concerning environmental protection and emissions reduction from farming.

Additionally, the UK has a statutory obligation to publish a National Air Quality Strategy for England, Scotland, Wales and Northern Ireland, the latest complete version was published in 2007.[249]

Key Legislation

EU Legislation

The aim of the EU NECD is to reduce the health risks and environmental impact of air pollution by establishing national emission reduction commitments. Five air pollutants are covered by the Directive: sulphur dioxide; nitrogen oxides; non-methane volatile organic compounds; ammonia; fine particulate matter. For each EU country, the EU NECD sets emission reduction commitments per pollutant to be attained by 2020 and 2030; the commitments from 2020 to 2029 are the same as those to which EU countries are already committed under the revised Gothenburg Protocol with stricter reductions agreed from 2030 onwards.

Under the EU NECD each Member State is obliged to establish national air pollution control programmes (NAPCP) by 2019 and to update them every four years. NAPCPs must include measures applicable to: agriculture, energy, industry, road transport, inland shipping, domestic heating, use of non-road mobile machinery, and solvents.

The aim of the EU IED is to reduce emissions from large industrial installations and pig and poultry farms. By 2050 the implementation of the revised IED is expected to reduce emissions of air pollutants in its scope – fine particulate matter; sulphur dioxide; nitrogen oxides and non-methane volatile organic compounds – by up to 40%[250]. The revised IED includes stricter emission limit values, more dissuasive penalties and more powers for competent authorities to suspend the operation of non-compliant installations; it includes metal mining and large-scale battery manufacturing for the first time and also expands coverage of intensive pig and poultry farms with the aim of reducing nitrogen pollution.

The EU CAFE Directive established air quality objectives and targets for improving human health and environmental quality up to 2020; it also specified ways of assessing these and of taking any corrective action if standards are not met as well as obliging that the public are kept informed.

[249] Air Quality Strategy for England, Scotland, Wales and Northern Ireland Volume 1: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf and Volume 2: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69337/pb12670-air-quality-strategy-vol2-070712.pdf

[250] Revised industrial emissions directive comes into effect

Although still applicable, the EU CAFE is not as much of a focus in what follows because the targets it set have been overtaken by those laid down in subsequent legislation.

Ireland Legislation

In Ireland, management of air quality is guided by its Clean Air Strategy 2023[251] and it is a party to the Long-Range Transboundary Air Pollution (LRTAP) Convention and the Gothenburg Protocol via its EU membership. The EU NECD and EU IED as well as the EU CAFE Directive all apply to Ireland and have been transposed into Irish law via: the European Union (National Emissions Ceilings) Regulations 2018[252], the European Union (National Emission Ceilings) Regulations (Amendment) 2024[253], the European Union (Industrial Emissions) Regulations 2013[254], the European Union (Industrial Emissions) (Amendment) Regulations 2024[255], the Air Quality Standards Regulations 2011[256] and the Air Quality Regulations 2022.[257]

UK Legislation

The UK NECD applies as assimilated law. Initial amendments were made to the UK NECD to ensure its continued operational effects after and in view of EU Exit, these changes were not substantive.[258] More significant changes were subsequently made to the UK NECD by the Retained EU Law (Revocation and Reform) Act 2023.[259] Regulations 9 and 10 of the UK NECD were revoked by the REUL Act 2023, these made provisions concerning the national air pollution and control programme and participation in its development. The reason given by the UK government for these revocations was as follows:

> *[The 2018 Regulations] implement the National Emission Ceilings Directive (2016/2284/EC). We will be removing some items of REUL relating to the National Air Pollution Control Plan (NAPCP). The current format of the NAPCP is long, complicated, resource intensive and duplicative, and does nothing to improve the quality of the air we breathe. By repealing this item, we can better focus on what will*

[251] Government of Ireland, 2023. 'Clean Air Strategy for Ireland'
[252] SI 232/2018 'European Union (National Emissions Ceilings) Regulations 2018': https://www.irishstatutebook.ie/eli/2018/si/232/made/en/print
[253] SI 185/2024 'European Union (National Emissions Ceilings) Regulations (Amendment)': https://www.irishstatutebook.ie/eli/2024/si/185/made/en/print
[254] SI 138/2013 'European Union (Industrial Emissions) Regulations 2013': https://www.irishstatutebook.ie/eli/2013/si/138/made/en/print?q=industrial+emissions
[255] SI 446/2024 'European Union (Industrial Emissions) (Amendment) Regulations 2024': https://www.irishstatutebook.ie/eli/2024/si/446/made/en/print?q=industrial+emissions
[256] SI 180/2011 'Air Quality Standards Regulations': https://www.irishstatutebook.ie/eli/2011/si/180/made/en/print?q=air+quality+standards
[257] SI 739/2022 'Ambient Air Quality Standards Regulations': https://www.irishstatutebook.ie/eli/2022/si/739/made/en/print?q=air+quality+standards
[258] The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 SI 2019/74: https://www.legislation.gov.uk/uksi/2019/74/contents
[259] Retained EU Law (Revocation and Reform) Act 2023 c. 28: https://www.legislation.gov.uk/ukpga/2023/28/contents: Schedule 1 Part 1.

> *actually help clean up our air, such as delivering on the ambitious air quality targets we have set in statute through the Environment Act.*[260]

These changes to the UK NECD removed the obligation to update the NAPCP, published in 2023, which would have been required to be revised again in four years under the EU NECD and unamended UK NECD.

The Environment Act (EA) 2021 makes various provisions concerning air quality.[261] Under EA section 1(2) and 1(3) the Secretary of State is required to set at least one long-term target in respect of air quality as one of four 'priority areas' identified for environmental targets. Additionally, the Secretary of State is obliged, under EA section 2, to set a target in respect of the annual mean level of fine particulate matter ($PM_{2.5}$) in ambient air. Part 4 of the EA also provides for established domestic legislation to be amended such that the framework for managing local air quality and smoke control areas is updated in England (and to a lesser extent in Wales).

The Environment Act 1995, as amended by the Environment Act 2021, requires a National Air Quality Strategy is published that contains policies for assessment and management of air quality across the UK. An Air Quality Strategy for England, Scotland, Wales and Northern Ireland was first published in 1997; the latest revised version was published in 2007. Although there is a statutory requirement for a national air quality strategy, and assessments of air quality plans are coordinated UK-wide, each UK government can choose to publish its own strategy because many areas typically covered by air quality strategies are devolved. The most up to date strategies and/or consultations for each UK territory are:

- England: In 2023 the UKG published an "Air Quality Strategy: Framework for Local Authority Delivery" for England which superseded a UK-wide 2007 Air Quality Strategy but only in respect of England.[262]
- Scotland: In 2021 the Scottish Government published "Cleaner Air for Scotland 2" which replaced a 2015 SG strategy.[263]
- Wales: In 2020 the Welsh Government published "Clean Air Plan for Wales: Healthy Air, Healthy Wales" and in 2023 provided an 'Update Report on Progress Against Actions'.[264]
- Northern Ireland: In 2020 the Department for Agriculture, Environment and Rural Affairs launched a "Clean Air Strategy for Northern Ireland: A Public Discussion Document" the consultation

[260] 'Guidance: Schedule of Retained EU Law' *gov.uk:* https://www.gov.uk/government/publications/schedule-of-retained-eu-law
[261] Environment Act 2021 c. 30: https://www.legislation.gov.uk/ukpga/2021/30/contents
[262] 'The Air Quality Strategy for England': https://www.gov.uk/government/publications/the-air-quality-strategy-for-england
[263] Cleaner Air for Scotland 2 – Towards a Better Place for Everyone': https://www.gov.scot/publications/cleaner-air-scotland-2-towards-better-place-everyone/
[264] Clean Air Plan for Wales: Healthy Air, Healthy Wales: https://www.gov.wales/clean-air-plan-wales-healthy-air-healthy-wales

closed in 2021; a summary of responses was published in 2022.[265]

Northern Ireland is therefore the only part of the UK not to have a finalised and specific air quality strategy – it is however still covered by the relevant sections of the UK-wide 2007 Air Quality Strategy as well as the 2023 NAPCP.

The UK IED continues to set the framework for the regulation of industrial emissions, the revised EU IED does not apply in the UK, instead, the previous industrial emissions directive, adopted in 2010, continues to apply as assimilated law.[266] The UK IED is implemented separately in England and Wales[267], Scotland[268], and in Northern Ireland[269]. In 2022 the UKG established a 'Best Available Techniques' framework (UK BAT) to replace the EU Best Available Techniques frameworks previously applied under the original (EU) IED.[270]

NI Legislation

The NECD is transposed in Northern Ireland by the Air Quality Standards Regulations (Northern Ireland) 2010[271] these place a duty on NI government departments to monitor levels of the air pollutants specified in the NECD and ensure compliance with limit values. Additionally, NI local councils have a duty to review and assess air quality within their districts under The Environment Order (Northern Ireland) 2002[272]; in the event that UK air quality standards (deriving from the UK NECD) are breached or are likely to be breached, the responsible NI local council must declare an air quality management area and produces, along with relevant authorities, an action plan to address the problem – relevant authorities and air quality objectives are prescribed in the Air Quality Regulations (Northern Ireland) 2003.[273]

Under the Windsor Framework, the original EU industrial emissions directive continues to apply in Northern Ireland to the extent of its relevance to the operation of the Single Electricity Market on the island of Ireland. According to the terms of the Windsor Framework, the revised EU IED will also therefore apply to Northern Ireland in the same way. In practice, the application of the

[265] A Clean Air Strategy for Northern Ireland – Public Discussion Document: https://www.daera-ni.gov.uk/consultations/clean-air-strategy-northern-ireland-public-discussion-document
[266] 'Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (recast)' OJ L334 17.12.2010 p.17–119: https://eur-lex.europa.eu/eli/dir/2010/75/oj
[267] The Environmental Permitting (England and Wales) Regulations 2016 SI 2016/1154: https://www.legislation.gov.uk/uksi/2016/1154/contents
[268] The Pollution Prevention and Control (Scotland) Regulations 2012 SSI 2012/360: https://www.legislation.gov.uk/ssi/2012/360/contents [As Amended]
[269] The Pollution Prevention and Control (Industrial Emissions) Regulations (Northern Ireland) NISR 2013/160: https://www.legislation.gov.uk/nisr/2013/160/contents [As Amended]
[270] 'Establishing the Best Available Techniques for the UK (UK BAT)': https://www.gov.uk/government/publications/establishing-the-best-available-techniques-for-the-uk-uk-bat
[271] The Air Quality Standards Regulations (Northern Ireland) 2010: https://www.legislation.gov.uk/nisr/2010/188/contents/made
[272] The Environment Order (Northern Ireland) 2002: https://www.legislation.gov.uk/nisi/2002/3153/contents
[273] Air Quality Regulations (Northern Ireland) 2003: https://www.legislation.gov.uk/nisr/2003/342/contents/made

EU IED in Northern Ireland is to three large combustion plants (Kilroot, Ballylumford and Coolkeeragh) and one waste incinerator (Evermore Energy). The continued application of the EU IED also means that EU Best Available Techniques (BAT) emissions standards will apply to the four named installations. Outside of these requirements, NI is aligned with the rest of the UK in terms of the regulation of industrial emissions and BAT; those EU IED provisions of relevance to nutrient management will therefore have limited effect in NI.

Divergences in Definitions

Focusing on the EU NECD and the UK NAPCP/NECD both address and set targets for the reduction of emissions of the same five pollutants: sulphur dioxide (SO_2); nitrogen oxides (NOx); non-methane volatile organic compounds (NMVOCs); ammonia (NH_3); fine particulate matter ($PM_{2.5}$).

In the EU NECD specific targets are set for the reduction of each pollutant in each Member State between 2020 and 2029 and after 2030[274]. In the UK NAPCP the emissions reduction targets are the same as those set out for the UK under the EU NECD prior to EU Exit.

Table 8.1 EU NECD targets

Reduction Compared to 2005	SO_2	NOx	NMVOCs	NH_3	$PM_{2.5}$
For any year from 2020 to 2029	59%	55%	32%	8%	30%
For any year from 2030	88%	73%	39%	16%	46%

Focusing on the **EU IED and the UK IED**, the former is wider in scope than the latter and mechanisms for enforcement are stronger under the EU version compared to its UK counterpart. The provisions most relevant to nutrient management relate to farming. Under the EU IED, the largest and most polluting intensive pig and poultry farms are newly included such that 30% of EU pig and poultry farms are now subject to the legislation; new obligations do not however apply to small and medium-sized pig and poultry farms which represent 70% of relevant EU farms[275]. The system for registration and reporting for farms has been simplified and farms are not required to draw up an environmental management system as is the case for large industrial

[274] EU NECD: Annex II
[275] Industrial and Livestock Rearing Emissions Directive (IED 2.0): https://environment.ec.europa.eu/topics/industrial-emissions-and-safety/industrial-and-livestock-rearing-emissions-directive-ied-20_en

installations covered by the IED. In 2026 new operating rules will be adopted by the European Commission (EC) with the aim of reducing emissions and improving resource efficiency, however, farmers will have until 2030/2032 to transition, depending on the size of the farm. In addition, the EU IED obliges the EC to publish a report with solutions to more comprehensively address the emissions from the rearing of livestock in general and cattle in particular. In the EU, this sector represents about 50% of total EU methane emissions and about 25% of total EU ammonia emissions; the relevant report will also assess the feasibility of action to ensure imported livestock products do not pollute more than EU produced livestock products.[276]

Due to the implementation timelines for the EU IED the immediate divergence effect of its adoption is relatively limited in view of the continued application of the UK IED. However, the extent of divergence between the regulation of industrial emissions in the EU vis-à-vis the UK can be expected to steadily increase in coming years, assuming the UK does not make equivalent or similar revisions to the UK IED or adopt alternative legislation to achieve similar effect.

EU and UK aligned in defining key air pollutants, with the same emissions reduction targets for both. Divergence is expected if future tightening regulations around industrial emissions by the EU are not mirrored by the UK.

Alignment - High

Sub-Policy Areas

The five air pollutants for which emission reduction commitments are set under both the UK NECD and EU NECD affect the environment and human health in different ways – emissions of both ammonia and nitrogen oxides are primarily associated with acid deposition leading to toxicity of soils and waters. Further, ammonia is also responsible for secondary particulate matter formation and nitrogen oxides are precursors to tropospheric (ground level) Ozone formation. For nutrient management therefore the most relevant sections of the UK NECD and the EU NECD as well as the EU IED and UK IED are those that concern or relate to emissions produced by the agricultural sector in particular ammonia and nitrogen oxides. On this basis, this sub-section focuses on strategies applicable in Northern Ireland and Ireland

[276] 'Industrial and Livestock Rearing Emissions Directive (IED 2.0): Overview' https://environment.ec.europa.eu/topics/industrial-emissions-and-safety/industrial-and-livestock-rearing-emissions-directive-ied-20_en

regarding the management of ammonia and nitrogen oxides and details the status and trends regarding emissions of both pollutants in both jurisdictions.

In both Northern Ireland and Ireland emissions of nitrogen oxides have been in steady decline on 2005 levels (the baseline for NECD monitoring) and are currently compliant with targets set by the UK NECD and EU NECD respectively. By contrast, in both jurisdictions, emissions of ammonia are above compliant levels; although they are decreasing, they are doing so at a slower rate than required under the NECD[277].

NI

On ammonia in Northern Ireland the Department for Agriculture, Environment and Rural Affairs published a draft strategy for consultation in January 2023[278]; a summary of responses was published in April 2024[279]. In November 2024 the NI Minister for Agriculture, Environment and Rural Affairs confirmed that a new draft of the ammonia strategy was being developed and it would include "both mandatory and voluntary on-farm emission reduction measures" to reflect the diverse range of farm business types and sizes in Northern Ireland. While on-farm emissions reduction measures will apply to all relevant farm businesses, not every measure will apply on every farm with specific measures dependent on individual farm characteristics. The proposed measures in the coming new draft Ammonia Strategy will include: longer grazing seasons, reductions in crude protein levels in livestock diets, selection of livestock genetics to improve nutrient use efficiency and tree plantations to reduce the impact of ammonia emissions; voluntary measures will also include technology-based emissions reduction measures.[280] According to the latest NAEI Report, total emissions of ammonia in Northern Ireland in 2022 were estimated to be 32kt, representing 12% of the UK total for ammonia; 30kt of NI's contribution derived from agriculture.[281] While this represents an increase of 6% since 2005 levels, it also represents a decrease by 2% on 2021 emissions; this change is primarily due to a 6% decrease in emissions from manure applied to soils which account for over 90% of total NI ammonia emissions.

On nitrogen oxides in Northern Ireland, according to the latest NAEI Report, total emissions of nitrogen oxides in Northern Ireland in 2022 were estimated to be 29kt, representing 5% of the UK total for nitrogen oxides. Emissions of nitrogen oxides from Northern Ireland have declined by 53% since 2005,

[277] Air Pollutant Inventories for England, Scotland, Wales, and Northern Ireland: 2005-2022. https://naei.energysecurity.gov.uk/sites/default/files/2024-10/DA_Air_Pollutant_Inventories_2005-2022.pdf
[278] DAERA (2023) 'Draft Ammonia Strategy Consultation': https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Draft%20Ammonia%20Strategy%2003%2001%2023.PDF
[279] DAERA (2024) 'Ammonia Strategy Consultation Report': https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/Ammonia%20Strategy%20Consultation%20Report.PDF
[280] NI Assembly, 'AQW 17034/22-27' : https://aims.niassembly.gov.uk/questions/printquestionsummary.aspx?docid=414958
[281] 'Air Pollutant Inventories for England, Scotland, Wales and Northern Ireland: 2005-2022': https://naei.energysecurity.gov.uk/sites/default/files/2024-10/DA_Air_Pollutant_Inventories_2005-2022.pdf

principally due to changes in transport sources, particularly in road transport – the successive reduction of tighter exhaust emission standards for vehicles over the past few decades have led to these reductions. While further reductions to improve catalyst repair rates are due and which result from the introduction of regulations to control the sale and installation of replacement catalytic converters and particle filters for light-duty vehicles, the recent preferential uptakes of diesel cars over petrol counterparts works to offset these reductions; diesel cars are associated with higher nitrogen oxide emissions. Energy industries have also impacted the downward trend in nitrogen oxide emissions due to the implementation of abatement technologies and, more recently, the reduction in the amount of coal used as operations at Kilroot power station begin to phase down. The 2022 total emissions represent a 5% decrease from 2021 levels; the decline is largely due to an 11% decrease in energy sector emissions while emissions from transport decreased 1% on 2021 levels.

Ireland

The EU NECD applies in Ireland. Under its provisions, the emission reduction for Ireland for 2020 and 2030 in the five focus pollutants are set out in Table 8.2; represented as a percentage reduction on 2005 levels.

Table 8.2: Ireland EU NECD Emissions Targets

	2020	**2030**
	% reduction on 2005 levels	
Sulphur Dioxide (SO_2)	-65%	-85%
Nitrogen Oxides (NOx)	-49%	-69%
Non-Methane Volatile Organic Compounds (NMVOCs)	-25%	-32%
Ammonia (NH_3)	-1%	-5%
Particulate Matter ($PM_{2.5}$)	-18%	-41%

On ammonia in Ireland according to the latest Environmental Protection Agency (EPA) report, while emissions of ammonia decreased by 1% in 2022, Ireland remains non-compliant with its EU emissions reduction commitments for ammonia, derived from the EU NECD. The 2020 target for ammonia reductions in Ireland under the EU NECD was -1% on 2005 levels but the latest (2022) figures represent a +3% increase on 2005 levels.[282] The slight decrease in ammonia emissions reflects lower pig and poultry numbers, an increase in low emission slurry spreading and use of inhibited urea fertiliser

[282] EPA 'Ireland Air Pollutant Emissions 1990-2030': https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Air-Pollutant-Report-Final-May24.pdf

on farms. To comply with the EU reductions commitments for 2030 regarding ammonia Ireland will need to adopt additional measures to those already in place and thereby implement all relevant proposed policies and measures.[283] Implementation of additional measures would include those arising from Ireland's Climate Action Plans, alongside 'AgClimatise' which is a roadmap for the agricultural sector in Ireland to achieve climate neutrality;[284] and the (currently still draft) National Air Pollution Control Plan (NAPCP), published in 2023, which updates the 2021 NAPCP and fulfils obligations under the EU NECD.[285]

On nitrogen oxides in Ireland according to the latest EPA report, emissions of nitrogen oxides in 2022 had decreased 55.9% on 2005 levels, this exceeds the target reduction of -49% set by the EU NECD. With existing measures, Ireland is set to achieve its EU NECD derived target for reduced nitrogen oxide emissions by 2030.

Both Ireland and NI are making progress on lowering emissions of nitrogen oxides and ammonia, as well as bringing in further regulations to continue reductions further; though NI has more flexibility and voluntary measures in place.

Alignment - High

Implementation

The EU NECD allows for some flexibility regarding Member States' compliance with emission reduction commitments. If an EU country deviates from the emissions reduction trajectory planned and set under the EU NECD, they must provide reasons for the deviation and explain actions that will be taken to get back on track. Under certain specific circumstances – such as updates in scientific knowledge or exceptional weather patterns in a particular year – non-compliance will not result in EU enforcement action. In general, however, the EU NECD targets are binding on Member States and, if not met, the EC can take enforcement action.

The EU IED implementation operated together with the new EU Industrial Emissions Portal Regulation (IEPR) which replaces the European Pollutant Release and Transfer Register Regulation (E-PRTR). The new IEPR requires industrial operators in scope of the EU IED to report on significant emissions

[283] *Ibid*. Table 3. p.8.
[284] Department for Agriculture, Food and the Marine (2021) 'Ag Climatise – A Roadmap towards Climate Neutrality' *gov.ie*: https://www.gov.ie/en/publication/07fbe-ag-climatise-a-roadmap-towards-climate-neutrality/?msclkid=1fd7accdcf7b11ec9166e0de1cce740b
[285] Government of Ireland (2023) 'National Air Pollution Control Programme: Draft for Consultation': https://www.gov.ie/pdf/?file=https://assets.gov.ie/278634/32c4af58-bd7a-4f86-863b-906c6fa5a607.pdf#page=null

and the use of resources. IEPR information includes the amount of industrial pollutant releases, off-site transfers of waste and pollutants in wastewater as well as the consumption of energy, water and other key raw materials.[286]

The UK IED requires all regulated installations to report annual estimates of pollutant emissions to the regulatory authority if emissions are above the reporting threshold for each pollutant. This data is reported to different agencies according to their location:

- The Environment Agency's Pollution Inventory for England
- Natural Resources Wales's Welsh Emissions Inventory
- The Scottish Environment Protection Agency's Scottish Pollutant Release Inventory (SPRI)
- The Northern Ireland Environment Agency's Pollution Inventory

These pollution inventories have not been operational throughout the entire time series of the NAEI (beginning in 1990) and hence coverage is only partial. In Northern Ireland PI data is available from 2001 onwards – for earlier years estimates are often extrapolated back across the time series using emissions factors derived from operator-reported data and information on either production, fuel consumption or plant capacity[287].

UK and EU are aligned in terms of reporting requirements, though this process is centralised across EU Member States but decentralised for UK countries (including NI). Reporting coverage for UK countries is patchy.

Alignment - Medium

Enforcement

The provisions and requirements of both the EU NECD and the EU IED is subject to the oversight of the EU institutions, including the Court of Justice of the European Union (CJEU).[288]

In the UK the implementation of air quality targets and strategies are in the scope of the: Office for Environmental Protection (OEP) in England and

[286] Industrial Emissions Portal Regulation (IEPR): https://environment.ec.europa.eu/topics/industrial-emissions-and-safety/industrial-emissions-portal-regulation-iepr_en
287 Methods and quality processes for UK air pollutant emissions statistics
[288] By way of example in 2024 the European Commission began infringement proceedings against the UK for its failure to meet air quality targets for nitrogen dioxide set by the EU Air Quality Directive (2008/50/EC); in 2021 the CJEU found the UK to have failed to fulfil its obligation to ensure that the period of exceedance of limit values was kept as short as possible.

Northern Ireland[289]; Environmental Standards Scotland (ESS) in Scotland[290];

> The EU centralises enforcement requirements for all member states, whereas the UK takes a fragmented approach, with enforcement for NI and England conducted by the OEP.
>
> Alignment - Medium

and the Interim Environmental Protection Assessor (IEPAW) in Wales[291].

Assessment

The National Atmospheric Emissions Inventory (NAEI) work programme delivers air pollutant emissions estimates from anthropogenic emission sources in the UK, the NAEI data underpins statutory reporting requirements under the UK NECD and is in compliant with the Gothenburg Protocol. The NAEI is compiled and updated annually to report emissions of air quality pollutants – including sulphur dioxide (SO_2); nitrogen oxides (NOx); non-methane volatile organic compounds (NMVOCs); ammonia (NH_3); fine particulate matter ($PM_{2.5}$) and (PM_{10}) – for 1990 to the latest year for which data is available. Each year NAEI data and methods are subject to review and revision to account for statistical developments to apply improved estimation methods. Emissions are reported for all territories governed by the UK.

In its simplest form, emission estimates for each pollutant are calculated as a function of the quantity of pollutant emitted per unit of activity that emits emissions:

Emissions Estimate = Activity Data (AD) x Emission Factor (EF)

UK emission inventories are compiled according to international good practice guidance for national inventories; for air quality pollutant inventories the methodological guidance used is the European Environment Agency's EMEP/EEA Air Pollutant Emission Inventory Guidebook. The UK inventory estimates are based on a range of data sources and are underpinned by many long-standing UK national statistics datasets, sector surveys and the reporting of emissions under various legal and voluntary mechanisms.

Emission Factors used in NAEI are primarily derived from either the default EFs in the EMEP/EEA Guidebook or from UK research to derive country-specific EFs for a given source. Emissions Data is also available for many

[289] OEP https://www.theoep.org.uk/office-environmental-protection
[290] ESS https://environmentalstandards.scot
[291] IEPAW https://www.gov.wales/interim-environmental-protection-assessor-wales

sources due to routine reporting of regulated activities such as high-emitting combustion, industrial production and waste management activities.

Given the UK's use of and reliance upon the EEA Guidebook, differences in methods of assessment regarding emissions between the EU and UK are unlikely to be significant. Rather, changes in EU legislation that are not mirrored in UK legislation – such as the revision of the EU IED and the corresponding expansion of its scope – are more likely to be the source of divergence between the respective regulatory regimes.

By way of example, the EU NECD was updated in October 2023[292] to bring its requirements regarding reporting of aggregated emission projections in line with an updated made to reporting requirements under the Gothenburg Protocol in 2022 – the revision requires Member States to provide a greater level of detail regarding estimated and aggregated national emission projections from relevant source sectors.

This update to the EU NECD was given effect in Ireland in May 2024; [293] but there is no evidence of an equivalent update being made to the UK NECD or its implementing legislation. Based on official accounts of the UK approach to assessing emissions estimates (and producing the NAEI) the relevant changes made under the Gothenburg Protocol may be reflected in updated domestic practices on the calculation of emissions data, but this cannot be guaranteed.

Both EU and UK member states follow the same methodology and data standards for assessing emissions; however this is likely to diverge with changing regulations such as the EU NECD update, which was not mirrored in the UK.

Alignment - Medium

Conclusion

Air quality regulation is a complex area. Obligations arise from international law, national and supranational law as well as at devolved and Member State level in the UK and EU respectively.

Although UK legislation and policy frameworks have not diverged significantly from those derived from its period of EU membership, as revisions and

[292] By 'Commission Delegated Directive (EU) 2024/299 of 27 October 2023 amending Directive (EU) 2016/2284 of the European Parliament and of the Council on the methodology for the reporting of projected emissions of certain atmospheric pollutants' OJ L 2024/299 17.1.2024: https://eur-lex.europa.eu/eli/dir_del/2024/299/oj/eng
[293] SI No. 185/2024 'European Union (National Emission Ceilings) Regulations (Amendment) 2024': https://www.irishstatutebook.ie/eli/2024/si/185/made/en/print

updates are made in the EU, the gaps between the regulatory regimes in the two jurisdictions will only increase.

In the domestic context, Northern Ireland lags behind other UK territories insomuch as it does not have a finalised air quality strategy, this is particularly damaging in view of the disproportionate contributions it makes to UK emissions of, in particular, ammonia due to its comparatively large agricultural sector.[294] Moreover, assuming UK-EU divergence on air quality regulation increases, Northern Ireland and Ireland can be expected to be exposed to increased complexity and decreased coherence.

Table 8.3 Chapter 8 Summary

Jurisdiction	Summary of Regulation	Policy Trajectory	Divergence Risk	Summary Implication
Aims, Objectives, Targets				
EU	Zero Pollution Plan and NEC Directive set targets.	Tightening	Low–Medium	Legal targets drive policy across Member States.
Ireland	Transposes and enforces EU directives.	Tightening	Low	Aligned with EU mechanisms.
NI	Retains NEC targets; aligns through Protocol/WF.	Mixed	Medium–High	Depends on political and legal stability.
England	National targets via Environment Act 2021.	Mixed	High	Independent trajectory, not tied to EU framework.
Key Legislation				
EU	NEC and Air Quality Directives form basis.	Stable	Low	Standardised obligations across Member States.
Ireland	Direct transposition and	Stable	Low	Limited scope for divergence.

[294] 2017 data indicates NI emissions made up 11% of UK ammonia emissions despite it having only 2.8% of the UK population – DAERA 'Clean Air Strategy for Northern Ireland: A Public Discussion Document': https://www.daera-ni.gov.uk/sites/default/files/consultations/daera/20.21.066%20Draft%20Clean%20Air%20Strategy%20for%20NI%20-%20Public%20Discussion%20Doc%20Final%20V6.PDF

	enforcement of EU law.			
NI	Applies retained EU law under Protocol/WF.	Conditional	Medium	Legal framework may evolve.
England	REUL and EA 2021 enable national rule-making.	Shifting	High	Greater discretion in setting standards.
Implementation & Enforcement				
EU	Central enforcement via ECJ and reporting.	Strong	Low	Compliance mechanisms in place.
Ireland	National enforcement supported by EU obligations.	Strong	Low	Monitoring and legal obligations reinforce delivery.
NI	Oversight via OEP; varies by agency capacity.	Developing	Medium–High	Dependent on NIEA and DAERA capability.
England	OEP monitors implementation; capacity issues noted.	Variable	High	Resourcing and legal divergence create risks.

9. Habitats and Appropriate Assessments

Appropriate Assessment (AA) is a legal requirement under the Habitats Directive (92/43/EEC) and plays a critical role in ensuring that any plan or project does not negatively impact designated European sites (Natura 2000).

In the context of nutrient management, excessive nitrogen and phosphorus from agricultural runoff, wastewater discharge, and industrial processes pose significant risks to biodiversity and water quality. AA serves as a preventative measure to assess these risks before granting development or activity consent. This is particularly important where cross-border water bodies and shared ecosystems are at risk due to differing regulatory approaches.

The AA process evaluates whether a plan or project will adversely affect the integrity of a European site, particularly those designated under the EU Habitats and Birds Directives. Nutrient pollution is one of the primary environmental pressures affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). The key ways in which AA relates to nutrient management include:

- Screening for Appropriate Assessment: Before authorizing projects related to wastewater treatment plants, agricultural expansions, or industrial facilities, screening determines if an AA is necessary.
- Assessment of Cumulative Impacts: Nutrient loading often results from multiple sources, including agriculture, stormwater runoff, and industrial discharge. The AA process requires authorities to consider cumulative impacts of multiple projects in combination.
- Water Quality Protection: Many protected sites depend on high water quality, particularly those supporting species such as freshwater pearl mussels and Atlantic salmon, which are highly sensitive to nutrient pollution.
- Prevention of Cross-Border Pollution: Given that Northern Ireland and Ireland share key river basins and coastal areas, the misalignment of environmental policies could lead to regulatory gaps that increase nutrient pollution risks. A robust AA process ensures that projects in one jurisdiction do not undermine water quality targets in another.

Ireland – Appropriate Assessment under Irish Legislation

The European Communities (Birds and Natural Habitats) Regulations 2011 outline Ireland's approach to AA. Key features include:

- Screening for Appropriate Assessment: A preliminary screening determines if a project requires full AA, based on its likely impact on a European site. This must be conducted before consent is granted.

- Public Authorities' Responsibilities: If a plan or project requires AA, the relevant authority must conduct the assessment before approving, adopting, or granting consent.
- Natura Impact Statement (NIS): If the screening determines a need for AA, the applicant must submit a Natura Impact Statement to inform the decision-making process.
- Consideration of Cumulative Effects: Irish regulations explicitly require that authorities consider cumulative effects of projects in combination with others.
- Ministerial Intervention: The Minister may request an authority to carry out an AA if deemed necessary, even if the authority had not initially planned to do so.
- Joint Assessments: When multiple consents are required, Irish legislation allows for joint screening or assessment among different public authorities.
- Transparency and Public Consultation: Authorities must make all assessment determinations available for public inspection, ensuring transparency.

Northern Ireland – Appropriate Assessment under The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995

Northern Ireland follows the 1995 Regulations, which were originally derived from EU law but have since evolved. Key aspects include:

- Competent Authority Responsibility: DAERA or other relevant authorities must conduct an AA before granting consent to a project.
- Consultation with the Department: Unlike Ireland, where multiple authorities may conduct their own AA, in Northern Ireland, DAERA plays a central role and must be consulted on all assessments.
- Public Consultation: The competent authority has discretion to seek public opinion during the assessment process but is not obligated to do so.
- Alternative Solutions and Overriding Public Interest: Where a project is deemed harmful, the authority can only approve it for imperative reasons of overriding public interest (IROPI), but compensatory measures must be taken.
- Limited Flexibility on Cumulative Effects: While cumulative impacts are considered, the legislation does not explicitly require joint or coordinated assessments among authorities as seen in Ireland.

UK – Appropriate Assessment under The Conservation of Habitats and Species Regulations 2017

The 2017 UK Regulations (as amended post-Brexit) provide a framework for AA, with some notable differences:

- Retention of EU AA Requirements: The UK still follows the EU-based process of screening, conducting an AA, and deciding on project approval based on conservation objectives.
- Competent Authority Duties: UK authorities are responsible for ensuring no project adversely affects a European site, and applicants must provide all necessary information for the assessment.
- Public and Conservation Body Consultation: The UK regulations require authorities to consult natural conservation bodies (such as Natural England or Scottish Natural Heritage), and public consultation is optional.
- Project Approval Conditions: An AA must conclude that there will be no adverse effect on site integrity, unless the project qualifies under IROPI criteria, similar to Northern Ireland.
- Special Provisions for Marine and Land Use Plans: The UK distinguishes between land use planning (requiring a strategic assessment) and marine environments, where Marine Scotland or the Marine Management Organisation (MMO) oversees the process
- Post-Brexit Changes: The UK no longer consults the European Commission for IROPI cases related to priority habitats/species, whereas Ireland and Northern Ireland still adhere to EU referral mechanisms.

Table 9.1 Key Divergences Across the Three Jurisdictions

Aspect	**Ireland**	**Northern Ireland**	**GB**
Competent Authority	Any relevant public authority	Primarily DAERA	Any relevant public authority
Screening Process	Required before consent	Required before consent	Required before consent
Cumulative Effects Consideration	Explicitly required	Considered but less emphasis	Considered but not always required
Public Consultation	Required in most cases	Discretionary	Discretionary
IROPI Approval Process	Requires consultation with EU Commission	Requires consultation with UK government	No EU Commission involvement post-Brexit

Joint Assessments Across Authorities	Allowed & encouraged	Limited provision	No specific joint assessment requirements
Use of Natura Impact Statements	Mandatory for full AA	Required where significant effects identified	Required where significant effects identified
Ministerial Power to Require AA	Yes	Limited to DAERA	No equivalent post-Brexit

While all three jurisdictions broadly adhere to EU-derived principles of Appropriate Assessment, key divergences include how assessments are conducted, which authorities oversee them, and whether public consultation is required. Ireland maintains a more integrated, transparent, and cooperative approach, while Northern Ireland centralizes authority within DAERA. The UK's post-Brexit changes remove EU oversight, emphasizing domestic decision-making.

Alignment: Medium

Table 9.2 Chapter 9 Summary

Jurisdiction	Summary of Regulation	Policy Trajectory	Divergence Risk	Summary Implication
Appropriate Assessment				
EU	AA required under Habitats Directive for Natura 2000 sites.	Stable	Low	Legal mechanism embedded in EU environmental law.
Ireland	Transposes EU AA rules through national planning law.	Stable	Low	AA integrated in development and planning.
NI	Applies 1995 Habitats Regulations; aligned with EU via Protocol.	Stable	Medium	Potential divergence if Protocol is altered.

England	REUL allows for simplified AA procedures.	Diverging	High	Regulatory simplification may reduce rigour.
Legal basis				
EU	Habitats and Birds Directives underpin AA.	Unchanged	Low	Foundation of EU biodiversity protection.
Ireland	Transposes Directives directly into law.	Stable	Low	Legal alignment maintained.
NI	Legacy UK law applied under Protocol.	Conditional	Medium	Alignment depends on ongoing Protocol terms.
England	REUL and EA 2021 provide alternatives to EU-derived law.	Shifting	High	Risk of reduced alignment.
NI/IRE	AA cooperation based on institutional frameworks.	Fragile	Medium–High	Relies on functioning institutions and legal consistency.
NI/GB	Limited legal mechanisms for coordination.	Weak	High	Lack of shared frameworks may limit consistency.

10. Divergence now and in the future

Existing divergence

Divergence in environmental policies between Northern Ireland, Ireland, the UK, and the EU has existed even prior to Brexit, largely due to differences in policy priorities, scientific methodologies, and farming systems. One of the most prominent examples is in nitrates regulation. Northern Ireland and Ireland both operated under the EU Nitrates Directive, but even within this shared framework, differences emerged in how policies were implemented and enforced. This report has identified key areas of pre-existing divergence including:

- Nitrates Regulation: The EU Nitrates Directive has historically guided policy in Ireland and Northern Ireland, yet differences existed even when both followed EU rules. Post-Brexit, Northern Ireland retains the Nutrient Action Programme Regulations (2019), while Ireland continues with the Good Agricultural Practice for Protection of Waters Regulations. England and Wales follow separate Nitrate Vulnerable Zone (NVZ) policies, which diverge from both EU and Northern Ireland practices.
- Nutrient Management and Soil Health: Northern Ireland has more detailed soil testing and nutrient planning requirements than Ireland and the rest of the UK. However, regulatory divergence is increasing as Ireland aligns with EU soil health initiatives, while Northern Ireland follows a mix of retained EU law and UK policy shifts.
- Fertiliser Use and Livestock Waste Management: The nitrogen and phosphorus limits differ across regions. Ireland maintains EU-driven targets under the Farm to Fork strategy, aiming for a 50% reduction in nutrient losses by 2030. The UK, including Northern Ireland, has set its own targets under the Environment Act 2021, but they differ from the EU's approach.
- Air Pollution and Emissions Calculations: Northern Ireland, Ireland, and the EU continue to rely on the European Environment Agency's EMEP/EEA Air Pollutant Emission Inventory Guidebook for emissions estimates, whereas the UK is developing separate methodologies. This divergence in emissions tracking and reporting could lead to conflicting environmental assessments and policies.

Emerging divergence

New divergence trends are most evident in wastewater treatment. The EU's revised 2024 Urban Waste Water Treatment Directive introduces stricter requirements, such as:

- The requirement for tertiary treatment in more wastewater plants.
- Stricter nitrogen and phosphorus discharge limits.
- A requirement for integrated urban wastewater management plans, addressing storm overflows and drainage capacity.

Key emerging areas of regulatory misalignment include:

- Urban Wastewater Treatment: The 2024 EU Urban Waste Water Treatment Directive (UWWTD) introduces new tertiary treatment requirements, stricter nutrient discharge limits, and integrated wastewater management plans. Ireland, as an EU member, must comply with these changes, while the UK (including Northern Ireland) is not obligated to do so. This creates a growing regulatory gap.
- Stormwater and Overflow Management: England's 2021 Environment Act introduced mandatory stormwater overflow monitoring and reduction targets, while Northern Ireland lacks equivalent stormwater measures. This creates intra-UK divergence, making Northern Ireland's standards weaker than both Ireland and England.
- Industrial and Agricultural Wastewater Regulations: The EU is implementing more stringent wastewater discharge standards under its Green Deal, but Northern Ireland and the rest of the UK have yet to adopt equivalent rules. This divergence could lead to pollution discrepancies in cross-border waterways, with Ireland adopting higher treatment standards while Northern Ireland remains at previous levels.
- Chemical Use in Farming: Divergence is also emerging in pesticide and fertiliser approvals, as the EU tightens rules under the Sustainable Use of Pesticides Directive, whereas the UK is setting its own independent risk-based approach.

Potential Future Divergence

Without dynamic alignment, a commitment to align with EU policy as it develops, divergence is likely to continue and widen due to:

- Differing policy priorities
- Economic drivers
- Environmental pressures

Potential areas of future divergence include:

- Soil health regulations – The EU is advancing a Soil Monitoring Law aiming for healthier soils by 2050, while the UK lacks a similar initiative.

- Ammonia and nitrogen emissions – Northern Ireland has higher agricultural ammonia emissions than the rest of the UK, and failure to align with EU restrictions could result in cross-border pollution disputes.

Environmental and Cross-Border Challenges

Divergence has serious environmental implications for Northern Ireland, particularly due to shared waterways and transboundary pollution risks:

- The Neagh Bann and North Western river basins cross between Northern Ireland and Ireland. Differences in wastewater treatment standards and agricultural pollution controls may cause eutrophication and water quality degradation.
- Lack of stormwater management coordination – Ireland's integrated urban wastewater management plans (mandatory under the EU directive) may highlight pollution issues originating from Northern Ireland due to different regulatory approaches.
- Air quality impacts – Differences in ammonia regulation between Ireland and Northern Ireland can lead to increased deposition of nitrogen compounds, negatively affecting ecosystems.

Conclusion

This report is a factual review of regulation as it stands and identifies existing and potential divergence, it did not attempt to identify where divergence may have a positive impact on the regulation of the environment. If Northern Ireland chose to adopt more ambitious environmental regulations than its neighbours this could result in environmental improvement, while also being classified as divergence. On the other hand, if Ireland adopted more ambitious environmental regulations than Northern Ireland, the potential risks of additional regulations such as industry competitiveness may be mitigated allowing Northern Ireland to adopt the same regulations. In this case divergence from one party may drive environmental ambitions in a “race to the top”.

Environmental regulatory divergence is an increasing challenge for Northern Ireland, given its unique position between the UK and EU regulatory frameworks. Without proactive alignment or structured cooperation, these divergences could worsen environmental degradation and regulatory complexity. Future policy coordination will be essential to ensure water and air quality protection, particularly for shared natural resources.

It is important to note that this report is accurate at 31st March 2025. At the time of writing Northern Ireland is finalising the latest iteration of its delayed Nutrient Action Programme which could not be considered within this research.