Delivering economic growth and nature recovery:

An independent review of Defra's regulatory landscape

Dan Corry / April 2025

Contents

Foreword

This has been a tremendously interesting and important review to have undertaken. Thank you to the Secretary of State for asking me to lead it.

I have worked and published on many aspects of regulation in different sectors over many years but came relatively new to environmental regulation.

The issue of how to frame and organise regulation so that it efficiently delivers the right outcomes, whilst being easy to navigate for customers, has been at the core of this review, as it is in all discussions around regulation. Whilst regulation needs to be used to deliver these outcomes, it should never become stifling red tape and antithetical to growth and innovation.

Also at the core of this review has been the need to have independence of regulators, who should operate with a large degree of predictability and consistency; but also need to make sure that they closely link to the elected government's policy agenda and with enough discretion to do the right and often common-sense thing in the right place without being trapped by legal or cultural factors.

In environmental regulation, where we must protect and enhance nature and the environment but also not cut off or make excessively expensive new infrastructure and development, some of these issues are even more complex, as we seek to do the right things for both nature recovery and for economic growth.

I spent the last decade plus working in the charity and non-profit sector. I understand the passion and concern that these organisations have and the people whose voice and concerns they reflect. The environmental and nature NGOs do a fine job in holding government's feet to the fire on these issues. They need to continue being a key voice but are not the only stakeholder.

The current system of environmental regulation was set up in good faith, but time and factors like resource constraints, legal findings, case law, EU exit, climate change, and ministerial merry-go-rounds under the last government mean it is not now working as anyone would want. The system is also now inefficient and difficult for customers to navigate. It needs to work in a fundamentally different way, to become a system focused on delivering positive outcomes for nature and the environment and to be an aid not an impediment to sustainable growth.

In navigating this field, I hope that this review helps the government think through how to handle all this. I make some important and strong proposals, point at new directions in others. More generally, I hope it gives a set of ideas that can be debated by all stakeholders as we go forward looking to find ways to protect and enhance our natural world while allowing development to take place and customers of all kinds to have a better experience than they do now.

Thanks to all those who gave their time to talk to us - the regulators, environmental NGOs, developers, consultants, farmers, business groups, civil servants, politicians and academics. Thanks also to those who hosted me on various visits to get a better feel of how things work on the ground and in the field. And thanks to the excellent Defra team that supported me through this speedy review, helping coordinate meetings and helping me think things through, whilst never afraid to confront issues even when that led to criticism of their own department.

Dan Corry, April 2025

Key Facts

34	Defra agencies and public bodies[1]
3,500+	items of Defra legislation in force[2]
Over 150	items of farming related legislation covering animal health and welfare and the environment[3]
£1.8 trillion	total asset value of UK natural capital[4]
4	priority areas with legally binding targets relating to environmental improvement[5]
3.5 million	hectares of land and sea with legally protected status in England[6]
1.5 million	new homes planned for delivery[7]
150	major infrastructure projects pledged for delivery[8]
around 700	Defra services on gov.uk[9]
21 million	annual Defra customer transactions e.g. permitting, licensing, grants[10]
£9.5 billion	Defra's annual expenditure to improve and protect the environment while supporting food, farming and fishing industries[11]
£1 billion	The annual target for private finance being invested into nature's recovery in England, by 2030[12]
28%	of farmers who fully understand the purpose of regulations that apply to their farm[13]

[1] Departments, agencies and public bodies | GOV.UK
[2] DefraLex | Legislation.gov.uk figure also includes assimilated law
[3] Steve Reed speech at the 2025 Oxford Farming Conference | GOV.UK | 2025
[4] Report: UK natural capital accounts 2024 | ONS | 2024
[5] Environmental Improvement Plan: annual progress report 2023 to 2024 | GOV.UK Legally binding targets came into force in January 2023 for four priority areas including air quality; water; biodiversity; and resource efficiency and waste reduction
[6] Accredited Official Statistics: extent and condition of protected areas | GOV.UK | 2024
[7] Press Release: housing targets increased to get Britain building again | GOV.UK | 2024
[8] Press Release: ministers set to unleash biggest building boom in half a century | GOV.UK | 2024
[9] Includes the Animal and Plant Health Agency (APHA), Rural Payments Agency (RPA), Environment Agency, Natural England, Forestry Commission, Marine Management Organisation (MMO) and the Centre for Environment, Fisheries, and Aquaculture Science (Cefas)
[10] Modernising ageing digital services report | NAO | 2022
[11] Defra Annual Report and Accounts 2023 - 24Annual Report and Accounts | Defra | 2024
[12] The Green Finance Strategy and Nature Markets Framework: what they mean for you | GOV.UK | 2023
[13] Steve Reed speech at the 2025 Oxford Farming Conference | GOV.UK | 2025

Executive Summary

Environmental regulation should be about making sure we are protecting and enhancing our natural world. This includes considering and mitigating our impacts on the Barbastelle bats which roost close to HS2, the fish which swim close to Hinckley Point C, and the Kittiwakes which fly near to offshore wind turbines. But in mitigating our impacts, we shouldn't be rigidly protecting everything exactly as it is, at any cost. Our approach must also make ample space for innovation, development and growth. These aims should not be seen as in direct conflict – it is not and must not be seen as a zero-sum game, even if short run trade-offs will sometimes need to be made.

It is the contention of this review – based on the many conversations I have had and the evidence I have received – that our regulatory system is not working as well as it should to support either nature recovery or economic growth. To improve the system, I have evolved five themes, with recommendations supporting each. While holding back at this stage from major institutional change in terms of the boundaries of the regulators, these recommendations - when implemented, and in combination - would create a very different dynamic and set of behaviours by all actors which I believe would lead to better outcomes all round.

Understandably, environmental groups may be nervous about whether some of the recommendations – giving regulators more discretion, focusing more on value for money and growth, and considering changes to important regulations – could, if badly used, cause the environment and nature to suffer. But everything I have heard and learned during this review suggests that the current system does not work as well as it could for nature and the environment, let alone for growth. The temptation to, "always keep a-hold of nurse for fear of finding something worse" is natural but is surely not the right approach to be taken to deliver positive change.

The review is very clear that there must be guardrails around any 'constrained' discretion, that nature enhancement must be the core purpose of environmental regulation and that changes to regulations are to allow a wider perspective to be taken that is good for nature overall. We can and will do better for economic growth but also for nature and the environment if we reform the system. The recommendations will, in combination, work to reduce the high-cost and low-nature scenarios we have been seeing. This will depend on progress made in a few key areas, including; reforming how regulators operate, with increased focus on place-based outcomes using constrained discretion; greater focus from Defra on facilitating infrastructure projects in the right locations, with more emphasis on proportionality and cost-effectiveness of outcomes for nature and economic development; and potentially reforming the Habitats Regulations and how they are applied, whilst ensuring consistency with international obligations.

Focus on outcomes, scale and proportionality, with constrained discretion

Defra needs to deliver on both nature recovery and on economic growth, ensuring that neither are in conflict in the medium and long term, although there might be short term trade-offs. However, it is not currently effectively delivering on either, with risk averse decision-making heavily influenced by a long-entrenched precautionary principle[14] to protect the current landscape, inhibiting growth and missing the opportunity to deliver place-based nature renewal at scale. A new approach to the regulatory system is needed.

[14] The REUL Act 2023 abolished all EU 'interpretive effects' remaining on the UK statute book. This included general principles such as the precautionary principle. The legacy of this still underpins legislation Defra is responsible for, including the Habitats Regulations and legislation relating to pesticides, invasive species, water quality, animal welfare and animal disease control. The Environmental Principles policy statement is helpfully more specific on how this and four other principles should be applied when making policy.

There has been consistent feedback about Defra regulators focusing too much on 'micro' site specific outcomes rather than meaningful 'macro' outcomes that are right for the needs of a place and easy for people to understand. Protecting the status-quo of nature as it exists now, site by site, is unlikely to deliver the nature recovery needed linked to environmental targets, and it slows down development of housing and infrastructure. The alignment between the Government's more ambitious targets, particularly those in the Environmental Improvement Plan (EIP)[15], and the way regulation works, is far too weak, as these do not effectively translate into the regulations being used and subsequent on-the-ground regulatory practices.

Defra needs to find a way to more clearly set the outcomes it wants regulators to achieve, and let them get on with delivering these outcomes, using 'constrained discretion' and flexibility, within the law. Emphasis should be on achieving outcomes at scale, ideally using fit-for-purpose regulations. It also needs to find a way of ensuring clarity, from a spatial perspective, for how the multitude of nature and planning strategies come together in a way which local authorities and combined authorities can understand and deliver, in partnership with regulators. I recommend the following actions:

Recommendation 1: Introduce and publish **a refreshed set of outcomes for regulators**, linked to the Environmental Improvement Plan, with a clear accountability framework involving measurable outcomes that are monitored regularly by the department and reported on to Ministers and the public.

Recommendation 2: Publish **new Strategic Policy Statements for all regulators**, starting with the Environment Agency (EA) and Natural England (NE), with the aim of restating the Government's priorities and **mandating regulators to use constrained discretion** to deliver the desired outcomes, taking account of the place-based dynamics, within the law. These statements should be consistent across all regulators to avoid the current situation where different instructions create confusion and inefficiency. Regulators have indicated that the current lack of uniformity in guidance is counterproductive.

Recommendation 3: Establish a **Defra Infrastructure Board to accelerate the delivery of significant projects** by providing early and strategic perspectives on priorities and outcomes**.** This should include a rolling, forward-looking pipeline of Nationally Significant Infrastructure Projects and other wider complex projects where relevant; in-depth lessons learned from previous projects; working closely with developers to understand specific barriers; use of Imperative Reasons of Overriding Public Interest (IROPI) where needed to justify projects; and a transfer of legal risk from regulators to the department. This Board should ensure regulatory decisions balance costs and proportionality, escalating high-cost or disproportionate issues to Ministers. In the long term, the Government should improve and strengthen the outdated Regulators' Code, to clarify the role of regulators in considering the costs of compliance and proportionality for those being regulated.

Recommendation 4: Consolidate the **statutory duties, principles and codes of Defra regulators** to a core set, reflecting the Government's priorities and helping to provide discretion, e.g. a duty to deliver on/consider climate change/net zero. This will address the increase in regulator-specific and regulator-generic legal obligations and resulting 'regulatory overload' which has emerged over time, resulting in confusion for those who are regulated whilst also weakening accountability. Further work is needed here to scope the legal obligations and to ensure consistency with any wider approaches. Updated duties will need to be consistent with refreshed outcomes and strategic policy statements.

[15] Environmental Improvement Plan: annual progress report 2023 to 2024 - GOV.UK

Recommendation 5: **Support better cooperation between regulators** and appoint a **lead regulator for all major projects in which multiple regulators have an interest**. Some changes to regulatory structures or regulations would be necessary to grant a lead regulator authority to make decisions on behalf of other regulators. In the meantime, Defra should promote more information sharing and clearer processes for major projects. This should be agreed by regulators at the outset of projects, with emphasis on projects which represent significant private sector investment and/or have a high degree of complexity. This should include developing a framework that outlines how a lead regulator would operate in sharing information and supporting decision making, and the criteria for appointing a lead regulator. In addition, where projects interact with a single regulator, there should always be a named contact provided.

Recommendation 6: Assess potential for **regulators to have targeted pay flexibility so they can employ and retain staff, particularly specialist staff**. This should be considered as part of the Spending Review settlement and involve seeking specialist pay rates, or more flexible pay bands, especially for positions that require unique skills or are difficult to fill. This can help ensure that salaries are competitive with the private sector and experienced staff are retained.

Recommendation 7: Ensure regulators are devoting the **right balance of time and resourcing** to driving outcomes including growth. Defra should review this as part of the Spending Review settlement and ensure that operating models (a) are maximised to attract private sector investment; (b) allow regulators to recover the full cost of services, removing barriers which exist at present; (c) consider what new approaches are needed, especially in the EA to avoid staff being pulled away from essential regulatory functions to deal with emergencies.

Recommendation 8: Use Local Nature Recovery Strategies across the 48 strategy areas as a basis for building and embedding **'local Environmental Improvement Plans (EIPs)' which cover all elements of the national EIP, which Combined Authorities can work with local partners to deliver**. This consolidation of various local plans and strategies is a major task which should build on the opportunities of the Devolution White Paper to set out clear environmental plans at a local level.

Recommendation 9: **Review the funding streams connected to place-based delivery**, for example biodiversity net gain, to ensure they can be used as flexibly as possible to help local authorities and regulators deliver the Government's Environmental Improvement Plan and Local Nature Recovery Strategy ambitions.

Recommendation 10: Set up a **programme of experiments or sandboxes** where regulators identify projects where they will waive regulations and measure the results. Project scope will need to identify any barriers. This could be done, for example, with developers on specific sites to see how outcomes can be delivered. This approach can help stimulate a culture of experimentation and permission without undue risk, whilst avoiding any harm to the environment, with consideration given to legal powers needed where relevant. The approach would work well for areas where improvements are being sought, for example on nature recovery or port infrastructure developments, rather than on areas where risk is being managed, for example on biosecurity.

Untangle and tidy 'green tape' to ensure process-light and adaptive regulation

Multiple adjectives were used during this review to describe Defra regulations, including outdated, inconsistent, layered and labyrinthine. The volume (over 3,000) and complexity of the regulations and the amount of associated guidance makes life difficult for customers, affecting both their economic activity and their ability to comply. A whole industry of lawyers and consultants is in place to advise on how to meet these regulatory requirements. In addition, Defra's statute book is largely inherited from the EU and there is a strong view that the law is being applied to the UK in a significantly more risk-averse way than in other EU nations. Many of the regulations are out of date and duplicative.

While all these issues have clearly at times been frustrating and blocks to growth, we have only rarely had instances suggested to us where development was stopped by environmental regulation alone.

A bonfire of regulations is not the way forward. Instead, a targeted ongoing programme of streamlining and modernising is needed to ensure regulations are relevant to EIP targets, fit for the future and provide discretion to deliver good outcomes for nature and growth in a place. Without changing regulations to make them fit for climate change and to bring them up to date with modern ecology, the entire system will remain based on protecting what we have now, rather than looking to the future. Specific actions, and regulations to improve, are proposed. I recommend:

Recommendation 11: **Scope a rolling programme of reform for specific regulations**, being clear what can be done rapidly, where the quickest wins are and what will take longer. This review suggests areas of focus, but the department needs to work rapidly to scope them and establish the programme. Pending fuller scoping, early priorities for reform are: The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017; The Conservation of Habitats and Species Regulations 2017; The Reduction and Prevention of Agricultural Diffuse Pollution Regulations 2018; and The Environmental Permitting Regulations 2016. Some of this is already under way.

Recommendation 12: **Defra should swiftly develop plans to reform slurry application and storage** to help address diffuse water pollution from agricultural sources. This is likely to involve changing the Farming Rules for Water and wider regulations relating to slurry application and storage. This should aim for a single set of regulations which farmers can understand and comply with.

Recommendation 13: The work to update the **Environmental Permitting (England and Wales) Regulations 2016** to allow regulators more flexibility to take sensible, risk-based decisions should be accelerated because it is particularly important in supporting net-zero and circular economy priorities, for example facilitating the development of low carbon industrial infrastructure, and for ensuring remediated soil is not unnecessarily categorised as waste.

Recommendation 14: The recommended **programme of reform for specific regulations should also assess instances of overlap and duplication in the application of regulations,** with the aim of streamlining priority areas, for example in the marine environment, where multiple regulators are involved in assessing the same applications for port infrastructure. Both the regulations and the regulatory practices need examining and streamlining.

Deploy a fair and consistent 'thin green line' on regulatory compliance, with trusted partners earning autonomy

Multiple organisations provided examples of what they consider to be inconsistencies and failings in Defra's approach to licensing, permitting, monitoring, enforcement and sanctions. On licensing and permitting, Defra is considered too slow and lacking in transparency. On monitoring and enforcement, in some areas such as farming the historic complexity of regulation (150+ pieces) makes it challenging for farmers to comply with regulations on agricultural water pollution. In other areas, such as waste, the scale of waste criminality, including illegal dumping, waste sites and misdescription of waste, causes significant cost to the economy and undermines the economic activity of those who are compliant and trust in the system from customers. Defra needs to significantly sharpen the approach to how it issues licenses and permits, and how it then monitors and enforces compliance.

Any system of regulation requires public trust. At present, the complexity of the regulations contributes to failures in delivery and to gaining and retaining the public's trust. Improvements are needed to the regulatory system to make it clearer how to comply, and to support an increase in 'self-regulation' where appropriate which would also allow the regulators to use resources on the areas and organisations of most concern. I recommend:

Recommendation 15: **Allow trusted nature conservation and environmental partners and other organisations with good track records greater autonomy,** through memoranda of understanding (MOUs) and wider deployment of 'class licences' enabling them to move fast on restoring nature without applying to regulators for multiple permissions. Criteria would need to be developed to ensure that a consistent approach is taken for how autonomy is earned and then recognised and retained. This should include the previous track record of the organisation in applying for permits and/or licences, organisational compliance and positive real-world impact. Some monitoring will be needed and the MOU quickly and publicly rescinded if compliance is found wanting.

Recommendation 16: Defra should **rapidly review and rewrite its existing catalogue of compliance guidance to ensure it is fit for purpose, removing any duplication, ambiguity and inconsistency.** The aim of the review should be a streamlined, clear and up to date catalogue, signposted for each sector so that it is easy to navigate. Stakeholders and customers should be fully involved in this process.

Recommendation 17: Regulators should **commence more frequent risk-based monitoring, using real-time and digital approaches**. Clear strategic plans should be produced by each regulator for how they are taking a risk-based approach to monitoring, as well as their approach to making their monitoring information more accessible to the public, using live, up-to-date, data to support holding businesses and regulators to account.

Recommendation 18: Defra should **review the entire approach to enforcement and sanctions for environmental regulation** to bring as much consistency as possible in the approaches taken for different offences. This review should consider where changes to legislation might be needed and aim to create tougher penalties for deliberate non-compliance and persistent offenders, for example in the waste sector, with regulators able to issue speedy fines for minor offences without going through the Court system.

Recommendation 19: The Office for Environmental Protection (OEP) plays an important role in providing independent scrutiny to Government action on the environment. However, as with our general approach, the OEP must ensure its focus is on outcomes not just process. Their recent report on the previous Government's progress towards delivering the Environment Act targets helpfully supports the need to go further and faster. Consideration should be given as to **how the OEP can increase focus on the outcomes that are desired and support regulators to take more risk** to achieve those goals within the Government's wider objectives.

Recommendation 20: A short review is needed to **assess the current landscape of chargeable services and cost recovery across Defra, so it can go further in applying the polluter pays principle**, to support the Department in providing faster and more transparent digital services to customers.

Unlock the flow of private sector green finance to support nature restoration whilst better targeting public sector finance

Current flows of private finance into nature are estimated at £100 million per year, with potential for significant growth. The private sector is incentivised to invest in nature through nature obligations (biodiversity net gain (BNG) and the nutrients market); nature based economic infrastructure (nature-based solutions (NBS) and natural flood management); and voluntary markets (including the Woodland Carbon Code and the Peatland Code). Barriers to investment highlighted to this review include concerns about the complexity of the market, market oversight, governance and integrity.

Given the UK's financial and scientific expertise, Defra should look to set up a nature market accelerator body to incentivise investment in nature, to drive momentum towards the EIP target of mobilising at least £500 million of private finance per year into nature's recovery in England by 2027, and more than £1 billion per year by 2030. In addition to stimulating green finance, this review also proposes actions for ensuring flows of public finance are balancing food production and nature outcomes and actions to improve current schemes incentivising investment in nature. I recommend:

Recommendation 21: Defra should **explore launching a Nature Market Accelerator to bring much needed coherence to nature markets and accelerate investment**. This should be small, focussed and industry funded to provide independent assurance on the governance and standardised processes needed to guide and protect the interests of suppliers of nature-based projects; investors in biodiversity and ecosystem services; and other intermediaries and third parties involved in trading. Clear market rules and governance will be essential in delivering public goods and services. Further functions could include more hands-on intervention including identifying projects and matching of projects to investors.

Recommendation 22: Given the UK's financial and scientific expertise, Government should **publish a call for evidence on further opportunities to increase private investment into nature from economic sectors who impact upon or benefit from our shared natural capital**, for example through the role nature-based solutions (NBS) can play as economic infrastructure.

Recommendation 23: Proposed nature-based solutions, such as wetland mosaics for flood alleviation, currently go through full planning permission, equivalent to major infrastructure, which increases time and cost. Defra should **conduct a six-month sprint, with industry, on removing the barriers to using NBS to flooding and pollution** including planning, benefit-to-cost ratios, orders of magnitude of risk, biodiversity net gain, and licensing, and then propose a way of reducing or removing these. Scientific evidence is still emerging on the potential application of NBS to tackling pollution, however there are examples of constructed wetlands reducing phosphorous in treated wastewater. A 'state of the science' assessment should consider the very latest evidence on the viability of NBS in this context.

Recommendation 24: Defra needs to quickly **evaluate and improve the current compliance nature market schemes (including biodiversity net gain (BNG) and nutrients credits)** to make any early adjustments needed to maximise their delivery. The schemes should be streamlined and simplified, with consideration given to whether there are different ways to aggregate BNG credits to help local authorities, farmers and landowners deliver wider environmental improvements.

Recommendation 25: Following the agricultural transition, there is an opportunity to **set out publicly how rural grants and payments can be used by farmers and landowners, in combination with green finance, to balance food production and nature outcomes.** The production of Defra's 25-year farming roadmap will be an opportunity to do this. This should set out where grants and payments have delivered multiple outcomes, how they can be integrated with green finance, and where they will need to continue to evolve to meet the needs of farmers and food production whilst delivering nature recovery outcomes.

Shift regulators to be more digital, more real-time and more innovative with partners

There is a clear sense that Defra regulators continue to have analogue systems, combined with legacy digital systems, in a fast-moving digital age which prevents them from sharing their data with each other and their customers, whilst weakening their monitoring of outcomes and making their service to customers slow to the point of failure. The technology which now supports our everyday lives, including satellites, sensors and Artificial Intelligence (AI), needs better harnessing to drive simplification and streamlining into the way in which Defra regulates. Defra's digital transformation needs to be turbo-charged, whilst also geared to delivering new processes against outcomes for customers.

Opening data to the public is essential to foster transparency and trust. This openness should be complemented by welcoming, not fearing, citizen science alongside a strong emphasis on accountability to Parliament to ensure regulatory actions are scrutinised and aligned with public interest. Further to this, the boards overseeing digital and other transformations need to be creative, outcome focused and not risk averse. I recommend:

Recommendation 26: **Two 'digital champions'** (a Minister and a senior official) **should be appointed to accelerate the digital transformation of Defra and its regulators**, setting priorities for investment and **publishing an external plan within the next six months** on how the customer experience and regulatory outcomes will be improved by the changes, and where any remaining paper processes will be removed. This should also cover how Defra will increase the transparency of the work of regulators by making live monitoring information accessible to the public, so they can see for themselves how regulators are improving the environment in their area. External experts should help guide this work.

Recommendation 27: Defra needs to build on the early progress being made to **deliver a permitting portal which will show the progress of applications and increase transparency,** by continuing to accelerate this work and **ensuring consistency of approach across regulators**, with a clear business case relating to the economic growth benefits from the investment. Staged delivery should be put in place across 2025 and 2026.

Recommendation 28: **Use the momentum of the Defra Group AI Strategy 2030** to identify three high-ambition applications of AI which will (1) build Defra's role as a digital regulator, (2) support both economic growth and nature recovery outcomes, and (3) have an economy of scale across regulators. These applications should be generated from a cross-organisational 'bottom up' approach and be supported by Defra's Ministerial 'digital champion'. These applications could include, for example, applying AI to the geo-spatial information held by Defra to assess habitat changes; auto-filtering of permit or license applications, or using monitoring information to automatically trigger inspections.

Recommendation 29: Defra should **fast track the sharing of data across regulators and externally, making external commitments to do more.** Understanding and interrogating the huge amount of existing data Defra already holds as an organisation should be a high priority in Defra's digital and data transformation strategy, with a much greater presumption on information sharing, and increasing the amount of timely (released as close to real-time as possible), sustained and useful (minimum level of aggregation) data made publicly available. This will build organisational efficiency and an economy of scale, whilst building trust in our regulatory landscape as 'citizen scientists' have increasing access to our data.

Next steps

While this review is not calling for major institutional change or for a bonfire of regulations, it is calling for a radical repositioning and repurposing of environmental regulation. As system theory shows us, if you can work out the key inhibitors and target them, then a group of 'smaller' changes can fundamentally change the way a system works.

The five strategic themes put forward by this review, supported by 29 recommendations, will have a system level impact, transforming the regulatory landscape and the culture of those operating within it. This transformation requires both immediate action and long-term commitment. The aim is for **recommendations which can improve how the regulatory system operates in the short term, while pointing to where longer-term reform of underpinning regulations is needed**. These actions will produce a shift in the regulatory system towards becoming more of a partner, rather than an obstacle, in achieving sustainable economic growth, whilst delivering improvements to our natural world. Wider benefits will include an improved customer experience, with less valuable time spent trying to comply, and increased public sector efficiency with regulators no longer tripping over each other. The table below highlights the recommendations which will most help growth, nature and customers.

	Delivery Time	Impact Time
Five actions to help growth	Green – Fast Amber – Medium Red – Slow	
Recommendation 2: Publish new Strategic Policy Statements for all regulators restating the Government's priorities and mandating regulators to use constrained discretion to deliver desired outcomes, considering place-based dynamics.		
Recommendation 10: Set up a programme of regulatory sandboxes where regulators are able to waive regulations and measure the results, to facilitate cultural change within environmental regulation to be more positive towards innovation		
Recommendation 11: Scope a rolling programme of reform for specific regulations (e.g., Habitat Regulations, and Water Framework Directive), focussing on those that can be achieved rapidly.		
Recommendation 3: Establish a Defra Infrastructure Board to accelerate the delivery of significant projects. This should include a rolling forward-looking pipeline of Nationally Significant Infrastructure Projects and other projects.		
Recommendation 21: Improve coherence within nature markets and accelerate investment through a Government Nature Market Accelerator.		
Five actions to help nature		
Recommendation 1: Introduce and publish a refreshed set of outcomes for regulators, linked to the Environmental Improvement Plan, with a clear accountability framework involving measurable outcomes.		
Recommendation 15: Allow trusted nature conservation and environmental partners and other organisations with good track records greater autonomy, through MOUs.		
Recommendation 17: More frequent risk-based monitoring, using real-time and digital approaches where possible, with information more accessible to the public.		
Recommendation 18: Tougher penalties for deliberate non-compliance and persistent offenders, for example in the waste sector, with regulators able to issue speedy fines for minor offences.		
Recommendation 23: A six-month sprint, with industry, on removing the barriers to using Nature-Based Solutions to flooding and pollution.		
Five actions to help customers and stakeholders		
Recommendation 5: A single lead environmental regulator for every major project (with lead contact), with more co-design of solutions at the outset.		
Recommendation 12: Reform Farming Rules for Water and provide a new approach to slurry application and management to help address diffuse water pollution, creating a circular economy for nutrients and boosting farming productivity.		
Recommendation 13: Review and reform of the permitting system and more use of District Licensing approaches.		
Recommendation 16: More support to ensure compliance via improved access to advice and simplified guidance, alongside higher penalties for repeating offences and those wilfully non-compliant.		
Recommendation 27: Improved technology and transparency to allow customers to see in real-time the progress of their applications, appeals, etc.		

Table 1: Actions to help growth, nature and customers mapped against the time it takes to deliver each recommendation and the time it takes for the impact to be realised once delivered

Introduction to the review

This independent review of Defra's regulatory landscape was commissioned in October 2024[16] by the Secretary of State for Environment, Food and Rural Affairs as a 'short and sharp' review. The terms of reference required this review to examine whether Defra's regulatory landscape is fit for purpose and to develop recommendations for ensuring that Defra's regulators and regulations are driving economic growth while protecting the environment. The review also considers the customer and stakeholder experience and the efficiency of regulation.

The scope of this review includes all of Defra's agencies and public bodies with regulatory responsibilities, including the Animal and Plant Health Agency (APHA); the Centre for Environment, Fisheries and Aquaculture (Cefas); the Drinking Water Inspectorate (DWI); the Environment Agency (EA); the Forestry Commission (FC); the Marine Management Organisation (MMO); Natural England (NE); the Office for Environmental Protection (OEP); the Rural Payments Agency (RPA); the Sea Fish Industry Authority (Seafish); the Veterinary Medicines Directorate (VMD); and the Water Services Regulation Authority (Ofwat). While the review covers EA, NE, FC, MMO and OEP in more detail in some areas, it considers the entire regulatory landscape rather than providing a detailed assessment of each organisation.

The review was aware of several other strands of work in government that were relevant including the Planning and Infrastructure Bill, the Devolution White paper and a review of the water sector and its regulation led by Sir Jon Cunliffe. I have tried to complement this work and avoid duplication, especially on the water review.

This report puts forward five strategic themes, supported by 29 wide-ranging recommendations which, if implemented carefully, would have a system level impact, raising the collective performance of how Defra's regulators and regulations are delivering both economic growth and nature restoration.

[16] News Story: Dan Corry appointed to lead Defra regulation review | GOV.UK | 2024

How the review has been carried out

An initial desk-based assessment was conducted, in combination with a roundtable meeting with a breadth of regulatory experts, to scope the review. This was followed by semi-structured interviews with senior officials from across Defra's arms-length bodies (ALBs), and a wide range of external stakeholders, to gain input across the three main lines of inquiry of economic growth, customer and stakeholder experience, and efficiency. Given the breadth of this review, input was provided by more than 80 individuals and organisations involved in farming, food and drink, fishing, water, environmental services, waste, infrastructure, offshore wind, nuclear power, ports and the marine environment, environmental organisations, local authorities, financial services, nature conservation, management consultancy, law, and academia.

The review has also benefited from a roundtable discussion with environmental groups and has received a wide range of written input. In addition to the targeted-interviews and roundtable discussions, I also conducted three site visits, including to a Special Protection Area (SPA) with NE in Berkshire; a low carbon industrial development with the EA in Cheshire; and a National Trust estate in Oxfordshire spanning 7,000 acres with 11 farms. I have acted as lead reviewer, with the support of a small review team of Defra officials.

Why we regulate and what 'good' looks like

Regulation involves the use of rules, incentives and penalties, to influence the behaviours of individuals and organisations to deliver important societal, economic, environmental and wider objectives. When regulation is correctly designed, applied and enforced, it is an important and effective public policy tool.

Governments - especially Labour governments - are often accused of wanting to regulate with no regard to the consequences, ultimately tying everyone up in so much red tape that economic activity comes to a halt. Just about everyone has a story of regulations and regulators stopping them doing what they want to do, as quickly as they want to.

But we don't regulate just for the sake of it. Because everyone also has a story about regulation that they value – regulation that that has stopped their neighbour from doing something that would adversely affect their lives; regulation that puts in measures to help avoid fires; regulations which ensure a level playing field for businesses to compete; regulations which maintain standards in public services; and, of course, regulation that makes sure we protect vulnerable animals, birds, hedgerows, habitats and rivers. Effective regulation should be something to be proud of.

The UK's regulatory framework has evolved and increased over time, including being influenced by our former membership of the EU. Whilst much of this regulation is delivering good outcomes, there is undoubtedly some which - whether in the way it is framed or implemented – does not efficiently, if at all, deliver the outcomes we might want and imposes unnecessary and increasing costs on businesses and other stakeholders, stymieing innovation and economic activity. It has been suggested by some that a 'regulatory risk aversion ratchet' is now in place, with a

proliferation of regulation driven by a culture of risk aversion and lack of incentives to remove redundant regulations[17].

A balanced perspective is needed here, to ensure the regulatory rulebook does not remain static and bloated but remains agile and dynamic to deliver the real-world outcomes needed. This should not be about scrapping all regulations but about designing and continuously improving regulation against outcomes. As the outcomes needed change, the regulatory approach and intervention should adjust, to ensure regulation is only being applied where it is needed. The full spectrum of approaches should be considered, from lighter touch provision of information through to more direct enforcement involving penalties and fines (Figure 1).

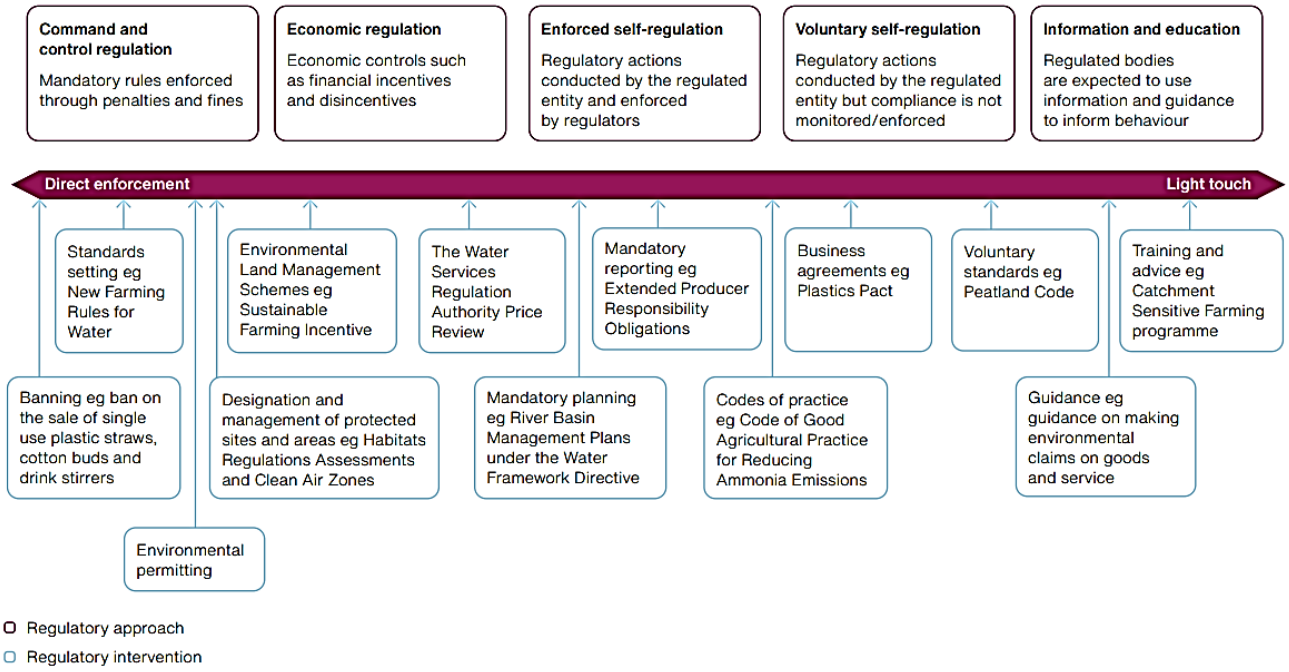


Figure 1: Approaches and interventions used within the environmental regulatory landscape[18]

Applying the Better Regulation Framework

In 1997, the Labour government established the Better Regulation Task Force[19] to end the proliferation of poorly designed regulations that impose excessive costs on business and inhibit productivity and growth. Today, its legacy is the Better Regulation Framework which is the system used to understand and mitigate the impacts on businesses and households[20]. Key components include an options assessment setting the rationale for intervention; a regulatory impact assessment; and post-implementation reviews (PIRs) considering whether the regulation could be improved. However, there is increasing concern that the process has become too technical, with impact assessments treated as just an item on the 'to do' list[21]. There is little point in having regulations if you don't keep reviewing them and reforming them to make sure they are working as intended. As set out by the National Audit Office, Defra must do much better through its PIR programme to build regulatory monitoring and evaluation capability, supporting continuous improvement of regulations.

[17] The Rise of the Regulators: Reversing the risk aversion racket report | Policy Exchange | 2024
[18] Regulating to achieve environmental outcomes report | NAO | 2023
[19] Principles of Good Regulation | Better Regulation Taskforce | 2003
[20] Better Regulation Framework Guidance | DBT | 2023
[21] Losing Impact: why the Government's impact assessment system is failing Parliament and the public | House of Lords Secondary Legislation Scrutiny Committee | 2022

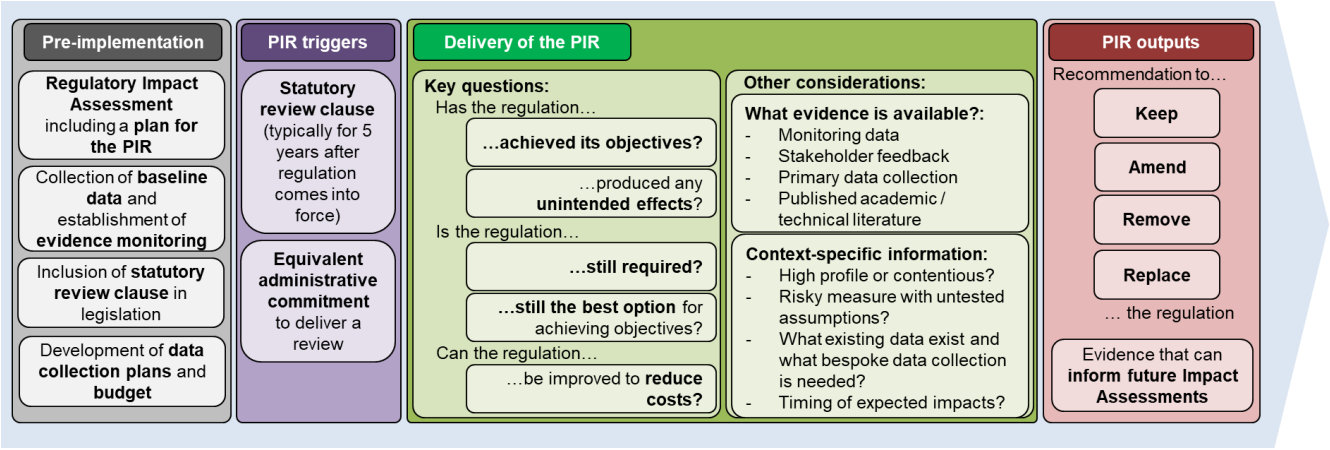


Figure 2: Regulatory continuous improvement using post implementation reviews[22]

Other regulatory tools: Regulators' Code and Principles of Good Regulation

The number and complexity of the codes, duties and principles that regulators have to adhere to is all a bit of a mess, so it is unsurprising that they tie themselves in knots navigating them. Updating and simplification is clearly needed.

The Regulators' Code came into statutory effect in 2014 under the Legislative and Regulatory Reform Act 2006 (LRRA)[23]. It provides a principles-based framework for how regulators, including local authorities, should engage with those they regulate. While most Defra regulators have public statements on compliance, the real-world impact of the code is questionable, particularly in minimising the cost of compliance and ensuring proportionate approaches. Awareness of the code amongst stakeholders is extremely low, raising questions about the need to strengthen and modernise it to better support regulators deliver outcomes.

The Principles of Good Regulation, also from the LRRA[24], state that regulatory activities should be transparent; accountable; proportionate; consistent and targeted only at cases in which action is needed. However, the consistency of application is questionable, particularly as some but not all of these are baked into the Better Regulation Framework. There is legal debate about the confusing proliferation of principles and their legal status[25], especially following the publication of multiple sets of principles and behaviours of smarter regulation in 2022[26] and 2024[27] [28].

What a good regulatory system looks like

As outlined earlier, regulation is ultimately a mechanism via which public policy objectives[29] can be delivered. A 'good' system should ideally involve full delivery of the policy's intended outcomes, to the intended timeframe, avoiding delivery of any unintended outcomes.

[22] Post Implementation Process summary from internal Defra guidance with information synthesised from HMT and DBT guidance
[23] Legislative and Regulatory Reform Act 2006
[24] Legislative and Regulatory Reform Act 2006 | Explanatory Notes
[25] Article: Smarter Regulation: A Proliferation of Principles | UK Constitutional Law Association | 2024
[26] Report: The Benefits of Brexit: How the UK is taking advantage of leaving the EU | HM Government | 2022
[27] Report: Smarter regulation: Delivering a regulatory environment for innovation, investment and growth | DBT | 2024
[28] Growth Duty Statutory Guidance Refresh | DBT | 2024
[29] LodgeWegrichManagingRegulationCh1.pdf

Regulation, like all government mechanisms, should be seen as a system which constantly flows through goal setting, implementation and continual improvement. Defra's regulatory system needs substantial change to improve. Throughout this review I have focussed on proposing meaningful changes, at different points in the system, to make it work better. The below diagram presents the headline proposals from the review, and where in the system they should be implemented.

Embedding review headlines

1. Focus on outcomes, scale and proportionality, with constrained discretion.
2. Untangle and tidy 'green tape' to ensure process-light and adaptive regulation.
3. Deploy a fair and consistent 'thin green line' on regulatory compliance, with trusted partners earning autonomy.
4. Unlock the flow of private sector green finance to support nature restoration whilst better targeting public sector finance.
5. Shift regulators to be more digital, more real-time and more innovative.

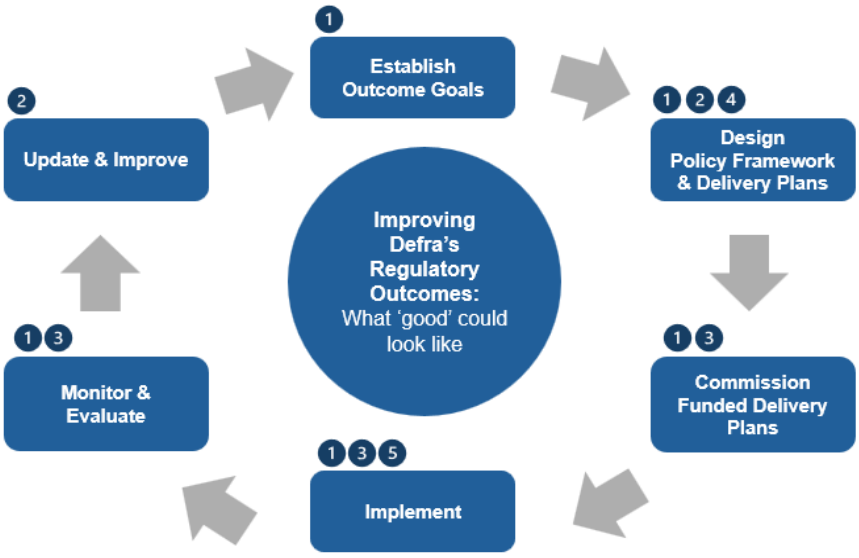


Figure 3: What a 'good' regulatory system looks like linked to the review headlines

The Growth Mission and central role of Defra

Regulation plays an essential role in driving economic growth and it is therefore not surprising that the Chancellor has called for the approach to regulation to be more dynamic[30], to help support emerging sectors, modernise existing ones, and foster innovation, with co-creation of regulation between businesses and regulators as well as other stakeholders. As the Government department responsible for improving and protecting the environment, alongside supporting food, farming and fishing industries, Defra plays a major role in our economy and in people's day-to-day lives, from the food we eat, and the air we breathe, to the water we drink. So, thinking about how its environmental regulation affects growth is essential.

Nature is an essential asset which brings value to the economy. The Dasgupta Review[31] made clear the importance of understanding and accepting that our economies are embedded within nature, not external to it. The total asset value of UK ecosystem services that we can currently value was estimated £1.8 trillion in 2022[32].

We need to view nature as intrinsic and vital to sustainable economic growth, rather than a barrier. But in addition to this focus on natural capital, Defra regulations and regulators also play vitally important economic and growth roles in areas like:

- **Productivity, competitiveness and trade:** Clear and proportionate regulation increases investor confidence and creates a vital level playing field for business.
- **Innovation:** Regulation can, and often does, support the development of new sectors. This review considers the role it could play in Green Finance and the circular economy.
- **Infrastructure and investment:** Reforms to the planning system and environmental regulation can help unlock investment in modern, climate compatible and clean infrastructure.
- **Skills:** Regulation can help develop a workforce skilled in sustainable practices and green technologies, for instance by setting compliance requirements for sustainability.

This review will set out evidence of where is it clear that there is more that Defra and its regulators can be doing, across its regulatory landscape, to drive economic growth, secure private sector investment at the same time as ensuring nature recovery.

[30] Mansion House 2024 speech - GOV.UK
[31] Final Report: The Economics of Biodiversity: The Dasgupta Review | GOV.UK | 2021
[32] Report: UK natural capital accounts 2024 | ONS | 2024

1. Focus on outcomes, scale and proportionality, with constrained discretion

1. Focus on outcomes, scale and proportionality, with constrained discretion

Introduction

The review has heard feedback that Defra's regulators focus too much on the protection of 'micro' site specific outcomes, driven by highly specific regulations – something that most regulators also felt. This extremely precautionary approach limits their discretion to make choices about how the regulation is applied in a way that still delivers protection but balances that against wider objectives such as job creation, sustainable growth and nature enhancement. Consequently, this rigid focus on protection can end up being a barrier to boosting nature recovery and enhancement.

Giving more discretion to regulators to focus on delivering an outcome, not a specific output, would have great advantages. It would allow regulators to think about the needs of the environment in a place, working with strategies and plans that have been developed nationally and locally and allow some discretion on how those outcomes could be delivered. That could unlock wider benefits, for instance if you can maximise the nature benefits in protected sites, you could then make some trade-offs elsewhere, allowing development of infrastructure and housing more quickly in one area because nature is being restored and enhanced in another.

Constrained discretion would involve allowing regulators greater autonomy to be flexible when determining how best to deliver the outcomes most needed in a local place. The current regulations provide only a limited basis for constrained discretion, but additional backing from Ministers and future legislative changes could facilitate this approach. Boards could and should have a role in holding their regulators to account in making outcome-based approaches by developing outcome focused strategies. Developing performance indicators that are focused on delivering outcomes will enable this. This may require re-evaluating Board composition to ensure outcomes are at the centre of regulatory decisions.

However, this sort of approach comes with risk. There are species and features of the natural environment that need protecting or improving, and we need to be confident that allowing regulators more discretion will still deliver benefits for the environment, which is why any discretion must be constrained and monitored transparently. This section contains some thoughts on why a move to outcome-based regulation is needed and how this might be done while protecting and restoring the environment.

The case for change

Environmental outcomes

The Government has a set of ambitious targets that it wants to deliver on the environment[33]. Some of these are set in statute and some are in a series of wider plans or strategies being reviewed by this Government, set out in table 2.

In addition, some regulations state specific targets or standards that must be delivered, which do not clearly relate to targets or ambitions in other places. For example, this review heard that there is confusion around the relationship between the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 targets (to achieve and maintain good ecological status in 75% of our water bodies by 2027)[34], the Farming Rules for Water[35], and a response to the Rapid Review of the Farming Rules for Water Statutory Guidance[36]. The links between targets, plans,

[33] Report: Environmental Improvement Plan | Defra | 2023
[34] Water targets Detailed Evidence report | Defra | 2022
[35] Statutory Guidance: Applying the farming rules for water | GOV.UK | 2022
[36] Response to Rapid Review of the Farming Rules for Water Statutory Guidance | Wildlife and Countryside Link | 2024

regulations and guidance that regulators are enforcing can be unclear and can make it difficult to know which outcome takes priority, in practice.

A stronger and clearer link is needed between targets and plans set nationally and the activity being carried out to protect the environment and support development locally. This could be done by explicitly creating a link between the specific regulations involved in delivering Government plans and ambitions for the environment, as these regulations are updated, given they have evolved significantly since the regulations were developed by the EU. Creating a link in legislation, discussed later, would allow regulators to pull in the same direction as Government plans and strategies without facing judicial review for not implementing the 'letter of the law'.

Category	Environment Improvement Plan 2023: Long-term Environment Act targets
Environment Act	• **Trees**: Increase tree canopy and woodland cover from 14.5% to 16.5% of total land area in England by 2050 (from 2023 baseline). • **Biodiversity**: Restore or create more than 500,000 hectares of wildlife-rich habitat outside protected areas by 2042 compared to 2022 levels. Halt the decline in species abundance by 2030. Ensure species abundance in 2042 is greater than in 2022, and at least 10% greater than 2030 levels. • **Water Quality**: Reduce nitrogen, phosphorous, and sediment pollution of the water environment from agricultural land by 40% by 2038 (from 2018 baseline).
Net Zero	• **Biomass Planting**: Short Rotation Forestry, Short Rotation Coppice, Miscanthus. • **Peatland Restoration**: Restore 280,000 hectares of peatland in England by 2050. Peat-forming and peat-dependent habitats (including wetlands and upland heath) – upland restoration, lowland cropland restoration, lowland grassland restoration**.** • **Responsible Management of Lowland Peat**: e.g., paludiculture. • **Creation of Silvoarable Systems**: Agroforestry on 10% of arable land by 2050. • **Tree Planting**: Aligned with the Environment Act trees target. • **Reduction in emissions:** 68% reduction in emissions by 2030, as part of its Nationally Determined Contribution towards the Paris Agreement.
Environment Improvement Plan 2023 (currently being reviewed)	• **Biodiversity**: By the end of 2030, we will halt the decline in species abundance; By the end of 2042, we will increase species abundance so that it is greater than in 2022 and at least 10% greater than in 2030; By the end of 2042, we will restore or create in excess of 500,000 hectares of a range of wildlife-rich habitats outside protected sites, compared to 2022 levels; By the end of 2042, we will improve the Red List Index for England on species extinction compared to 2022 levels. • **Marine**: Ensure that 70% of designated features in Marine Protected Areas (MPAs) are in favourable condition by 2042, with the remainder in recovering condition. • **Woodland**: Increase tree canopy and woodland cover to 16.5% of land area by 2050. • **Air Quality**: By the end of 2040, we will achieve a maximum Annual Mean Concentration Target (AMCT) of 10 micrograms of $PM_{2.5}$ or below per cubic metre (µg/m3); By the end of 2040, we will reduce population exposure to $PM_{2.5}$ by 35% compared to 2018 levels. • **Water**: Reduce nitrogen, phosphorus and sediment pollution from agriculture into the water environment by 40% by 31 December 2038, compared to a 2018 baseline; Reduce phosphorous loadings from treated wastewater by 80% by 31 December 2038, against a 2020 baseline; Halve the length of rivers polluted by harmful metals from abandoned mines by 31 December 2038, against a baseline of around 930 miles (or 1,500km); Reduce the use of public water supply in England per head of population by 20% from the 2019 to 2020 baseline reporting year figures, by 31 March 2038. • **Resources and Waste**: By 31 December 2042, the total mass of residual waste excluding major mineral wastes in a calendar year does not exceed 287 kg per capita.
Food Production	• **Previous Government's Commitments**: Maintain food production at 75% of what we consume for foods producible in the UK. Maintain production at 60% of what we consume overall, while investing in thriving agricultural businesses.
Housing Development	• **House building**: Build 1.5 million homes a year.
Energy	• **Solar**: 70 gigawatts of combined ground and rooftop solar capacity by 2035.

Category	Environment Improvement Plan 2023: Long-term Environment Act targets
Overarching	• **Principles Policy**: Legal duty on Ministers to have 'due regard' to the environmental principles policy statement when making policy.
Biodiversity Net Gain	• BNG is a key policy under the Environment Act, requiring developers to deliver a 10% net gain for biodiversity on new major developments from 12 February 2024, and on small sites from 2 April 2024.

Table 2: Targets and commitments that Defra and its regulators must deliver

Making changes to regulations takes time. In the meantime, the Government could give regulators 'constrained discretion' now, i.e. more autonomy and ministerial backing to act in accordance with their environment targets and plans by setting clear outcomes and finding ways to enable regulators to use flexibility, within the law, to achieve these outcomes at scale. Good examples of where this approach has been achieved, resulting in both the restoration of nature and economic development, include the Thames Basin Heaths, outlined below. These examples show the benefits of applying a flexible and innovative approach to delivering outcomes, at scale.

Case study: Thames Basin Heaths Special Protection Area (SPA) (visited by review)

The Thames Basin Heaths SPA includes areas of heathland across Surrey, Hampshire and Berkshire and is internationally important habitat for three rare species of bird, the Dartford warbler, the woodlark and the nightjar. These protected species are affected by disturbance from people and their pets using the area for recreational purposes. Due to this, NE objected to all planning applications for a net increase in residential development within 5km of the SPA, affecting 11 Local Authorities.

To facilitate housing development while complying with the Conservation of Habitats and Species Regulations 2017, a regional assembly (created 1998) of affected Local Authorities, with regulators including NE and FC, established the Thames Basin Heaths Joint Strategic Partnership Board to agree a strategy for long-term protection of the SPA.

The strategic approach developed[37] focused on ensuring that new residential development (between 400m - 5km of the SPA) avoided adverse effects by providing Suitable Alternative Natural Greenspace (SANG) as alternative recreation sites; funding strategic access management and monitoring measures (SAMM) on the SPA; and having a presumption against residential development within 400m of the SPA boundary. Any new developments are required to make financial contributions toward SANG and SAMM, which may be used to fund the staffing costs for monitoring and administration. Outcomes from the approach include greater certainty and confidence for developers; all three bird species are now at higher numbers than when the site was classified; and funding from developer contributions has helped to mitigate the risk of disturbance, through 80 new or improved green spaces and 15 wardens and an education programme.

To achieve more flexibility to act with discretion and co-creation, the following actions are recommended.

[37] Thames Basin Heaths Special Protection Area Avoidance Supplementary Planning Document | Surrey Heath Borough Council | 2019

Recommendation 1: Introduce and publish a **refreshed set of outcomes for regulators**, linked to the EIP, with a clear accountability framework involving measurable outcomes that are monitored regularly by the department, reported on to Ministers and made public.

Recommendation 2: Publish **new Strategic Policy Statements for all regulators**, starting with the EA and NE, with the aim of restating the Government's priorities and **mandating regulators to use constrained discretion** to deliver the desired outcomes, taking account of the place-based dynamics, within the law. These statements should be consistent across all regulators to avoid the current situation where different instructions create confusion and inefficiency. Regulators have indicated that the current lack of uniformity in guidance is counterproductive.

Speed and proportionality

Defra's regulators, including the EA, NE and FC, have roles as statutory consultees on planning applications, where there is a requirement set out in law[38] to consult a specific body[39]. For example, NE received 17,761 planning application consultations 2022-23, mostly relating to impacts on designated sites[40]. At times regulators have to reject planning applications due to non-compliance of very specific regulations, even if the overall benefits of the site development are significant. For example, the current debate around the proposed dual carriageway in Norfolk which focused primarily on the impact on the barbastelle bats is a good example of where a regulator is required by legislation to focus on a single issue, which removes scope for a wider debate.

Case study: The proposed Norwich Western Link (NWL) dual carriageway

Norfolk County Council had, until recently, been seeking approval from the Government to build a 3.9-mile dual carriageway road, connect the A47 to Broadland Northway to the west of Norwich. The new road would have completed a fully dualled orbital route around the city, taking traffic off unsuitable local roads and out of communities, with a range of expected economic benefits for Norfolk including supporting business growth and attractiveness to investors. Approval from the Department for Transport was secured in Oct 2023, and the planning application was submitted to the county planning authority April 2024. The project has now been withdrawn[41], primarily due to the potential impact on one of the largest populations of barbastelle bats in the UK, and NE not issuing a European Protected Species licence, due to a lack of information provided about how concerns relating to bats would be managed.

This is a good example of a complex project where the needs of nature and infrastructure come together in an adversarial way. There must be scope for a different approach which allows an earlier and more strategic discussion about how the needs of both can be met, with strategic consideration of all the, issues, risks and opportunities. Some of this can be unlocked via improvements already being planned to streamline the Environmental Impact Assessment (EIA) regimes[42], particularly for nationally significant infrastructure projects and town and country planning, and through improvements to the four which are owned by Defra (agriculture, forestry, land drainage improvement, and marine works).

[38] The Town and Country Planning (Development Management Procedure) (England) Order 2015
[39] Guidance: Consultation and pre-decision matters | MHCLG | 2022
[40] 2022-23 Annual report to the Department of Levelling Up, Housing and Communities | NE | 2023
[41] Norfolk County Council withdraws plans for Norwich Western Link | BBC News | 2025
[42] Government goes further and faster on planning reform in bid for growth | GOV.UK | 2025

Proportionality of the solutions being applied to achieve compliance with Defra's regulations has been raised not just as part of the review but more generally, in particular focused on the "bat tunnel", which will run for around 1km to avoid HS2 causing harm to a colony of the rare and protected Bechstein's bat. The expected £100m cost likely means around £300,000 could be spent protecting each protected bat[43], however the exact costs of track and tunnel need to be disaggregated. Some have suggested that a fraction of this money could have been used to substantially improve habitats for the bats elsewhere, potentially resulting in a net bigger impact on their conservation. As the Chancellor stated during a recent speech on kickstarting growth, this sort of decision has made delivering major infrastructure in the UK, "far too expensive and far too slow"[44]. This may be an extreme example, but it highlights a wider point about whether the solution applied, though guaranteed to work, was proportionate in terms of cost, to the outcome delivered.

Often developers - if not completely put off from ever starting by the fear of the costs and delays of regulation - prefer to pay more money to be sure they can have a water-tight solution which is guaranteed to comply with the regulations and not risk any challenge or delay. This can lead to expensive and time-consuming solutions. It also means that there is a failure by developers and regulators to speak at an early stage in the development process to design out problems which might later involve an expensive solution or to find other more cost-effective solutions. Defra should actively engage with developers, housebuilders, and other stakeholders on both general issues and major infrastructure projects. This open dialogue will help identify and overcome barriers, streamline processes and foster a cooperative approach to achieving our environmental and economic goals.

To ensure a wider discussion of significant infrastructure projects with Defra involvement, including strategic consideration of the issues, risks and opportunities, and how the needs of nature and infrastructure can best be balanced, the following action is recommended.

Recommendation 3: Establish a **Defra Infrastructure Board to accelerate the delivery of significant projects** by providing early and strategic perspectives on priorities and outcomes**.** This should include a rolling, forward-looking pipeline of Nationally Significant Infrastructure Projects and other wider complex projects where relevant; in-depth lessons learned from previous projects; working closely with developers to understand specific barriers; use of Imperative Reasons of Overriding Public Interest (IROPI) where needed to justify projects; and a transfer of legal risk from regulators to the department. This Board should ensure regulatory decisions balance costs and proportionality, escalating high-cost or disproportionate issues to Ministers. In the long term, the Government should improve and strengthen the outdated Regulators' Code, to clarify the role of regulators in considering the costs of compliance and proportionality for those being regulated.

[43] Revealed: how tunnel through the woods cost £300,000 per bat | The Times | 2025
[44] Speech: Chancellor vows to go further and faster to kickstart economic growth | GOV.UK | 2025

Case study: Sheephouse Wood Bat Protection Structure[45] - the 'bat tunnel'

Sheephouse Wood in Buckinghamshire is a 56-hectare woodland, home to several different bat species, including the most northerly known colony of the protected Bechstein's bat. A bat protection structure is planned to run for around 1km alongside the wood, to mitigate the impact of the HS2 railway on around 300 protected bats. The HS2 chairman has indicated that the structure is due to cost £100 million, and that the consent from NE has been one of 8,276 consents needed from public bodies to build the railway between Euston and Curzon Street in Birmingham[46]. NE was consulted by HS2 on whether the proposal designed to mitigate the impact of the railway on the bats was sufficient to comply with environmental law, who advised that it was[47]. The outcome of the bat tunnel will be a structure which has an extremely high cost, which could arguably have been better spend protecting nature in another way.

There are potentially two issues at the heart of the bat tunnel issue. Firstly, there are clearly wider ongoing delivery and cost management of relating to HS2 that are part of the problem, which is why a review is ongoing into HS2 delivery and spiralling costs[48]. It seems that a low-risk, but high-cost approach has been adopted here. Secondly, there is an issue with the disproportionate approach taken to protecting and not even enhancing nature, driven by the very specific nature of the regulations and how they are implemented[49]. The Bechstein's bat is known to be present across most of northern and western Europe, so whilst the local population was at risk of harm, the opportunity to apply mitigations that would lead to substantially better environmental outcomes in line with Biodiversity Net Gain was not available or examined. Reforms to the relevant legislation and guidance could deliver better outcomes for all parties.

Streamlining duties

Over time, the accumulation of both regulator-specific and generic legal obligations has led to the overloading of regulators[50] with too many duties and objectives, with no clear sense of how these should be prioritised, particularly where they may conflict. This causes confusion for both customers and regulators, whilst weakening accountability. For example, the EA has a substantial list of duties relating to their core role on the environment set out in the Environment Act 1995[51]. However, other duties applying to regulators are much more generic including the Growth Duty, which now applies to many regulators.

During the review both regulators and their customers were asked about how often the Growth Duty had made a difference to an outcome or a decision made by a regulator and whether or not it is considered or weighted during a judicial review. No one could clearly indicate a decision where the Growth Duty had impacted the outcome, with only the duties most closely related to the regulations themselves and the core functions of the organisation having any impact. If the Government wants a growth duty to have an impact on economic growth, it needs to do more to help regulators prioritise between this and the many other legal obligations they need to balance.

To reduce regulatory overload and focus action on the things that matter, the Government should streamline regulators' duties and actively consider whether a core set could be applied to all of Defra's regulators so that their purpose is mutually reinforcing and fully aligned with the Government's aims. The following action is recommended.

[45] Sheephouse Wood Bat Protection Structure | HS2 | 2024
[46] Bat safety barrier will cost £100m, says HS2 chairman | BBC News | 2024
[47] Natural England's role in High Speed 2 | Natural England | 2024
[48] Transport Secretary announces urgent action to get a grip on spiralling HS2 costs | GOV.UK | 2024
[49] How to solve the £100m bat tunnel problem | Sam Dumitriu | 2025
[50] Who watches the watchdogs? Improving the performance, independence and accountability of UK regulators | House of Lords Industry and Regulators Committee | 2024
[51] Environment Act 1995

Recommendation 4: Consolidate the **statutory duties, principles and codes of Defra regulators** to a core set, reflecting the Government's priorities and helping to provide discretion, e.g. a duty to deliver on/consider climate change/net zero. This will address the increase in regulator-specific and regulator-generic legal obligations and resulting 'regulatory overload' which has emerged over time, resulting in confusion for those who are regulated whilst also weakening accountability. Further work is needed here to scope the legal obligations and to ensure consistency with any wider approaches. Updated duties will need to be consistent with refreshed outcomes and strategic policy statements.

Improve how regulators collaborate and reduce overlap

Several areas have been highlighted where the application of regulations by regulators is resulting in duplication and overlap, creating a system which is slow, inefficient for customers and where outcomes that are good for the environment are also slow to be introduced. A good example of conflicting regulation being imposed on a project is recent improvement work undertaken at Brent Reservoir in London, outlined below.

Case study: Planned maintenance to the Brent Reservoir, London

The Brent Reservoir (also called the Welsh Harp) in North-West London is a 68.6-hectare Site of Special Scientific Interest owned by the Canal & River Trust. The Reservoirs Act 1975, regulated by the EA, compels the Trust to conduct maintenance works, completed to a date specified by the independent Inspecting Engineer. Failure to meet a deadline is a criminal offence, whilst also posing a public safety risk. The Trust recently conducted a £3.5 million project to undertake 'Measures in the Interests of Safety' (MIOS), requiring the reservoir to be drawn down to inspect and repair/maintain the draw-off tower.

To complete the project, the Trust needed to (1) secure a 'Flood Risk Activity Permit' (FRAP) from the EA, which is also the regulator for flood risk permits, as the reservoir sits on a 'main river'; (2) submit a Water Framework Directive assessment as part of the application for a FRAP; and (3) secure assent from NE for the reservoir drawdown, given the site is a Site of special scientific interest (SSSI) and important for nesting birds. The assent set a timescale for the water levels to recover in time for the main nesting season. A combination of factors, including challenges in navigating permissions, ensuring the draw down rate allowed sufficient time for the water level to recover, changes in methodology and poor weather conditions meant the window of time was insufficient to carry out the full range of planned maintenance measures, which will result in further disruptive reservoir drawdowns.

This is an example of where several regulators are required to make assessments on different elements of key projects, without clarity on what takes precedence - restoring the reservoir or nesting birds, and how to deal with the unexpected. This review has also heard examples of regulators working on the same project starting from scratch and re-considering evidence that other Defra regulators have already seen on the same scheme. This was for instance mentioned several times in a marine context.

The review has considered whether reorganising Defra's regulators around different boundaries would help reduce duplication and create a more efficient and easier to navigate system. While there are arguments for this, particular for separating EA into a flooding delivery organisation and an organisation focused on environmental regulation, changing the boundaries of organisations rarely transforms things, creates new boundaries, is always costly, and cannot be delivered quickly. It may however deserve further consideration in the light of any proposals for institutional change of the regulators emerging from the review of the water sector and its regulation which will report by Q2 2025.

Nevertheless, some steps should be taken now to review and improve how regulators work together, co-create and collaborate on larger and more complex projects, including how they work together at a local level and whether they share sufficient data on their work and their customers to drive the best results.

Recommendation 5: **Support better cooperation between regulators** and appoint a **lead regulator for all major projects in which multiple regulators have an interest**. Some changes to regulatory structures or regulations would be necessary to grant a lead regulator authority to make decisions on behalf of other regulators. In the meantime, Defra should promote more information sharing and clearer processes for major projects. This should be agreed by regulators at the outset of projects, with emphasis on projects which represent significant private sector investment and/or have a high degree of complexity. This should include developing a framework that outlines how a lead regulator would operate in sharing information and supporting decision making, and the criteria for appointing a lead regulator. In addition, where projects interact with a single regulator, there should always be a named contact provided.

Recommendation 6: Assess potential for **regulators to have targeted pay flexibility so they can employ and retain staff, particularly specialist staff**. This should be considered as part of the Spending Review settlement and involve seeking specialist pay rates, or more flexible pay bands, especially for positions that require unique skills or are difficult to fill. This can help ensure that salaries are competitive with the private sector and experienced staff are retained.

Recommendation 7: Ensure regulators are devoting the **right balance of time and resourcing** to driving outcomes including growth. Defra should review this as part of the Spending Review settlement and ensure that operating models (a) are maximised to attract private sector investment; (b) allow regulators to recover the full cost of services, removing barriers which exist at present; (c) consider what new approaches are needed, especially in the EA, to avoid staff being pulled away from essential regulatory functions to deal with emergencies.

Delivering in place

An outcomes approach to regulation must involve moving away from a ‘one-size-fits-all’ approach to a system which has the discretion to meet the outcomes that are most suitable for a place. This would involve working more closely with local partners to deliver them, with regulators also aligned. Local Nature Recovery Strategies (LNRS) are an England-wide system of spatial strategies that establish priorities and map proposals for specific actions to drive nature’s recovery and provide wider environmental benefits. The approach involves 48 responsible authorities[52] leading on preparing a local strategy for their area, setting out priorities for nature recovery and proposed actions in these locations to achieving the priorities. The first of these was launched in November 2024 by the West of England Mayoral Combined Authority and the remainder are expected to be published in 2025[53]. This approach represents a significant step towards making sure that local and combined authorities, working in partnership with regulators, can drive forward the approach they want to see to enhance nature in their areas and deliver on national environmental targets and objectives.

At the same time, the Government is undertaking a rapid review of its national plan for the environment, the Environmental Improvement Plan (EIP)[54], which is a much wider plan setting out delivery pathways for all the Environment Act targets, not those just relating to nature. This review will result in a new, statutory plan to protect and restore the natural environment, with a focus on cleaning up waterways, reducing waste across the economy, planting millions more trees, improving air quality and halting the decline in species by 2030.

[52] Local nature recovery strategies | GOV.UK
[53] The Local Nature Recovery Strategy and Toolkit | West of England Combined Authority
[54] Government launches rapid review to meet Environment Act targets | GOV.UK | 2024

The ongoing rollout of LNRS, combined with the refresh of the EIP, represent an opportunity to define a single local plan for place-based delivery, bringing nature and the wider environment together. The plan should set out how EIP priorities come together at a local level, particularly in the context of the English Devolution White Paper[55], the Planning Reform Working Paper on development and nature recovery[56], and LNRS. The following action is recommended.

Recommendation 8: Use LNRS across the 48 strategy areas as a basis for building and embedding **'local Environmental Improvement Plans (EIPs)' which cover all elements of the national EIP, which Combined Authorities can work with local partners to deliver**. This consolidation of various local plans and strategies is a major task which should build on the opportunities of the Devolution White Paper to set out clear environmental plans at a local level.

Alongside this, there is an opportunity to ensure that funding being provided to local authorities and other partners to be spent on environmental outcomes is considered and brought together, as far as possible, to be directed towards delivery of the plan. As part of the EIP refresh, or shortly afterwards, Defra should implement the following action.

Recommendation 9: **Review the funding streams connected to place-based delivery**, for example biodiversity net gain, to ensure they can be used as flexibly as possible to help local authorities and regulators deliver the Government's Environmental Improvement Plan and Local Nature Recovery Strategy ambitions.

Innovation and trusted partners

There are some strong examples of where Defra's regulators have used innovation to deliver better outcomes in particular places. For example, NE's approach to a general 'district' license for Great Crested Newts[57] is recognised as successful in mitigating against great crested newt habitat loss, by creating a network of interconnected habitat at a landscape scale. NE and others have also been involved in delivering innovative solutions to nature recovery across boundaries, for example at the Thames Basin Heaths discussed earlier.

To really turbo-charge the restoration of nature and speed up planning decisions, NE should go further with its district licensing approach and extend this to wider species, with the approach adopted by wider regulators where relevant. It should also consider where there is potential for a more permissive approach to supporting innovative actions which support nature recovery, rather than preserving the status quo of a site or species, for example the potential for supporting vegetation buffers along rivers to create new space for nature whilst helping reduce agricultural water pollution.

[55] English Devolution White Paper | GOV.UK | 2024
[56] Planning Reform Working Paper: Development and Nature Recovery | GOV.UK | 2024
[57] Great crested newts guidance: district level licensing schemes for developers and ecologists | GOV.UK | 2022

Case study: The Office for Nuclear Regulation's 'regulatory sandbox'

The Office for Nuclear Regulation's (ONR) Innovation Hub has established three ways in which duty holders, licensees and other stakeholders can engage with them on innovation. These routes increase understanding of a specific subjects and to provide a framework to inform guidance:

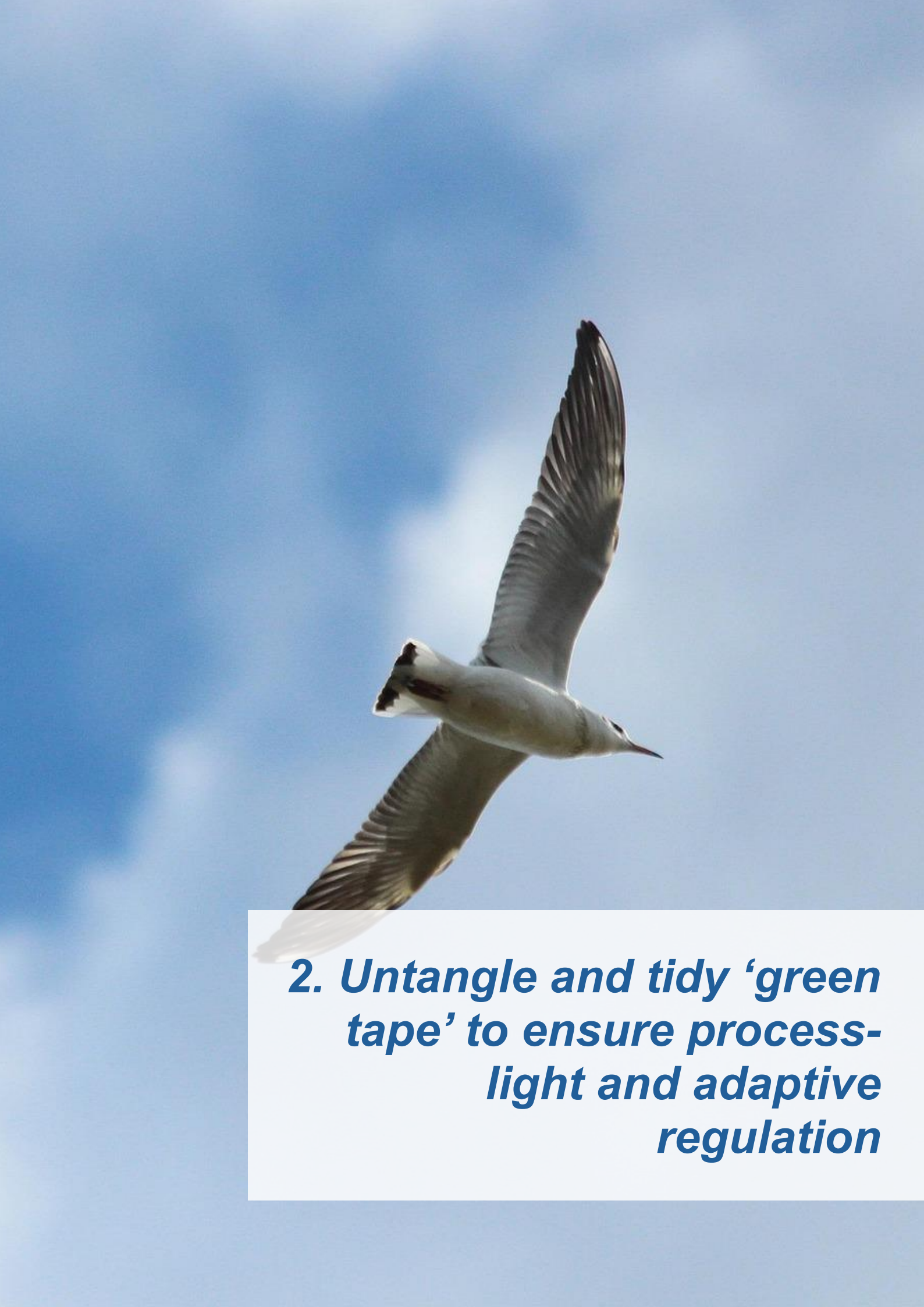
- *Innovation cafés*: Hour-long engagements for inspectors and other ONR staff members to discuss new ideas, products or processes in a safe environment. They are often a first point of engagement with the innovation hub, and outputs have fed into training and development.
- *Expert and advice panels*: Discussions chaired by an ONR inspector with input from other ONR specialisms and external subject matter experts. The output is typically a paper on the topic published. Topics have included blockchain, AI and modelling for security applications.
- *Sandboxing (or regulatory laboratories)*: A safe environment in which new technologies or processes can be considered by the regulator outside normal regulatory interactions. They typically take several months and feed into guidance and processes to regulate the industry.

We ultimately need to back regulators to take a more risk-based approach to regulation, supporting them to drive delivery and be innovative. Regulators are caught between a high number of controversial Judicial Reviews which drives caution, and a public narrative which says they are too risk averse. On 23 January 2025, the government announced changes to the statutory judicial review process to streamline and speed up infrastructure planning cases[58]. This reform aims to reduce the number of frivolous legal challenges that delay major infrastructure projects.

In this context, introducing regulatory sandboxes such as those demonstrated by the Office for Nuclear Regulation and the Financial Conduct Authority[59], would help us identify ways in which regulations can be amended without risk of environmental regression or judicial review. These environments allow for experimenting with regulatory changes in a low-risk setting, helping to explore ways to modify regulations without jeopardising environmental protections. Early discussions are already underway between the MMO and the UK Major Ports Group on creating a sandbox type environment which could consider where there are opportunities to remove regulatory drag. The following action is recommended.

Recommendation 10: Set up a **programme of experiments or sandboxes** where regulators identify projects where they will waive regulations and measure the results. Project scope will need to identify any barriers. This could be done, for example, with developers on specific sites to see how outcomes can be delivered. This approach can help stimulate a culture of experimentation and permission without undue risk, whilst avoiding any harm to the environment, with consideration given to legal powers needed where relevant. The approach would work well for areas where improvements are being sought, for example on nature recovery or port infrastructure developments, rather than on areas where risk is being managed, for example on biosecurity.

[58] Written Statement UIN HCWS385: Infrastructure Planning and Judicial Review Reform | 2025
[59] Regulatory Sandbox | FCA



2. Untangle and tidy ‘green tape’ to ensure process-light and adaptive regulation

2. Untangle and tidy ‘green tape’ to ensure process-light and adaptive regulation

Introduction

Defra currently has 3,062 items of legislation[60] in force. Much of this legislation plays an important role in improving and protecting the environment, animal and plant health and providing the framework for supporting food, farming and fishing industries. However, multiple adjectives were used during this review to describe Defra’s regulations, including ‘outdated’, ‘inconsistent’, ‘layered’ and ‘labyrinthine'.

The complexity of these regulations and the amount of associated guidance required to navigate them makes life difficult for our customers, affecting both their economic activity and their ability to comply. It also makes life difficult for the regulators who are enforcing it. Most of Defra’s legislation comes from the period when we were members of the EU and in some cases the complexity stems from the way it has been applied in the UK, judicial decisions, and from amendments following EU Exit. A whole industry of lawyers and consultants is in place to advise on how to meet these regulatory requirements, which is a cost to business. Because the statute is largely inherited, some of the regulation is not fully aligned with the Government’s more ambitious Environment Act targets or those set out in the EIP, meaning there is a disconnect between regulations being applied and the outcomes being sought.

The case for change

Complexity, overlap and misalignment

Defra’s regulatory framework has evolved over time and has historically been shaped by EU legislation, with several recent significant pieces of primary legislation setting strategic UK approaches in key areas, including the Environment Act 2021, the Agriculture Act 2020 and the Fisheries Act 2020, but not removing underpinning EU law. There is no single integrated set of regulations operating in a uniform and consistent way across the environment ‘system’. Many customers including farmers, developers and those looking to enhance nature need to engage with multiple regulations and regulators to understand how they need to operate.

Defra’s regulatory landscape remains broadly similar to the EU, and the UK was a major player in influencing the strategic and long-term direction of EU environmental policy[61]. It is also similar to other countries such as the US, Canada and New Zealand in terms of the focus on environmental protection, biodiversity, sustainable agriculture and animal welfare. In our conversations, no single country was identified as ‘doing it better’. However, the way the UK has operated – adopting a more integrated and centralised approach to environmental regulation than some others – is considered particularly complex, bureaucratic and rigid.

In 2023, the National Audit Office criticised Defra's performance on PIRs, which assess the performance of regulations. It commented that while PIRs are not the only way to determine what works, a backlog of overdue PIRs limits Defra's insight into how well regulation is working or the burden on business[62]. Since this report was issued, Defra has published 62 PIRs resulting in recommendations to amend or revoke over 20 regulations. Any rolling programme of improvements should work in parallel to ongoing work on PIRs[63].

[60] DefraLex | Legislation.gov.uk figure also includes assimilated law
[61] EU and UK Environmental Policy | House of Commons Environmental Audit Committee | 2016
[62] Regulating to achieve environmental outcomes | NAO.org | 2023
[63] Producing post-implementation reviews: principles of best practice | GOV.UK | 2024

It is clear from the feedback that has been received that a targeted approach to streamlining and modernising specific regulations should be quickly undertaken with careful reflection on what might yield the biggest benefits most rapidly. Defra should:

Recommendation 11: **Scope a rolling programme of reform for specific regulations**, being clear what can be done rapidly, where the quickest wins are and what will take longer. This review suggests areas of focus, but the department needs to work rapidly to scope them and establish the programme. Pending fuller scoping, early priorities for reform are: The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017; The Conservation of Habitats and Species Regulations 2017; The Reduction and Prevention of Agricultural Diffuse Pollution Regulations 2018; and The Environmental Permitting Regulations 2016. Some of this is already underway.

Improving specific regulations to deliver for nature and for growth

During this review, several specific regulations were repeatedly highlighted as being ripe for review to ensure they are optimised for delivering both nature recovery and economic growth, with a view to potential streamlining or removal of measures where needed. There was also more general feedback provided, indicating that regulations need to be made more future-proof, for example, by removing any 'received wisdom', particularly in the context of climate change, on things like winter abstraction dates for water, and closed periods for applying nutrients. Others commented on problems relating to the fixed nature of SSSI designations and an inability to respond to changes i.e. the selected species moving to a different landscape. Some of the regulations highlighted are discussed below and provide a starting point for a potential rolling programme of reform. Any programme of reform should be co-created with organisations which would be impacted or involved in the delivery.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 ("Water Environment Regulations 2017")

The Water Environment Regulations 2017 transpose the EU Water Framework Directive (WFD) into UK law. The WFD exists to protect, enhance and prevent further deterioration of surface water bodies including rivers, lakes, transitional waters (estuarine waters), coastal waters and groundwater bodies and their ecosystem[64]. It has been highlighted to this review, by many organisations, that this piece of legislation is hugely complex and ripe for improvement. For example, to understand the full provisions it is not possible to just read the legislation alone. To have a full understanding requires reading more than 40 other items of regulation including assimilated EU measures, wider domestic Acts of Parliament, and statutory instruments. Sir Jon Cunliffe will be considering the application of this regulation during his review of the water sector and Defra plans future legislation to introduce reforms. This review strongly supports reform of these regulations to ensure they deliver long-term stability and clarity and reflect the needs of customers and the environment.

The Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017, alongside the Conservation of Offshore Habitats and Species Regulations 2017 ("the Habitats Regulations") protect hundreds of wildlife sites in England, across millions of hectares of land, freshwater and sea, and over one

[64] Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive | GOV.UK | 2024

hundred rare or vulnerable animal, bird and plant species. The Regulations provide these sites with protection through the designations of Special Areas of Conservation (SACs), and SPAs. These protections also extend to internationally important Ramsar wetland sites. The origins of the legislation lie in international agreements designed to deliver high standards of protection for wildlife, which were subsequently transcribed, tightly, into EU law.

When a regulator, such as NE, is asked to provide a licence, permit, consent or other permission for a plan or project which could significantly harm the designated features of a protected site[65], they need to conduct a habitats regulations assessment (HRA), to assess the level of damage that could be caused. Where it cannot be concluded that there will be no adverse effects on a site's integrity, there is a need to consider whether potential mitigation[66] measures are suitable, using the mitigation hierarchy of avoid, mitigate and compensate[67].

Evidence provided to this review emphasised the importance of the regulations in providing legal protections for important habitats and species[68]. However, it also emphasised that the way in which these regulations are implemented, for example during construction of low-carbon energy infrastructure (see case studies below), is one of the main reasons why regulators take a rigid and status-quo approach to protecting what we have now, rather than focusing more on nature recovery. Implementation of the regulations is also resulting in high-cost mitigation measures being implemented, as demonstrated by the case studies below. There is ongoing external debate about what potential reform of the Habitats Regulations could look like, including changing the mitigation hierarchy to allow more flexibility to move straight to offsetting harm, as well as ensuring that the regulations reflect modern ecology.

Case study: Hinckley Point C acoustic fish deterrent

The energy company EDF is currently building two new nuclear reactors at Hinkley Point C in Somerset. An EIA identified potential for the inflow and outflow of water from the site to impact on the local fish populations in the Bristol channel. The Severn Estuary, in which the tunnel heads are being constructed, is a designated SPA, SAC and Ramsar site. Measures to help protect fish from the water system being put in place include a 'fish recovery and return system' and special water intakes. An acoustic fish deterrent (AFD) system was also proposed within the original planning application, using 288 speakers to make noise louder than a jet 24-hours a day for 60 years[69].

In 2019, EDF proposed removing the acoustic fish deterrent as being difficult to install and maintain. EDF's decision went to a public inquiry, with eNGOs giving evidence[70] to support the EA, NE and NRW in questioning the proposal. In 2021, the Defra Secretary of State found in favour of the EA that the AFD should remain. The EA agreed with EDF that without the AFD 44 tonnes of fish will be lost per year, with Cefas indicating that removal of the AFD would have limited effects on protected fish species. In 2023, the EA issued a variation in EDF's permit removing the need for the AFD on the basis that appropriate regulators under the Development Consent Order process would assess the abstraction effects. As part of EDF's intention to apply for a material change to their DCO, they sought other measures to compensate for the loss of fish, including finding 340 hectares on the banks of the River Severn to flood to create new saltmarsh habitats where salmon, eels and other marine species will be able to breed. Huge amounts of time and cost have been involved in navigating to this solution, including via HRAs. In March 2025 EDF announced that they had found a potential AFD technology and intend to trial this for 12 months.

[65] The Conservation of Habitats and Species Regulations 2017
[66] Appropriate assessment guidance | GOV.UK
[67] Avoidance, Mitigation & Compensation - Buildings, planning and development | Bat Conservation Trust
[68] The Habitats Regulations Briefing | Wildlife and Countryside Link | 2023
[69] The Removal of Hinkley Point C's Acoustic Fish Deterrent System | EDF
[70] 'Green' Energy at what cost? Hinkley Point C could cost us the Severn | Somerset Wildlife Trust

Case study: Hornsea 3 offshore wind farm

The Hornsea 3 offshore wind farm will have a generating capacity of 2.9 GW, enough to power more than 3 million UK homes. The wind farm will sit approximately 120km off the Norfolk coast and 160 km off the Yorkshire coast and is one of the UK's largest infrastructure projects[71]. When planning permission was granted in December 2020, this came with the requirement to include special ecological measures to mitigate any potential impacts the development may have on nature and the local ecosystem, following a HRA. The developer Ørsted was required to include ecological compensation measures for the black-legged kittiwake, a protected gull species found nesting in colonies on clifftops and rock ledges around the UK's coast, whose population could potentially be impacted by the wind farm. Ørsted is building three octagonal nesting structures around 1km off the coastline, each which can host 500 pairs of kittiwakes. The estimated cost of the three structures is £15m, which again raises questions about proportionality and nature protection versus recovery.

The Habitats Regulations and HRAs are also relevant in the context of nutrient pollution. The potential release of increased levels of nutrients such as nitrogen and phosphorus can disrupt natural processes and harm wildlife and has resulted in applications for thousands of new homes not being supported[72]. The nutrient neutrality principles[73] are a means of ensuring that a plan or project does not add to existing nutrient burdens within catchments, so there is no net increase in nutrients. Where neutrality principles are applied, the focus is on mitigation measures to avoid impacts to a designated site, rather than compensating for the impacts once they have occurred. Several approaches have been put forward to unlock new developments being held back by the nutrient neutrality advice. This includes the nutrient mitigation scheme[74] allowing developers in certain catchment areas to purchase credits to offset the impact of development and create new areas for wildlife, such as wetlands.

In addition to nutrient mitigation credits, several other approaches are also coming forward to ensure the application of the Habitats Regulations does not unnecessarily hold back development, particularly house building. This includes current Government action such as the Nature Restoration Fund[75] and the Offshore Wind Environmental Improvement Package[76] which includes the Marine Recovery Fund. Although these are steps in the right direction, there are some limitations to the impact of these improvements. For example, the Nature Restoration Fund is a good further solution to the nutrient neutrality issue blocking housing consents, however it will be more challenging to apply to other projects affected by the regulations without a very clear sense of which projects are due to come forwards and the compensation scheme which are going to be needed, and when.

The Habitats Regulations play a pivotal role in our approach to delivering nature protection and recovery and delivering major infrastructure projects. The regulations also determine the significant volumes of permissions regulators need to assess. In the shorter term, improvements are needed to the implementation of the regulations. But these will only take us so far. In the longer term, major changes to the regulations will very likely be required to deliver the increased focus on outcomes from regulators I have recommended. This will be complex, particularly in the context of international treaties[77], so all changes should be developed in a spirit of co-creation with interested organisations. The following should be pursued:

[71] Supporting kittiwake, a vulnerable seabird | Orsted
[72] Natural England's position on nutrient neutrality is hurting housebuilding
[73] Nutrient Neutrality Principles - TIN186
[74] Government sets out plan to reduce water pollution - GOV.UK
[75] Planning proposals to unblock vital infrastructure and drive nature's recovery - GOV.UK
[76] Strategic compensation measures for offshore wind activities: Marine Recovery Fund interim guidance - GOV.UK
[77] Including the Trade and Cooperation Agreement (TCA), Berne Convention, Rio Declaration and the Convention of Biological Diversity.

- Updating and streamlining HRA guidance to increase clarity and consistency of application.
- Further interventions to how the regulations are being applied and delivered, including extending the district level licensing approach to additional species.
- Updating the regulations to change the HRA process, with earlier consideration of mitigation / avoidance / compensation measures.
- Updating the regulations to better align with other Government strategies such as the EIP.
- Updating the regulations to ensure they apply proportionately and in the right places to fully deliver the environmental objectives, while affording discretion in ruling activities in or out of the scope of HRA.
- Updating the regulations to remove the complexity and uncertainty currently in place due to case law and guidance which has evolved.
- Updating the regulations to increase the scope for strategic compensation schemes (e.g. NRF and MRF) to be applied more widely as a simple and earlier solution to compensation, whilst remaining compliant with obligations including the TCA non-regression principle.

The Reduction and Prevention of Agricultural Diffuse Pollution Regulations 2018 ("Farming Rules for Water")

These regulations were introduced to reduce and prevent diffuse water pollution from agricultural sources, by stipulating that farmers in England must carefully plan manure and fertiliser applications to avoid exceeding the crop or soil need[78]. The regulations cover applying and storing fertilisers and the management of soil and livestock and is enforced by the EA. The rules help to prevent nutrient loading in water courses and eutrophication.

The EA reported[79] that in 2023, farming activities caused 53 serious pollution incidents, increasing from 45 on the previous year. The majority were from dairy and beef businesses and caused by silage and slurry store containment and control failures. In addition, 3,940 targeted farm inspections were made at 3,754 non-permitted farms in 2023, and it was found that 42% of farms inspected were non-compliant with anti-pollution regulations.

The complexity of farming regulation and guidance[80] means that there are over 150 regulations for farmers to consider and comply with, with questionable impact on outcomes in some areas. For example, on slurry management and storage, it was noted that regulations can act to increase the risk of non-compliance, due to the spreading of slurry being limited to certain areas outside nitrate vulnerable zones (NVZ) and outside of the winter period. If, however, there is an extended period of bad weather, farmers are required to store the slurry. If farmers do not have proper storage infrastructure in place, this can lead to them spreading slurries in NVZs or at improper times. This review heard that pressure on farm slurry storage[81] and associated costs is affecting compliance with the regulations.

A potential issue with the Farming Rules for Water Regulations is whether the feasibility of compliance was sufficiently tested before the regulations were implemented, as there is now an issue with ongoing compliance rates and an associated burden on monitoring and enforcement activities. Ultimately, more needs to be done to support farmers in considering how to best ensure valuable fertiliser stays on the farm and out of water courses, avoiding the need for expensive imports.

[78] Guidance on Farming Rules for Water – NFUonline
[79] Environment Agency Chief Regulator's report 2023-24 - GOV.UK
[80] Farm Inspection and Regulation Review: summary and recommendations - GOV.UK (www.gov.uk), https://www.gov.uk/government/news/biggest-upgrade-to-uk-farming-schemes-introduced-by-the-government-since-leaving-the-eu
[81] Environment Agency urges farmers to start preparations for winter slurry storage | GOV.UK | 2024

Case study: Poole Harbour Nutrient Management Scheme

A nutrient accounting system (also known as nutrient budgeting) could bring about a transformational change in how nutrient pollution is controlled. The approach would involve farmers and other producers or users of nutrients (e.g. wastewater plants, anaerobic digestion plants) tracking nutrients on and off their facility through an IT platform linked to smarter nutrient management tools. For a farmer using the system, they would calculate their nutrient requirements for growing crops and forage. This would constitute their budget against which they would assign nutrients (which could be bagged fertiliser, their own slurries/manures or imported digestate or sewage sludge), accounting for some level of unavoidable 'leakage'. A nutrient accounting system is now in place at Poole Harbour[82], and is being run, by farmers, to help farmers use their nutrient records to explore land management changes, to optimise their use of nutrients, through a digital nutrient accounting tool. The scheme is considered pioneering[83], with significant potential impact.

A new approach to slurry management could also deliver multiple benefits including boosting farming productivity; creating more of a circular economy for nutrients; reducing nutrient loading and unlocking downstream development; and improved nature restoration.

Recommendation 12: **Defra should swiftly develop plans to reform slurry application and storage** to help address diffuse water pollution from agricultural sources. This is likely to involve changing the Farming Rules for Water and wider regulations relating to slurry application and storage. This should aim for a single set of regulations which farmers can understand and comply with.

The Environmental Permitting Regulations 2016

The Environmental Permitting Regulations (EPR) provide a consolidated system of environmental permitting in England and Wales. It transposes the provisions of 15 EU Directives, imposing obligations required to be delivered through permits[84]. Permits are needed for a wide range of activities which could potentially pollute the air, water or land, increase flood risk, or adversely affect land drainage[85]. EPR provides the main framework for permitted activity in a wide range of key sectors in England and Wales, with the EA and Natural Resources Wales (NRW) the lead regulators. Of the 14,009 waste and process industry permitted activities being regulated by the EA, 93% were 'good performers' in the top two compliance bands in 2023-24[86].

EPR is an example of where several previously separate permitting and licensing regimes have been integrated into a common framework. This integrated approach can secure consistency and coherence. However, this review has heard that over time amendments to these regulations mean the same issues of complexity in legal interpretation, as noted for the Water Environment Regulations, are once again arising in an area where consistency had been sought. Operational reforms are underway within the EA to speed up permitting processes and offer additional service options for more complex projects, with a recent consultation issued on plans to introduce a new type of permit for research and development activities at key industrial sites to encourage uptake of innovative technologies[87]. This focus should continue, particularly in the context of developments such as the HyNet Cluster, outlined below.

[82] About the scheme | Poole Harbour Nutrient Management Scheme
[83] Poole Harbour Updates | NFU
[84] The Environmental Permitting (England and Wales) Regulations 2016
[85] Check if you need an environmental permit | GOV.UK
[86] Environment Agency Chief Regulator's report 2023-24 | GOV.UK | 2024
[87] Environment Agency consultation: Proposals for a new standard rules permit for research and development at a Part A(1) Installation | Environment Agency | 2024

Case study: HyNet North-West carbon capture and storage and hydrogen energy project (visited by review)

HyNet North-West is an innovative low carbon and hydrogen energy project intended to unlock a low carbon economy for the North-West and North Wales. The ambition is to lock away carbon dioxide emitted by heavy industry in the region into depleted gas fields of Liverpool Bay through carbon capture and sequestration technologies, and to provide low-carbon hydrogen power for industry and transport and heat for homes and businesses. The HyNet cluster in England has 5 planned carbon capture projects and 21 hydrogen production plants or end users planned, together with underground storage of hydrogen. Each project may need to apply for planning permission and an environmental permit. The EA is the primary regulator of industries in the cluster and is proactively working to understand the challenges in developing this new technology, and the risks it may pose, to enable appropriate permits to be put in place. The GGR sector presents major economic opportunities for the UK to deliver new export opportunities and support high-quality green jobs across the country. During discussions with the leading developers, there was feedback that environmental legislation and permitting processes aren't sufficiently agile in responding to innovative new technologies, and there were concerns that permits would not be secured before investment decisions were taken. Developers highlighted that they valued interacting with the highly experienced local regulators.

Policy development is underway to consider potential for the EPR framework to become more flexible and support growth. For example, Defra has consulted on reforms to environmental permitting regime to ensure that environmental regulators have the powers and evidence to promptly develop the pollution standards required for the permitting of emerging clean power. This direction of travel should continue, to allow regulators more flexibility to take sensible, risk-based decisions, focussed on outcomes. This is particularly key for Defra customers and stakeholders, whose potential to boost economic growth and nature recovery is substantial. Further consideration should be given to how improving data and harnessing emerging technologies can deliver a robust compliance and enforcement strategy, which would allow regulators more flexibility. The following action is recommended.

Recommendation 13: The work to update the **Environmental Permitting (England and Wales) Regulations 2016** to allow regulators more flexibility to take sensible, risk-based decisions should be accelerated due to the important role it plays in supporting net-zero and circular economy priorities (e.g. facilitating the development of low carbon industrial infrastructure, and for ensuring remediated soil is not unnecessarily categorised as waste).

Overlap and duplication

This review heard examples of instances where overlapping jurisdictions led to duplication in the application of regulations. Marine ALBs, for example, play a key role in licensing sustainable marine developments, such as port infrastructure. However, regulatory assessment of these applications is based on distance of activity from the coastline and overlap of jurisdictions between the MMO and ten Inshore Fisheries and Conservation Authorities leads to some duplication.

Recommendation 14: **The recommended programme of reform for specific regulations should also assess instances of overlap and duplication in the application of regulations,** with the aim of streamlining priority areas, for example in the marine environment, where multiple regulators are involved in assessing the same applications for port infrastructure. Both the regulations and the regulatory practices need examining and streamlining.

3. Deploy a fair and consistent ‘thin green line’ on regulatory compliance, with trusted partners earning autonomy

3. Deploy a fair and consistent ‘thin green line’ on regulatory compliance, with trusted partners earning autonomy

Introduction

Public trust in Defra’s regulators has been eroded over the last few years not least because of the levels of water pollution in our lakes and rivers. We need a system of environmental regulation that the public trusts.

For outcomes-based regulation to be effective, which this review is advocating, there needs to be outcomes which are at first clear (see section 1) and then monitored in an open and transparent way, so that both the Government and the public can track delivery. If an outcome is not being delivered, we need to know. There also needs to be consequences for those who fail in the system. A lack of consequences for persistent failure, as I see in the waste and water systems, leads to a lowering of standards and an undermining of public trust.

At present, the complexity of Defra’s regulations makes it difficult for customers, including farmers, to know how to comply with them. We need to improve the regulatory system to make it clearer how to comply, increasing compliance without the need for heavy-handed intervention by regulators. This will require a clear policy on monitoring and the use of technology which allows the public to see in real time whether environmental standards are improving in their area.

Continued compliance over time by trusted partners should also be recognised and rewarded. This will enable more resource to be focused on targeted action against those deliberately ignoring the rules and undermining trust and confidence. Failure to act fast on non-compliance creates an uneven playing field which is bad for business and growth.

The case for change

Greater autonomy for trusted partners to speed up projects

A significant proportion of the work of Defra’s regulators is spent issuing licenses or permits for activities which carry a level of environmental risk. Many large organisations, whose very mission and reason for being is working to protect and enhance nature, find themselves applying to Defra’s regulators multiple times for licenses or permits for specific projects. These inevitably take time to work their way through the system, given the large caseloads. For example, NE issues more than 12,000 wildlife licences each year[88], with 9,000 of these for science and conservation purposes, more than for any other activity.

[88] Natural England wildlife licensing statistics for 2023 | Natural England | 2024

Case Study: Buscot and Coleshill National Trust Estates, Oxfordshire (visited by review)

The National Trust's Buscot and Coleshill Estates in Oxfordshire cover 3,000-hectares, including 11 tenanted farms and some of the original parkland. It is one of the National Trust's high ambition for nature sites, with some mature and more recent habitat restoration, including river restoration, wetland creation, tree planting and establishment. There are opportunities for further, large-scale nature restoration as well as supporting more regenerative farming. This review heard that despite positive interactions with both NE and the EA, the ongoing navigation of the permitting system for a range of different nature projects, including the creation of a floodplain wetland mosaic, was the biggest barrier faced in doing more for nature restoration, driving cost and delay into the plans.

The review heard of the challenges that organisations face in navigating these compliance processes and associated guidance. For example, some membership organisations provide dedicated advisory service to members on regulatory compliance, who commonly encounter issues such as delays to processing leading to added costs and withdrawal from projects; delays in responding to EIA applications, leading to repeat requests for more information which brings costs; and overly risk-averse approaches from regulators that appear to be triggered by a lack of trust.

In a bid to reduce delays in issuing wildlife licenses, NE has started taking a more proportionate, risk-based approach, which involves the issuing of a 'class licence' for activities with a medium ecological risk which are undertaken by an individual with appropriate skills and experience. Nearly 70% of the licenses issued are now 'class licences', which is helping to build trust between regulators and customers. A further example of this class license approach is 'bat earned recognition', which has streamlined licensing by allowing certified ecologists with a class license to undertake licensed bat roost mitigation work[89]. This is resulting in a more streamlined process for developers, lower costs for the regulator, and improved outcomes for bats[90]. This class licence approach should be considered more widely. The case study highlights how a different approach to permitting taken by the National Trust has enabled partners to move more quickly to restore nature. The following action is recommended.

Recommendation 15: **Allow trusted nature conservation and environmental partners and other organisations with good track records greater autonomy,** through memoranda of understanding (MOUs) and wider deployment of 'class licences' enabling them to move fast on restoring nature without applying to regulators for multiple permissions. Criteria would need to be developed to ensure that a consistent approach is taken for how autonomy is earned and then recognised and retained. This should include the previous track record of the organisation in applying for permits and/or licences, organisational compliance and positive real-world impact. Some monitoring will be needed and the MOU quickly and publicly rescinded if compliance is found wanting.

Streamline guidance so customers can understand the rules

The review sought the views of Defra's customers to try to understand their experiences in navigating the current regulatory landscape, particularly accessing the information needed to ensure compliance. From farmers to the waste industry, this review heard consistently that the complexity of the regulations (see section 2) and associated guidance makes it challenging for customers to understand what the standards are that they are expected to meet. In addition to

[89] Guide to earning bat recognition class licence for mitigation work on bat roosts | GOV.UK| 2024
[90] Earned Recognition Project - Project collaborations & Partnerships | Bat Conservation Trust

Defra and its regulators, external partners such as the Wildlife Trusts issue guidance[91] and advice to Defra customers on how to comply with environmental regulation. This valued guidance was frequently mentioned to this review as being of a standard the Government should aim for and therefore Defra should embrace more third-party guidance and advice from trusted partners.

Case Study: NE's interactive advice on Marine Conservation Areas

NE has a statutory responsibility to provide conservation advice for MPAs in England's inshore waters (up to 12 nautical miles). A recent interactive digital platform, developed with the Joint Nature Conservation Committee and the MMO, was mentioned as one of the few examples of accessible and clear guidance recently produced. The advice is provided for all species and habitats that could potentially be present or pass through the area, organised into 'receptor groups' (e.g. mammals, fish, birds, benthic habitats) and set out within the interactive digital database.

Despite good intentions, the need for many farms, businesses and others to employ consultants and lawyers to help them navigate the complex system of compliance has not reduced. This alone creates an additional cost for businesses which can inhibit growth and nature enhancement. Simple and consolidated guidance can help overcome this problem and there are examples of excellent practice where guidance has been integrated across a number of organisations. These are the exception rather than the norm. The review is not advocating for additional guidance; however, a review of the current catalogue is required. The following action is recommended.

Recommendation 16: Defra should **rapidly review and rewrite its existing catalogue of compliance guidance to ensure it is fit for purpose, removing any duplication, ambiguity and inconsistency.** The aim of the review should be a streamlined, clear and up to date catalogue, signposted for each sector so that it is easy to navigate. Stakeholders and customers should be fully involved in this process.

Consistent monitoring and enforcement

Feedback from those regulated by Defra, including recycling, resource and waste management companies, farmers, land managers and water companies, provided valuable insights into the effectiveness and user-friendliness of Defra's monitoring and enforcement approach. For example, recent improvements by the RPA to ensure more proportionate penalties and greater flexibility in inspections have been well received and appreciated by farmers[92].

However, several issues relating to monitoring and enforcement approaches, and whether these are driving compliance, were highlighted. The main view was that if the probability of being caught for non-compliance is low and the penalty of non-compliance is small, then the system has an inbuilt disincentive to comply. The probability of being caught (not least through the use of technology - see section 5) needs to increase and where that probability remains low, there needs to be stronger sanctions for those that are caught. Without this, persistent offenders will continue to undermine the regulatory system, creating an uneven playing field for businesses trying to comply. Investor confidence will be low in a sector that appears to be contravening the rules. It also undermines public confidence in both the sector and in the regulators.

Waste is a good example. A high performing and efficient resources and waste sector is a key delivery partner for a circular economy. The sector is regulated to mitigate environmental risk, bring certainty and ensure a level playing field which encourages investment in new technology and

[91] How to manage a hedgerow for wildlife | The Wildlife Trusts
[92] Our work to improve inspections and make penalties proportionate | GOV.UK | 2021

infrastructure. Waste crime undercuts legitimate operators, reducing appetite for investment, and costs the economy £1bn every year[93], through evaded tax, lost business and environmental harm.

There are currently 14,009 permitted waste and process industry activities. For permitted activities in the waste sector, the rate of non-compliance is 3.3%, with the rate of non-compliance for all other sectors (excluding waste) combined 1.1%, meaning 89% of all non-compliant permitted industrial sites are in the waste sector. These businesses cause significant environmental impacts and distress. In addition, 344 illegal waste sites were recorded 2023-24 as being active[94]. Although over 9,991 on-site inspections were conducted for permitted sites in 2023, this review has heard feedback that significant resource is being spent on low value compliance checks of customers with a strong track record of compliance, while a minority of waste businesses continue to ignore and breach the rules. Businesses have said there is more focus on dealing with non-compliance in the permitted (legal) waste sector, than there is on those responsible for illegal waste.

Case Study: Connon Bridge and the prosecution of SUEZ Ltd

SUEZ Recycling and Recovery Ltd (previously SITA Ltd) operate a permitted landfill site at Connon Bridge near Liskeard**.** The EA investigated SUEZ activity and collected evidence of non-compliance over the course of a number of years. The EA ultimately brought 32 prosecution charges against SUEZ for breaching permitting regulations. Each charge included potential fines of between £250k-£650k**.** However, the Court found that although SUEZ had been breaching permitting regulations, the EA had not sufficiently engaged SUEZ to avoid bringing criminal charges. The Court, therefore, fined SUEZ a reduced amount of £180k in total and reduced the contribution to the EA's costs. The judge criticised the EA, stating that had earlier enforcement actions been initiated, improvements could have been made and questioned whether the investigation was proportionate given the fines imposed. Although ten years ago, this review has heard evidence of the EA still not engaging early enough with operators on the data it holds.

In terms of enforcement, ensuring critical, and often scarce, resources are targeted at persistent offenders who regularly cause environmental harm and undermine legal and compliant traders can make a significant difference to trust and outcomes. We need to consider whether the current system imposes the right penalties in a way that is consistent and supports outcomes. Streamlining the penalty system, by enabling the imposition of civil sanctions could help by allowing regulators more freedom to rapidly address minor infringements and help make penalties proportionate and consistent. Currently, for some areas such as protected species, penalties can be a warning letter or criminal action, which offers regulators no middle enforcement ground or route to work with customers to achieve compliance.

In terms of monitoring, restoring public confidence and enabling the public and others to help with ensuring compliance, this could be supported by better transparency around compliance data. Greater transparency in this area – as well as in others – will support more informed parliamentary scrutiny which should be welcomed by departments across Government. The following actions are recommended.

[93] Environment Agency consultation to charge proposals for waste crime and hourly rates | Environment Agency | 2024
[94] Environment Agency Chief Regulator's report 2023-24 | GOV.UK | 2024

Recommendation 17: Regulators should **commence more frequent risk-based monitoring, using real-time and digital approaches**. Clear strategic plans should be produced by each regulator for how they are taking a risk-based approach to monitoring, as well as their approach to making their monitoring information more accessible to the public, using live, up-to-date, data to support holding businesses and regulators to account.

Recommendation 18: Defra should **review the entire approach to enforcement and sanctions for environmental regulation** to bring as much consistency as possible in the approaches taken for different offences. This review should consider where changes to legislation might be needed and aim to create tougher penalties for deliberate non-compliance and persistent offenders, for example in the waste sector, with regulators able to issue speedy fines for minor offences without going through the Court system.

Recommendation 19: The Office for Environmental Protection (OEP) plays an important role in providing independent scrutiny to Government action on the environment. However, as with our general approach, the OEP must ensure its focus is on outcomes not just process. Their recent report on the previous Government's progress towards delivering the Environment Act targets helpfully supports the need to go further and faster. Consideration should be given as to **how the OEP can increase focus on the outcomes that are desired and support regulators to take more risk** to achieve those goals within the Government's wider objectives.

Cost recovery

Cost recovery is an approach taken across the voluntary, public or private sectors to recover costs involved in providing a product of service, to support the continued provision of that product or service.

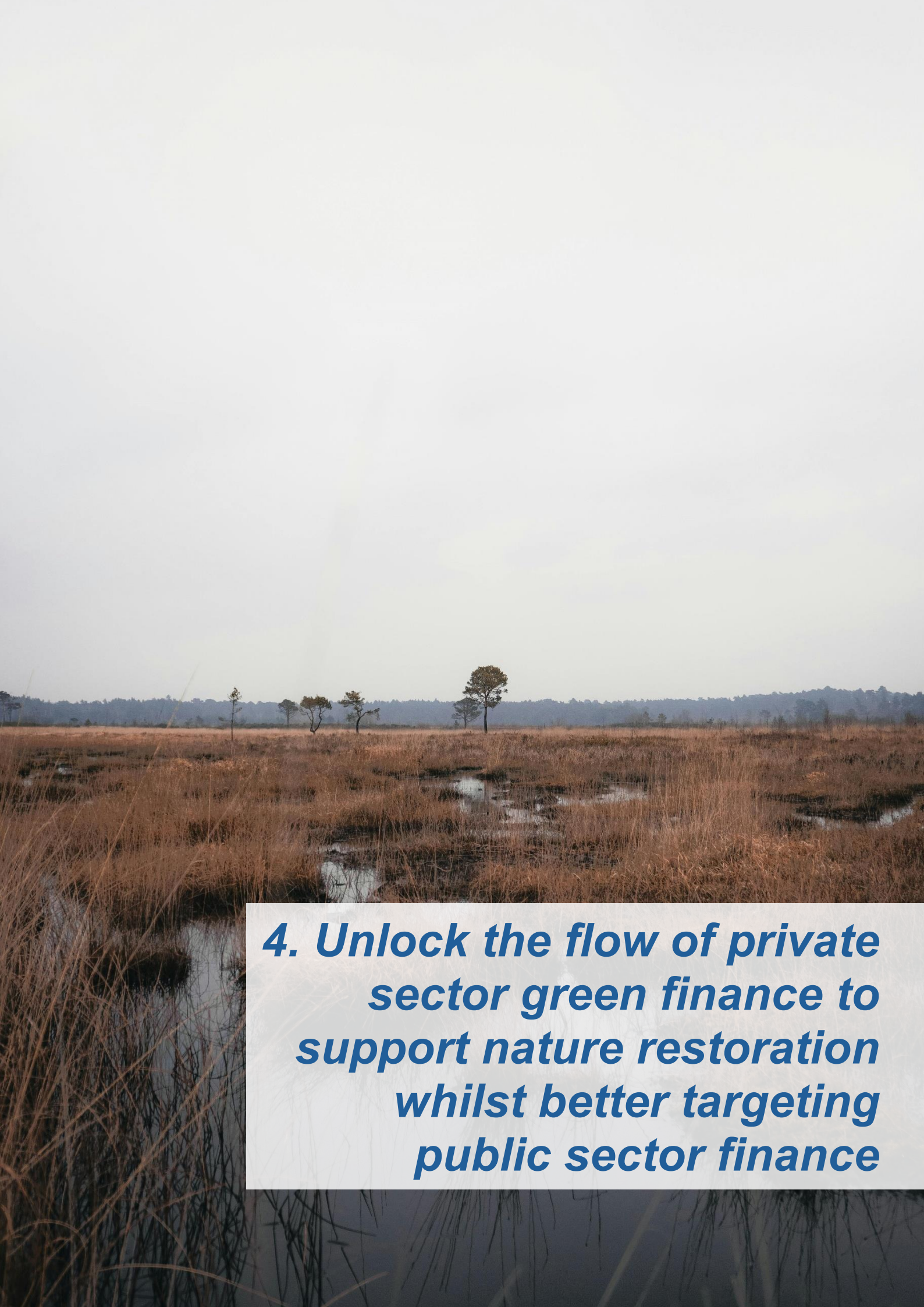
EA has indicated that in 2010 it was almost entirely taxpayer funded as an organisation, however progress has been made in moving away from this model, apart from for flood defences, as customers value paying more for better performance and more certainty. There is ambition to deliver a quicker and more responsive service for customers, enabled by cost recovery, for Town and Country Planning Act advice and regulatory services.

The review heard that some developers would be willing to pay extra for a faster service from regulators. This willingness to invest more for faster service is particularly evident in areas such as planning applications and regulatory approvals, where delays can significantly impact project costs and schedules. By offering premium services for an additional fee, the organisation can not only improve customer satisfaction but also generate additional revenue to support further service enhancements.

NE, along with other statutory consultees on planning applications, can now charge fees for their advice for statutory and non-statutory stages of Nationally Significant Infrastructure Projects (NSIPs). NE is now also considering a more sustainable funding model which applies the polluter pays principle[95] to allow full cost recovery. The following action is recommended.

Recommendation 20: A short review is needed to **assess the current landscape of chargeable services and cost recovery across Defra, so it can go further in applying the polluter pays principle**, to support the Department in providing faster and more transparent digital services to customers.

[95] Environmental principles policy statement | GOV.UK | 2023



4. Unlock the flow of private sector green finance to support nature restoration whilst better targeting public sector finance

4. Unlock the flow of private sector green finance to support nature restoration whilst better targeting public sector finance

Introduction

Green finance refers to all financial flows, including loans or investments, that support sustainable environmental objectives[96]. There is an increasing opportunity for investments in new projects, products and services as countries, companies and individuals respond to the challenges of climate change, biodiversity loss and environmental degradation[97]. Scaling up private investment in nature is an international challenge, highlighted at COP 16 in December 2024 as a critical task in the transition to a nature positive and net zero economy[98].

There are multiple routes for private investment in nature recovery and sustainable farming, which are collectively termed nature markets[99]. Nature markets provide opportunities for landowners to sell the additional benefits they generate to others who want or need to buy them. They are already an important part of the economy and include compliance nature markets and nature-based economic infrastructure, discussed below. This is an area where there is an increasing opportunity to align economic interests with nature recovery[100], by enabling more of the goods and services delivered by nature to be paid for by those who benefit from them, directly and indirectly.

This review has heard from a breadth of organisations about the potential scale and impact of green finance being directed into nature markets. There is a view that Government is not doing enough to create the certainty needed to drive further investment into these markets, beyond the previous core principles and ambitions (£500 million per year of private finance into nature's recovery by 2027, and more than £1 billion by 2030) published in the last Environmental Improvement Plan[101]. There is appetite for Government to be doing more as a regulator, not less, in creating the conditions needed to facilitate green finance investments.

The case for change

Mobilising new forms of private finance into the protection and restoration of nature

The UK Woodland Carbon Code (WCC)[102] and the UK Peatland Code (PC)[103] are the two most mature nature markets in the UK. Both codes provide assurances to voluntary carbon market buyers looking to compensate for emissions. The WCC is an example of where private finance is being used to restore nature through the creation of new woodland, as shown in the case study below. In addition to these markets, the recent introduction of compliance markets in England for nutrient credits and BNG are expected to lead to a step change in the scale of nature markets. There is also potential for new nature markets, with emerging areas including carbon credits from hedgerows and native habitat restoration.

[96] What is green finance? | Lloyds Banking Group plc | 2024
[97] Mobilising Green Investment - 2023 Green Finance Strategy | GOV.UK | 2023
[98] COP16: A Historic People's COP Sets the Stage for Nature-Positive Action | United Nations Environment Programme | 2024
[99] Nature markets: A framework for scaling up private investment in nature recovery and sustainable farming | GOV.UK | 2023
[100] The state of nature markets today and tomorrow | Mckinsey | 2022
[101] Environmental Improvement Plan | GOV.UK | 2023
[102] Woodland water credits | UK Woodland Carbon Code
[103] How it works | IUCN UK Peatland Programme

The main existing and emerging nature markets in the UK are summarised below.

Voluntary nature-based carbon markets	• The UK Woodland Carbon Code • UK Peatland Code • Private mechanisms to sell voluntary nature-based carbon credits
Compliance nature markets	• Biodiversity net gain • Nutrient credits • Marine net gain
Voluntary water quality and flood risk markets	• Woodland Water Code[104] • Private mechanisms to finance natural solutions to improve water quality and reduce flood risk
Nature-based infrastructure	• NBS to flood alleviation and water pollution
Business resilience	• Emerging corporate social responsibility financing for nature from investors and philanthropic sources

Table 3: Main existing and emerging nature markets in the UK

Case study: The Woodland Carbon Code and Webbs Farm, Essex[105]

Webbs Farm, an arable business in Essex, aimed to increase financial returns by creating a native broadleaf woodland and selling carbon credits. Once verified to WCC, the farm applied to a Woodland Carbon Guarantee auction in February 2020, which provided the financial certainty needed to proceed. Planting of a 3-hectare woodland with species such as Common Oak, Hornbeam, and Silver Birch was completed in December 2022, transforming poor-quality arable land into a carbon-sequestering woodland.

The review has heard that, despite the significant Government targets in place, there is no consensus about the potential 'size of the prize', beyond it being viewed as having significant potential. Neither is there a definitive view about the scale of the current flows of private finance into nature markets. For voluntary and compliance markets, the market is mixed and fragmented, with new schemes, such as the nutrients credit scheme, rapidly evolving.

The current information gaps hinder accurate evaluation of the opportunity and progress being made. There is, however, agreement that the UK should be well placed to capture the growing appetite for investment in natural markets, drawing on the UK's financial and scientific expertise[106].

Case study: Tees catchment nutrient mitigation credits

When developers plan to build new housing units within the Tees catchment area (the Teesmouth or Teesmouth and Cleveland Coast SPA and Ramsar catchment area), there is a potential need to mitigate any nutrient pollution the development creates, which will be considered when applying for planning permission from a local planning authority. To do this, developers can apply to buy credits that fund mitigation activities, such as creating a new woodland or wetland, which will balance out nutrient pollution produced by any housing development[107]. The scheme is operated by NE. Credits have enabled around 6,375 new homes in the Tees catchment area to be developed, with almost 6,500 acres of land secured for nature recovery in the catchment by working with Durham Wildlife Trust, National Trust and Tees Rivers Trust. Excellent partnership delivery has also been in place with the EA, the Constructed Wetlands Association, the nature conservation sector, water companies, local planning authorities and landowners.

[104] Woodland water credits | UK Woodland Carbon Code
[105] Woodland Carbon guarantee case studies | Forestry Commission | 2023
[106] Enabling a Natural Capital Approach guidance | GOV.UK | 2025
[107] Tees catchment: how to apply for nutrient mitigation credits from Natural England | GOV.UK | 2025

The long-term time scales involved in nature markets, in terms of financial returns and nature recovery, are also a disincentive for investment[108]. This is demonstrated by the voluntary carbon market for peatland restoration, which is viewed as a long-term, high-cost, low-return investment, as restoring degraded peatlands can take decades to show tangible benefits. This creates an inconsistency with private sector investment models, which typically prioritise shorter-term returns[109].

Investment is being blocked due to concerns about market integrity, how to combine payments, and capacity in matching investors to opportunities. There are also concerns about securing access to nature markets for investment given that England's agricultural land ownership is complex, often involving multiple stakeholders and short-term tenancies. There is a need to consider both supply and demand in parallel, particularly given the opportunity for farmers and land managers to diversify their business models, delivering environmental and socio-economic benefits across communities[110].

As nature markets are still emerging, the debate around the role for Government is ongoing[111], including whether any intervention is needed and the benefits this would bring[112]. There is agreement that the opportunity is real and there is evidence of strong interest, at this point, for Government to do more to put in place a governance or regulatory measure which will help bring confidence to both suppliers and investors, about the integrity of the market.

The current approach from Government to both the voluntary and compliance nature markets is not working. The emerging patchwork of fragmented investment opportunities each seem to have an inconsistent supply of land and nature-based assets, with varying levels of investments and rates of return, with an overall lack of confidence in the integrity of the market[113] from both the supply (landowners) and demand (investor) perspectives. There is little sense of what is going to come next, and who needs to do what. The following actions are recommended.

Recommendation 21: Defra should **explore launching a Nature Market Accelerator to bring much needed coherence to nature markets and accelerate investment**. This should be small, focussed and industry funded to provide independent assurance on the governance and standardised processes needed to guide and protect the interests of suppliers of nature-based projects; investors in biodiversity and ecosystem services; and other intermediaries and third parties involved in trading. Clear market rules and governance will be essential in delivering public goods and services. Further functions could include more hands-on intervention including identifying projects and matching of projects to investors.

Recommendation 22: Given the UK's financial and scientific expertise, Government should **publish a call for evidence on further opportunities to increase private investment into nature from economic sectors who impact upon or benefit from our shared natural capital**, for example through the role nature-based solutions can play as economic infrastructure.

[108] Accelerating private investment in nature-based solutions | Broadway Initiative | 2020
[109] Progress in reducing emissions 2022: Report to Parliament | Climate Change Committee | 2022
[110] Nature Recovery Green Paper Consultation: Protected Sites and Species | GOV.UK | 2022
[111] Consultation: governance framework high-integrity nature markets | Broadway Initiative | 2024
[112] Green-Alliance-back-to-parliament-briefing.pdf
[113] Consultation: governance framework high-integrity nature markets | Broadway Initiative | 2024

Nature-based solutions

NBS describes the development and use of nature (biodiversity) and natural processes to address diverse socio-environmental issues. The applications are wide ranging, including the integration of nature in cities (e.g. using plants on buildings as green roofs or walls, to help capture storm water and reduce the effects of urban heat islands), the sustainable management of aquatic systems (e.g. constructed wetlands for waste-water treatment[114]) and the wider management of ecosystems (e.g. living breakwaters of oyster reefs to protect coastlines[115]).

Although NBS are already considered effective as an approach across varying applications, there is recognition that it is still at an early stage[116] with the scientific evidence base still building. With a growing population and increasing pressure on natural resources, this review has heard that there is a strong need to better harness the resilience of natural systems to deliver outcomes which both support the recovery of nature whilst also delivering economic benefits.

Natural flood management (NFM) is a NBS that is increasingly recognised as an approach which should be used more as a means of complementing more expensive and time-consuming traditional 'grey' concrete approaches to reducing flood risk, whilst building resilience generating co-benefits including habitat creation. The natural processes involved work to protect, restore and mimic the natural functions of catchments, floodplains, and the coast to slow the rate at which water runs into rivers, and reduce the volume of that water, to help reduce flooding downstream[117].

Water companies have already made investments in NBS to meet their regulatory obligations, alongside more traditional 'grey' infrastructure. There will be further opportunities for an increase in NBS investment over the next Price Review cycle (2025-29)[118]. The Severn Valley Water Management Scheme is a good example of an initiative led by a partnership between the EA, Natural Resources Wales, Powys County Council and Shropshire Council, which is aiming to enhance water management and create resilient environments across the Upper Severn catchment, bringing together NBS with traditional engineering[119].

Funding for some NFM projects is provided by the private sector through Corporate Social Responsibility (CSR), or Environmental, Social and Governance (ESG) capital grants. Examples of private sector initiatives include Aviva's partnership with the World Wildlife Fund (WWF), which delivers nature-based solutions across various habitats and landscapes in the UK with the aim of building healthier and more climate resilient communities[120].

[114] Case study: Ecological housing estate, Flintenbreite, Lübeck, Germany | Sustainable Sanitation Alliance | 2009
[115] 6 types of nature-based solutions to consider for your next project | Institution of Civil Engineers (ICE)
[116] Nature Based Solutions report | WWF | 2022
[117] Financing Natural Flood Management report | Green Finance Initiative | 2024
[118] Our final determinations for the 2024 price review: sector summary | Ofwat | 2024
[119] Severn Valley Water Management Scheme website
[120] Financing Natural Flood Management report | Green Finance Initiative | 2024

Case study: Use of NBS to treat wastewater in Yorkshire

Yorkshire Water has been developing NBS to treat additional flows at wastewater treatment works in Clayton West, Yorkshire[121]. A £14m investment is being used to create a nature-based wetland which will provide a natural way to treat waste and storm water before returning it to the environment. The integrated constructed wetland will contain 13 interconnected ponds over 4.3 hectares (or seven football pitches) and will provide additional treatment to the final effluent and a proportion of storm overflow discharges. Over 300,000 plants will treat the wastewater as it travels through the wetland, taking in and breaking down pollutants. The wastewater being treated will not include solid waste.

There has been some feedback from this scheme and others that the EA has taken an overly cautious approach to permitting, resulting in the scaling back of NBS projects. Other processes and guidance, including the current asset management plan timeline, restrictions on catchment nutrient balancing and the 'fair share' principles, further complicate the implementation of NBS.

Wider challenges preventing more widespread adoption of NBS include difficulties in measuring the individual and collective impacts of projects at scale; a lack of transparent and benchmarked data on market rates and returns; and up-front costs tending to be high with long lead times due to the efforts required in developing the project and building partnerships with local stakeholders and communities. This can result in unfavourable returns, as relatively high costs are borne up-front, and the operational phase is delayed. There is also a lack of industry standards on NBS that are trusted by financial institutions, in comparison to the standards used in the technology, infrastructure and renewable energy sectors, which make it more lucrative to invest in, compared to NBS which requires a more bespoke approach for every project. To unlock further investment in NBS, the following action is recommended.

Recommendation 23: Proposed nature-based solution (NBS), such as wetland mosaics for flood alleviation, currently go through full planning permission, equivalent to major infrastructure, which increases time and cost. Defra should **conduct a six-month sprint, with industry, on removing the barriers to using NBS to flooding and pollution** including planning, benefit-to-cost ratios, orders of magnitude of risk, BNG, and licensing, and then propose a way of reducing or removing these. Scientific evidence is still emerging on the potential application of NBS to tackling pollution, however there are examples of constructed wetlands reducing phosphorous in treated wastewater. A 'state of the science' assessment should consider the very latest evidence on the viability of nature-based solutions in this context.

Biodiversity Net Gain

BNG is an approach to development which makes sure that habitats for wildlife are left in a measurably better state than they were before the development[122]. BNG is now mandatory in England, with developers needing to deliver a BNG of 10%, meaning that a development will result in more or better-quality natural habitat than there was before development.

For the purposes of BNG, biodiversity value is measured in standardised biodiversity units, depending on factors including size, quality, location and type of habitat. Biodiversity units can be lost through development or generated through work to create and enhance habitats. There are three ways a developer can achieve BNG including, in order of preference (1) creating biodiversity

[121] Clayton West wastewater treatment works undergoing £18.9m investment | Yorkshire Water | 2024
[122] Understanding biodiversity net gain guidance | GOV.UK | 2023

on-site; (2) delivering through a mixture of biodiversity gains on their own land on-site or off-site or buying off-site biodiversity units on the market; or (3) buying statutory biodiversity credits from the government.

This review has heard support for the intent of the BNG policy[123], with several concerns raised by local authorities and others relating to ongoing implementation challenges. These include:

- Regulating and auditing delivery: Risks that local authorities will not be able to meet compliance and enforcement obligations, particularly as offsite providers can sell credits for other benefits from the same piece of land, such as nutrient mitigation, to 'stack' biodiversity units.
- Optimal outcomes for nature: Ongoing habitat creation on development sites is considered unlikely to deliver optimal outcomes for nature[124], although there is a balance to strike with the social and health outcomes of nature enhancement within communities.
- Alignment with the development process: A need for better alignment of BNG with the development process, including due diligence at the site selection stage.
- Access to ecological expertise: Concerns that without adequate resourcing planning system delays will increase, or only the riskiest BNG plans will be fully assessed.
- Supply of land for BNG: Complications around whether land must be taken out of food production for private finance to invest in nature, in addition to tensions with landlords on tenanted land if BNG is not covered in tenancy agreements[125].

BNG as a scheme needs to build on early progress and continue evolving to address these issues and others, so that this compliance nature market continues to attract private investment and support the recovery of nature. The following action is recommended for BNG and other compliance nature market schemes.

Recommendation 24: Defra needs to quickly **evaluate and improve the current compliance nature market schemes (including biodiversity net gain (BNG) and nutrients credits)** to make any early adjustments needed to maximise their delivery. The schemes should be streamlined and simplified, with consideration given to whether there are different ways to aggregate BNG credits to help local authorities, farmers and landowners deliver wider environmental improvements.

Investments in food production and nature

Whilst there are multiple routes for private investment in nature recovery and sustainable farming, public finance also plays a significant role. Defra currently operates a £1.8 billion environmental land management (ELM) scheme to boost farm productively in ways that benefits the environment. Three separate elements include the Sustainable Farming Incentive (SFI) scheme which pays farmers and land managers to take up or maintain sustainable farming and land management practice; the Countryside Stewardship Higher Tier (CSHT) scheme which pays farmers and land managers to manage land in a way that protects or enhances the environment amongst other benefits; and the Landscape Recovery scheme which pays groups of farmers and land managers to do long-term, large-scale projects together.

Following the Government's recent commitment to develop a 25-year farming roadmap[126], setting out a plan to transition farming to new models that are more environmentally and financially

[123] Implementing statutory biodiversity net gain | NAO | 2024
[124] Biodiversity net gain | UK Parliament POST | 2024
[125] The Rock Review | Tenancy Working Group | 2022
[126] Steve Reed speech at the 2024 CLA Conference | GOV.UK | 2024

sustainable for the long-term, there is an opportunity to set out how rural grants and payments such as ELM are being used to balance food production and nature outcomes. This will then allow farmers and landowners to consider how best to blend investments from green finance, for example using the woodland carbon code for woodland creation, alongside public finance from schemes such as ELM, which will maximise revenue streams and biodiversity. The following action is recommended.

Recommendation 25: Following the agricultural transition, Defra needs to **set out publicly how rural grants and payments can be used by farmers and landowners, in combination with green finance, to balance food production and nature outcomes.** The production of Defra's 25-year farming roadmap will be an opportunity to do this. This should set out where grants and payments have delivered multiple outcomes, how they can be integrated with green finance, and where they will need to continue to evolve to meet the needs of farmers and food production whilst delivering nature recovery outcomes.

5. Shift regulators to be more digital, more real-time and more innovative with partners

5. Shift regulators to be more digital, more real-time and more innovative with partners

Introduction

This review has heard a clear message that Defra's approach to regulation is not keeping pace with a fast-moving digital age. With satellites, drones, sensors and AI, let alone modern customer relationship management (CRM) systems, we should be seeing a massive change in the way we regulate, monitor and enforce environmental regulation as well as the way the regulators operate internally. All regulators pointed to having paper 'work arounds' and double or triple entry of data into different systems.

The challenges of legacy IT platforms and equipment also means a lack of consistency in the application of digital approaches, meaning that regulators do not consistently share data with each other and their customers, whilst weakening their monitoring of outcomes and making their service to customers slow and lacking in transparency. Digital transformation needs to be turbo-charged but also geared to delivering new processes against outcomes for customers.

Defra provides around 700 services on GOV.UK, most of which relate to regulatory activities including licensing, permitting, permissions, compliance and enforcement, as shown below. Only around one third of the services are fully digital, with the remaining services associated with around 600 different paper forms. Services are also dispersed across more than 300 websites and supported by over 100 IT platforms.

Type	Organisation									
	APHA	Cefas	Defra	EA	FC	MMO	NE	RPA	VMD	**Total**
Asset management	33		8	1	2	1	3	1		49
Compliance, enforcement	81	14	34	26	9	6	7	15	7	199
Grants, payments, subsidies	4	7	5	4	14		9	29		72
Incident management			2	1			1	2		6
Licence, permit, permissions	43	2	37	116	8	14	51	15	11	297
Other	2	1	15	11	6		14	20	1	70
Total	**163**	**24**	**101**	**159**	**39**	**21**	**85**	**82**	**18**	**693**

Table 4: Defra services on GOV.UK grouped by type and organisation

The case for change

Digital transformation and legacy IT

Effective regulation relies on systems which allow businesses to apply for the permits and licenses they need to be compliant in an efficient way. Anything else is a drag on business.

Defra has developed a digital and data transformation strategy 2023-2030[127] with the aim of improving the customer experience, but this work needs to move faster, and it needs to prioritise the services which will make the biggest difference to growth and customers (e.g. permitting and licensing).

Replacing legacy IT also needs to be a priority. NAO reported in 2022 that Defra has one of the most significant legacy IT challenges of all government departments[128]. Defra estimated at the time that legacy IT accounted for 76% of its total digital, data and technology spend requirement and that it would take until 2030 to resolve all its legacy issues. These legacy systems are inflexible, siloed, and expensive to operate, reducing efficiency and hindering innovation. Operational risks

[127] Policy paper: Defra digital and data transformation strategy | GOV.UK | 2023
[128] Modernising ageing digital services | NAO | 2022

posed by outdated technology include a heightened vulnerability to cyber-attacks and the risk of critical service failures.

Lack of modern IT drives inefficiency and increases risk. In the APHA animal health inspectors working on disease control write out to paper forms the same address multiple times. These forms then need to be processed before they can be used to trace animals which may be carrying a disease. APHA's basic systems need to be modernised to facilitate modern tracing and surveillance. The following action is recommended.

Recommendation 26: **Two 'digital champions'** (a Minister and a senior official) **should be appointed to accelerate the digital transformation of Defra and its regulators**, setting priorities for investment and **publishing an external plan within the next six months** on how the customer experience and regulatory outcomes will be improved by the changes, and where any remaining paper processes will be removed. This should also cover how Defra will increase the transparency of the work of regulators by making live monitoring information accessible to the public, so they can see for themselves how regulators are improving the environment in their area. External experts should help guide this work.

Permitting and licensing

Defra issues significant numbers of permits and licenses as an organisation. This includes around 650 marine licences[129]; around 12,000 protected species licences[130]; and around 12,000 permits supporting developments for water, waste and net zero, each year. If these systems are slow and inefficient then fewer projects will progress. Often these projects are to enhance or improve nature.

NE aims to invest more of its resources in high-value, low-volume casework that has the greatest impact for nature. However, their role as a statutory consultee on planning applications means they are still required to respond to high volumes of planning applications, whilst also processing high volumes of license applications[131]. Delays from the regulators are therefore not that surprising and the knowledge that this is likely cascades through the system.

Defra should support the acceleration of the development of digital platforms that can provide effective tools for regulators to handle large volumes of casework to statutory deadlines in a consistent way, whilst offering a self-service culture to customers, providing readily accessible information and advice. Targeted investment in the right digital platforms, which do not just simply replicate outdated paper processes, will provide customers with a better experience and release resources from administrative process to deliver more and better outcomes.

The EA are working to further roll out their Permitting Portal. Launched in April 2024, it allows users to apply for medium combustion plant and specified generator permissions online. In November 2024, the service was expanded to include metal recycling (including vehicle dismantling), waste and electronic equipment (WEEE), and soil, timber and wood activities. Plans are also being made for bespoke 'tracked' services for the most complex applications, starting with a trial for major projects such as significant infrastructure developments and major growth sites. This includes, where possible, joint portals for accessing services that a customer may require from more than one regulator should be included as part of this move to online services. The following action is recommended.

[129] Annual Report and Accounts 2022/23 | MMO | 2023
[130] Natural England wildlife licensing statistics for 2023 | Natural England | 2024
[131] Guidance: Wildlife licences: when you need to apply | GOV.UK | 2014

Recommendation 27: Defra needs to build on the early progress being made to **deliver a permitting portal which will show the progress of applications and increase transparency,** by continuing to accelerate this work and **ensuring consistency of approach across regulators**, with a clear business case relating to the economic growth benefits from the investment. Staged delivery should be put in place across 2025 and 2026.

Using new technology and embracing 'RegTech'

Emerging technologies will continue to play an increasing role in regulation, given the focus of regulation on managing complex systems, relationships and information. Technology is one of the reasons behind the current international shift from traditional 'set-and-forget regulations' to 'iterative and user-centred design practices', including experimental and outcome-based regulation'[132]. A new field of regulatory tools is emerging, known as 'RegTech', which can be used by Governments to improve outcomes and by organisations to increase compliance. For example, AI can be used to monitor data for regulatory risks, natural-language processing can help organisations better understand regulatory requirements, and blockchain can help track and verify compliance data. Given this wider context, Defra and its regulators should be looking for ways that new technology can support the transformation of its regulatory functions, as we cannot remain static in a dynamic world, particularly in the context of the dynamic natural environment.

Technology	Example applications
Machine readable code	Automated processing of new regulations
Search functions	Identifying relevant regulations
Chatbots	Providing easy regulatory advice
Big data	Analysis and synthesis of data for reporting
(Robotic) process automation	Reducing manual, human tasks
Machine learning	Prioritising and optimising reporting, Horizon scanning
Blockchain/distributed ledger technology	Tracking and verifying data
Cloud-based platforms	Effective data management and storage
Natural Language processing	Legislation scanning, information management, labelling
Surveillance/image recognition	Identify verification

Table 5: Regulatory technologies and potential applications[133]

Some regulators are applying new technologies, for example the RPA is using geospatial data and technology to operate land management schemes and evidence whether environmental improvement goals are being met. It holds information on cover and boundaries of around 2.7 million land parcels and 75% of land across England, with earth observation specialists using high resolution satellite imagery to overlay what is currently happening with what has happened previously. This reduces the need to send RPA field officers to visit farms. The RPA are also

[132] Regulatory Technology for the 21st Century | World Economic Forum | 2022
[133] Ibid

working with Forest Research, the research agency of the FC, to develop a hedge and tree map for the whole of England. This is promising, but the approach is inconsistent across Defra regulators, with not enough being done fast enough.

In terms of water quality, all storm overflows across the water network in England have now been fitted with Event Duration Monitors (EDMs), which measure when a storm overflow is in operation. This shows the public when discharges are happening and helps the government and regulators to better hold water companies to account for illegal sewage spills and improve knowledge of overflow operation to identify where improvements can be made. In 2010, just 7% of storm overflows had monitors fitted[134]. This review heard that concerns still remain about the accuracy and public trust in reporting, following discharge incidents including those at Lake Windermere reported in 2024[135].

Once improved data is brought together in real-time, this will create opportunities to use new AI tools to integrate huge data sets to generate answers to questions rapidly. For example, AI should be able to identify non-compliance and alert the appropriate regulator if it has access to sufficient and reliable real-time data, which would allow regulators to better direct their inspection activity and over time could realise significant efficiencies.

Defra's AI strategy, launched during September 2024, sets out the opportunities AI presents for Defra in terms of the potential to transform customer-facing functions and services, bolster internal productivity and organisational effectiveness, and improve scientific and environmental data gathering and analysis. From a regulatory perspective, the focus is more on understanding how to regulate AI as a technology, rather than apply AI as a regulatory tool. While use of AI is not going to be a quick solution, as first the building blocks of putting in good data systems within regulators will need to be completed, as well as moving to as much remote, real-time and digital monitoring as possible, Defra should nevertheless be looking to make fast progress.

Recommendation 28: **Use the momentum of the Defra Group AI Strategy 2030** to identify three high-ambition applications of AI which will (1) build Defra's role as a digital regulator, (2) support both economic growth and nature recovery outcomes, and (3) have an economy of scale across regulators. These applications should be generated from a cross-organisational 'bottom up' approach and be supported by Defra's Ministerial 'digital champion'. These applications could include, for example, applying AI to the geo-spatial information held by Defra to assess habitat changes; auto-filtering of permit or license applications, or using monitoring information to automatically trigger inspections.

Sharing of data

As an organisation, Defra holds significant amounts of data. This data is currently held within a complex and varied system, across a range of functions. Defra's data and information roadmap recognises the siloed and duplicative approach which has evolved.

Greater data transparency helps regulated businesses understand decisions that have been made; reduces uncertainty; promotes consistency; and enables communities to understand their local environment and take appropriate action. This latter point is key – if the public can see for themselves that regulation is delivering the outcomes they value then they have confidence in a system that allows more discretion to regulators. Without access to clear data which tells us all how the system is working, the regulations and rules need to be tight and specific to drive confidence, but this leads to a heavy caseload and decisions which do not take wider outcomes into account.

[134] Storm overflows monitoring hits 100% target | GOV.UK | 2023
[135] Coverage of Environment Agency investigation at Lake Windermere | EA | 2024

Defra's Data Services Platform[136] makes a range of environmental data, for example marine ecology survey data, publicly available. RPA is also making some spatial data products publicly available[137]. The EA is also taking forward changes, including building data platforms modelled on recent work on water data that can be geospatially mapped, providing interactive access to environmental and regulatory information. As with Defra's approach to technology, the approach to open data is promising, but the approach is inconsistent across Defra regulators. There are also concerns that the data being publicly shared is too limited – the review heard that there has been a reduction in data that is collected and released to the public by the EA, some of which is unhelpfully aggregated, making it unusable for most analytical purposes, and takes too long to be published.

Feedback from stakeholders highlights that current limitations on data sharing are a major blocker to efficiency, innovation and improving compliance. Data sharing law currently severely limits data flow between ALBs, Defra and third parties. To develop the ability to use insights from data and technology innovation to inform policy, organisation and service design decisions, a key priority for Defra and its regulators should be achieving increased data and information transparency.

While individual regulators are already working to increase the transparency of their data, the recommendations in this review can only be delivered if that is done well and with consistency. As a starting point, there needs to be targeted investment in strategic data management and analysis, which will unlock efficiencies by reducing the number of duplicative tools and systems that exist across the group and improve productivity by making it easier to find and share data. Defra should also consider how sharing sets of data amongst regulators can help it to build a stronger platform for spatial planning, its work on the land use strategy and allows it a better understanding of compliance across its customer-base. This could help with the move to greater self-regulation for those who are compliant. Good data transparency can also save money, as the EA alone receives around 45,000 FOI requests a year, and Defra Group 1,209 in the last year (with 620 under the FOI Act and 589 under the Environmental Information Regulations), many of which could be resolved if the data was proactively published. The following action is recommended.

Recommendation 29: Defra should **fast track the sharing of data across regulators and externally, making external commitments to do more.** Understanding and interrogating the huge amount of existing data Defra already holds as an organisation should be a high priority in Defra's digital and data transformation strategy, with a much greater presumption on information sharing, and increasing the amount of timely (released as close to real-time as possible), sustained and useful (minimum level of aggregation) data made publicly available. This will build organisational efficiency and an economy of scale, whilst building trust in our regulatory landscape as 'citizen scientists' have increasing access to our data.

[136] Defra data services platform
[137] Publication of land data products and data sharing – Rural payments

Conclusion

My starting position for this review was that we all want to have a good, healthy natural world around us. We value these things in themselves, but we also know the key role of this natural capital in underpinning economic growth.

Some of the ways in which natural capital underpins economic growth are obvious, from the clean air and water we need around us, to the forests which provide timber and the seas which provide fish. But other contributions are more subtle, for example healthy soil for food production and the role of natural pollinators. Alongside the economic benefits, the natural world also has a significant positive impact on people's wellbeing, whether through visiting green spaces, studying and caring about rare species, or just feeling better by knowing the natural world is available. Making sure we look after the natural world should be a given.

But nature does not have a vote, nor a readily available market price, so the risk is that in going about our normal business we all do things that denigrate nature. That's all of us, whether it's through walking the dog, marching through the heather, farming, building new houses, roads or offshore windfarms, particularly as climate change has an impact on habitats and species. Clear regulations are important in ensuring we all understand how to manage the impact of our activities on the natural world, so we can ensure it is protected and enhanced.

Thinking in this area over recent decades has been dominated by the precautionary principle approach to risk, meaning if an action might cause harm to the environment, no matter how small, then better to just say no. In a world where we need new infrastructure and homes, and businesses to grow, this approach causes conflict. This is not the kind of adversarial system we should want, as it leads to a status-quo approach of protecting everything as it is now, rather than taking a wider view when considering the best places for nature to be protected and enhanced, and the most suitable places for development.

The status-quo of the precautionary principle approach is overseen by several regulators. These regulators need independence as they deliver policies and earn the trust of those they regulate. Many of the recommendations proposed should help with this. But regulators should not sit in isolation from democratic decision making. We have to get this relationship right, and it is an issue that haunts regulation in many areas. Defra's regulators have evolved over time resulting in a variety of forms, functions and scales. There is ongoing debate on whether combining or reorganising regulators would make a difference, for example in resolving trade-offs and eliminating overlap. In this review I have not suggested such a change at this moment. However, if we continue to have several active regulators, the government needs to be even clearer on its priorities and empower regulators to act on these. And if we are really to empower regulators to be more outcomes focussed, reforms to the Habitats Regulations will most probably be needed, in the context of our international treaties.

This review has heard clear evidence emphasising the changes needed in the following five strategic themes, to address weaknesses and inconsistencies in the regulatory landscape, which are all impacting economic growth, nature recovery, customers and efficiency:

- Focus on outcomes, scale and proportionality, with constrained discretion
- Untangle and tidy 'green tape' to ensure process-light and adaptive regulation
- Deploy a fair and consistent 'thin green line' on regulatory compliance, with trusted partners earning autonomy
- Unlock the flow of private sector green finance to support nature restoration whilst better targeting public sector finance
- Shift regulators to be more digital, more real-time and more innovative with partners

Much of what this review proposes is about different processes, cultures and behaviours. A lot of it, if implemented, would in the medium term most likely mean lower expenditure on regulation by government and maybe even lower headcount. But we must be aware that resources going into these regulators have been significantly reduced since 2010 even as their responsibilities have continued to increase. Ministers and the government will want to think about this. In addition, investment into making our environmental regulators embrace fully the opportunity of technological and digital approaches will need upfront investment in tech and skills. Defra and the government will need to think about how to fund this.

If we truly want to protect nature and drive growth, we must deliver these changes to provide a more coherent, consistent and practical system, whilst changing our perspective on environmental regulations and targets, viewing them as building blocks, not roadblocks, to economic growth. We can create a regulatory landscape that safeguards our natural environment whilst supporting sustainable actions, through these recommendations.

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ANNEX A: Terms of Reference

The **purpose** of the review is to examine whether Defra's inherited regulatory landscape is fit for purpose and develop recommendations to ensure that regulation across Defra is driving economic growth while protecting the environment. The review will explore:

- Whether Defra regulators are equipped to drive economic growth, secure private sector investment and protect the environment
- The customer and stakeholder experience of regulation, including the impact on those who are regulated.
- The efficiency of regulation, in particular whether the current regulatory landscape involves any duplication and/or contradiction, and whether there are opportunities to make improvements.

The **scope** of this review includes:

- All of Defra's regulators for the purposes of setting out their duties, areas of mutual interest and any potential contradictions/duplication. The review should also take account of any critical interdependencies with non-Defra regulatory bodies.
- Defra's regulators within scope of the Growth Duty, alongside any Defra regulators identified as having particularly large impacts on regulatees, for additional consideration of their impact on growth.

Whilst the focus of the review is on the role and effectiveness of Defra-sponsored regulators, the work may identify opportunities for further work in relation to certain subsets of Defra's regulation. This should not be a blanket review of all regulations.

The review is **part of wider work** to position Defra as a key economic growth department with regulatory reform to:

- Boost private sector investment into the water sector, creating tens of thousands of jobs and speeding up the delivery of infrastructure to clean up water pollution and enable economic growth.
- Transform regional economies across the country through the development of a circular economy by reusing more existing materials, driving down waste across key sectors such as construction and packaging, reducing import costs for businesses and cutting carbon emissions.
- Develop pragmatic solutions that are needed to build the homes and infrastructure this country needs, while protecting and improving environmental outcomes.
- Strengthen economic resilience in communities that need better flood defences.
- Drive rural economic growth by cutting red tape for farmers and boosting Britain's food security.

ANNEX B: Defra's Arms-Length Bodies

Defra Group has a wide range of public bodies varying in function, size and structure. Core Defra sponsors these, ensuring alignment and high standards of delivery. The 12 Defra regulators appear at the top of the list.

Name of Public Body	Type	Responsible for significant delivery	Regulator	Functions
Animal and Plant Health Agency	Executive Agency	Yes	Yes	Safeguards animal and plant health for the benefit of people, the environment and the economy
Centre for Environment, Fisheries and Aquaculture	Executive Agency	Yes	Yes	Collects, manages and interprets data on the aquatic environment, biodiversity and fisheries
Drinking Water Inspectorate	Other	No	Yes	The Drinking Water Inspectorate (DWI) is an independent regulator of drinking water quality in England and Wales. The DWI's role is to ensure that water companies provide safe drinking water and meet all relevant requirements.
Environment Agency	Non-Departmental Public Body	Yes	Yes	Environmental regulation and enforcement, pollution prevention and control, flood defence and response
Forestry Commission	Non-Ministerial Department	Yes	Yes	Responsible for regulation and enforcement, with most offences under the Forestry Act 1967 e.g. illegal felling.
Marine Management Organisation	Non-Departmental Public Body	Yes	Yes	Regulator for most activities in English waters, including management of activities in Marine Protected Areas.
Natural England	Non-Departmental Public Body	Yes	Yes	Provides advice to government on conservation, biodiversity and landscape
Office for Environmental Protection	Independent Oversight NDPB	Yes	Yes	Regulatory body in England and Northern Ireland that provides independent oversight of government's environmental regulations.
Rural Payments Agency	Executive Agency	Yes	Yes	Administers payments to farmers including by providing advice and a customer contact helpline
Sea Fish Industry Authority	Non-Departmental Public Body	No	Yes	Offers regulatory guidance and services to all parts of the seafood industry, including catching and aquaculture, processors and distributors.
Veterinary Medicines Directorate	Executive Agency	Yes	Yes	Assures veterinary medicines: licensing, enforcement and advice. Leads on antimicrobial resistance.
Water Services Regulation Authority (Ofwat)	Non-Ministerial Department	No	Yes	Economic regulator for the water and sewerage sectors in England and Wales.
Advisory Committee on Releases to the Environment	Advisory Non-Departmental Public Body	No	No	Provides statutory advice to ministers on the risks to human health and the environment from the release of genetically modified organisms (GMOs).

Name of Public Body	Type	Responsible for significant delivery	Regulator	Functions
Agriculture and Horticulture Development Board	Non-Departmental Public Body	No	No	Statutory levy board funded by farmers, growers and others in the supply chain to help the industry succeed in a rapidly changing world.
British Wool Marketing Board	Other	No	No	Collects, grades, markets and promotes British wool to the international wool textile industry for use in flooring, furnishings and apparel.
Consumer Council for Water	Non-Departmental Public Body	No	No	Represents the interests of consumers (domestic and business) of licensed water suppliers.
Covent Garden Market Authority	Other	No	No	Looks after and manages New Covent Garden Market.
Flood Re	Other	No	No	A joint industry and government initiative between the Government and insurers. It is funded in part by a statutory levy on UK Household Insurance.
Independent Agriculture Appeals Panel	Advisory Non-Departmental Public Body	No	No	Considers appeals against decisions of the Rural Payments Agency.
Joint Nature Conservation Committee	Non-Departmental Public Body	Yes	No	Not a regulator but a statutory adviser to Government on UK and international nature conservation.
National Forest Company	Charity	No	No	Responsible for leading the creation of the National Forest, working in partnership with landowners, businesses, public, private and voluntary organisations and local communities to deliver and champion the shared vision for the Forest.
National Parks Authorities (x10)	Other	No	No	The strategic and local planning authorities for their areas, not regulators.
Plant Varieties and Seeds Tribunal	Other	No	No	Makes decisions about national listings of new varieties of plants, UK plant varieties and certain forestry matters.
Royal Botanic Gardens, Kew	Non-Departmental Public Body	Yes	No	Statutory duties and functions include investigation and research into the science of plants and care for collections of plants.
Science Advisory Council	Advisory Non-Departmental Public Body	No	No	Provides expert independent advice on science policy and strategy to the Defra.
Veterinary Products Committee	Advisory Non-Departmental Public Body	No	No	Advises Defra on veterinary medicinal products and animal feed additives.

ANNEX C: Proposals from others for organisational change

This review heard evidence of an ongoing debate about whether combining or reorganising Defra regulators would make a meaningful impact, for example in resolving trade-offs and eliminating overlap. Dame Glenys Stacey's Farm Inspection and Regulation Review in 2018[139] made the case for a single farm and land management regulator to bring together dedicated regulatory expertise whilst simplifying and strengthening customer relationships. Several other reviews, including work conducted by William Priest on the Environment Agency, also considered different configurations.

During the review, there was no clear consensus on how reorganisation of the regulators would help improve the system. Some reviews have advanced a case for trying to reconfigure around customers e.g. farmers. Others advocate that you need to have a single regulator of a particular environmental outcome e.g. a single regulator for water standards or soil standards, acting across all customers. Overall, I have not been persuaded that there is a clear view on the benefits that reorganisation would bring, given the financial costs and lead times. It would also mean that the energies of each organisation would be spent on organisational change, at a time where we need them to focus on quick improvements and outcomes.

There may be a case for reorganisation where public trust in a regulator has diminished - Sir Jon Cunliffe's review is looking at how trust in water regulation can be restored. Depending on Jon's findings, there may be a case in the longer term for another look at reorganisation. If and when this is considered, attention will need to focus on how regulators are best configured to deliver environmental outcomes as I argue in this review.

[139] Farm Inspection and Regulation Review