HM Government

Environmental Improvement Plan 2023

First revision of the
25 Year Environment Plan

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Foreword from the Prime Minister

The natural environment of these islands has shaped who we are. It is the soil from which our country grew, it provides the food, clean air, and clean water that sustains us, and it remains a constant source of pride, joy and solace for millions. Protecting that environment is an unequivocal moral good, but it is also fundamental to our health and prosperity.

This government is committed to leaving the environment in a better state than we found it. Five years ago my predecessor the Rt Hon Theresa May MP published the 25 Year Environment Plan to improve the health of the natural world. Since then, we have made huge progress, and we are going further and faster now that control of important areas of environment policy has returned to the UK.

We have created or restored wildlife habitats the size of Dorset and established marine protected areas across 35,000 square miles of English waters. We have passed the Environment Act through which we set world leading, long-term targets to restore nature, clean up our waters and tackle pollution. We have replaced the EU's bureaucratic Common Agricultural Policy with a new system to reward farmers for their stewardship of our countryside. This includes new incentives to manage hedgerows for wildlife, plant nectar-rich wildflowers and manage pests without the use of insecticides. As Chancellor I was proud to launch the Nature for Climate Fund, putting £750 million towards tree planting and peatland restoration, and the £1bn Net Zero Innovation Fund and launching sovereign green savings bonds.

We have also driven action on the international stage. At COP26 in Glasgow, more than 140 countries which are home to over 90 per cent of the world's forests made a historic promise to halt and reverse forest loss and land degradation by the end of this decade. And we played a leading role in striking a new global deal for nature at the UN Nature Summit, COP15, in December last year, making the case that restoring the natural world is vital in achieving net zero.

This new Environmental Improvement Plan sets out how we will drive this work forward with renewed ambition. It is a blueprint not just to halt the decline of nature in our country, but to reverse it – changing the trajectory that the country has been on ever since the industrial revolution.

Under this plan we will protect 30% of our land and sea for nature. We will launch a new multi-million pound Species Survival Fund targeted at protecting our rarest species, from red squirrels to grey seals. We will tackle pollution in the air, in our waters, and on land, setting ambitious new targets across the board to improve the environment while also improving people's health and quality of life. And we will drive investment to support green jobs and green growth across the country, building on our leadership in areas like offshore wind and our status as a burgeoning science and technology superpower. I want to see the private sector stepping up and seizing the many opportunities that this greener future will create.

We have a shared responsibility to preserve this green and pleasant land for our children and grandchildren to enjoy and benefit from. This plan sets out how we will deliver on that responsibility.

The Rt Hon Rishi Sunak MP

Prime Minister

Foreword from the Secretary of State

Our Environmental Improvement Plan sets out how we will improve our environment here in the UK and around the world by working together. Building on the vision set out five years ago in the 25 Year Environment Plan, with new powers and duties from the Environment Act, Agriculture Act and Fisheries Act, we have laid the foundation stones for our drive to halt the decline of nature by 2030 – our most critical target of all. Driven by data and dashboards, this will be a decade of delivery with target-led, targeted actions towards leaving our environment in a better state than we inherited.

Nature is a crucial part of our islands' story and our shared future. We know what is special with our rare habitats, our iconic species, and we also know the pressures it is under. We rely on our natural capital for a secure supply of food, for clean air, and for clean water, as well as for leisure and genuine joy. However, nature has been taken for granted for too long, used freely as a resource with little thought for the consequences. We have to reverse that and respect nature. Nature can help us tackle some of our great challenges and we need to help protect nature.

This is a national endeavour. National government, local government, communities and families all have a key role to play through policies, through delivery of services and through the choices we all make daily in our lives. While the Covid pandemic brought out the desire to reconnect with nature, it hindered our progress to a re-use and recycle society away from a wasteful, throwaway society as well as delay to delivery on some of our structural plans which we have to get back on track when we consider use of our precious resources and minimise unnecessary waste.

This is also an international endeavour. Around the world, nature is under increasing pressure. The world has acted on tackling climate change but for too long, nature was on the sidelines and treated as the Cinderella. I was proud the UK brought nature into the heart of action on climate change in Glasgow at Climate COP26 and was reinforced by the Prime Minister at COP27 when he said, "there is no solution to climate change without protecting and restoring nature". At Montreal at the UN Nature Summit, I am proud the UK played a critical role in the global agreement to protect nature. Reinforced by our science expertise and financial support, we already help nature around the world. We will continue to do so as the impacts elsewhere can and do have consequences here in the UK.

We have already started the journey and we have seen improvements. Our transformation on support for farmers and landowners to prioritise improving the environment, reducing carbon emissions and enabling sustainable food production is absolutely symbiotic and truly world-leading. We are stepping up on tree planting. We have cleaner bathing waters, because we have put a spotlight on water quality and rivers and we are forcing industry to clean up its act.

I know there is much more to do to restore nature - and to level with you, some of these challenges are not always so easy to fix as we might all hope. I can assure you though that with our new duty to consider biodiversity guided by our Environmental Principles Policy, we are embedding nature in the heart of every decision that government will take for the long haul.

Whether you live in a city or town, in the countryside or on the coast, join us in our national endeavour to improve the environment. Nature needs us to accelerate our help if we want to enjoy nature's help for generations to come. Together, we can achieve this.

The Rt Hon Thérèse Coffey MP

Secretary of State for Environment, Food and Rural Affairs

Executive summary

Five years ago, the 25 Year Environment Plan (25YEP) set out our vision for a quarter-of-a-century of action to help the natural world regain and retain good health. We said we would refresh the plan every five years, a commitment set into law in the Environment Act 2021. This document represents the first such review of the 25YEP. It reinforces the intent of the 25YEP: where the 25YEP set out the framework and vision, this document sets out the plan to deliver.

To achieve its vision, the 25YEP set ten goals. We have continued to use these ten goals as the basis for this document: setting out the progress made against all ten, the specific targets and commitments made in relation to each goal, and our plan to continue to deliver these targets and the overarching goals.

Our apex goal – improving nature

We will halt the decline in our biodiversity so we can achieve **thriving plants and wildlife**. This is a large task but we have already started: we have created or restored wildlife habitats the size of Dorset, we are investing more than £750 million in tree-planting and peatland restoration through our Nature for Climate Fund, and we have established a network of marine protected areas across 35,000 square miles of English waters.

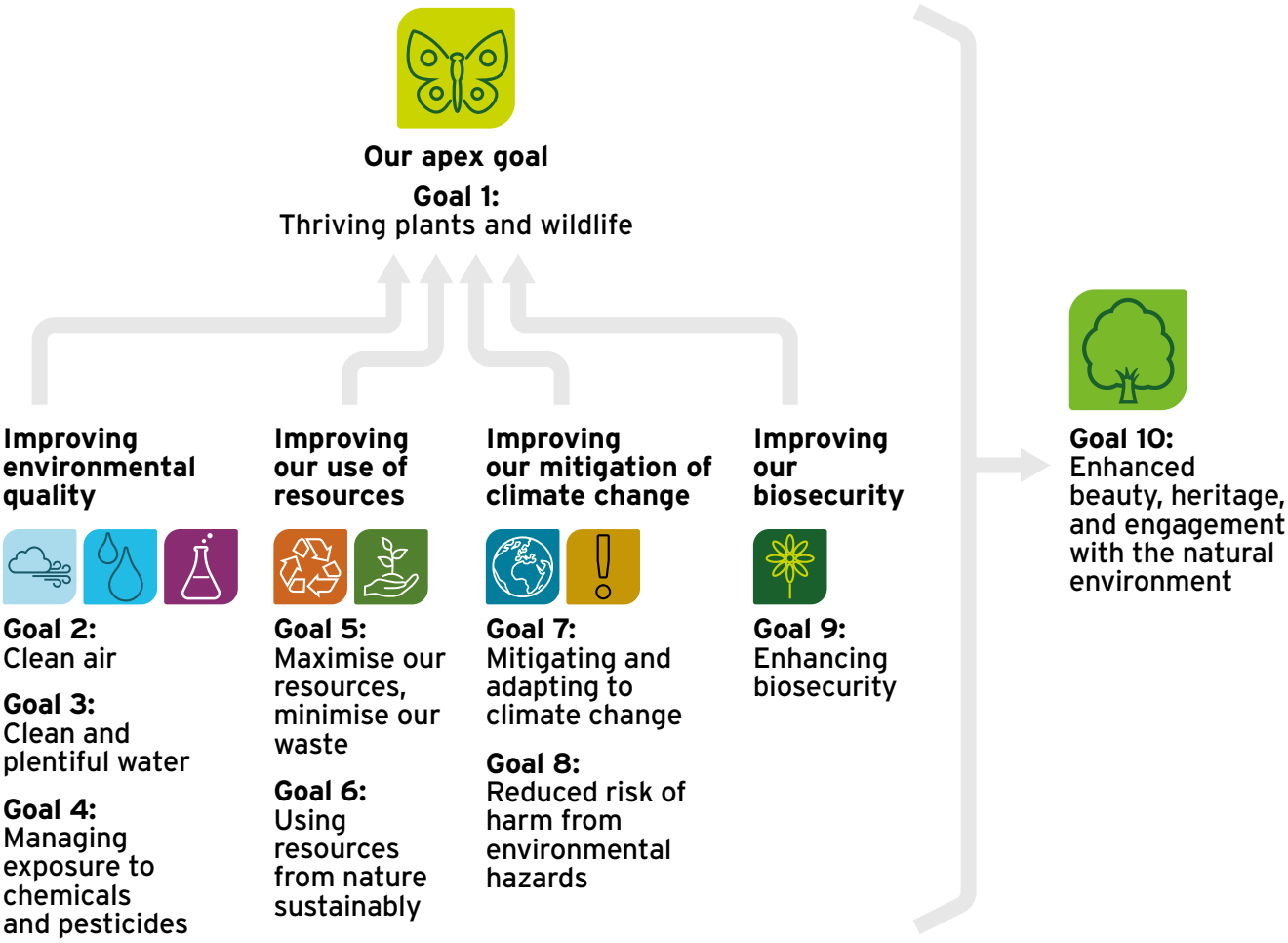
We have also driven action on the global stage, reflecting that restoring nature is not just a national endeavour but also international: at UN Nature Summit COP15, we agreed a new Global Biodiversity Framework, with 23 global targets, including 30% of global land and 30% of global ocean to be protected by 2030. And our goals and targets at home will support progress towards the UN's Sustainable Development Goals internationally. To make further progress, we will:

- Launch the Species Survival Fund to create, enhance and restore habitats.
- Create, restore, and extend around 70 areas for wildlife through projects including new National Nature Reserves, and the next rounds of the Landscape Recovery Projects.
- Protect 30% of our land and sea for nature through the Nature Recovery Network and enhanced protections for our marine protected areas. We intend to designate the first Highly Protected Marine Areas this year.
- Implement the Environment Act 2021, including rolling out Local Nature Recovery Strategies to identify areas to create and restore habitat, and Biodiversity Net Gain to enhance the built environment.

- Support a transformation in the management of 70% of our countryside by incentivising farmers to adopt nature friendly farming practices.
- Publish an updated **Green Finance Strategy,** setting out the steps we are putting in place to leverage in private finance to deliver against these goals. We have a goal to raise at least £500m per year of private finance into nature's recovery by 2027 and more than £1bn by 2030.

This goal is at the apex of our plan: all the other goals will help us to achieve it.

Connections between our environmental goals



Improving environmental quality

To restore nature, we will need to improve the quality of our environment. Three of the 25YEP goals, in particular, are critical for this. Firstly, we will aim to achieve **clean air**. Air quality in the UK has improved significantly in recent decades, but it continues to be the biggest environmental risk to human health and a source of harm to the natural

environment. To address this, we will:

- Cut overall air pollution by tackling the key sources of emissions, including reducing the maximum limits for domestic burning appliances in Smoke Control Areas.
- Tackle specific hotspots by challenging councils to improve air quality more quickly, while supporting them with clear guidance, funding, and tools.
- Reduce ammonia emissions (crucial for sensitive natural habitats) by using incentives in our new farming schemes, investing £13 million in slurry storage infrastructure in 2023 and considering expanding environmental permitting conditions to dairy and intensive beef farms.

A healthy environment also relies on **clean and plentiful water**. The public expects better from our water environment, from clean drinking water to its use for crops and bathing waters. We will:

- Tackle nutrient pollution, including by upgrading 160 wastewater treatment works by 2027 and providing increased advice and incentives to support a shift to sustainable agricultural techniques.
- Restore 400 miles of river through the first round of Landscape Recovery projects and establish 3,000 hectares of new woodlands along England's rivers.
- Roll out water efficiency labelling across appliances and ensure water companies deliver a 50% reduction in leakages by 2050.

We will also need to continue **managing exposure to chemicals and pesticides**. These are an important part of a productive economy and sustainable food production, but they can place significant pressures on our environment across land and sea. Both were areas of EU regulation, so Brexit has provided an opportunity to review our approach. Therefore, we will:

- Develop a new **Chemicals Strategy** this year to establish our regulatory approach and priorities for the sustainable use of chemicals through UK REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals).
- Help farmers transition to Integrated Pest Management with investment and advice, utilising nature to tackle pests and reducing reliance on manufactured pesticides.

Improving our use of resources

We will also have to improve how we use natural resources, which two of the goals aim to achieve. The resources on our island – indeed on our planet – are finite and precious. This is why we aim to **maximise our resources and minimise our waste**. The pandemic set us back in achieving this goal: household recycling fell and total waste increased as people needed new single-use products like facemasks and test kits. We need to get back to better habits, towards a truly circular and sustainable economy. To do this, we will:

- Work with business to implement packaging extended producer responsibility from 2024 so that polluters pay to recycle packaging.
- Introduce a deposit return scheme for plastic and metal drinks containers from October 2025 to drive higher recycling rates.
- Implement consistent recycling between different councils, to boost recycling rates.
- Ban the supply of single-use plastics like plastic plates and cutlery from October 2023. We will also explore options further, including with stakeholders, for the potential for technological innovation in the production of coffee cups, and behavioural science in how they are used.

At the same time, we need to use resources from nature more sustainably and efficiently. Our natural capital is estimated to be worth £1.8 trillion. It is essential for securing our basic needs, maintaining our biodiversity, and sustaining our economy. We will:

- Grow a sustainable and long-term UK timber supply by investing in tree planting, skills, innovation and capacity, as well as improving regulatory processes.
- Publish a baseline map of soil health for England by 2028 and bring at least 40% of England's agricultural soil into sustainable management by 2028.
- Implement due diligence requirements set out in the Environment Act 2021 to tackle illegal deforestation in our supply chains.

Improving our mitigation of climate change

Climate change is a significant pressure on our environment. Leaving it in a better state than we found it cannot be achieved without **mitigating and adapting to climate change**. The relationship is two-way: we also cannot mitigate and adapt to climate change without Nature-based Solutions. We will:

- Update on our progress and plans to reach net zero.
- Publish a Land Use Framework in 2023, setting out how we will balance multiple demands on our land including climate mitigation and adaptation.
- Publish the third **National Adaptation Programme** (NAP3) in 2023 that will set out our five year strategy to build the UK's climate resilience.
- Continue our role as a global leader in tackling climate change, biodiversity loss and land degradation and push for an integrated approach to international action.

Climate change is also exacerbating natural hazards and the risk they pose to our health, the environment, and to our economy – hence our goal of a **reduced risk of harm from**

environmental hazards. We will:

- Deliver our investment plan to improve coastal and flood defences, including £100 million on the most frequently flooded areas.
- Reward farmers for actions to reduce risks and impacts from floods, droughts, and wildfires through our new future farming schemes.

Improving our biosecurity

To restore our biodiversity, we need to **enhance our biosecurity**. The risk of pests, pathogens, and invasive non-native species is increasing, as we have seen just this winter when the UK has experienced its largest outbreak of bird flu. To protect our biosecurity against this and future such threats, we will:

- Deliver the five-year action plan of the **2023 Plant Biosecurity Strategy** for GB, mitigating threats such as Xylella and Emerald Ash Borer.
- Seize the opportunity post-Brexit to tailor our border import controls with a new targeted and risk-based Target Operating Model.

Improving the beauty of nature

Our final goal is to **enhance beauty, heritage, and engagement with the natural environment**. We all understand that spending time in nature is part of what makes the United Kingdom such a special place. We want everyone to enjoy our landscapes and coastlines, but also recognise that to restore nature, we need to enjoy its beauty responsibly. We will:

- Work across government to fulfil a new and ambitious commitment that everyone should live within 15 minutes walk of a green or blue space.
- Continue our delivery of the England Coast Path and the Coast to Coast National Trail.
- Green the Green Belt as set out in the Levelling Up White Paper by identifying key areas for nature restoration.
- Invest in a new national landscapes partnership for National Parks, Areas of Outstanding Natural Beauty, and National Trails.
- Extend the delivery of our Farming in Protected Landscapes programme, using lessons learned to inform future farming schemes.
- Invest in active travel, with a vision for half of all journeys in towns and cities to be cycled or walked by 2030. £35 million funding has already been committed this financial year.

Introduction

Framework for action

Five years ago, our 25 Year Environment Plan set out ten complementary environmental goals. As set out in the executive summary, by driving progress towards all ten goals, we will leave the environment in a better state than we found it for our children, and our children's children.

We have started to deliver. We have created or restored wildlife habitats the size of Dorset, we are investing more than £750 million in the environment through our Nature for Climate Fund (NCF), and we have established a network of marine protected areas across 35,000 square miles of English waters.

Under the UK's Presidency of the UN Climate Summit COP26, 145 countries – representing over 90% of the world's forests – signed a pledge to halt deforestation and land degradation by 2030. We have also agreed a new global deal for nature at the UN Nature Summit COP15 in Montreal, Canada, which sets a framework for turning the tide and restoring our global environment.

We became the first major economy in the world to commit in law to net zero by 2050 and led international efforts to tackle climate change through our presidency of UN Climate Summit COP26.

We are world leaders in our ambition to work with other nations to address the environmental challenges the world faces, including the interlinked threats of climate change and biodiversity loss. We are the first country to have co-designed an agricultural programme which helps sustainable food production in parallel with a focus on improving, not just protecting, the environment. Our long-term environmental targets and international leadership on climate and nature have sent a strong signal across the world, showing that we take the environment as seriously as we take net zero. We have shown that where we model this and work closely with international partners, we can raise international ambition and build momentum and support.

Our commitment to the UN's 17 Sustainable Development Goals also supports this, and they are embedded in our domestic targets and ambitions. The strategies and targets set out in this plan contribute to our ambition to achieve these goals domestically, and so drive progress internationally.

In recognition of the need for a clear legal structure to empower local government, businesses and the third sector to take action in line with our world leading ambitions, we passed the groundbreaking Environment Act in 2021. This required us to set a suite of legally-binding targets, and designate the 25YEP as the first Environmental Improvement Plan (EIP). Government must review and revise the plan, if needed, every five years to ensure continued progress against the ten 25YEP goals.

This Environmental Improvement Plan 2023 (EIP23) is that revised plan. It sets out for the first time how the 25YEP goals, Environment Act targets, and other commitments we have made domestically and internationally will combine to drive specific improvements in the natural environment.

We have used the 25YEP goals as the structure for this document, setting out an integrated and outcome focused delivery plan which recognises the interdependencies between the goals. As **Thriving plants and wildlife** is our apex goal, which all the other goals will help to achieve, we have put this chapter first in this document and re-ordered other chapters so they are grouped by how they help to deliver the apex.

The majority of EIP23 covers England-only policy as the environment is primarily a devolved matter, with some reserved elements, for instance chemicals. We will continue to work with the Scottish Government, Welsh Government and Northern Ireland Executive to uphold environmental standards and go further to protect our shared natural environment across the UK.

Delivery

This EIP23 includes key highlights of our delivery against the 25YEP goals since 2018, and key actions we are taking forward to deliver these goals up until 2043 (the remaining duration of the 25YEP). We will review EIP23 in 2028. This is a detailed delivery plan with policy actions allocated to different government departments, local government, and the private and third sector where appropriate.

Defra's arms' length bodies – and those across government – will also continue to play a crucial role in delivering the plan. This plan has been developed with support from experts in Natural England, the Environment Agency, the Forestry Commission, and others across the country.

Within government, our governance, monitoring and evaluation has been strengthened to recognise both the urgency of action and reflect the legal duties set of the Environment Act 2021.

We will continue working with the private and third sector to ensure we are tapping into their expertise, leveraging their knowledge and finance towards these targets. We are clear that our targets should set a floor to their ambition. Businesses and investors are a key part of a nature-positive future. There is a market opportunity as they pivot towards delivering against these goals, recognising the growth opportunity of nature-positive investment, both here and abroad. This plan sets the policy landscape to enable that work.

Since the publication of the 25YEP we have set out in more detail specific policy programmes driving progress towards our goals. Amongst other strategies, EIP23 should be considered alongside:

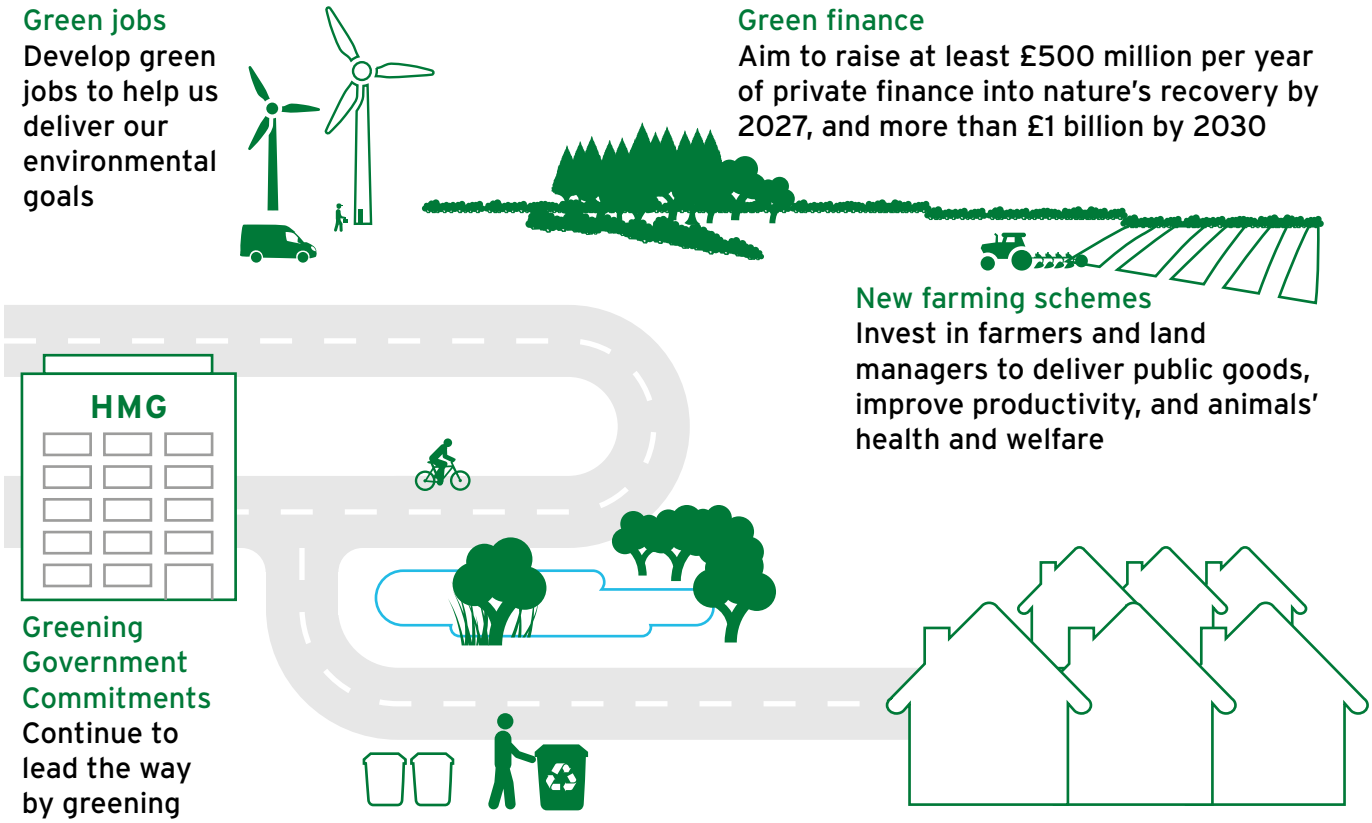
- **Resources and Waste Strategy**
- **Clean Air Strategy**
- **Government Food Strategy**
- **England Trees Action Plan**
- **England Peat Action Plan**
- **Joint Fisheries Statement**
- **UK Marine Strategy**

- **GB Plant Biosecurity Strategy**
- **The Agricultural Transition Plan**
- **Sustainability and climate change: a strategy for the education and children's services systems**
- **Levelling Up White Paper**
- **Transport Decarbonisation Plan**

Cross-cutting themes

Delivery of these different policy areas is tied together by a series of cross-cutting themes, set out below.

Our tools to deliver our environmental targets and commitments



Green jobs

Develop green jobs to help us deliver our environmental goals

Green finance

Aim to raise at least £500 million per year of private finance into nature's recovery by 2027, and more than £1 billion by 2030

New farming schemes

Invest in farmers and land managers to deliver public goods, improve productivity, and animals' health and welfare

Greening Government Commitments

Continue to lead the way by greening our estate and operations

Making green choices

Enable all parts of society to play their part in line with our six principles for green choices

Biodiversity net gain

Make sure developments leave habitats in a better state for wildlife than before

Incentives through our new farming schemes

As part of the agricultural transition we are repurposing the funding from the EU's bureaucratic Common Agricultural Policy into payments for farmers and land managers for public goods alongside food production. Our aim is for 70% of agricultural land, and 70% of farm holdings, to be covered by our new farming schemes by 2028. We are improving and expanding these schemes to make them more accessible and attractive, offer a wider range of options at higher levels of ambition, and encourage and enable farmers and land managers to take the right actions in the right places, deliver ambitious outcomes and take joined-up action across local areas. We published further information on the range of actions we will pay for through these schemes earlier this month in the **Agricultural Transition Plan Update**. We are also co-investing with farmers in productivity, innovation, research and development, and in improving animal health and welfare – many of these investments will also contribute to improving the climate and environment impacts of farming in line with our targets.

We also expect private investment in public goods to continue to expand over the coming years, and we are developing and implementing policy to support this. We will particularly focus on how we can design our schemes to ensure coherence with private schemes and markets and enable farmers to attract private finance. For example, we will work with Landscape Recovery projects to actively attract private finance as they become more established. as part of their development phase to explore potential sources of private finance and design public funding agreements to complement funding from private sources.

Throughout this document we set out how the new farming schemes will contribute to our statutory environmental and climate targets and the delivery mechanisms in place to achieve that. We will continue to work with farmers and land managers to ensure we achieve these targets in the most effective way, and in a way that works best for farmers and farm businesses and supports their primary role as food producers, to support our commitment to maintain domestic food production.

Land use and planning

There are a significant number of demands on our land, from development, energy, food production, nature, climate and beyond. Strategic planning can help deliver environmental improvements by protecting natural capital whilst contributing to its enhancement. We have committed to publishing a **Land Use Framework** in 2023 to set out our approach to making the most out of our land and to ensure we reflect all our objectives for agriculture, the environment and net zero.

The Environment Act 2021 introduced a mandatory Biodiversity Net Gain requirement for new development along with Local Nature Recovery Strategies to target the best places for nature recovery and wider environmental benefits. When commenced, Biodiversity Net Gain will mean that developments leave habitats in a better state for wildlife than they were in before, whilst Local Nature Recovery Strategies will better equip local planning authorities to incorporate nature recovery objectives into local plans and development decisions.

Government is reforming the planning system through the Levelling Up and Regeneration Bill. We will consult on how to use changes under the Bill to improve environmental outcomes and embed reforms under the Environment Act. Environmental improvement will be fully reflected in the review of the National Planning Policy Framework in 2023. The new system of Environmental Outcomes Reports under the Bill will be aligned to EIP23 and ensure that decision makers know how far a plan or project contributes to Environmental Targets.

Our Levelling Up White Paper sets out how we will spread opportunity more equally across the UK. This Environmental Improvement Plan supports our levelling up goals, including how we will improve the equality of access and quality of green space in over 100 neighbourhoods across the UK, and align our planning system with the priorities in this document

Green finance

Growing numbers of businesses and investors are recognising the need to take full account of nature in financial and business decisions and incorporate natural capital within investment portfolios as an emerging asset class. The government has already set a goal to raise at least £500 million in private finance to support nature's recovery every year by 2027 in England, rising to more than £1 billion by 2030.

This year we will publish a new **Green Finance Strategy**, building on the first strategy, published in 2019. The strategy will outline how the UK can mobilise investment into transition pathways for a net zero and nature- positive economy; and seize the opportunity of a growing international market for

green finance, in which the UK is now the world's leading hub. As part of the strategy we will set out our policy framework on nature markets – covering carbon and other ecosystem services, such as biodiversity and water quality. We want to accelerate the development of these markets, tapping into our deep expertise across science, finance, and land and ocean management. We will set out our work to create a suite of high integrity ecosystem investment standards, building on the innovation we have already seen under our Natural Environment Investment Readiness Fund.

Case study: Green jobs – Green Recovery Challenge Fund

Government launched the £80 million Green Recovery Challenge Fund in September 2020 that kick-started environmental renewal after the COVID-19 pandemic, while creating and retaining thousands of jobs in England.

The Fund has driven progress against the 25YEP goals across every region in England by supporting over 150 projects to restore nature, use nature-based solutions to mitigate and adapt to climate change, and connect people with the natural environment.

Funded by the Green Recovery Challenge Fund, Groundwork's Natural Neighbourhoods project created jobs for young people, trained people at risk of long-term unemployment, and unlocked voluntary action on nature recovery and climate change. The project has delivered urgent work to protect and enhance parks and green spaces in disadvantaged communities in the Midlands and North. In doing so, Natural Neighbourhoods addressed climate and nature crises issues by promoting the use of nature-based solutions, thus increasing climate resilience, and contributing towards 25 Year Environment Plan goals.

The project successfully increased job retention, enhanced 105 site locations, upgraded 1,389 hectares of land, planted 38,172 trees and shrubs as well as 174,055m2 of wildflowers.

Green jobs and skills

Our commitment to leave the environment in a better state will require people with the right skills in all corners of the country. From foresters and farmers to green finance and research and development, this plan will lead to investment and create hundreds of thousands of green jobs across the UK. We will continue to work across government, with industry and other key stakeholders through the Green Jobs Delivery Group to create the pipeline of people power needed to deliver our goals.

We are already delivering green jobs across the country through our funds and programmes. The £80 million Green Recovery Challenge Fund created and supported up to 2,500 jobs across every region in England during the COVID-19 pandemic, providing people with valuable skills whilst they enhanced their local environment. By 2024, we expect our collection and packaging reforms to support 21,000 jobs, our flood defence programme to support 10,000 jobs, and our Nature for Climate Fund tree planting and peatland restoration projects to support up to 3,400 jobs. We are working with the Office for National Statistics to define and measure green jobs across the UK. This will enable us to better understand where environmental action is creating and supporting jobs.

Our plans will also drive demand for new types of green jobs as innovation and research develop new ways to improve the natural environment – just as flying drones and using satellites to monitor environmental changes or managing a portfolio of green investments were once the jobs of the future, so new green jobs will continue to emerge.

This breadth of green job opportunities means that since the 25YEP, the government has introduced new training and education routes to enter the green economy, as set out later in this document.

Our Green Finance Strategy, published in 2019, set out our comprehensive approach to greening financial systems, mobilising finance for clean and resilient growth, and capturing the resulting opportunities for UK firms. In 2023 we will publish an updated Green Finance Strategy, setting out in more detail the steps we are putting in place to leverage in private finance to deliver government's environmental goals

Case study: Skills and apprenticeships

T-levels are equivalent to three A-levels and include an industry placement for at least six weeks. From September 2023 onwards, 16 to 19 year olds will be able to study for an Agriculture, Land Management and Production T-level.

Since the 25 Year Environment Plan was published, Government and employers have worked together to approve a series of apprenticeships. These include forestry, countryside management, agriculture and horticulture advice, the water environment, environmental sustainability, ecology and recycling. These join apprenticeships in data, digital and other occupations which are key to supporting the green economy. Apprenticeships are open to all ages and enable people to earn while they learn.

Skills bootcamps have been delivered in woodland management and sustainability and continue to be rolled out across the country. Skills bootcamps are free, flexible courses up to 16 weeks long, giving people the opportunity to build sector-specific skills and fast track to an interview with a local employer.

Case study: Generation Green

Generation Green was granted £2.6m funding by the Green Recovery Challenge Fund. It provided more than 100,000 opportunities to connect young people to nature – many for the first time – and to cultivate a sense of care for the natural environment. It brought together several outdoor and residential providers, including YHA, Scouts and Guides, Outward Bound, Field Studies Council and all English National Park Authorities.

The Generation Green programme prioritised young people from BAME groups, disadvantaged backgrounds and coastal communities. It delivered new jobs, training, volunteering roles, residentials and outdoor and online learning experiences.

The programme retained 20 jobs and created 10 new jobs; 1 paid internship; 30 kickstart placements; 7 apprenticeships; 659 skilled volunteer roles in the outdoor sector.

Green choices

Achieving the goals and targets in this document is a shared endeavour. We must all take action - central government, local authorities, businesses, communities, families and individual citizens.

Government's goal is to create a society that is greener by design, enabling green action at all levels. We will make green choices easier and more affordable, so that they become the default option. We will do this in a way that maintains choice and supports fairness, including by ensuring businesses are supported to take green action. This will bring many co-benefits. Often green action benefits our health, wellbeing, and economic resilience, as well as the environment.

Our approach is supported by behavioural science. It builds on government's six principles for enabling green choices, which are published in the **Net Zero Strategy**. Our approach is summarised below:

- We will make our society greener by design, reducing the ask of individual citizens by sending clear regulatory signals and targeting measures at government, local authorities, and business.
- We will make green action easier by addressing major practical barriers.
- We will make green action affordable, supporting this across all sectors of society.
- We will empower people and businesses to make informed choices, by providing clear information about the environmental impact of different products, services, and actions.
- We will build public acceptability for major changes, inviting those affected to inform policy making, including the most marginalised.
- We will present a clear vision of a sustainable society, including the role of different actors in achieving our environmental goals.

Our UK Innovation Strategy sets our ambitions for an innovation-led economy, to enhance productivity across the economy, and in turn bring jobs, growth and prosperity to all parts of the UK. EIP23 sets out how we are using innovation to to address the environmental challenges we face in the UK and across the world

Action within government

Within government we are taking action to ensure that improving the environment is part of everything that we do. The plan requires long term delivery throughout government, and continued leadership to ensure environment is hardwired into all contributing departmental priorities.

Environmental principles and governance

The Environment Act makes sure that environmental considerations are at the heart of government policy making, by creating a legal duty to have regard to the environmental principles policy statement in making policy. The five internationally recognised principles are: integration, prevention, rectification at source, polluter pays, and the precautionary principle. Our policy statement is designed to set out how the principles should be interpreted and proportionately applied.

Delivery of environmental improvement at the scale and ambition set out in the EIP23 requires robust environmental

governance and leadership to drive delivery, build and embed practice and monitor action. There is already established governance, oversight and assurance across all outcomes and targets set out in the EIP23 within Defra and across government. The cross-government 25 Year Environment Plan Board, established in 2020 to drive cross-government delivery and track and assess progress, has recently been strengthened, establishing its role as the central cross-government authority to ensure environmental principles are being applied and to monitor action towards Environment Act targets and EIP23. The board is also developing cross-departmental practice and guidance and embedding the required skills, capacity, and capability for delivery across government.

The Greening Government Commitments

The Greening Government Commitments set out the actions that the UK government is taking to improve the environmental performance of its own estate and operations, driving specific progress towards 25YEP goals. For example, in 2019 to 2020, compared to a 2009 to 2010 baseline, the UK government reduced its greenhouse gas emissions by 50%, waste by 39% and water usage by 12%. Alongside the environmental benefits, these reductions in energy, waste and water bills are estimated to have saved the taxpayer £182 million that year.

In October 2021, Defra published a new Greening Government Commitments framework for 2021 to 2025. The framework raises ambition on emissions, waste and water usage, and requires departments to report on a much wider range of metrics. It also includes new commitments on nature recovery and climate adaptation, supporting delivery of EIP23 and the **Net Zero Strategy.**

Monitoring and evaluation

Monitoring of progress toward the ambitions and goals of the government's Environmental Improvement Plan will be set out through an annual progress report. The report will consider whether the natural environment has, or aspects of it, have, improved over the reporting period. The report will describe what has been done to implement the EIP, taking account of progress made towards achieving any relevant long-term and interim targets.

The Outcome Indicator Framework comprises a suite of custom indicators designed to collectively describe environmental change as it relates to the ten goals of the EIP23. It was developed after extensive consultation and will be reviewed alongside the EIP23. The framework contains 66 indicators. These indicators are extensive; they cover natural capital assets (for example land, freshwater, air and seas) and together they show the condition of these assets, the pressures acting upon them and the provision of services or benefits they provide.

Each EIP23 chapter outlines the approach to monitoring and the indicators specific to each goal. Some chapters also outline new evaluation initiatives. These complement ongoing monitoring and evaluation activities linked to goal policies and programmes.

Progress will also be supported by our Natural Capital and Ecosystem Assessment (NCEA), a science innovation and transformation programme spanning across land and water environments. It has been set up to collect data on the extent, condition and change over time of England's ecosystems and natural capital. The data gathered through the NCEA will ensure we invest in environmental reforms that achieve maximum benefits for nature and society.

Systems approach

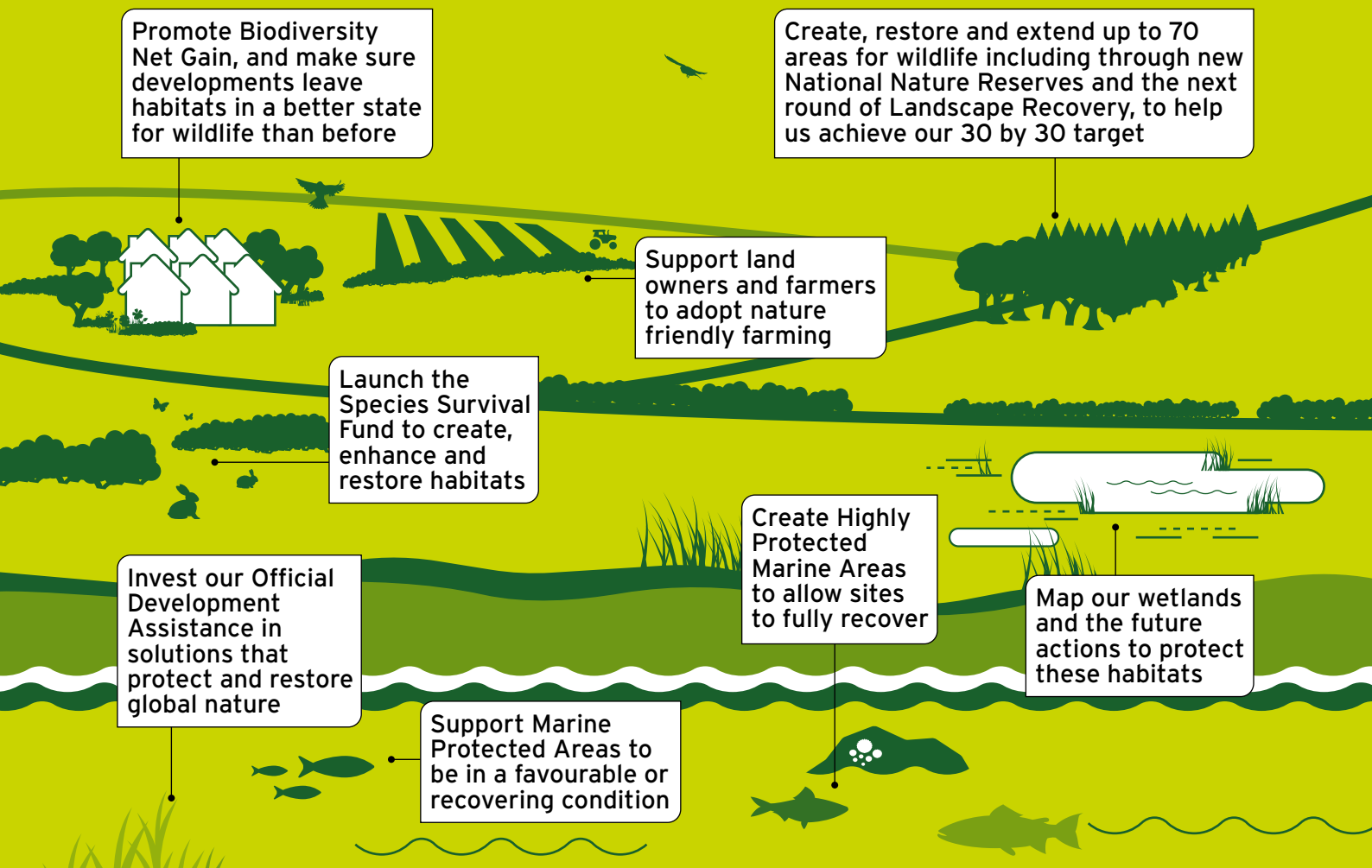
An ecosystem is the sum of its parts, and the environment is intricately interconnected. Almost all actions in this plan connect with each other to contribute to our ambition to leave our environment in a better state. For instance, taking action to improve our water quality and quantity, and to clean up our air, will support improvements in species abundance.

Navigating this complexity and enabling strong coordination of policy and actions can be made possible by using a systems approach. This means ensuring we design policy to maximise benefits, account for dependencies and identify and manage trade-offs. It also reduces the risk of a policy producing unintended negative impacts.

This document highlights the join up already happening across government to achieve our goals. It also highlights the co-benefits we see in actions that drive progress towards one goal, for progress towards other goals.

Goal 1
Thriving plants and wildlife

Key policies that will deliver our apex biodiversity target



The air we breathe, water we drink and food we eat are all dependent on thriving, diverse and species-rich ecosystems. Over the last century, nature has become increasingly degraded. The major pressures on terrestrial and freshwater nature in the UK are agricultural management, climate change, urbanisation, pollution, hydrological change, invasive non-native species and woodland management.

We are seeing similar trends around the world. Reversing this must be a collective effort, which will require concerted action across society and international borders. We are signatories to over 30 environmental treaties and agreed, at the UN Nature Summit COP15, a new ambitious global biodiversity framework.

We have already made progress in creating and restoring habitats, reducing pressures and targeting the species that need bespoke action. To achieve our goal, supported by our apex target to halt species decline by 2030, we are setting out further actions across EIP23 to drive progress.

In doing so, we will create a natural world richer in plants and wildlife, which is more resilient to, and helps with, our ambition to tackle climate change.

Our 25 Year Environment Plan goal

We will achieve a growing and resilient network of land, water and sea that is richer in plants and wildlife.

Since 2018, we have:

- Launched the Nature Recovery Network, with 6 large-scale projects established in 2022, supported by the NRN Delivery Partnership with other 600 bodies signed up to take action for nature.
- Almost doubled the number of agreements we have with farmers and other land managers to enhance the natural environment through our Countryside Stewardship scheme.
- Established 22 Landscape Recovery projects to support 263 species and restore over 400 miles of rivers.
- Improved the conservation status of 96 priority species through the Species Recovery and Back from the Brink programmes.

- Launched the England Peat and Trees Action Plans to create and restore peatlands and woodlands, backed by the £750 million Nature for Climate Fund.
- Continued our international leadership on the environment at the UN Nature Summit COP15, negotiating and securing a landmark agreement to restore global nature, alongside our presidency of UN Climate Summit COP26 which brought nature to the core of climate action for the first time.
- Expanded our international nature investments, including through the £500 million Blue Planet Fund, £100 million Biodiverse Landscapes Fund, £90 million Darwin Initiative and Darwin Plus Fund, and Illegal Wildlife Trade programme.
- Pledged £330 million to the Global Environment Facility (2022 to 2026) to support developing countries tackle the most pressing environmental problems, including biodiversity loss, and deliver the UN Sustainable Development Goals.

We have the following targets and commitments:

- Halt the decline in species abundance by 2030, and then increase abundance by at least 10% to exceed 2022 levels by 2042.
- Restore or create more than 500,000 hectares of wildlife-rich habitat by 2042, alongside our international commitment to protect 30% of our land and ocean by 2030.
- New interim target to restore or create 140,000 hectares of wildlife-rich habitats outside protected sites by 2028, compared to 2022 levels.
- Improve the Red List Index for England for species extinction by 2042 compared to 2022 levels.
- New interim targets for all sites of special scientific interest (SSSIs) to have an up-to-date condition assessment; and for 50% of SSSIs to have actions on track to achieve favourable condition by 31 January 2028.
- Increase tree canopy and woodland cover from 14.5% to 16.5% of total land area in England by 2050, with a new interim target to increase this by 0.26% (equivalent to 34,000 hectares) by 31 January 2028, in line with the trajectory required to achieve the long-term target.
- For 70% of designated features in Marine Protected Areas (MPAs) to be in favourable condition by 2042 with the remainder in recovering condition, with a new interim target of 48% of designated features to be in favourable condition by 31 January 2028, in line with the trajectory required to achieve the long-term target.

To deliver these, we will:

- Pay farmers and land managers to take care of the natural countryside environment, alongside food and other production, so that collectively:
  - They will contribute at least 50% of the target of bringing protected sites into favourable condition by 2042.
  - Including peatland restoration and biodiverse woodland, they will contribute at least 80% of the target to restore or create more than 500,000 hectares of wildlife-rich habitat outside of protected areas by 2042.
  - 65 to 80% of landowners and farmers will adopt nature friendly farming on at least 10-15% of their land by 2030.
- Evolve our Countryside Stewardship scheme to pay for a wider range of actions and reward those who join up across local areas to increase biodiversity.
- Expand the Sustainable Farming Incentive to pay farmers to adopt more sustainable farming approaches.
- Continue to support the 22 Landscape Recovery projects selected in round one and launch a second round of Landscape Recovery projects in 2023 before scaling up further in 2024.
- Implement mandatory biodiversity net gain from November 2023 for most developments in England so new developments create 10% more biodiversity.
- Roll out Local Nature Recovery Strategies from April 2023 to identify areas to create, enhance and restore habitat and deliver environmental benefits.
- Implement proposals set out in the government's response to the Landscapes Review and fund projects through our Farming in Protected Landscapes programme, to restore nature in our National Parks and Areas of Outstanding Natural Beauty (AONBs).
- Continue to support the creation of high quality native broadleaf and mixed woodlands.
- Restore our marine protected areas with strengthened protections by 2024.
- We intend to designate the first Highly Protected Marine Areas this year.
- Deliver Fisheries Management Plans, setting out for the first time how we will increase sustainability on a stock by stock basis.
- Launch a multi-million pound Species Survival Fund to create and restore habitat.
- Update the **Green Finance Strategy** to support a step-change in private investment.
- Protect and restore globally critical landscapes by collaborating with 18 developing country governments and local partners through the Biodiverse Landscapes Fund.
- Establish a UK wetland inventory, in support of the Ramsar Convention on Wetlands, mapping our wetlands for the first time and underpinning future actions to protect these vital habitats.

Introduction

We depend on nature for everything – from food, water, and resources to the places we go when we need to relax and recharge. Our plants and wildlife rely on habitats and ecosystems which best function and provide benefits when they're connected. A curlew, for example, might spend spring and summer in moorlands or wetlands but winter in coastal saltmarshes or farmland, or even migrate overseas.

Over the last century, the state of nature in our country has declined dramatically as the pressure of our demands has made our habitats increasingly degraded and fragmented, and brought species to the brink of extinction. We are also seeing this trend around the world, with the impact of the decline of the natural world falling disproportionately on the world's poorest and most vulnerable.

We have begun a decade of action to halt and then reverse nature's decline at home and abroad. To galvanise action for nature, we strengthened the biodiversity duty on public authories and required development to have a positive impact through biodiversity net gain. Now, public authorities will have to periodically consider the action they can take to conserve and enhance biodiversity, and then take that action.

We have begun a decade of action to halt and then reverse nature's decline at home and abroad

There has been success to date: the Back from the Brink programme (2017 to 2021) helped 96 priority species improve their conservation status, such as the black-tailed godwit and grey long-eared bat. Agri-environment schemes have supported species to recover such as the cirl bunting and the high brown fritillary butterfly.

This chapter sets out the actions we will take to deliver a growing and resilient network of land, water and sea that is richer in plants and wildlife. Alongside other chapters in this plan, it addresses the major pressures on terrestrial and freshwater nature in the UK across land management, climate change, urbanisation, pollution, hydrological change, invasive non-native species, and woodland management. The reforms explored in the Nature Recovery Green Paper have fed into this publication, our delivery plan for protecting nature.

This is underpinned by our apex target to halt species decline in England by 2030. We have already made progress in creating and restoring habitat, establishing and reducing pressures and targeting the species that need bespoke action. Through the Environment Act 2021 we have established the foundational framework which, when fully implemented, will enable nature to recover.

Targets and commitments

Biodiversity on land

The target to halt the decline of species by 2030 is our apex target. To meet this, we must make good progress towards our other long-term environmental targets and commitments at home, such as our tree canopy and woodland cover target and water quality targets.

Long term targets:

- 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 GB Red List Index for species extinction compared to 2022 levels.

Interim targets:

- To restore or create 140,000 ha of a range of wildlife-rich habitats outside protected sites by 31 January 2028, compared to 2022 levels.
- All SSSIs will have an up-to-date condition assessment by 31 January 2028.
- 50% of SSSIs to have actions on track to achieve favourable condition by 31 January 2028.

Our three interim targets cover habitat restoration and creation, and protected sites. By delivering these across a broad variety of interconnected habitats and ecosystems, we establish the right environment for species to begin to thrive again.

Long term target:

- Increase tree canopy and woodland cover to 16.5% of total land area by 2050.

Interim target:

- Increase tree canopy and woodland cover by 0.26% of land area (equivalent to 34,000 hectares) by 31 January 2028.

In the 25YEP, we committed to increasing woodland cover in England to 12% by 2060. We have now gone further and set a target to increase tree canopy and woodland cover in England from the current level of approximately 14.5% of total land area to 16.5% by 2050. Including tree canopy cover provided by non-woodland trees will ensure we capture the many benefits for wildlife and people that trees outside woodland can bring. The 2050 target will require a similar area of new woodland to be planted as in the 25 Year Environment Plan, but by 2050 rather than 2060.

This target will deliver an increase in tree cover of around 250,000 ha, equivalent to an area the size of Cheshire. The target is key to achieving our **Net Zero Strategy**.

The tree canopy and woodland cover target will also play a key role in meeting our species abundance targets, delivering around 20% of the total hectares of new habitat creation and restoration, while also contributing to meeting our water quality targets, as set out in the 'Clean and plentiful water' chapter.

Our interim target to achieve an increase of 0.26% (34,000 hectares) is in line with the trajectory required to meet our long-term target.

Biodiversity in the sea

The ocean is our most interconnected ecosystem. In English waters, we have established a network of marine protected areas (MPAs) across 35,000 square miles. These protect the range of species and habitats in our seas, including cold-water coral reefs with starfish, anemones and sponges; blue mussel beds supporting sea snails and crabs; and deep-water mud habitats with ocean quahog and sea urchins.

Long term target:

- Ensure that 70% of designated features in Marine Protected Areas (MPAs) are in favourable condition by 2042, with the remainder in recovering condition.

Interim target:

- For 48% of designated features in MPAs to be in favourable condition, with the remainder in recovering condition, by 31 January 2028.

Now our MPAs have been designated, our interim target sets the direction for increasing the protections for these valuable marine environments to remove pressures and help them to recover. Our analysis shows that by putting management measures in place across MPAs by 2024, 48% of designated features will be in favourable condition by 2028, as per the target.

Good environmental status of our seas

The **United Kingdom Marine Strategy (UKMS)** is the framework across the UK for supporting a healthy marine environment, with a programme of measures to achieve the holistic outcome-based target of Good Environmental Status (GES) for our seas. At our last assessment in 2018, we had achieved GES for four of the 15 descriptors (eutrophication, hydrographical conditions, contaminants and contaminants in seafood) and partially achieved GES for five. For all indicators apart from birds, the situation has been improving or stable since 2012.

Protecting 30% of land and ocean by 2030

In 2020 we committed to protecting 30% of land and of sea in the UK for nature's recovery by 2030 (30-by-30). Thanks to UK leadership, agreement was secured at UN Nature Summit COP15 to set this global target under the Convention on Biological Diversity. Delivering this commitment for England will ensure our most important places, at the core of nature's recovery, have the long-term, effective management needed for biodiversity to thrive.

> At COP15 countries agreed to protect 30% of global land and 30% of global ocean by 2030

Green finance

Achieving our targets and goals will require the private sector to shift towards an economic model that works for nature, triggering a wave of new investment in the natural environment. The government has set a target to raise at least £500 million a year in private finance to support nature's recovery by 2027 in England, rising to over £1 billion by 2030. By mobilising this capital, we are not only delivering for the natural environment, but also supporting the growth of a new market for investment, tapping into our deep expertise across finance and science.

International targets and commitments

We will honour the requirements of the over 30 international environmental treaties of which the UK is a signatory, including:

- The Convention on Biological Diversity (CBD).
- The Bern Convention on the Conservation of European Wildlife and Natural Habitats.
- The Convention on International Trade in Endangered Species (CITES).
- The Ramsar Convention on Wetlands.
- Convention on Long-Range Transboundary Air Pollution (LRTAP).
- Montreal Protocol on Substances that Deplete the Ozone Layer.
- Stockholm Convention on Persistent Organic Pollutants.

At UN Nature Summit COP15, through the Kunming-Montreal Global Biodiversity Framework (GBF) we agreed alongside the other parties to 23 global targets, including:

- A global commitment to halt and reverse biodiversity loss by 2030.
- 30% of global land and 30% of global ocean to be protected by 2030.
- 30% of degraded ecosystems to be under restoration by 2030.
- A commitment to end human induced-species extinctions of known threatened species by 2030, and restore genetic diversity.
- A global commitment to mobilise $200 billion a year of nature finance by 2030, including through a new fund, under the Global Environment Facility, to tackle the nature crisis; and an expectation that $20 billion of public and private finance will flow internationally into nature by 2025, increasing to at least $30 billion by 2030.
- Identify and phase out subsidies harmful to biodiversity, reducing them by at least $500 billion dollars per year by 2030.
- Obligations to monitor, report and review every 4 years to ensure we track progress against meeting the goals and targets of the GBF globally.

At UN Nature Summit COP15 signatory countries agreed to update their National Biodiversity Strategies and Action Plans. This EIP sets out key concrete actions we will take in England to meet our national targets and contribute to the global goals and targets. In due course, in collaboration with other devolved nations in the UK where necessary, we will publish the required standardised table showing how our national targets align with the post-2020 global biodiversity framework.

Our delivery plan

Over our decade of action, we are focusing on:

1. **Creating more joined up space for nature on land** – protecting land and increasing interconnections to boost natural resilience.
2. **Restoring our protected sites on land** – tackling increasing pressures on our most valuable sites and building their long-term resilience.
3. **Managing our woodlands for biodiversity, climate and sustainable forestry** – delivering co-benefits for nature and climate.
4. **Enhancing nature in our marine and coastal environments** – taking a holistic approach to coastal and marine protection.
5. **Taking targeted actions to restore and manage species** – such as tailored conservation strategies and habitat creation.
6. **Mobilising green finance and the private sector** – drawing on the increasing interest in investing in nature.
7. **Taking action to restore our global environment** – supporting other countries to take the action we role-model domestically.
8. **Unlocking private and public financial finance flows** – ensuring that we grow new sources of finance for nature.

Delivery also relies on reducing the key drivers of habitat and species decline through taking the action prescribed across EIP23's other chapters, such as improving water and air quality and reducing threats from invasive non-native species and climate change.

Our delivery plan for the next decade focuses on 8 important areas

1. Creating more joined up space for nature on land

We need to create more joined up space for nature so that wildlife can thrive. Habitats provide many ecosystem services for people, from flood protection to water and air filtration. Connected spaces create greater resilience for species as it increases their ability to move and reproduce.

Protect 30% of land by 2030

We have committed to protecting 30% of our land by 2030. To achieve our 30-by-30 target, we will:

- Strengthen: ensure effective policy and statutory safeguards and powers are in place to improve management for nature and prevent degradation.
- Extend and create: designate new protected areas and restore or create wildlife rich habitat outside of these (which could be recognised as Other Effective Area Based Conservation Measures).
- Invest: invest in habitat restoration across our protected areas and beyond.

We will publish a map of what counts towards 30-by-30 by the end of the year. This will include work to:

- Launch a further 19 nature recovery projects across England by 2025, building on the five already launched.
- Continue to work towards a Nature Recovery Network, a national ecological network that expands, buffers and connects our best terrestrial and freshwater wildlife sites, including our Protected Sites, and allows wildlife populations to move and thrive.
- Establish another 25 National Nature Reserves by 2027, on top of the existing 221 which cover 105,000 ha across England.
- Scale up our Sustainable Farming Incentive offer and evolve 'Countryside Stewardship Plus' to pay farmers

and land managers to take care of nature alongside food production.

- Launch a second round of Landscape Recovery projects in 2023 before scaling the scheme up further from 2024.
- Drive coordinated action on areas of particular importance through Local Nature Recovery Strategies.
- Implement measures including Biodiversity Net Gain and Conservation Covenants.

Recover nature in National Parks and Areas of Outstanding Natural Beauty (AONBs)

Our AONBs and National Parks are iconic landscapes and home to important habitat such as ancient woodland, peatland and grassland. These current and future Protected Landscapes can play an important role in recovering nature and by doing so contribute more towards our 30-by-30 commitment and we expect them to do so.

To support that Defra is:

- Funding projects through our Farming in Protected Landscapes programme which deliver improvements for nature in line with local priorities. In recognition of the programme's success so far, we are increasing its funding by 50% for 2023/24 and extending it by a further year (more detail in 'Enhancing beauty, heritage and engagement with the natural environment' chapter).
- Implementing proposals driven by the **Landscapes Review**. This includes agreeing a new outcomes framework for Protected Landscapes, which sets targets for their contributions to national environment and climate commitments, to be embedded in their management plans.
- Updating Protected Landscape management plan guidance to ensure consistency.
- Issuing and promoting new guidance on the strengthened biodiversity duty, which requires public authorities to periodically consider the action they can take to conserve and enhance biodiversity, and then take that action.

Roll out Local Nature Recovery Strategies

With partners we will put in place **Local Nature Recovery Strategies (LNRSs)** to better target and support the join up of local actors to restore nature across the whole of England. LNRSs are a key measure from the Environment Act (2021) which will:

- Set priorities for nature recovery in a local area.
- Play a major role in identifying and mapping the best locations to create, enhance and restore nature and provide wider environmental benefits, helping to shape the Nature Recovery Network and meet government's wider commitments and targets.

We will bring forward secondary legislation and statutory guidance to set out the process and contents of an LNRS ahead of national rollout from April 2023. These will support consistency in strategy preparation across England, whilst ensuring strategies can still be flexibly and effectively tailored to each area. This will include, where appropriate, measures to improve the Green Belt.

It is important that LNRSs have weight and meaning across a range of government policies. We will set out in guidance how LNRSs should be reflected in Local Plans so that opportunities for nature recovery can be properly integrated into the land use planning system. Working with the new requirement for Biodiversity Net Gain, this will help the planning system play a more proactive role for nature and the environment.

We are committed to funding the preparation of LNRSs. We will work with responsible authorities appointed to lead the preparation of LNRSs and other public, private and voluntary actors, including landowners and land managers, to ensure the strategies are evidence-based and collaborative. Through this we will create a coherent network of shared plans that everyone can help to deliver, and to bring together environmental priorities to improve join-up and coordination of action to recover nature and improve the environment.

Deliver through our new farming schemes

As 70% of our land is managed for agriculture, there is great potential to create habitat in appropriate places, from farm corners to riverbanks and more.

70% of our land is managed for agriculture. Our new farming schemes will support the restoration of our protected sites

The cirl bunting demonstrates where agri-environment schemes have supported species recovery. In 2016, the population exceeded 1,000 pairs, representing a nine-fold increase since conservation action commenced in the early 1990s. The latest estimate of the breeding population size is 1,200 pairs and the birds' range now takes in coastal farmland between Exeter and Rame Head in Cornwall.

Our new farming schemes will incentivise farmers and land managers to take action across the countryside to support the restoration of our protected sites. This includes through tackling pollution pressures, and contributing to the Nature Recovery Network through hedgerows, buffer strips and farm corners, as well as Landscape Recovery projects in appropriate places.

Hedgerows are important ecological building blocks across our landscapes. We will ensure that hedgerows continue to be protected when existing cross compliance protections are lost in 2024. Our new farming schemes will continue to invest in incentives for maintenance and planting of hedgerows across the country.

Since 2020 we have seen a 94% increase in Countryside Stewardship agreements. There are currently over 1.6 million hectares in Countryside Stewardship, and 1.4 million hectares in Environmental Stewardship. In these agreements we have 422,000 hectares of grassland being managed and 2,500 miles of new hedges have been created.

Agreements running from 2024 are expected to bring or maintain 37,000-48,000 hectares of eligible SSSI habitat in England under favourable management and deliver up to 300,000 hectares of wildlife-rich habitat (alongside up to 200,000 hectares of peat and woodland) creation and restoration by 2042. We will add further options as we roll out our new farming schemes.

Our new farming schemes schemes are expected to:

- Contribute at least 50% of the target of bringing protected sites into favourable condition by 2042.
- Contribute 80 to 100% of the target to restore or create more than 500,000 hectares of wildlife-rich habitat outside of protected areas by 2042, by including the contribution from peat restoration and biodiverse woodland creation.

In 2021 there were around 70,000 conservation, environment, or associate professionals working in England

- Support 65 to 80% of landowners and farmers to adopt nature friendly farming on at least 10-15% of their land by 2030.
- Launch further rounds of Landscape Recovery projects in 2023 and 2024.
- Support continued favourable management of all existing priority habitat already in favourable condition outside of SSSIs (from a 2022 baseline) and increasing to include all newly restored or created habitat through our new farming schemes by 2042.
- Support farmers to create or restore 30,000 miles of hedgerows a year by 2037 and 45,000 miles of hedgerows a year by 2050, returning hedgerow lengths in England to 10% above the 1984 peak (360,000 miles).

In 2022, we announced 22 projects under the Landscape Recovery scheme, each covering an area of between 500 and 5,000 hectares. These projects aim to restore over 400 miles of rivers and protect and enhance 263 species such as water vole, lapwing, and marsh fritillary. We will award funding to another round of Landscape Recovery projects in 2023.

Bees play a crucial role in our ecosystem

2. Restoring our protected sites on land

We have committed to restore 75% of protected sites to favourable condition by 2042, which is crucial to delivering our wider biodiversity commitments. Our protected sites are also a part of delivering our international commitments, such as the Emerald Network, Ramsar Convention and Convention on Biological Diversity. There are currently 4,128 SSSIs located across the country, covering all priority habitats and many characteristic, rare and threatened species. 915 are purely geological sites. These important sites are under increasing pressures, not least from climate change, pollution, development and invasive species.

We are:

- Updating the evidence on site condition and required action to maintain or improve the condition of all 4,128 sites over the next five years.
- Implementing a whole feature assessment approach, to improve our understanding of how sites are functioning and where interventions will deliver the greatest return on investment.
- Developing more strategic actions through new Protected Sites Strategies, building on the existing pilot partnerships covering 33 SSSIs which launched in Spring 2022 and will complete by 2025.
- Continuing to implement the designations programme to consider further places suitable to become sites of scientific interest.
- Delivering the £5.6 million Conservation and Enhancement Scheme to improve and maintain the condition of those SSSIs not currently eligible for existing agri-environment schemes, for example because they are not agricultural holdings.
- Supporting appropriate and sustainable farmland management, including by reducing the impact of invasive non-native species and addressing pressures such as nutrient or sediment run-off contributing to poor water quality.

> We will restore 75% of protected sites to a favourable condition by 2042. This is critical to our biodiversity commitments

- Using powers in existing legislation appropriately to support more effective management of protected sites.

We will continue to work in partnership with the Major Landowners Group, regulators and other stakeholders to address pressures affecting SSSIs and to implement a programme of site improvement. This will include working with farmers to provide advice and help them secure funding to implement necessary land mangement changes; working at a catchment scale with partners to improve water quality and supply issues; and delivering regulation in a fair and proportionate manner alongside other public bodies to prevent harm and improve site condition. This work will include targeting eight key areas covering 145 SSSIs to drive their wider programme of site improvement.

As part of the guidance for public authorities to implement the biodiversity duty, which came into force on 1 January 2023, we will make clear our expectation that they must be consistent with their duties to conserve SSSIs, take efforts to restore their protected sites. We expect all public authorities to ensure they have management plans in place, by the end of the year, to support their sites to reach favourable status. We will also set out expected improvements to Protected Sites within National Parks and AONBs within our Protected Landscapes outcomes framework and refreshed management plan guidance, as set out in the previous section.

We are clear that damaging activities must be tackled with greater urgency. Where appropriate we will make full use of existing powers to improve the natural environment. This includes, for example, issuing Statutory Management Notices. We will also assess where we can tackle legacy consents on SSSIs that negatively impact sites.

Restore our water-dependent protected sites

A majority (67%) of our most precious water bodies are also protected sites. These sites deliver a range of services, such as water purification and climate adaptation or mitigation, and provide people with the opportunity to spend time in nature. Blue carbon habitats such as saltmarsh and seagrass – the majority of which are in protected areas – play an important role in supporting adaptation and resilience to climate change, alongside carbon sequestration benefits. We need to continue to restore these sites so that

they achieve their full potential.

Alongside relevant actions set out in other chapters (including the 'Clean and plentiful water' chapter), Defra will:

- Continue to work on the delivery of Protected Sites Strategies to ensure a holistic approach to tackling on and offsite pressures on our protected water bodies.
- Unlock the potential of England's over 150,000 miles of watercourses through our Woodlands for Water project, which provides dedicated support to farmers and landowners to encourage more riparian woodland creation, and by publishing a UK Forestry Standard practice guide. Planting trees or using natural colonisation along rivers and within the wider catchment will offer enormous benefits for water quality, flood management, biodiversity and climate resilience.
- Develop new nature markets for habitats such as saltmarsh and seagrass. These can generate a revenue stream from blue carbon, while also realising wider benefits such as natural flood management and water quality. Defra is supporting some of this innovation through our Natural Environment Investment Readiness Fund.

3. Managing our woodlands for biodiversity, climate and sustainable forestry

Trees and woodlands capture and lock away carbon, both in the tree biomass and in the soil, as well as delivering significant benefits for biodiversity. Approximately a quarter of all species of principal importance for conservation in England are associated with native woodland habitats and trees, including lesser spotted woodpeckers and high brown fritillaries. From ancient woodland and veteran trees to temperate rainforest and urban trees, they provide a variety of benefits to people and form a vital part of our natural heritage.

In line with our tree canopy and woodland cover targets, the **England Trees Action Plan** provides a strategic framework for our woodland creation and woodland management

The England Peat Action Plan and England Trees Action Plan are supported by the £750 million Nature for Climate Fund

ambitions and is supported by the £750 million Nature for Climate Fund (NCF). We have already:

- Launched our flagship England Woodland Creation Offer in June 2021, which is paying land managers to plant the right trees in the right places. This is also our first ever government grant to support new woodland creation via natural colonisation.
- As part of the England Woodland Creation Partnership, supported England's Community Forests with continued funding to plant new trees and woodlands, including through the creation of the Plymouth and South Devon, North East and Cumbria Coastal Community Forests, which expands England's national network to thirteen Community Forests.
- Launched a three-year Tree Health pilot to test and refine ways of slowing the spread of tree pests and diseases.
- Published an updated Keepers of Time Policy on ancient and native woodland to recognise the value of England's ancient and native woodlands and ancient and veteran trees.
- Published a UK Forestry Standard practice guide on adapting forest and woodland management for the changing climate.
- Launched a series of Regional Woodland Restoration Innovation Funds to encourage and broaden innovation in the forestry sector and support active management of our woodlands to improve their ecological condition.
- Published evidence-based decision support frameworks to guide both landowners and public bodies regarding tree planting decisions in peat environments or in locations where there may be ground-nesting birds.

To build on this, we will:

- Set out plans on how we will increase the resilience of our woodlands. These plans will be incorporated into a revised version of the government's **Tree Health Resilience Strategy**, which will cover our approach to tackling pressures on our trees and woodlands,

including climate change, pests and diseases. This work on reducing pressures will be supported by our **national deer management strategy** (covered later in this chapter) and our **Grey Squirrel Action Plan** (covered in the 'Enhancing biosecurity' chapter).

- Continue to support the creation of high quality native broadleaf and mixed woodlands.
- Implement our **Keepers of Time Policy** to protect and improve our ancient and native woodlands and ancient and veteran trees and the valuable habitats they provide for future generations.
- Support work on the ground to improve the condition of ancient semi-natural woodland and to restore plantations on ancient woodland sites (PAWS) while making sure they continue to provide owners with income. In support of this, Forestry England will continue to deliver its commitment to restore all 42,814 hectares of its PAWS.
- Consult on new protections in the planning system to recognise the high ecological and societal value of 'Long Established Woodland' (woodlands that have been present since at least 1893).
- Review the **National Planning Policy Framework** (NPPF) to ensure that it is being implemented correctly for ancient and veteran trees and ancient woodland, and consult on wording in the NPPF at a future date to ensure the strongest protection for these habitats.
- Introduce a new duty on local planning authorities to consult the Secretary of State for Levelling Up, Housing and Communities before granting permission for development proposals that will affect our ancient woodlands.
- Further develop our forestry proposals aimed at increasing the planting of new woodland and preserving the nation's forests for biodiversity.

The NCF will end in 2025; after this our new farming schemes will deliver a large proportion of tree planting funding. As set out in the prospectus, the new farming schemes will support land managers to establish new woodland systems, expand existing ones and manage

woodlands sustainably. Future woodland creation grants will mirror the England Woodland Creation Offer, ensuring continuity of offer. Landscape Recovery will support major landscape-scale afforestation projects where these deliver a wide range of environmental outcomes.

Scale up private sector funding for new woodland creation

We will address barriers which may deter tree planting by:

- Exploring the inclusion of greenhouse gas removals in the UK Emissions Trading Scheme, including the potential inclusion of high integrity woodland carbon, such as Woodland Carbon Units. A call for evidence closed in June 2022, and a Government Response will be published in due course.
- Scaling up high integrity voluntary markets for carbon and other ecosystem services by clarifying and strengthening the standards and governance arrangements for this type of investment.
- Working with the forestry sector to increase the amount of productive forestry in England and increase the safe use of timber in construction.
- Improving woodland creation regulation by reducing the time it takes for projects to receive grant funding and regulatory approval.
- Reviewing guidance on the tax treatment of trees and woodlands, to provide greater clarity to landowners on how new and existing trees on their land affect tax liabilities.
- Developing a voluntary Woodland Water Code so landowners are incentivised by natural capital markets to plant woodlands in places where they do most to improve water quality.
- Increasing tree planting on public land and support local authorities to plant more trees.
- Continuing to build capacity in the domestic forestry sector through training and apprenticeships.

Encourage and support agroforestry

Trees planted as part of agroforestry systems provide important shade for livestock, increase flood resilience, improve water quality and enhance food production potential.

To deliver our target we will:

- Roll-out the agroforestry standard within the Sustainable Farming Incentive in 2024.
- Deliver further options in Countryside Stewardship.
- Finalise a further test and trial pilot for agroforestry support and monitor the uptake of the offer through our new farming schemes to assess whether further support is needed.

We will take a mixed approach to achieving our overall tree planting goals that combines trees as part of food producing systems (for instance orchards), creation of smaller woodlands, and larger scale woodland creation where appropriate. By 2050, taken together these measures incentivised through the new farming schemes will achieve approximately 90% of the Environment Act target to increase tree cover to 16.5% of England's land area by 2050. Work to further unlock private investment is expected to complement this.

4. Enhancing nature in our marine and coastal environments

Increase the scope and protections of protected areas

Effective protection through Marine Protected Areas (MPAs) and Highly Protected Marine Areas (HPMAs) will help deliver the 30-by-30 commitment for the ocean. Having created over 100 MPAs in English waters since 2010, we have now established a comprehensive network of 178 MPAs covering 40% of English waters.

We are focused on increasing protections for our MPAs. 98 inshore MPAs now have byelaws in place to protect sensitive

species and habitats from damaging bottom towed fishing gears. Byelaws for the first four English offshore sites came into force in June 2022 and, where necessary, byelaws for the next tranche of 13 sites will be in place later in 2023. Where needed, all offshore MPAs will have byelaws in place by the end of 2024.

Alongside MPAs, we will create Highly Protected Marine Areas (HPMAs). HPMAs aim to allow sites to fully recover, increasing resilience to climate change, and help us to understand more about the management and recovery of blue carbon habitats. We intend to designate the first HMPAs this year.

Our network of 178 Marine Protected Areas covers 40% of English waters (or 35,000 square miles)

Take a holistic approach to coastal and marine spatial prioritisation

In order to properly manage ecosystems at sea, we need to approach them holistically, making sure we protect key habitats while facilitating the diverse uses of the sea and coast.

To do this, Defra will:

- Optimise the use of the marine space through the cross-government programme on Marine Spatial Prioritisation.
- Continue to monitor and report against marine plans.
- Develop **Fisheries Management Plans**, working with industry and other partners.
- Work with the High Level Panel for a Sustainable Ocean Economy to develop sustainable ocean plans that capture both Defra and cross-government work.

Defra will lead a practical initiative to restore estuarine and coastal habitats (ReMeMaRe (Restoring Meadow, Marsh and Reef)), which will restore 15% of our priority habitats along the English coast by 2043.

Harness the power of marine ecosystems to help deliver net zero

Marine ecosystems have the potential to be an important nature based solution to climate change. We will advance the evidence base on blue carbon ecosystems, including through the UK Blue Carbon Evidence Partnership (UKBCEP).

The Marine Natural Capital and Ecosystem Assessment (mNCEA) programme aims to fill core data gaps on the services blue carbon habitats provide. These include carbon storage and sequestration rates of saltmarsh and seagrass, burial of carbon in the sea floor, and the importance of plankton in the carbon cycle.

Our English waters are home to many precious creatures

We will work with the Department for Business, Energy and Industrial Strategy (BEIS) and the devolved administrations through the UKBCEP to address key questions including filling the evidence gaps that currently hinder inclusion of saltmarsh and seagrass habitats into the UK Greenhouse Gas Emissions Inventory. The first aim of the Partnership has been to identify and then clearly set out the most pressing research questions relating to blue carbon in an Evidence Needs Statement that will act as a signal to the research community.

Offshore wind is a critical government priority which will support the UK's transition to net zero and help ensure our future energy security. However, its development needs to be delivered alongside protection of the ocean and support for its recovery.

Offshore wind has the potential to create artificial habitat for wildlife. However, there can be risks of environmental damage, particularly during construction. As set out in the **British Energy Security** Strategy, we are implementing a package of measures to enable faster consenting of offshore wind developments while maintaining high levels of environmental protection. We are doing this by:

- Enabling environmental compensation for the adverse environmental effects of offshore wind farm developments to take place in a more strategic and impactful way, with developers collaborating on larger scale projects.
- Setting up a marine recovery fund to help deliver these strategic measures. The fund will be an optional

Our British Energy Security Strategy sets out how Great Britain will accelerate homegrown power for greater energy independence. EIP23 sets out how we are supporting this

mechanism that developers can choose to use to deliver their compensatory measures.

In addition, we will be:

- Designing Offshore Wind Environmental Standards to reduce the overall environmental impact of a development. We will provide clear guidance to developers on best practice to incorporate into the design, construction, operation and decommissioning of offshore wind farms.
- Making sure that we understand cumulative impacts of development on whole ecosystems by making best use of existing monitoring data to support faster, more robust decision making.

Case study: Blue Carbon- LIFE Recreation ReMEDIES Project

Natural England is leading the LIFE Recreation ReMEDIES (Reducing and Mitigating Erosion and Disturbance Impacts affEcting the Seabed) project, a £2.5 million, four-year marine conservation project across five Special Areas of Conservation in Southern England, Marine Conservation Society, Ocean Conservation Trust and others.

ReMEDIES is leading England's largest seagrass planting effort, aiming to plant a total of eight hectares. The project is also working with recreational boaters to help protect the seabed. Seagrass can be damaged by activities such as the anchoring and mooring of recreational boats. They are working with harbour authorities and private mooring holders to install Advanced Mooring Systems (AMS), which are more beneficial to seagrass.

By maintaining and restoring seagrass, we are helping to create healthy seagrass meadows that provide habitat for a number of protected species, are important nursery grounds for fish, help stabilise the seabed and reduce coastal erosion, clean surrounding seawater and store and capture significant amounts of carbon.

A short-snouted seahorse in the seagrass bed in the Solent Maritime SAC on the 2020 ReMEDIES survey

5. Taking targeted actions to restore and manage species

In the last 20 years, the England priority species abundance index has been declining by approximately 2% year on year, and our rarer species are at risk of extinction. While we value native species from hedgehogs to red squirrels in their own right, the recovery of species is critical to the restoration of diverse and healthy ecosystems which provide us with food, water, clean air, recreation, and regulate our climate.

We are taking action to protect and restore species:

- Our multi-million pound Species Survival Fund is specifically targeted towards our 2030 species abundance target. This fund will seek to create and restore habitat, as well as further targeted species recovery actions.
- **Species Conservation Strategies** will find better ways to protect species at risk and improve their conservation status. Initial pilots will focus on hazel dormouse, water vole and widespread reptiles.
- Our Species Recovery Programme supports the recovery of threatened and declining species in partnership with stakeholder organisations. In 2022 to 23, the programme is targeting 215 species across 93 projects. So far, we have funded projects for species including curlew, wart-biter cricket, lady's slipper orchid and red-backed shrike.
- Our new farming schemes will support farmers and land managers to improve species abundance, including through restoring and creating habitat, more targeted action for our rarest species, and tackling pressures (including management of species that present a threat to threatened native species or to habitats).

> Our new Species Survival Fund will help us halt the decline in species abundance by 2030

Case study: Red Squirrel partnership working leads to conservation success

Since 2011 Red Squirrels Northern England (RSNE) has led collaborative efforts to conserve the remaining wild red squirrels (Sciurus vulgaris). Partners work alongside local communities and hundreds of passionate volunteers to secure the future of this cherished native British mammal. In recognition of their vital work Defra has funded 180 training places for volunteers this winter (2022/23).

In 2005, 17 large conifer forests in northern England and a 5km buffer around them were identified as red squirrel strongholds. RSNE focuses on grey squirrel management in these areas to create space for reds to thrive without competitive pressure.

RSNE's Annual Squirrel Monitoring Programme was established in 2012. The data collected shows the benefit of the strongholds and the impact of grant funding. Red squirrel occupancy has stabilised since 2015 and reds are currently present in 53.2% of all squares surveyed. Red occupancy is even higher within strongholds at 61%.

The data from the monitoring programme is used to target grant aid as well as focus conservation activity in the right areas. A new £50/hectare supplement was made available in 2022 to support grey squirrel management – a cornerstone of red squirrel conservation. Over 11,000 hectares of woodland (across England) benefitted from that support in the first year.

To make it easier to collate accurate red squirrel monitoring data and report back to volunteers, RSNE is trialing use of an app for field data collection and developing a data portal which will allow each group to understand the contribution they are making to the conservation effort.

Bees and other pollinators

Bees and pollinators play a crucial role in food production and are also vital to our wider, natural ecosystems. They contribute the equivalent of more than £500 million a year to UK agriculture and food production, by improving crop quality and quantity.

Our **National Pollinator Strategy: Pollinator Action Plan 2021 to 2024** committed us to action. In addition to actions under the plan we have:

- Established the Pollinator Monitoring and Research Partnership with research institutes and volunteer organisations to gather data and improve our understanding of the status of pollinators and pollination services in the UK. The partnership established the UK Pollinator Monitoring Scheme to deliver standardised approaches to monitoring pollinators across Great Britain.
- Established the 'Bees' Needs Week', an annual event working alongside our many partners to raise awareness of the steps we can all take to protect pollinators.
- Introduced new options to Countryside Stewardship, to provide incentives for habitat creation and management for pollinators. Between 2014 and 2019, we estimate that the area of farmland covered by agri-environment scheme options delivering food and fuel for pollinators increased by 30,000 hectares.

Case studies: Back from the Brink - Limestones Living Legacies

Back from the Brink (BftB) was a £7.7million programme, principally funded by the National Lottery Heritage Fund, working to put over 100 priority species on the road to recovery. The programme was led by Natural England working in partnership with the 7 NGO partners of Rethink Nature: Amphibian and Reptile Conservation, Bat Conservation Trust, Buglife, Bumblebee Conservation Trust, Butterfly Conservation, Plantlife and the RSPB. Butterfly Conservation led the Limestone's Living Legacies multi-species project, with a value of £538K.

Half of the UK's limestone grasslands are situated in the Cotswolds - the project sought to improve monitoring and management of limestone grasslands benefiting a range of threatened species which rely upon this habitat.

The project reintroduced the Large Blue butterfly to three new sites, including at Rodborough Common in partnership with the National Trust, Natural England, Gloucestershire Wildlife Trust, the commoners at Rodborough Common and species contractors Habitat Designs Ltd. This was the biggest reintroduction of the species, with 750 adult butterflies emerging in 2020 after 1,100 larvae were released in autumn 2019 following five years of grassland management to create optimum habitat on a Cotswold hillside where the species has not been seen for 150 years. The globally endangered butterfly now flies in greater number in Britain than anywhere else in the world, four decades after it became extinct in the country. The species is now thriving in the Cotswolds, and further reintroductions taking place over time with ongoing support from NE's Species Recovery Programme.

The project carried out extensive habitat management across 31 different sites and provided habitat management advice to 49 sites benefiting over 700ha of land. 90 landowners were trained in the management of limestone grassland for the benefit of threatened species.

In total 414 volunteers from local communities gave over 3 years' worth of time to the project of which 274 people have been trained in species identification and survey methodology. The project improved our monitoring of rare invertebrates it rediscovered the rock-rose pot beetle at a site for the first time in 35 years and identified the rock-rose rugged oil beetle, Ruderal Bumblebee and the Red-shanked Carder Bee at new sites.

Large Blue butterfly

Cetaceans and seals

One of the greatest threats faced by cetaceans and seal species is the risk of accidental bycatch in fisheries. To tackle bycatch of these species, we will:

- Take forward the plans set out in the **UK Bycatch Mitigation Initiative**, published by the UK government and devolved administrations in 2021.
- Run trials of bycatch reduction technologies, bringing together stakeholders and innovators to explore alternative gear and gear modifications.

Seabirds

Seabirds play an important role in our ecosystems. We are taking action to protect them from pressures around feeding and breeding. We will develop an **English Seabird Conservation and Recovery Pathway** in Spring 2023 to assess the vulnerability of seabird populations and develop actions to address them. The impact of avian flu could hit seabirds particularly hard as seabirds tend to live for longer, taking longer to reach breeding age and have fewer chicks.

Protecting woodland – deer management

The UK deer population is at its highest level for 1,000 years. Deer have a propensity to eat saplings, threatening the establishment of young trees and the regeneration of new and existing woodlands, affecting the long-term success of tree planting efforts. Deer can reduce the final timber crop value by up to 50% through browsing damage and they may also cause serious crop and agricultural damage. Overpopulation can also result in poor welfare for the deer themselves, leading to malnourishment and the prevalence and spread of disease. To tackle this, we will implement a **national deer management strategy** for England in 2023.

Reintroductions

We will continue to explore the reintroduction and conservation translocation of native species to improve biodiversity. We have already done this for species like the

large blue butterfly and lady's slipper orchid, supporting healthy ecosystem function and nature recovery. We will:

- Work with statutory bodies and experts through the new Species Reintroduction Taskforce regarding views on potential reintroductions and conservation translocations.
- Provide opportunities for conservation translocations and reintroductions of native species where benefits to the environment, people and the economy are clear.

6. Mobilising green finance and the private sector

The government has set a target to raise at least £500 million in private finance to support nature's recovery every year by 2027 in England, rising to more than £1 billion by 2030. We will set out more detail on how we will support a step-change in investment from the private sector in the forthcoming update to the Green Finance Strategy.

Develop private markets for nature

The market for private investment in nature is at an early stage, and so government needs to take steps to build trust, confidence and market integrity. We will:

- Support the confidence of investors in the integrity of the market:
    - Publish a policy framework, in spring 2023 as part of an updated **Green Finance Strategy**, to provide clear principles for the development of high-integrity nature markets that enable farmers and land managers to attract investment into nature's recovery.
    - Develop a comprehensive suite of investment standards, learning from existing practices and innovations, to support investment across the full range of Nature-based Solutions.
- Reduce the risk and uncertainty around the financial returns from natural capital investments for investors and providers:

> We will raise at least £500m in private finance to support nature's recovery every year by 2027 in England, rising to over £1bn by 2030

    - Scale up investment in nature-based projects that can deliver a financial return with £30 million seed funding through the Big Nature Impact Fund.
    - Scope out the investment pathway for key sectors for the transition to a nature positive future.
    - Continue to support the market-led Task Force on Nature Related Financial Disclosures, demonstrating the UK's commitment to target 15 in the Global Biodiversity Framework.
- Establish a pipeline to build capacity and accessibility:
    - Provide development grants and support through the Landscape Recovery scheme, to enable long term, large scale, bespoke projects aiming to enhance the natural environment to attract private funding.
    - Launch the Local Investment in Natural Capital (LINC) programme to build the capacity of leading local authorities to attract private investment at scale, and direct it towards their environmental priorities.
    - Scope out how best to support the development of a voluntary biodiversity credit market to stimulate greater flows of finance into nature.

Biodiversity net gain

We will commence the Biodiversity Net Gain condition for planning permissions from November 2023 to support nature recovery and the Nature Recovery Network.

This means that new developments must provide a 10% gain for biodiversity, and that where this is not possible on-site developers will invest in off-site habitat creation and enhancement. This will help to deliver the priorities set out in Local Nature Recovery Strategies and build new markets for biodiversity restoration.

We provided £4.18 million in 2021 to 2022 to help local planning authorities and strategic authorities such as county councils and combined authorities prepare for biodiversity net gain. We intend to provide further funding

for the remainder of the two-year transition period and expect to confirm the level of support shortly. We are also supporting planning authorities with guidance and tools though the Planning Advisory Service.

Conservation covenants

Conservation covenants are a new kind of legal agreement between landowners and designated responsible bodies, to conserve the natural or heritage features of land. Conservation covenants address the absence of a simple legal tool that landowners can use to secure conservation benefits when land is sold or passed on.

They will be used by charities, public authorities or altruistic landowners wishing to conserve land for the future and, in some cases, will have a commercial component. For example, conservation covenants can also be used for biodiversity net gain, to secure offsite biodiversity gains in the long term, even if the land is sold. A conservation covenant could also offer an alternative to land purchase by conservation organisations, setting out obligations on a landowner to maintain or restore habitats in return for funding from the organisation, or could be used to protect a heritage feature, such as an archaeological site, in accordance with the landowner's wishes, even after the land changes hands.

Marine Net Gain

Activities in the sea can also be disruptive for biodiversity, but there are net gain opportunities for development in this area too. Following in the footsteps of biodiversity net gain, we are developing marine net gain policy to apply to new infrastructure developments at sea. This will explore the potential of net gain to enhance the protection and restoration of habitats and species, including 'blue carbon' habitats which capture carbon from the atmosphere and store it.

Cost recovery for environmental regulators

Alongside mobilising finance through the private sector, we will further develop cost recovery options for environmental regulators in line with the Polluter Pays Principle,. This will help provide a stable funding base to help ensure the most effective management of environmental impacts, support

> We will develop cost recovery options for environmental regulators, in line with the Polluter Pays principle

nature's recovery, and provide a consistent service for regulated businesses.

7. Taking action to restore our global environment

As well as taking action at home, the UK leads internationally in providing expertise, funding and support for action on tackling biodiversity loss, climate change and poverty, using Official Development Assistance (ODA) and other tools.

We are delivering on our commitment to spend at least £3 billion of International Climate Finance (ICF) on climate solutions involving the protection and restoration of nature and working together with frameworks like the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

Action on terrestrial 30-by-30

We are delivering the new £100 million Biodiverse Landscapes Fund to ensure strengthened management of ecosystems across 6 biodiverse landscapes – Andes and Amazon, Kavango Zambezi Transfrontier Conservation Area, Lower Mekong, Mesoamerica, Western Congo Basin and Madagascar.

At the UN Nature Summit COP15 we announced additional funding of up to £29 million to help developing countries deliver on 30by30 land protection.

Through its active role in the Ramsar Convention on wetlands and implementation of the CBD Global Biodiversity Framework, the UK will continue to support the conservation and wise use of wetlands. In support of this we will establish a UK wetland inventory, mapping our wetlands for the first time. The UK, UK Overseas Territories and Crown Dependencies are home to the largest number of Ramsar designated wetland sites of international importance in the world, setting the UK's commitments at the center of global action on wetlands.

Darwin Initiative

We are delivering an expanded and restructured £90 million Darwin Initiative to address biodiversity challenges and support poverty reduction in developing countries. Through its well-established challenge fund model, the new programme harnesses UK and wider expertise to support innovation, build local capability, supply data and evidence and provide pathways to the scaling of successful approaches within and across countries.

The Darwin initiative is currently funding 147 projects across 58 countries. To date, it has awarded more than £164 million to more than 1,140 projects including:

- Partnering with business for restoration of ecosystem services in Mt Kenya.
- Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.
- Integrating traditional knowledge into Guyana's conservation policy-making and practice.
- Enhancing socio-ecological resilience in Laikipia, Kenya through cattle, water and wildlife.

Darwin Plus

The UK Overseas Territories (UKOTs) and Crown Dependencies are home to internationally important biodiversity, which we support through our Darwin Plus program.

Since publication of the 25 Year Environment Plan, we have invested:

- over £32 million in 132 Darwin Plus projects, helping to conserve species such as the Blue Iguana in the Cayman Islands, and Humpback Whales in the Pitcairn Islands.
- £10 million will continue to be made available each year until 2025, continuing to fund biodiversity and conservation projects in the UKOTs.

In partnership with JNCC, we are also working with UKOT Governments to:

- Develop a new **UKOT Biodiversity Strategy**.
- Make sure management plans are in place and identify new Ramsar Wetland Protected Areas.

We also launched tailored funding under the Darwin Plus program. Darwin Plus Local is a new funding offer for smaller environmental projects in the UKOTs. In 2023, we will publish more information on the development of Darwin Plus Strategic, which will be designed in support of larger, collaborative projects in and between UKOTs.

Action on the illegal wildlife trade

The illegal wildlife trade is a significant threat to international biodiversity.

The UK is building on our investment in tackling IWT of over £46 million (2014 to 2022) with a further £30 million between 2022 and 2025.

The Illegal Wildlife Trade Challenge Fund (IWTCF) has committed £43 million to 136 projects around the world, in over 60 countries since 2014 and is now on its ninth round of funding. Funded activities include to:

- Support legislative reform to increase conviction rates and penalties for wildlife crime.
- Train rangers and border force agents.
- Deliver campaigns to reduce the demand for products in key markets.
- Help communities to protect the wildlife they rely on for their livelihoods.

We will continue to promote strong and effective protection, and sustainable and legal use of endangered species through the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and are updating CITES regulations following CITES COP last year. We will also promote coordinated conservation measures throughout a species migratory range through the Convention on Migratory Species.

> The Illegal Wildlife Trade Challenge Fund has committed £43m to 136 projects in over 60 countries around the world and is in its ninth year of funding

Ocean recovery

International collaboration is essential to deliver the ocean action we need, and ensure all stakeholders are included, such as indigenous peoples and local communities.

- In 2022, the UK joined the High Level Panel for a Sustainable Ocean Economy (HLP), an initiative that aims to build momentum towards a sustainable ocean economy.
- We chair the Global Ocean Alliance (GOA) which will play an important role in supporting the implementation of the Global Biodiversity Framework in the Ocean. The GOA will take on a wider ocean advocacy role to continue raising the profile of the ocean, ocean issues and the needs of coastal and large ocean states, to strengthen ambition to achieve global targets, including ocean 30-by-30. The GOA will partner with other groups and initiatives to support and facilitate knowledge sharing, technical assistance and capacity building, and the mobilisation of ocean finance.
- The UK leads international partnerships and is ocean co-chair of the High Ambition Coalition for Nature and People, and the Leaders' Pledge for Nature.
- The UK also plays an active role in other alliances including the Ocean Risk and Resilience Action Alliance.
- In June 2022, the UK joined the International Alliance to Combat Ocean Acidification.

Over 60% of the global ocean lies in areas beyond national jurisdiction. The UK is continuing to work to conclude negotiations as soon as possible in 2023 on a new implementing Agreement under United Nations Convention on the Law Of the Sea (UNCLOS) for the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction (the Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ)). Conclusion of these negotiations will be key to supporting the implementation of the 30-by-30 target and wider GBF objectives. The BBNJ agreement must include a mechanism to establish Marine Protected Areas in areas beyond national jurisdiction (ABNJ), which is crucial to achieving 30-by-30 in the ocean.

At the UN Nature Summit COP15 the UK announced further Official Development Assistance from the Blue Planet Fund, committing an initial £20 million through competitive OCEAN grants to support local initiatives for ocean conservation. In addition, we committed a further £17 million through the World Bank's 'PROBLUE' programme, supporting ocean conservation by small island states and least developed countries.

The UN Decade of Ocean Science for Sustainable Development (2021 to 2030) enables us to drive forward international collaboration to develop science for ocean action. In June 2022, the UK, alongside other partners, launched the Global Ocean Decade Programme for Blue Carbon, to establish a robust evidence base which will further global thinking on blue carbon habitats as effective Nature-based Solutions to climate change.

Through the Convention for the Protection for the Marine Environment of the North-East Atlantic (OSPAR) the UK takes a leading role in shaping policy direction and raising key issues relating to biodiversity, as well as other topics. The **North-East Atlantic Environment Strategy** (NEAES) 2030 was launched and agreed by all OSPAR contracting parties in 2021. Through this, the UK will work with our closest neighbours to achieve goals around clean seas; biologically diverse seas; productive and sustainably used seas; and seas resilient to climate change and ocean acidification.

The UK is also an active member of ASCOBANS (The Agreement on the Conservation of Small Cetaceans of the Baltic, North-East Atlantic, Irish, and North Seas), a regional seas agreement on small cetaceans under the Convention on Migratory Species. Through this agreement the UK, in conjunction with other Parties, seeks to improve the conservation status of small cetaceans like dolphins and porpoises.

Sustainable global fisheries

Tackling Illegal, Unreported and Unregulated fishing (IUU) and overfishing are also important priorities. Domestically, we are introducing Vessel Monitoring Systems requirements for our inshore, under 12 metre fleet, will, alongside the Catch App, provide a comprehensive picture of all licensed fishing activity across English waters for the first time. The

UK has also developed the digital Fish Export Service, which supports the UK industry to get documents for free, 24 hours a day to meet other countries' IUU fishing requirements.

Internationally the UK launched the IUU Fishing Action Alliance (IUU-AA) at the 2022 UN Ocean Conference in Lisbon which:

- Brings together states and non-state actors to implement international agreements.
- Promotes active monitoring, control and surveillance.
- Encourages transparency and data sharing on IUU as part of our global leadership and cooperation.

The UK will use its £500 million Blue Planet Fund, financed from the UK Official Development Assistance Budget, to help eligible developing countries reduce poverty, protect, and sustainably manage their marine resources and address human-generated threats, including activity to tackle IUU fishing.

Through Ocean Partnerships, the UK will support developing countries such as Ghana, the Maldives and Sri Lanka to improve access to data to support enforcement of national fisheries policies and crack down on illegal fishing in their waters. We have also announced an investment of up to £20 million in grants that will be made available to local organisations around the world to help tackle illegal fishing, fight marine pollution and protect rare habitats and species.

Defra will work with the Ministry of Defence to identify opportunities for Royal Navy vessels to support efforts to tackle IUU fishing during their international operations.

8. Unlocking private and public financial finance flows

We want to make sure that public and private finance protects and preserves nature as a default.

We created the Political Vision: 10 Point Plan for Financing Biodiversity with Gabon, Ecuador and the Maldives in 2022. The plan has been backed by over 40 countries and led a new

Donor Joint Statement for a number of developed countries setting out billions from international community to protect and restore nature. This has defined a pathway for bridging the global nature finance gap of $700 billion per year, and aligning financial flows with the Kunming-Montreal GBF and the 2050 Vision for Biodiversity. The Donor Joint Statement has a particular focus on how international public finance can support developing countries to accelerate the transition to become nature positive and eliminate or redirect all subsidies harmful to biodiversity.

- We will work internationally to promote investment in nature and decrease harmful finance, by working through our chairmanship of the G7 to redirect or eliminate all subsidies harmful to nature by 2030 and continuing to work through the global market-led Taskforce on Nature Related Financial Disclosures.

- At the UN Nature Summit COP15 we committed £7.2 million to support developing country governments, central banks, businesses, and financial institutions to integrate the value of nature into their decision-making, including through the uptake of the Taskforce on Nature-related Financial Disclosures Framework.

- At the UN Climate Summit COP26 in Glasgow, we committed £1.5 billion financing for forests, as part of the wider £3 billion of International Climate Finance ring-fenced for spending on nature.

- As part of this, the UK committed a further £65m for the nature pillar of the Climate Investment Fund's Nature, People and Climate Programme. This will accelerate nature-based solutions in developing countries and will put indigenous peoples and local communities at the heart of forest protection.

Monitoring and evaluation

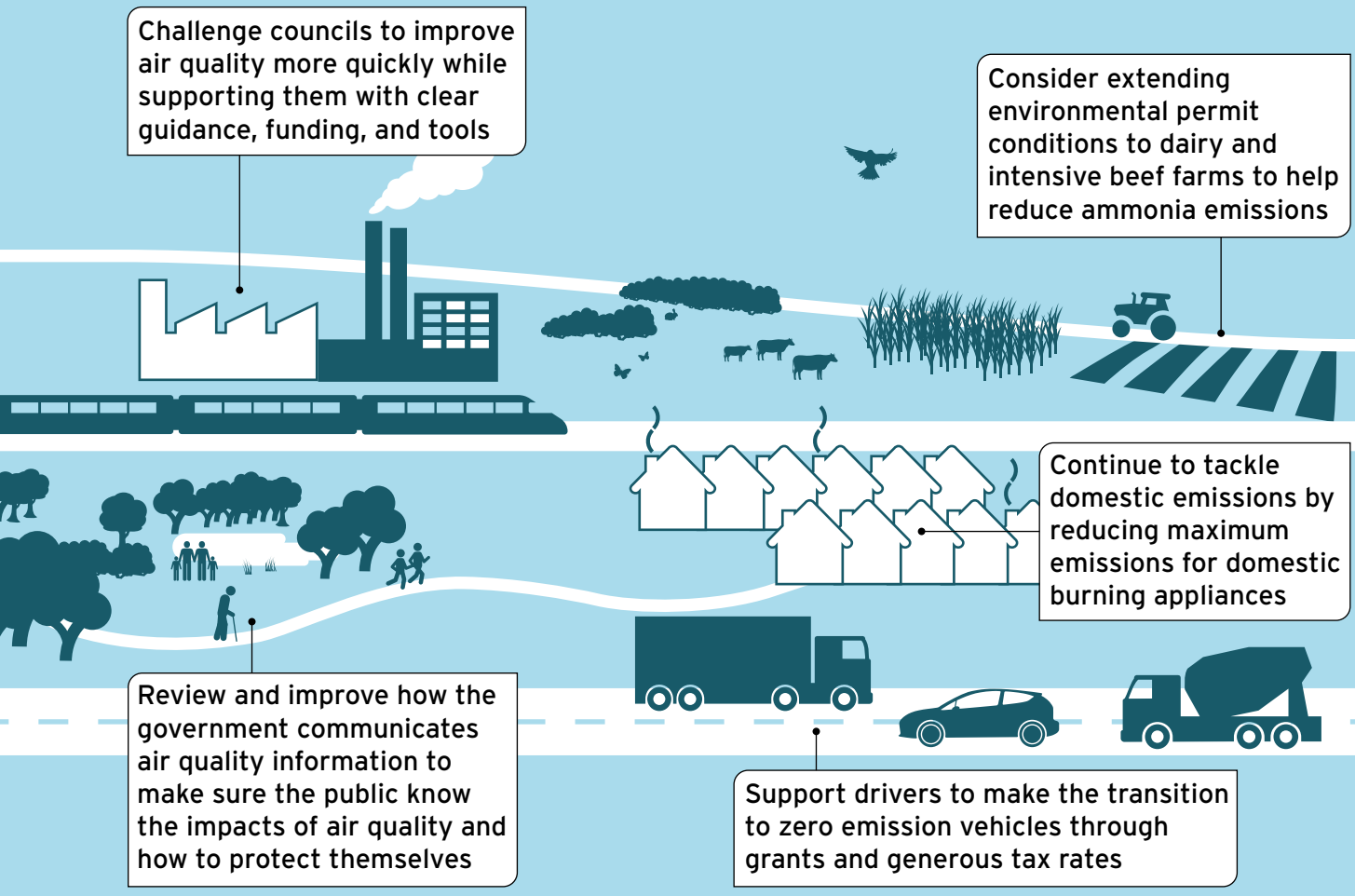
We will monitor progress towards delivering the EIP23 through the Annual Progress Report and the Outcome Indicator Framework. The framework contains 66 indicators, arranged into 10 broad themes. The relevant indicators for thriving plants and wildlife are:

- **C2** Seabed subject to high pressure from human activity
- **C3** Diverse seas: status of marine mammals and marine birds
- **C4** Diverse seas: condition of seafloor habitats
- **C5** Diverse seas: condition of pelagic habitats
- **C6** Diverse seas: status of threatened and declining features
- **C7** Healthy seas: fish and shellfish populations
- **C8** Healthy seas: marine food webs functioning
- **C9** Healthy seas: seafloor habitats functioning
- **D1** Quantity, quality and connectivity of habitats
- **D2** Extent and condition of protected sites – land, water and sea
- **D3** Area of woodland in England
- **D4** Relative abundance and/or distribution of widespread species
- **D5** Conservation status of our native species
- **D6** Relative abundance and distribution of priority species in England
- **D7** Species supporting ecosystem functions

Working with the Joint Nature Conservation Committee (JNCC) and the devolved administrations, we will also continue to review the UK Biodiversity Indicators to help align them as far as possible with the monitoring framework of the Kunming-Montreal Global Biodiversity Framework adopted at the UN Nature Summit COP15. We will also continue to work with the JNCC and international partners to support the development and application of the global monitoring framework including to develop and trial an indicator of Management Effectiveness of Protected and Conserved Areas.

Our work to protect our marine and coastal environments is helping seabirds to thrive

Goal 2
Clean air



Air quality in the UK has improved significantly in recent decades. We have seen a decrease in all five major air pollutants: for instance, emissions of fine particulate matter ($PM_{2.5}$), the most damaging pollutant to human health, decreased by 18% between 2010 and 2020. Reductions in these pollutants have produced significant benefits for our health and environment.

In recent years we have broadly maintained this trajectory. However, air pollution continues to be the biggest environmental risk to human health, with particular hotspots in some urban areas.

It also harms the natural environment, affecting our biodiversity, waterways and crop yields. In particular, emissions of ammonia have reduced more slowly than the other key pollutants and continue to damage sensitive natural habitats, adding to our existing challenges around house building with nutrient neutrality.

Therefore, to make further progress we are setting out an ambitious plan which tackles both overall concentrations and specific hotspots. In particular, we are taking further action on $PM_{2.5}$, as the pollutant which is most harmful to humans, and on ammonia, which we must reduce to achieve our apex target to halt species decline by 2030.

Our 25 Year Environment Plan goal

We will achieve clean air.

Since 2018, we have:

- Published our **Clean Air Strategy** in 2019, setting out plans to make our air healthier to breathe, protect nature and boost the economy.
- Reduced pollution from domestic burning, the biggest source of emissions of $PM_{2.5}$, by banning the sale of smoky coal and restricting the sale of wet wood.
- Tackled NO_2 hotspots by funding councils with £883 million to implement local NO_2 reduction plans, including the introduction of Clean Air Zones (CAZs) in cities across the country.
- Consulted and established UK Best Available Techniques (UK BAT) regime so our largest industry uses the most up-to-date techniques to minimise emissions.

- Supported farmers in reducing ammonia emissions by providing grants for emission-reducing equipment and targeted, locally informed on-farm advice through the Catchment Sensitive Farming programme.
- Published our **Transport Decarbonisation Plan,** which will help to improve air quality as well as decarbonising the entire transport system in the UK.

We have the following targets and commitments:

- A legal target to reduce population exposure to $PM_{2.5}$ by 35% in 2040 compared to 2018 levels, with a new interim target to reduce by 22% by the end of January 2028.
- Legal concentration limits for a number of other key pollutants. We already meet the majority of these limits including for sulphur dioxide and coarse particulate matter. We are working towards meeting compliance with a 40µg/m^3 limit for nitrogen dioxide.
- A legal target to require a maximum annual mean concentration of 10 micrograms of $PM_{2.5}$ per cubic metre (µg/m^3) by 2040, with a new interim target of 12 µg/m^3 by the end of January 2028.
- Legal emission reduction targets for five damaging pollutants by 2030 relative to 2005 levels:
    - Reduce emissions of nitrogen oxides by 73%.
    - Reduce emissions of sulphur dioxide by 88%.
    - Reduce emission of $PM_{2.5}$ by 46%.
    - Reduce emissions of ammonia by 16%.
    - Reduce emissions of non-methane volatile organic compounds by 39%.

To deliver these, we will:

- Continue to tackle domestic emissions by reducing the maximum emissions for domestic burning appliances in Smoke Control Areas and by promoting best practice in use of stoves and fireplaces.
- Challenge local authorities to improve air quality more quickly by assessing their performance and use of existing powers, while supporting them with clear guidance, funding, and tools.
- Facilitate the rollout of further Clean Air Zones by local councils in areas which are in breach of air quality statutory limits, with further zones and other non-clean air zone measures as required.
- Re-align regional air quality zones in line with local government boundaries to drive effective coordinated action.
- Reduce ammonia emissions by using incentives in our new farming schemes, while considering expanding environmental permitting conditions to dairy and intensive beef farms.
- Continue to support the move away from petrol and diesel cars and consult on an extension to the existing North Sea Emission Control Area to cover the Irish Sea, reducing emissions from shipping.

Introduction

Air quality in the UK has improved significantly in recent decades with a decrease in all five major air pollutants.

Between 2010 and 2020 emissions of fine particulate matter ($PM_{2.5}$) decreased by 18%; emissions of nitrogen oxides (NOx) decreased by 44%; sulphur dioxide (SO_2) by 70%, non-methane volatile organic compounds (NMVOC) by 14%, and ammonia (NH_3) by 0.2%. These reductions have produced significant benefits for our health and environment.

However, air pollution continues to be the biggest environmental risk to human health, disproportionately affecting those who are already vulnerable.

Air pollution also harms biodiversity. Ammonia emissions, primarily from farming, cause excessive nitrogen accumulation in soils. This favours a limited selection of common, fast-growing plants species, such as nettles, which outcompete nitrogen sensitive species such as wildflowers. Ultimately this reduces lower overall biodiversity, both in plant species but also animal species which are reliant on specific nitrogen-sensitive plants.

When too much nitrogen has accumulated in soils, some habitats take decades to recover without active management (such as vegetation or soil removal) which is extremely difficult and expensive to achieve at scale.

To continue to drive down emissions we will need to focus on the most polluting sectors. Data from 2020 indicates that, in the UK, emissions from the home, agriculture, industry and transport combined contributed 85% of $PM_{2.5}$, 87% of NO_2 and 90% of NH_3 emissions to the air.

To make further progress for our health and environment, and to tackle particular pockets where air pollution is poor, we set out in this chapter the measures and interventions we intend to take forward.

Targets and commitments

Long term targets:

- 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 ($\mu g/m^3$).
- By the end of 2040, we will reduce population exposure to $PM_{2.5}$ by 35% compared to 2018 levels.

Interim targets:

By the end of January 2028:

- The highest annual mean concentration in the most recent full calendar year must not exceed 12 $\mu g/m^3$ of $PM_{2.5}$.
- Compared to 2018, the reduction in population exposure to $PM_{2.5}$ in the most recent full calendar year must be 22% or greater.

$PM_{2.5}$ is the pollutant which is most harmful to human health. We have set two legally binding long-term targets that both reduce concentrations of, and drive down people's exposure to, the pollutant across the country. To show our trajectory against both targets, we are setting new interim targets against both long-term legal targets. These interim targets reflect the progress we expect to make by 2028 towards our long-term targets.

The maps in Figure 1 show that the concentration target will be the most challenging to meet in the South East (because this experiences the greatest amount of pollution blown in from other countries) and in London and other urban areas (as these are where the greatest amounts of UK pollution is produced).

> Our first interim target will achieve concentration reductions 40% lower than the current legal limit of 20 $\mu g/m^3$

Modelling $PM_{2.5}$ concentrations across England

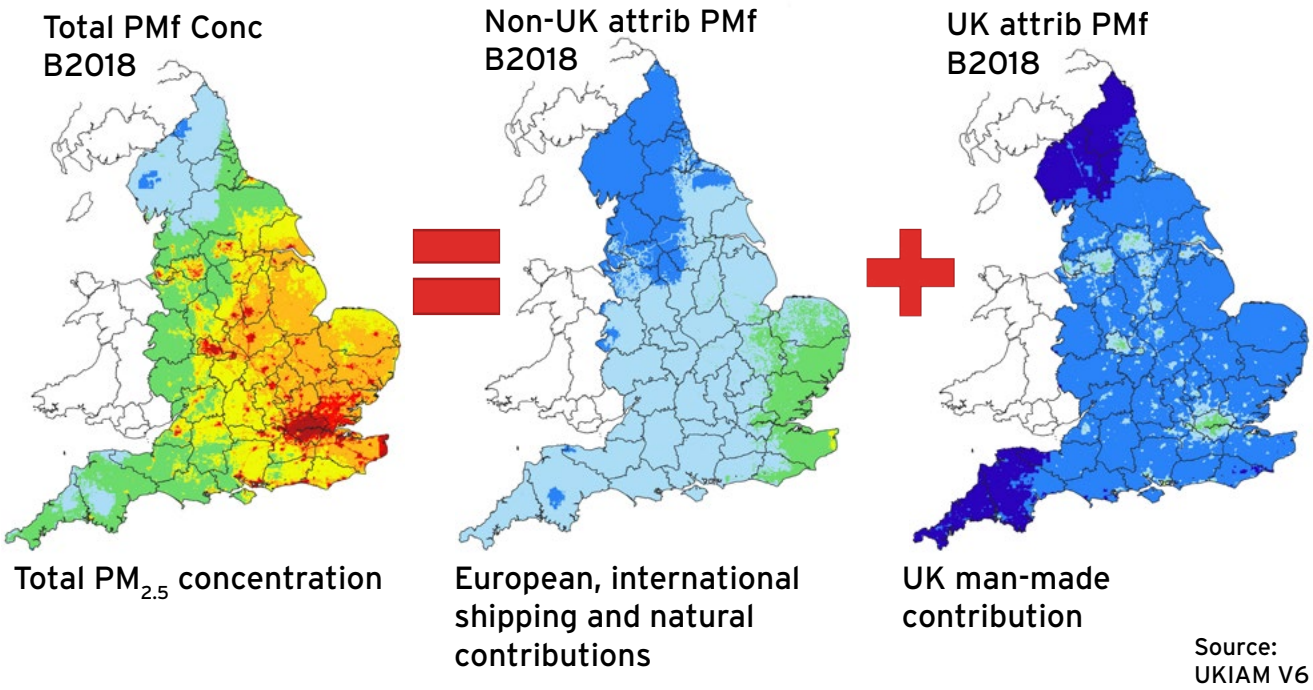


Figure 1. Maps of modelling outputs for 2018 produced by Imperial College London using the UK Integrated Assessment model showing how (a) variations in $PM_{2.5}$ from natural sources and sources from outside the UK and (b) UK manmade $PM_{2.5}$ result in significantly different concentrations across the country.

Additional concentration limits

In addition to these limits on $PM_{2.5}$, legal limits also apply to the concentrations of several other air pollutants including nitrogen dioxide, sulphur dioxide and coarse particulate matter (PM10). These limits require us to take action if too much pollution is present in the air in a particular place.

Concentrations of pollutants can be impacted by domestic emissions, or they can come from other sources. These can be naturally occurring pollutants (for instance sea salt), pollutants originating in other countries, and chemical reactions in the air which can be from a mixture of naturally occurring pollutants and emissions from human activity.

England is compliant with all these concentration limits, with the exception of NO_2 at roadside hotspots in some towns and cities. Our **2017 NO_2 Plan** put in place actions to address this, and they are also outlined below.

Specific pollution emission limits

As well as concentration limits (a measure of the level of pollutant in the air in specific areas), we have separate legal limits on emissions (the quantity of specific pollutants released into the air across the country). The combination of these two approaches to targets means that action is taken both at national level to regulate polluting activities, and at local level to reduce people's exposure from specific sources.

Our emissions limits cover five man-made pollutants as set out in the table below. In 2020 we achieved our targets for all five. The next targets are set for 2030:

Pollutant	2005 (kiloton)	2020 (kiloton)	2020 - reduction achieved from 2005 baseline (percentage)	2030 Target reduction from 2005 levels (percentage)
$PM_{2.5}$	121.4	80.1	34%	46%
NO_x (excluding agriculture)	1737.4	675.3	61%	73%
SO_2	787.9	136.2	83%	88%
NH_3 *	280.0	259.2	7%	16%
NMVOC (excluding agriculture)	1124.7	654.8	42%	39%

Our delivery plan

Building on our **2019 Clean Air Strategy**, our delivery plan focuses on these four sectors, as well as supporting action by local authorities:

1. **Reducing emissions in the home** by managing domestic burning, which is the biggest source of emissions of fine particulate matter. Much of these emissions were in urban areas, increasing people's exposure to this harmful pollutant.
2. **Driving effective local action through local authorities**. They have the legal responsibility and powers to deliver clean air in their areas and so have the greatest power to support the achievement of the population exposure targets.
3. **Maintaining and improving our regulatory framework for industrial emissions**, which have already reduced significantly.
4. **Supporting farmers to reduce the impact of ammonia emissions** from agriculture on air quality. They are responsible for 87% of the ammonia emissions in the UK.
5. **Reducing emissions from cars and other forms of transport** which are still a major source of NO_2 and $PM_{2.5}$ emissions.

The harebell is a wild flower species which is adapted to low-nutrient conditions

1. Reducing emissions in the home

Improve regulation for burning high emission materials in the home

Burning a dry log can reduce emissions by 50% compared to a log which has not been dried, so we have been taking action by:

- Banning the sale of wet wood in smaller packets, whilst bulk quantities are still available for seasoning at home. This means those purchasing small quantities of wood, typically for immediate use, are not unknowingly using wet wood.

> Burning a dry log can reduce emissions by 50% compared to a log which has not been dried

- Putting limits on sulphur content and smoke emissions from manufactured solid fuels.
- Legislating to ban the sale of traditional house coal, sometimes known as smoky coal.
- Enabling local authorities to better enforce Smoke Control Areas – areas where additional restrictions on domestic burning apply – including through issuing financial penalties under a civil regime and by pursuing persistent offenders under a criminal regime.

To further reduce such emissions, we will:

- Tighten the limits that new stoves in Smoke Control Areas must meet, reducing the limit from 5g of smoke per hour to a maximum of 3g.
- Extend the solid fuels legislation, including to fuels burned outside. This would provide consistency in the market making it easier for consumers, improve compliance with legislation and improve air quality. This would not introduce new requirements for traditional fuels used for barbecues, such as charcoal.
- Design and implement measures to drive a shift away from older, more polluting appliances, to newer appliances which meet our tough new emission standards.

We are not considering a ban on domestic burning in England. The UK government recognises that some households are reliant on solid fuel burning as a primary source for heating, hot water and cooking, with this in mind government is not seeking to ban burning. A ban on domestic outdoor burning (bonfires, barbecues, firepits etc.) would also be considered disproportionate.

> We have legislated to ban the sale of traditional house coal, sometimes known as smoky coal

Include air quality as a key consideration in the planning process

The Department for Levelling Up, Housing and Communities (DLUHC) has already set out ventilation requirements to maintain indoor air quality as part of amendments to the Building Regulations. This will mean people are exposed to less harmful pollution indoors, helping to reduce overall population exposure.

On top of this, DLUHC will:

- Use Environmental Outcomes Reports as a tool to help us better identify the impact of development on air quality, so they can be minimised as far as possible. These form a new system for assessing environmental impact, with a greater focus on delivering improved environmental outcomes.
- Retain the current approach in the National Planning Policy Framework, whereby decisions should sustain and contribute towards compliance with relevant limit values. Future updates to planning policy guidance as they relate to air quality will embed our new targets in the planning system and set out how they should be taken into account. We will continue to build the homes and infrastructure the country needs, whilst continuing to make positive progress on improving air quality.

In 2019 we published our Clean Air Strategy, setting out plans to make our air healthier to breathe, protect nature and boost the economy. EIP23 sets out the actions we are taking to build on this and make further progress for our health and environment

Develop widescale and targeted communications campaigns

There is a role for government to communicate the right information to people so that they can make the most positive choices for themselves regarding air quality and steps to mitigate their own exposure.

Defra will:

- Review and improve how the government communicates air quality information. We want to ensure members of the public, and vulnerable groups in particular, have what they need to protect themselves and understand air quality's impacts on them. We are engaging with representatives from vulnerable groups and other key stakeholders to capture information and ensure that their needs are addressed.
- Continue to develop a targeted communications campaign to promote best practice in use of wood stoves and fireplaces in using cleaner and more efficient fuels, and techniques to reduce exposure to pollutants.
- Publish outdoor burning best practice guidance, which also supports reducing the risk of wildfires as set out in our 'Reduced risk of harm from environmental hazards' chapter.

2. Driving effective local action through local authorities

Taking action at a local level, focusing on areas of high population density and where there is significant exposure to air pollutants, will be key in meeting our population exposure reduction target.

Defra's Air Quality Grant Scheme funds English local authorities for community projects which tackle air pollution. More than £30 million has been awarded under the scheme since 2018.

Since 2018, we have:

- Required local authorities to take more proactive and collaborative action in tackling air quality through reforms to the Local Air Quality Management Framework.
- Funded the Air Quality Hub, enabling local authorities to share best practice, success stories and experience to drive improvement nationwide.
- Made available over £883 million to help local authorities develop and implement local NO_2 reduction plans and to support those impacted by these plans.
- Facilitated the introduction of Clean Air Zones by councils in Bath, Birmingham, Bradford, Bristol, Portsmouth and Tyneside. We have announced a future Clean Air Zone in Sheffield.

Since 2018 we have made available over £883 million to help local authorities develop and implement local NO_2 reduction plans

Reinforce the role of local authorities in improving air quality

We will continue to support local authorities by:

- Publishing an **Air Quality Strategy** that sets out clear guidance to local authorities on how they should embed actions which improve air quality within their wider functions, including exercise of traffic management powers and planning powers.

- Using the **Air Quality Strategy** to make clear that local authorities are key delivery partners in reaching our legal limits and targets. This will include a clear expectation, to which local authorities must have regard, that they should use their powers to reduce $PM_{2.5}$ from sources within their control.
- Re-aligning local air quality zones in line with local government boundaries, to drive effective coordinated action.
- Publishing new statutory Local Transport Plan Guidance that will set the government's current expectations on improving air quality and other local environmental issues in the local transport context.

Enable local authorities to use their powers as effectively as possible

Defra has supported local authorities with guidance, funding and tools to improve local air quality, including more than £30 million since 2018 awarded through the Air Quality grant. On top of this, we will:

- Increase transparency by requiring timely and accurate publication of air quality assessments by local authorities.
- Conduct an audit of all powers relevant to air quality available to local authorities, how they are using them and any barriers to successful delivery.

Case study - Defra's Air Quality Grant Scheme - Clean Air Villages - Cross River Partnership project

Almost £2 million awarded to local authorities for 4 projects over 4 years

Defra's Air Quality Grant scheme funds English local authorities for community projects that tackle air pollution. This helps to level up our country by addressing disparities in exposure to air pollution.

The Clean Air Villages project was run across London between 2018 and 2022, managed by a group of London Boroughs. Each 'Village' was an area with pollution and high population densities. Local solutions were implemented in high-pollution areas, driving down emissions from freight, and encouraging active travel. The scheme delivered:

- Nine cargo bike schemes, and a shared electric vehicle
- A micro hub consolidation scheme to reduce the number of vehicles and journeys in the area.
- A citizen scientist monitoring project for hospital staff to gather evidence to raise awareness of air quality in the hospital and implement ideas to develop solutions
- Seven traffic monitoring devices were installed to improve the evidence based for future air quality decisions

The next phase of the scheme will deliver river-based logistics, paired with cargo bikes and electric delivery vans, to reduce pollution from freight deliveries.

3. Maintaining and improving our regulatory framework for industrial emissions

Industrial processes are a key part of our economy but they also create pollution. To avoid potentially serious impacts on our health and environment, these processes are carefully managed and this has already made a significant contribution to reductions in air pollution. Reducing these emissions further will have a direct impact on the concentration of air pollutants in those places where people live and work.

Continue to drive progress in large industry

Since 2018, we have jointly consulted with the devolved administrations on our approach for setting "Best Available Techniques" (BAT) for tackling industrial emissions. Data suggests that, by applying Best Available Techniques, pollution can be reduced by between 25% and 60%, depending on the sector and pollutant.

Following on from this, Defra will, working with industry, regulators and the devolved administrations:

- Continue to roll out the UK BAT system, through which industry and regulators are able to collaborate to improve standards in industrial processes.
- Further develop UK BAT, particularly around new technologies and methods that industry should put in place to reduce emissions.

In 2019 the UK had around 21,000 workers (FTE) certified in environmental protection of ambient air and climate

Improve the overall regulatory framework

It is vital that UK businesses can innovate within a clear regulatory framework. We will consult on improvements to the mechanisms for developing standards for industrial processes to better reflect our priorities for the environment and to support businesses in innovating and delivering net zero, including by integrating the regulations of GHG emissions alongside other emissions from industry.

Regulate to support progress in smaller industry

We have extended environmental permitting so that a much wider range of combustion plants are now required to meet emission limits. This has reduced emissions of NOx, SO_2 and particulates.

Whilst we have achieved significant improvements with large industry, smaller industry has been left with lagging emissions standards. Instead of the same system of regularly updated standards, small industry is covered by a complex multitude of documents which has led to out-of-date requirements on a large number of sectors and sites.

These smaller sites also tend to be more numerous and are more likely to be located in urban or residential areas. As such, reducing their pollution will help drive progress against our population exposure reduction target.

We will consult on a new system for updating standards for small industry like petrol stations, metals processing, and quarrying. As set out above, the BAT approach has been highly successful in reducing emissions from large industry. Applying a similar approach to small industry will reduce pollution from this source, and help drive progress.

Cleaner air will improve both our health, and the health of our environment

4. Supporting farmers to cut the impact of agriculture on air quality

The agricultural sector is responsible for 87% of UK ammonia emissions, which are a major contributor to biodiversity loss. As well as impacting on biodiversity, ammonia also creates $PM_{2.5}$ in the air by reacting with other pollutants. This is known as secondary $PM_{2.5}$, which can negatively affect air quality far from the original source. It is therefore important that the agricultural sector reduces these emissions.

Incentivise pollutant reduction through our new farming schemes

Defra has already supported farmers to reduce their ammonia emissions. Since 2018 we have made available grants to support investment in low emissions equipment through the Countryside Stewardship scheme and the Farm Equipment and Technology Fund. We have also made advice available to farmers through extending the scope of Catchment Sensitive Farming.

A new nutrient management standard in the Sustainable Farm Incentive will:

- Incentivise appropriate nutrient management on arable fields and grassland.
- Fund advice on improving efficient nutrient use.
- Fund farmers to take action including by planting and maintaining legume fallows.

Consider expanding environmental permitting conditions to dairy and intensive beef farms

Pig and poultry farms are already required to adhere to environmental permit conditions. Since we have required this, their emissions are estimated to have decreased by around 30%. Dairy and intensive beef farms together contributed over half of the UK's ammonia emissions from agriculture in 2020. Cattle farming also accounted for 46%

Emissions from pig and poultry farms have decreased by around 30% since we required them to adhere to environmental permit conditions

of all UK agricultural greenhouse gas emissions in 2020, and agricultural diffuse pollution was the primary cause for 40% of water bodies failing to achieve good ecological status.

We will:

- Consult this year on extending environmental permitting to dairy and intensive beef farms.
- Work with the farming industry to identify the best measures farmers can implement within the dairy and intensive beef sector to underpin the permitting system. These measures will be flexible and appropriate for the particular farm setting – for example, farms near a sensitive nature site may need to implement more ambitious measures to protect that site.

Put in place measures to reduce emissions from inorganic fertilisers and organic manures

Urea fertilisers have higher ammonia emissions than other inorganic fertilisers and we want to support farmers in managing them.

Defra has agreed a plan to reduce these emissions through an industry-led approach to be implemented through the Red Tractor assurance scheme and qualified advisors. We will monitor the success of industry action and regulate if necessary.

We will also:

- Invest £13 million in slurry storage infrastructure in 2023, with further rounds of funding to follow.
- Consult on new rules to reduce ammonia emissions from the management of organic manures. This would include requirements to use low emissions spreaders for slurry and digestate and to cover slurry and digestate stores.
- Expand availability of low emissions equipment through Countryside Stewardship and continue funding through Farm Equipment and Technology Fund.

Manage emissions from anaerobic digestion

Anaerobic digestion is an important technology to reach our net zero goals – it generates biogas which can be upgraded

to biomethane which is chemically identical to natural gas and can be used as a direct replacement for this. Biomethane is currently the only green gas commercially produced in the UK and the building of anaerobic digestion plants is supported by the Green Gas Support Scheme for the purpose of putting biomethane into the grid.

Anaerobic digestion also produces a nutrient rich by-product (digestate) which can be used instead of chemical fertilisers, but which is also rich in ammoniacal nitrogen leading to ammonia emissions. The production of biomethane and biogas is expected to increase further by 2030 and the environmental impacts of ammonia associated with digestate needs to be managed to ensure that we meet both our net zero and environmental goals.

The Department for Business, Energy and Industrial Strategy (BEIS) has funded a study to explore technologies that can be used to treat digestate to reduce ammonia emissions at the relevant sites.

Defra will:

- Continue to require anaerobic digestate operators to cover new digestate stores.
- Consult on other measures to reduce ammonia from the storage and spreading of organic manures, including digestate, later in 2023.
- Consider how best to reduce ammonia emissions by processing digestate, in a way that is consistent with the continued growth of the anaerobic digestate market.

Alongside its support for biogas and biomethane production, BEIS will:

- Continue to require that where digestate produced by anaerobic digestate plants is spread, it is done so using low emission spreading equipment.
- Consider the findings of the recent techno-economic study to identify cost-effective technologies to reduce environmental impacts, including ammonia emissions, from digestate. The use of these technologies could become part of eligibility criteria for future policy frameworks to drive more sustainable biogas and biomethane production.

5. Reducing emissions from cars and other forms of transport

While emissions from transport continue to decrease, data from 2020 indicates transport is still the source of 41% of NO_2 emissions and 16% of $PM_{2.5}$ emissions. Reducing emissions from transport is therefore essential to delivering better air quality.

Take collaborative action to drive down pollution from roads

The majority of local exceedances of emissions limits are due to NO_2 emissions from roads.

We have:

- Required National Highways to work with local authorities in reducing these exceedances. National Highways and local authorities often already work together to improve local air quality but the changes will ensure a more consistent approach to future collaboration.
- Introduced powers to force vehicle manufacturers to recall vehicles if they are found to be non-compliant with the environmental standards they should have met when they were sold. This will allow the government to respond quickly and firmly to any future breaches of environmental standards in the vehicle industry.

Reduce NO_2 concentrations in hotspots

We have funded a number of measures such as road and junction improvements, as well as a variety of vehicle upgrades, all aiming to improve air quality.

However, there are still areas within England which do not comply with the relevant air quality concentration limits for NO_2 and so we are taking further action.

Defra and the Department for Transport will enable the rollout of a further Clean Air Zone in Sheffield, with further zones

and other non-clean air zone measures to be announced in certain areas where other interventions are not efficient.

Support the move away from petrol and diesel cars

The Department for Transport has set out the government's commitments and the actions needed to decarbonise the entire transport system in the UK in the Transport Decarbonisation Plan. This will also support our aims for air quality - as we move towards a decarbonised transport system emissions of air pollutants will reduce.

The Department for Transport has already:

- Committed to ending the sale of new petrol and diesel cars and vans by 2030 and sales of new non-zero emission heavy goods vehicles by 2040.
- Consulted on dates for ending the sale of new non-zero emission buses and L-category vehicles such as mopeds and motorcycles.
- Pledged up to £2.8 billion to support the switch to zero emission vehicle technology.

As set out in the 2021 **Transport Decarbonisation Plan**, we expect that £2.8 billion investment to also improve air quality. As we move towards a fully electrified vehicle fleet, tailpipe emissions of air pollutants will continue to reduce.

The Department for Transport will continue to support the move away from petrol and diesel cars by:

- Putting in place a package of measures to support drivers to make the transition to zero emission vehicles. This includes grants to reduce the upfront purchase price of plug-in vehicles which will continue until at least financial year 2023 to 2024 for taxis and motorcycles, and 2024 to 2025 for vans and trucks. Generous tax rates, including zero vehicle excise duty (until 2025) and favorable company car tax rates remain in place.
- Supporting the acceleration of the rollout of a world-class charging infrastructure network.
- Investing in active travel with the aim that half of all journeys in towns and cities will be walked or cycled by

2030. This includes delivering thousands of miles of safe, continuous routes for cycling and creating Active Travel England to support local authorities to deliver ambitious and transformational schemes. This will also support our aims in the 'Enhancing beauty, heritage and engagement with the natural environment' chapter.

- Investing in cutting-edge research to identify options for mitigating or reducing brake and tyre emissions from road vehicles, including zero tailpipe emission vehicles.
- Requiring that an increasing proportion of manufacturers new car and/or van sales be zero emission, beginning in 2024. This is called our Zero Emission Vehicle mandate.
- Over the coming months and years, exploring creating a single regulatory framework that applies to all road vehicles from motorcycles to the heaviest trucks, putting the phase out dates for the multiple vehicle types in UK law.

Deliver the Rail Environment Policy Statement

We have electrified more than 1,200 miles of railway since 2010 in Great Britain compared with 63 miles in the 13 years preceding, and now only 1.5% of GHG emissions come from trains. However, diesel trains still play an important role in connecting our communities, particularly the most rural, and so we need to carefully support the transition.

We have also installed air quality monitors at over 100 railway stations since February 2022. This will improve our understanding of pollutant concentrations in these locations and inform further action,

The Department for Transport will:

- Commission a comprehensive review of the regulations, standards and guidelines governing air quality on the railway. This will be particularly focused on informing the development of industry targets to improve air quality in problem locations such as enclosed railway stations.
- Fund a £4.5 million Stations Air Quality Monitoring

Network, working with rail industry to monitor the impact that diesel trains have on air quality.

Deliver the Clean Maritime Plan

The maritime sector has begun to decarbonise and shift to clean fuels, improving air quality and tackling climate change. Our plan to further increase the pace of change is set out in the **Transport Decarbonisation Plan**, which builds on the approach announced in the **Clean Maritime Plan and Maritime 2050**, published in 2019.

Since 2018, the Department for Transport has:

- Extended the Renewable Transport Fuel Obligation, making renewable fuels of non-biological origin for marine use, such as hydrogen and ammonia, eligible for incentives.
- Used our call for evidence on increasing the uptake of shore power in the UK, which has both air quality and decarbonisation benefits, to develop policy proposals which we aim to consult on in 2023.
- Run a call for evidence with the UK Emissions Trading Scheme authority which, among other measures, sought views on proposals to expand the UK ETS to domestic maritime.

We have electrified more than 1,200 miles of railway since 2010 in Great Britain compared with 63 miles in the 13 years preceding

The Department for Transport will:

- Consult on an extension to the existing North Sea Emission Control Area to cover the Irish Sea. Within this area, shipping must adhere to strict emission limits on pollutants such as NO_2 and SO_2.
- Deliver on the 2022 consultation on establishing a 'course to zero' for the domestic maritime sector.
- Publish a refreshed Clean Maritime Plan to include indicative decarbonisation targets for the domestic maritime sector alongside the long-term interventions needed to achieve full decarbonisation and reduce the environmental impacts of shipping.

Monitoring and evaluation

We will monitor progress towards delivering the EIP23 through the Annual Progress Report and the Outcome Indicator Framework. The framework contains 66 indicators, arranged into 10 broad themes. The relevant indicators for clean air are:

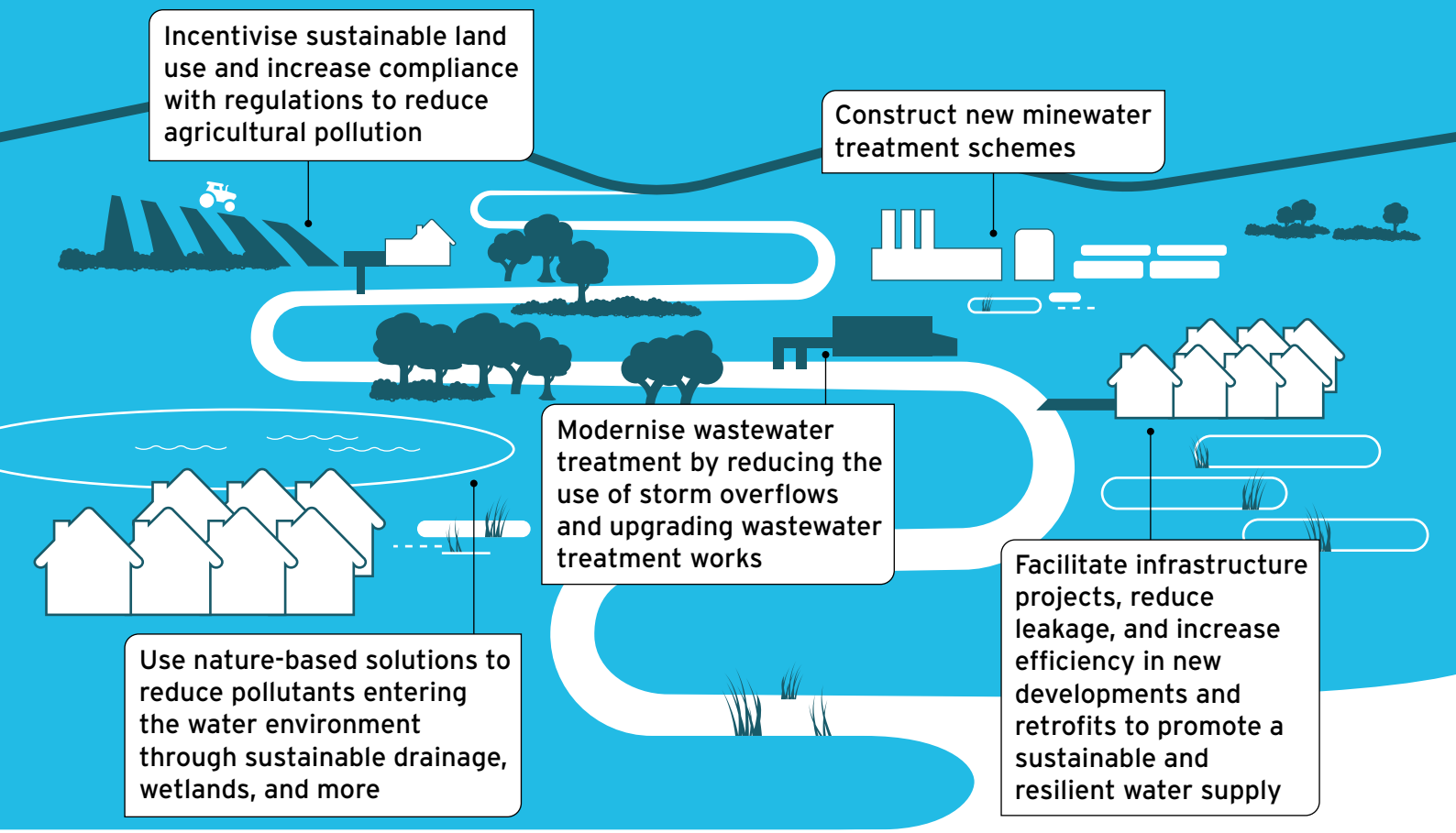
- **A1** **Emissions for five key air pollutants**
- **A3** **Concentrations of fine particulate matter ($PM_{2.5}$) in the air**
- **A4** **Rural background concentrations of ozone (O_3)**
- **A5** **Roadside nitrogen dioxide (NO_2) concentrations**
- **A6** **Exceedance of damaging levels of nutrient nitrogen deposition on ecosystems**
- **A7** **Area of land exposed to damaging levels of ammonia (NH_3) in the atmosphere**

We operate the Automatic Urban and Rural Network for pollution monitoring. This is the UK's largest automatic monitoring network, providing near-real-time measurement of pollution concentrations at strategic locations around the country. The network is being expanded with the number of $PM_{2.5}$ monitors more than doubling to better assess $PM_{2.5}$ levels in England and progress against interim and long term targets.

Reducing emissions from cars and other forms of transport will make active journeys healthier and more pleasant

Goal 3
Clean and plentiful water

Key policies to achieve our water targets



Water is what makes life possible on our planet.

It is essential for human health and wellbeing, biodiversity, and the economy. Yet our complex, interconnected water system is under greater pressure than ever before as our population grows, and our infrastructure ages.

That is why we have begun significant investments and transformational programmes to address impacts on the water environment.

In setting stretching new targets we will drive clean and plentiful water now and for generations to come, with plenty left for wildlife as well. Working from source to sea, we will take action on those who continue to pollute our water as a top priority – and restore our rivers, including globally significant chalk streams.

Our 25 Year Environment Plan goal

We will achieve clean and plentiful water by improving at least 75% of our waters to be close to their natural state as soon as is practicable.

Since 2018, we have:

- Driven environmentally sustainable farming by doubling funding available for the Catchment Sensitive Farming programme to £30 million in each of the next 3 years to cover all farmland in England; opening the first year of new farming funding through the Sustainable Farming Incentive; and launching the Slurry Infrastructure Grant scheme to give farmers access to loans of up to £250,000 to upgrade their slurry storage capacity as part of a £13 million investment package.
- Tackled nutrient pollution with an amendment to the Levelling Up and Regeneration Bill to require water companies to upgrade wastewater treatment works.
- Published our Storm Overflows Discharge Reduction Plan, requiring water companies to deliver their largest ever environmental infrastructure investment - £56 billion of capital investment over 25 years to tackle storm sewage discharges; and expanded the storm overflows monitoring programme from only 5% of storm overflows monitored in 2016 to nearly 90% in 2021.

- Improved planning requirements to support water availability, enabling an additional £469 million of water company investment to develop new strategic water resources; required that water companies produce high quality Water Resources Management Plans and drought plans.
- Published our Strategic Policy Statement for Ofwat, which sets clear long-term priorities for the water industry and the economic regulator.

We have the following targets and commitments:

- Reduce nitrogen, phosphorus and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline, with an interim target of 10% by 31 January 2028, and 15% in catchments containing protected sites in unfavourable condition due to nutrient pollution by 31 January 2028.
- Reduce phosphorus loadings from treated wastewater by 80% by 2038 against a 2020 baseline, with an interim target of 50% by 31 January 2028.
- Halve the length of rivers polluted by harmful metals from abandoned mines by 2038, against a baseline of around 1,500km (approximately 930 miles), with an interim target to construct eight mine water treatment schemes and 20 diffuse interventions to by 31 January 2028.
- Reduce the use of public water supply in England per head of population by 20% from the 2019 to 2020 baseline reporting figures, by 31 March 2038, with interim targets of 9% by 31 March 2027 and 14% by 31 March 2032, and to reduce leakage by 20% by 31 March 2027 and 30% by 31 March 2032.
- Restore 75% of our water bodies to good ecological status.
- Water companies to cut leaks by 50% by 2050. We will reduce leakage by 20% by 31 March 2027 and 30% by March 2032.
- Require water companies to have eliminated all adverse ecological impact from sewage discharges at all sensitive sites by 2035, and at all other overflows by 2050.
- Target a level of resilience to drought so that emergency measures are needed only once in 500-years.

To deliver these, we will:

- Ensure water companies are delivering on our targets and commitments through enhanced transparency and monitoring mechanisms in the Environment Act, targeted enforcement from regulators and increasing the maximum fines.
- Direct water company fines relating to environmental breaches to improving the water environment.
- Crack down on sewage pollution by holding water companies to account for delivering the targets set out in the Storm Overflows Discharge Reduction Plan.
- Require water companies to upgrade 160 of their wastewater treatment works to meet the strictest phosphorus limits by 2028, and upgrade a further 400 by 2038, to reduce harmful nutrient pollution from treated wastewater.
- Reduce agricultural pollution across England by paying farmers to protect and enhance watercourses through new farming schemes, and investing in improved slurry storage and management through our grants, providing advice to farmers to improve their practices through the expanded Catchment Sensitive Farming partnership scheme, and ensuring farmers are meeting legal standards of responsible farming through our expanded and targeted farm visits programme.
- Increase our resilience to drought by working with regulators and water companies to reduce household and non-household water use, and ensuring water companies are delivering a 50% reduction in leakage by 2050.
- Roll out new water efficiency labelling and deliver our ten actions in the **Roadmap to Water Efficiency** in new developments.
- Deliver a ten-fold increase in the Water and Abandoned Metal Mines programme, upscaling the existing three treatment schemes with 40 more by 2038, to tackle harmful pollutants from abandoned metal mines.
- Protect our chalk streams by supporting the **Chalk Stream Strategy**.
- Make Sustainable Drainage Systems mandatory in new developments subject to final decisions, following consultation, on scope, threshold and process.

Introduction

Water is essential for human health, biodiversity and the economy. We all need access to a safe, reliable, resilient supply of clean and plentiful water for our homes, businesses, and for leisure.

We have made significant progress over time in improving the quality of the water environment. For example, we have delivered an 80% reduction in phosphorus concentrations since 1990. Our bathing waters have been steadily improving over time, with 93% of the bathing waters in England at 'good' or 'excellent' in the latest classifications. Those bathing waters meeting the highest standard, Excellent, have risen to 72%, the highest level since new standards were introduced in 2015.

> 72% of our bathing waters meet the highest standard 'Excellent'. This is the most since new standards were introduced in 2015

Levels of ammonia, which is toxic to aquatic life including fish, have reduced to just 15% of their levels in 1990. Iconic species, such as seahorses, seals and salmon, are returning to our rivers and estuaries. Salmon have returned to the River Donn for the first time in 200 years.

> Projections show that some rivers could have 50 to 80% less water in summertime by 2050

However, improvements in our water environment have plateaued due to an increasing population, ageing infrastructure, increased pollution risks and the pressure on our drainage system. Climate change also means that rainfall patterns are changing. Projections show some rivers could have 50 to 80% less water in summertime by 2050 from drier summers, increasing the concentration of pollutants in water bodies and the impact of water abstraction on the water environment. Wetter winters and more frequent intense rainfall lead to increased flooding and more pollutants being washed off fields and urban areas into nearby water bodies.

The top issues preventing our water bodies from achieving near natural state include:

- Physical modification (41%).
- Pollution from agriculture and rural land (40%).
- Pollution from wastewater (36%).
- Non-native invasive species (25%).

- Pollution from towns, cities and transport (18%).
- Changes to natural flow and levels of water (15%).
- Pollution from abandoned metal mines (3%).

Having enough water in the environment to sustain wildlife whilst also ensuring a secure supply to homes and business is becoming increasingly challenging. An additional 4,000 megalitres (Ml) of water a day will be needed in England by 2050 to meet future pressures on public water supply. Water companies currently provide around 14,000 Ml/day of water for public water supply.

An additional 4,000 megalitres of water a day will be needed in England by 2050 to meet future pressures on public water supply

Improving the way we manage our water is essential – and tackling sources of water pollution must remain a top priority.

We have a regulatory framework to set high standards for water at a fair price to consumers. The government sets the overall direction of travel for water companies, and Ofwat acts as the economic regulator. The Government's Strategic Policy Statement for Ofwat sets the priorities for Ofwat's regulation of the water industry. The Environment Agency is the regulator on environmental standards. The Drinking Water Inspectorate assesses whether drinking water is safe. Finally, the Consumer Council for Water represents the interests of water consumers.

We remain committed to improving 75% of our waters to be close to their natural state as soon as is practicable. To drive the scale of progress and improvements needed for the water system, wholesale transformation is required. The policies in this chapter are the first step in a broader water reform programme.

We are developing a suite of new policy interventions designed to transform how we manage the water system in a holistic way, as well as targeted action on each component of the water system.

Targets and commitments

Long term target:
Reduce nitrogen, phosphorus and sediment pollution from agriculture into the water environment by 40% by 31 December 2038, compared to a 2018 baseline.

Interim target 1:
Reduce nitrogen, phosphorus and sediment pollution from agriculture to the water environment by 10% by 31 January 2028

Interim target 2:
Reduce nitrogen, phosphorus and sediment pollution from agriculture to the water environment by 15% in catchments containing protected sites in unfavourable condition due to nutrient pollution by 31 January 2028.

Farming creates a range of water pollution risks, such as nutrient runoff when fertilisers and manures are spread, and erosion of soil following tillage. Nutrient loss leads to eutrophication in water bodies which causes the overgrowth of algae and plants, decreasing oxygen levels and negatively impacting invertebrates and fish.

Recognising the significant change and investment needed, supported through the rollout of our new farming schemes, the interim target for England overall is set at 10% by 2028, with acceleration expected after then according to an 'S shaped' trajectory. This is because interventions such as technology, farm infrastructure and land use change will take time to deliver, particularly in the current context of high input prices.

The interim target for the catchments containing our most important habitats which are in unfavourable condition due to nutrient pollution is set at 15%, in recognition of how we must focus and front load even further our interventions in those areas. A list of these sites can be found in the Natural England publication '**Strategic Solutions: Nutrient Neutrality**'.

Long term target:
Reduce phosphorous loadings from treated wastewater by 80% by 31 December 2038, against a 2020 baseline

Interim target:
Reduce phosphorous loadings from treated wastewater by 50% by 31 January 2028, against a 2020 baseline.

Excessive phosphorus in the water environment causes eutrophication. Pollution from wastewater accounts for 36% of the issues preventing surface water bodies in England from reaching good status. Existing nutrient removal work by water companies is well established, and water companies have made good progress in reducing phosphorus loads.

These targets will require water companies to upgrade at least 160 treatment works to meet the strictest phosphorus limits by 31 December 2027, ahead of the interim target deadline, and an estimated further 400 treatment works by 2038.

Long term target:
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).

Interim target:
Construct 8 mine water treatment schemes and 20 diffuse interventions to control inputs of target substances to rivers by 31 January 2028.

Abandoned metal mines are the largest source of metal pollution in English rivers and into the marine environment. In the majority of catchments impacted by these mines, there are few or no other reasons for failure, so tackling this pollution will support these rivers achieving good status.

Achieving the long-term target will likely require 40 mine water treatment schemes and around 40 diffuse interventions by 2038.

Long term target:
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.

Interim target 1:
Reduce the use of public water supply in England per head of population by 9% by 31 March 2027 and 14% by 31 March 2032.

Interim target 2:
Reduce leakage by 20% by 31 March 2027 and 30% by 31 March 2032.

An additional 4,000 megalitres (Ml) of water a day will be needed in England by 2050 to meet future pressures on public water supply, due to population growth and climate change causing drier conditions. Half will need to be delivered through reducing demand for water and the remainder through increased supply. The long-term target to reduce water demand seeks to close this gap by setting us on a course for more sustainable water consumption.

To achieve the statutory water demand target, we plan to reduce household water use to 122 litres per person per day (l/p/d), reduce leakage by 37% and reduce non-household (for example, business) water use by 9% by 31 March 2038. This is part of the trajectory to achieving 110 l/p/d household water use, a 50% reduction in leakage and a 15% reduction in non-household water use by 2050. The interim targets are based on the progressive reductions needed to meet the long-term target and the supply-demand challenge.

Government estate

The **Greening Government Commitments (GGCs)** seek to reduce the impact of government on the environment. This

GGC is to reduce water consumption by at least 8% by 2025 from the 2017 to 2018 baseline. In 2021, government achieved reductions of 14% water usage (against a 2014 to 2015 baseline) saving an estimated £10.4 million in 2020 to 2021.

Good ecological status and good chemical status

Good Status for surface waters is comprised of good ecological status (GES) and good chemical status (GCS), key elements of the Water Environment (WFD) Regulations, which require a water body to pass a series of underlying assessments. The tests are applied to rivers, lakes, estuaries and coastal waters up to one nautical mile. 126 elements are assessed across 4,600 water bodies.

Ecological status: This is assigned using various water, habitat and biological quality tests. Failure of any one individual test means that the whole water body fails to achieve good or better ecological status or potential. Water bodies are classified from high to bad.

Chemical status: Chemical status is calculated by assessing 52 different chemical elements (individual and groups of chemicals). Water bodies are classified as good or failing.

The European Environment Agency's data shows that that it will be very challenging for most EU Member States to achieve good ecological status for all water bodies in the time frame of the Water Framework Directive. England's performance is comparable with equivalent Northern European countries on water quality, bathing water and urban waste water treatment directive compliance. Currently:

- 16% of surface water bodies in England meet GES.
- Almost 80% of individual tests across all water bodies meet the threshold for GES, but a water body must achieve the required standard for GES for every underlying assessment in order to achieve GES overall. Failure of one individual test means that overall the water body will fail to reach GES. This concept is known as 'one-out-all-out'.

Our delivery plan

To deliver against our goal and targets, we are taking action across a number of areas:

1. **Improving wastewater infrastructure and water company environmental performance** – many urban areas don't live up to modern standards for water management, and we have been clear that the water environment should be a top priority for water companies to manage.

2. **Reducing pressures on the water environment from agriculture** – agriculture is a significant user of water resources, and we want to get the balance right through our future farming schemes and regulation in order to incentivise farmers to take the right action.

3. **Enabling the sustainable use of water for people, business and the environment** - half of the additional 4,000 megalitres of water a day (Ml/d) needed in England by 2050 will need to be delivered through reducing demand for water and the remainder through increased supply.

4. **Tackling pressures from chemicals and other pollutants** - many historic chemicals remain in our rivers, despite being banned or restricted, and we continue to monitor new chemicals being added to the market to assess their potential impact. Further detail on this work is also set out in the 'Managing exposure to chemicals and pesticides' chapter.

5. **Restoring natural function and iconic water landscapes** – our water bodies have been physically modified for hundreds of years. Sometimes this has been to provide an important service such as navigation, but sometimes these no longer provide a purpose, and can negatively affect aquatic habitats and pose unnecessary safety risks. We are working to restore natural function where the modifications no longer serve a wider purpose.

6. **Joined-up' management of the water system** - the current water policy and regulatory framework is complex, with over 15 national plans and strategic documents. We want to ensure that the specific purposes for the plans is kept but that they are brought together in a more coherent way to enable joined up management in all catchments.

1. Improving waste water infrastructure and water company environment performance

Improve wastewater infrastructure and water company environmental performance

Defra has put the water environment as a top priority in the **Strategic Policy Statement to Ofwat** in 2022, making clear our expectation that water companies will clean up their act. We have also set expectations for Ofwat to challenge water companies to demonstrate how they will achieve zero serious pollution incidents by 2030. The Strategic Policy Statement (SPS) also requires Ofwat to support improvements to storm overflows and protected sites.

We are currently working with water companies to establish where they can do more and speed up delivery of our vital work around water resilience and environmental enhancement. We will also hold water companies to account to deliver our expectations on improved management for nutrient pollution, supported by the £2.5 billion invested in measures to tackle this challenge from 2020 to 2025.

> Water company fines for causing environmental harm will now be used directly to improve the water environment

Water company environmental performance

Since 2015, regulators have concluded 59 prosecutions against water and sewerage companies securing fines of over £144 million. In 2021, regulators concluded seven prosecutions against water and sewerage companies with fines of £90 million.

Defra is:

- Developing a mechanism for fines and penalties on water companies for causing environmental harm to be used directly to benefit the water environment. Fines and penalties from enforcement action are currently returned to HMT's consolidated fund. In the future, fines and penalties imposed in relation to environmental matters will be used for projects

that specifically restore and enhance the water environment.

- Developing proposals to consult on increases to the maximum penalty and scope for penalty we can impose upon water companies for environmental breaches.
- Increasing the water company enforcement budget by £2.2 million a year to ensure water companies are held to account.

Improve wastewater treatment

Water companies need to reduce their pollution entering the water environment through a combination solutions. Greenhouse gas emissions from wastewater presently constitute approximately 15% of all emissions from the waste sector. Defra will:

- Encourage water companies to reduce their pollution through upgrading wastewater treatment infrastructure and rolling out Nature-based Solutions for example, integrated wetlands.
- Work with water companies to expand into more sustainable wastewater treatment techniques, and upgrading of existing treatments which use anaerobic digesters to Advanced Anaerobic Digestion, which involve less greenhouse gas and contribute to the circular economy by enabling the waste to be reused.
- Require water companies to produce Drainage and Wastewater Management Plans. These will provide a framework for organisations to work together to improve drainage and environmental water quality, and will also help to reduce surface water flooding risk, as set out in the reduced risk of harm from environmental hazards chapter. Plans by water companies will be produced on a non-statutory basis by May 2023, and Defra will put in place the relevant legislative provisions to make them statutory.
- Support Water UK's Net Zero Route Map and further develop research to understand process emissions from the wastewater.

> We are requiring water companies to upgrade wastewater treatment works to the highest nutrient removal standards in priority catchments affected by excess nutrients

Reduce nutrient pollution to enable sustainable development

We are committed to tackling nutrient pollution at source to restore our protected sites and support sustainable development. Therefore, working closely together, Defra and the Department for Levelling Up, Housing and Communities (DLUHC) have introduced a package of measures. This includes action set out in the wastewater treatment section above, as well as:

- Introducing a new Nutrient Mitigation Scheme, established by Defra, to facilitate building thousands of homes while creating new wetland habitat. DLUHC and Defra have provided up to £30m of pump priming investment to kickstart the scheme.
- Enhancing local capacity to enable sustainable development with tools and guidance, £100,000 for new catchment officers in each area, nutrient advisers in the Planning Advisory Service and additional capacity in Natural England.
- Provisions in the Levelling Up and Regeneration Bill that will require water companies to upgrade wastewater treatment works to the highest nutrient removal standards in priority catchments affected by excess nutrients. This will significantly reduce pollution from existing homes in sensitive areas.
- Setting a stretching interim target to reduce nitrogen, phosphorus and sediment pollution from agriculture to the water environment in catchments containing protected sites in unfavourable condition due to nutrient pollution, requiring a 15% reduction by 31 January 2028, to drive the particular need to focus and front load our interventions in these areas.

The government is committed to rapidly increasing the supply of mitigation credits, to speed up planning permissions and enable the building of new homes. It is also committed to working with local planning authorities, Natural England and the development industry to ensure that sustainable development can be unlocked across the country as soon as possible.

Tackling storm overflows

In August 2022, we also published the **Storm Overflows Discharge Reduction Plan**. This Plan will require water companies to deliver the largest infrastructure programme in water company history - £56 billion of capital investment by 2050. The Storm Overflows Discharge Reduction Plan requires water companies to achieve the following targets:

- By 2035, to have protected all our designated bathing waters and the majority of our most sensitive and protected habitats from storm sewage discharges.
- By 2050, to have eliminated all adverse ecological impact from storm overflows.
- By 2050, to have ensured all storm overflows discharge less than an average of 10 rainfall events per year.

We will ensure Event Duration Monitors are installed on all storm overflows by the end of 2023. This is up from only 5% in 2016.

Water companies are investing £3.1 billion from 2020 to 2025, including £1.9 billion on the Thames Tideway Tunnel (which is due for completion in 2025). Water companies are delivering over 800 storm overflow improvements investigations across England over the 2020 to 2025 period.

There were around 62,000 people (FTE) working in wastewater and water quality management in the UK in 2019

2. Reducing pressures on the water environment from agriculture

We expect that a combination of regulation and public and private schemes will contribute at least 80% of the progress required to deliver our target to reduce nitrogen, phosphorus and sediment pollution from agriculture into the water environment. We expect the remainder will be met through other improvements made by the farming and environmental land management sector, such as developments in soil and nutrient management.

We also expect the farming sector to improve water storage and management, and therefore the resilience of industry,

as part of helping to meet our target to reduce the use of public water supply. These improvements will be made through changes to abstraction and water licensing, as well as through offering grant funding, as set out in this chapter. We aim to increase the percentage of water storage used by the agriculture and horticulture sectors by 66% by 2050, to contribute towards this water demand target.

Incentivise best practice through our new farming schemes

We will:

- Pay farmers to adopt more sustainable farming practices that can improve water quality through accelerated and enhanced funding, by offering at least six new Sustainable Farming Incentive standards which will pay farmers for in-field flower-rich strips, companion cropping and grassy field corners, and for measures to protect watercourses through Countryside Stewardship Plus.
- Co-finance the significant investment that is required to bring farm slurry management and storage up to date and prevent pollution. This is a short-term intervention to help farmers bring their systems up to date, after which we will step up our enforcement in this area to maintain compliance and prevent pollution from slurry.
- Fund research and development of innovative technologies and techniques to enable the increased effective use of manure and slurry as resources rather than waste products.
- Complete Diffuse Water Pollution Plans to identify the specific pressures affecting water dependent protected habitats.

> We have increased funding for our farm inspectors to allow over 4,000 site inspections per year

Increase investment in proactive measures to increase regulatory compliance

Defra has:

- Increased funding for farm inspectors to allow over 4,000 site inspections per year, particularly targeting

inspections in catchments where protected sites are in an unfavourable condition.

- Provided £1.3m per year between 2021 and 2025 to the EA to pilot methods to improve farmer compliance and environmental outcomes, through our Testing Approaches to the Regulation of Agriculture project (Project TARA). These methods range from the use of remote monitoring (for example through drones) to better identify and target potential sources of pollution, to the development of local networks between the EA and key farming stakeholders to improve understanding of the regulations.
- Expanded the successful Catchment Sensitive Farming programme with over £30 million of extra funding to cover all farmland in England to offer advice and guidance on mitigating pollution.
- Launched the £10 million Water Management grant scheme to support on-farm reservoirs and investments in best practice irrigation application equipment.
- Launched the Slurry Investment Grant providing up to £13m this year to support investment in covered slurry stores in the highest priority areas of England.

We have also committed to reviewing our farming regulations to make sure they are fit for purpose, and are effective at delivering our outcomes and preventing water pollution. This will dovetail with incentives provided through our new farming schemes to support the recovery of the water system alongside food production.

3. Enabling the sustainable use of water for people, business and the environment

Increase supply

Water companies are investing £469 million between 2020 and 2025 to investigate the strategic water resources options required, like water transfers, inter-regional water

transfers, reservoirs, water recycling and desalination. This is supported by a joint team called the Regulators' Alliance for Progressing Infrastructure Development (RAPID) and the National Framework for water resources. We are also providing grants towards technology, equipment and infrastructure to support the sustainable use of water in the agriculture sector through the Farming Investment Fund

In addition, Defra will:

- Designate the **National Policy Statement for Water Resources Infrastructure**, to improve planning decisions and better enable new water supply infrastructure delivery.

- Improve regulatory frameworks to facilitate new large water resources infrastructure projects.

The impact of climate change on our water resources is already apparent and will only increase over further years without significant additional action. In response, Defra, with regulators, will:

- Apply lessons learned from the dry weather in 2022 and make any necessary improvements to the EA's water abstraction regime and drought planning, and water company statutory drought planning arrangements.

- Use powers to direct water companies to meet water needs through collaborative regional water resources plans. Water companies will also produce and deliver high quality Water Resource Management Plans and Drought Plans with a healthy and more drought resilient environment being central in their planning, working across company boundaries in an integrated way with different sectors. The plans will also show how water supplies will be resilience to a one in 500-year drought. We will reflect the improvements in the National Framework for water resources.

- Update our evidence base for drought and flood resilience using the £38 million from the UKRI Infrastructure Fund.

- Build on work with regulators, through RAPID, to ensure water companies continue to use the funding to develop new strategic water resources infrastructure.

Secure sustainable abstraction

Abstracting water sustainably is key to protecting our water environment and supplying water to people and businesses. We estimate that we need to reduce abstraction by approximately 800 megalitres per day (Ml/d) by 2027 and 1,400 Ml/d by 2050. Since 2008 the Restoring Sustainable Abstraction programme has returned 48 billion litres of water a year to the environment, including 37 billion litres of water a year to chalk streams, and also removed the risk that approximately 1.9 trillion litres could be abstracted from unused or underused abstraction licences.

Building on this, we will:

- Work at a catchment scale, including with regional water resources groups, to understand environmental risks and develop joint solutions with license holders to deliver sustainable abstractions.
- Bring remaining previously unregulated activities, such as trickle irrigation, into abstraction licensing and modernize the system for current abstractors by moving it into the Environmental Permitting Regulations.
- Use the Water Resources Licensing Digital Service to send e-alerts to require abstraction to reduce or cease when flow levels are low, and where necessary, if we do not see the progress needed, we will utilise new powers to vary or revoke permanent abstraction licenses without compensation from 2028.

Manage demand

Demand management will be needed to meet the other half of the approximately 4,000 Ml/d gap. We are committed to reducing non-household water demand by 9% by 2037 to 2038. Defra has already consulted on introducing a mandatory water efficiency label on water using products by 2024 to 2025 and written to local authorities to encourage them to adopt tighter water efficiency standards in new homes. Our Strategic Policy Statement to Ofwat sets our priority of reducing leakage across the whole network, and we expect water companies to take action to meet the leakage target discussed above.

To go even further, Defra is also working to develop additional policy options to address the gap, including:

- Delivering our roadmap on water efficiency in new developments and retrofits.
- Increased smart metering for households and businesses through accelerated investment between 2020 and 2030.
- Supporting communications campaigns on the value of water and how we can use it more efficiently.
- Reducing non-household water demand by 9% by 31 March 2038 through smart metering, addressing leakage and water audits for business.
- Between 2025 and 2030 Ofwat will deliver a new fund of up to £100 million to encourage and support the development of a range of new approaches to water efficiency.

Ladybower reservoir, Derbyshire. We are improving planning decisions and regulatory frameworks for new water supply infrastructure

Water efficiency in new developments and retrofits

Working with the Future Homes Hub and other stakeholders, we have developed a roadmap on water efficiency in new developments and retrofits. We have proposed 10 actions over the next decade:

- **Action 1** - Implement Schedule 3 to the Flood and Water Management Act 2010. This will require the use of Sustainable Drainage Systems (SuDS) in new developments subject to final decisions on scope, threshold and process, while also being mindful of the cumulative impact of new regulatory burdens on the development sector. This will help to reduce the risk of flooding, storm overflow discharges and pollution caused by surface water runoff. It will also make the right to connect surface water run-off conditional on the approval of the drainage system by the SuDS approving body. We will now be working on the necessary regulations, processes, national standards and impact assessments. This will include a public consultation and implementation is expected during 2024. We will consider rainwater harvesting in developing the statutory SuDS National Technical Standards.
- **Action 2** - Review the Water Supply (Water Fittings) Regulations 1999, the Water Supply (Water Quality) Regulations 2016 and/or any other relevant legislation to address wasteful product issues with toilets and enable new water efficient technologies.
- **Action 3** – Develop clear guidance on 'water positive' or 'net zero water' developments and roles for developers and water companies, including water company incentives.
- **Action 4** – Review water efficiency options in planning, building regulations and through voluntary schemes for non-household buildings (for example, offices).

- **Action 5** – Work with Ofwat to ensure the water industry can play a central role in retrofitting water efficient products in households, businesses, charities and the public sector.
- **Action 6** – Work across government to integrate water efficiency into energy efficiency advice and retrofit programmes.
- **Action 7** - Review the Building Regulations 2010, and the water efficiency, water reuse and drainage standards (regulation 36 and Part G2, H1, H2, H3 of Schedule 1), considering the competence and skills to enable this transition. We will encourage the use of a fittings-based approach linked to the water efficiency label. We will consider a new standard for new homes in England of 105 litres per person per day (l/p/d) and 100 l/p/d where there is a clear local need, such as in areas of serious water stress.
- **Action 8** – Deliver the mandatory water efficiency labelling scheme.
- **Action 9** – Investigate dual pipe systems and water reuse options for new housing development as part of the review of the planning framework.
- **Action 10** – Enable innovative water efficiency approaches in buildings, including technologies and approaches to funding and maintenance.

4. Tackling pressures from chemicals and other pollutants

Treat pollution from abandoned metal mines

Abandoned metal mines are responsible for about half the metals entering water bodies. Up until the year 2000, mines could be abandoned without the mine operators having to deal with the legacy pollution. The Water and Abandoned Metal Mines Programme was set up in 2011 between Defra and the Coal Authority to develop schemes to treat abandoned metal mine water pollution. The programme currently operates 3 successful mine water treatment schemes which have improved 20km of rivers, and has installed around 20 diffuse measures to improve water quality across impacted rivers.

The Coal Authority, with funding from Defra, willl build an estimated 40 additional mine water treatment schemes and around 40 new diffuse interventions by 2038, including constructing 8 mine water treatment schemes and 20 diffuse interventions by 31 January 2028 in line with our interim target.

Tackling plastic pollution

Microplastics in the water environment can derive from water used for washing clothes, microbeads in personal care products, and through tyre and road markings abrasions being washed into drains by rain. Although wastewater treatment works remove up to 99% of microfibres, they still enter water bodies when sludge from treatment works is spread on agricultural land.

In 2018 the government banned the production and sale of microbeads in wipe-off cosmetic and personal care products. To do more to address the problem of microplastics, Defra will work with water companies to explore the management of microplastics in sludge ahead of 2024.

Antimicrobial resistance

The presence of antimicrobials in sewage can potentially release into surface waters and groundwater, increasing the risk of Antimicrobial resistance (AMR). So in 2019 the UK

set out a cross-government 20-year vision for AMR and a **National Action Plan** to tackle this human and animal health risk. The action plan commits to, for example:

- Maintain legislation to control the release of harmful substances into the aquatic environment.
- Gather evidence to understand the possible risks and hazards of AMR in the environment.

We have also set up a £19.2 million cross-departmental project, Pathogen Surveillance in Agriculture, Food and the Environment (PATH-SAFE), to improve our understanding of sources of AMR, allowing even more targeted action.

5. Restoring natural function and iconic water landscapes

Water bodies functioning naturally

Our water bodies have been physically modified for centuries. Many of these modifications provide a vital service to society, such as navigation or flood risk management. Other modifications, such as straightened rivers or redundant weirs, no longer serve a purpose and can often negatively impact aquatic habitats and the quality of the water environment, as well as potentially posing unnecessary safety risks.

Defra will ensure that physical modifications that no longer serve a wider purpose and may cause harm to the water environment are mitigated or removed.

Protect chalk streams

Chalk streams are a rare and valuable habitat, often referred to as the equivalent of England's rain forests or Great Barrier Reef. 85% of all chalk streams globally are found in England, mainly in the south and east of the country, as well as dozens of smaller chalk springs, rills and flushes.

Chalk aquifers are an important source of water for drinking, agriculture and industry. They support angling for trout, salmon and coarse fish, are important for recreation and are a valued part of the English landscape. They need good quality water

in order for the different species of fish, plants and insects, many unique to them – such as the southern damselfly – to flourish.

In recognition of this, Defra will continue to work with the Catchment Based Approach to support the implementation of the **Chalk Stream Strategy**. We will develop plans to outline actions to improve each chalk catchment, including £1 million investment in partnership projects each year.

Restore our shellfish waters

We monitor the 101 shellfish water protected areas in England for the presence of E. coli. In 2021, only 25% of shellfish waters met the microbial standard. This low level of compliance reduced market opportunities for England's 75 shellfish farms, which produce around 3,000 tonnes of shellfish annually.

We have identified 63 priority areas where there is significant economic production and have the potential to meet the E.coli standard by 2030, or where action is needed to prevent deterioration. Water companies are now in the process of reviewing what action is needed in these areas ahead of 2024.

Defra has also identified some priority waters which are predominantly affected by agricultural diffuse pollution. We will target support for farmers to reduce pollution from agriculture.

6. Joined-up management of the water system

Support catchment partnerships

Managing water at a catchment level is essential for joined up and efficient action on the ground. Catchment partnerships such as the Catchment Based Approach drive multiple benefits.

Defra will support catchment partnerships for greater integrated water management, as a framework for coordinating action between the public, private and third sectors. To do this we will trial, evaluate and develop the capability and capacity for an integrated approach to managing water.

Improve the water policy and regulatory framework

Defra will:

- Reform the current framework and rationalise the number of regulatory plans to create a more efficient system, which is easier for stakeholders to navigate and enables joined-up working to achieve catchment-level outcomes.
- Better integrate water and flood policy, for example by reforming river basin management plans and flood risk management plans to maximise the multiple benefits.
- Roll out catchment permitting solutions for water treatment by 2024, where appropriate, to embed investment in Nature-based Solutions.

Case study - REAction, catchment partnership on the Rea Brook

Located in the Upper Severn, the Rea Brook catchment just five years ago had little activity around water environment improvement work. In 2018, Catchment Based Approach (CaBA) partners secured Water Environment Grant fnding from Defra/EA for the REAction project.

Partners worked with local farmers and landowners to deliver management plans which supported sustainable practices and improved on-farm ecosystem services, as well as the removal of barriers to fish movement. Over 8,500m2 of wetland habitat has been created, 2 barriers to fish have been removed, 150 woody barriers have been installed and over 8,000 trees have been planted. Water voles have been reintroduced and they have assisted with Curlew habitat enhancement. Water management plans have been developed on 45 farms, 25km of watercourse have been fenced off and 2km of guttering has been installed on farm buildings. A community water environment awareness event was also held linking the community to their catchment.

The REAction project left a legacy and triggered strong collaborative activity in the catchment. Five years on there are more than 30 partners including Seven Rivers Trust, Rea Internal drainage board, Shropshire Council, Natural Resources Wales, Forestry Commission, CPRE the countryside charity, Shropshire Hills, National Trust, Curlew Country and the Environment Agency now working on 14 projects achieving multiple benefits for the environment and people.

Creating wetland habitat

Kingfisher bridge, with fish barrier removed

Monitoring and evaluation

We will monitor progress towards delivering the EIP23 through the Annual Progress Report and the Outcome Indicator Framework. The framework contains 66 indicators, arranged into 10 broad themes. The relevant indicators for clean and plentiful water are:

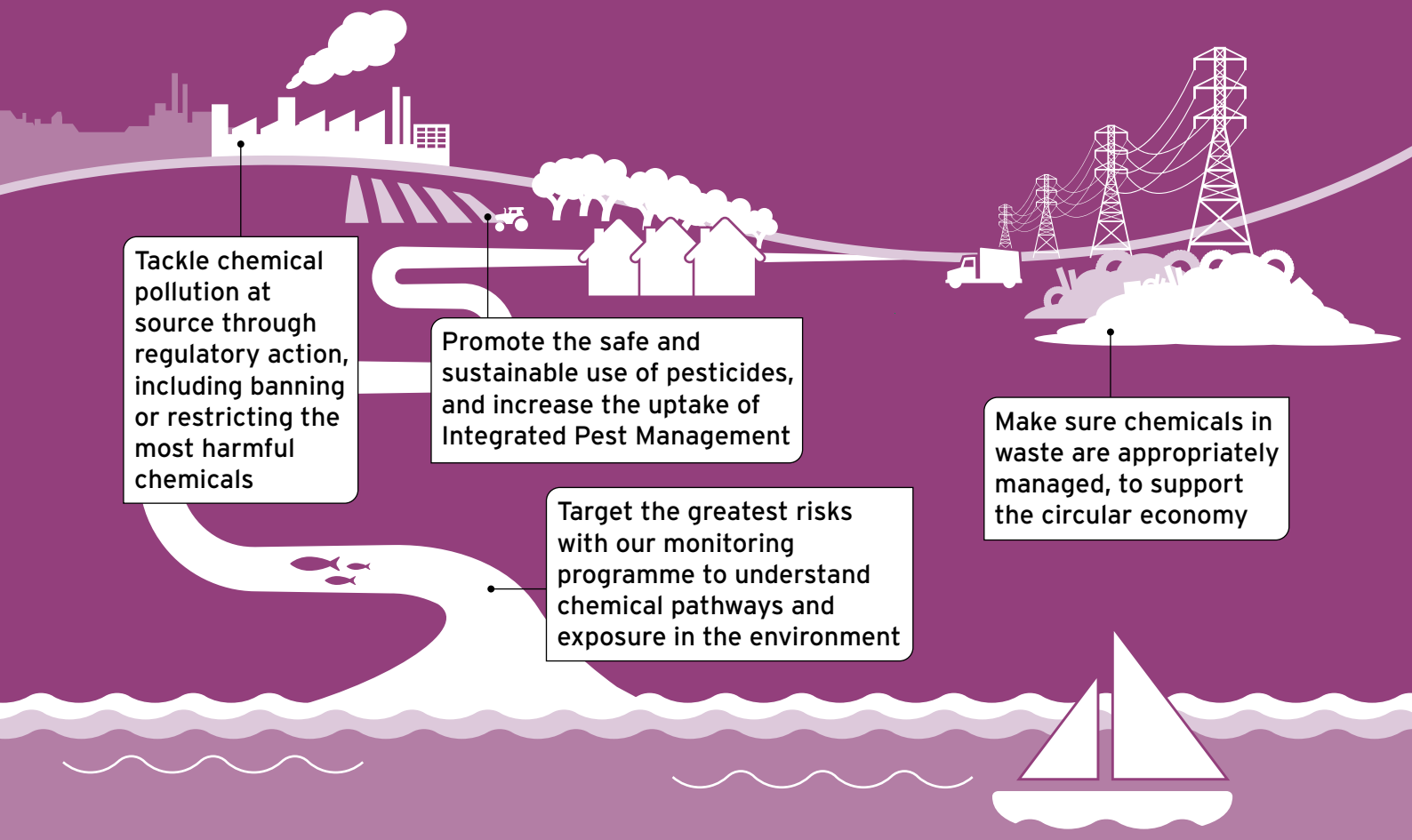
- **B1** **Pollution loads entering waters**
- **B2** **Serious pollution incidents to water**
- **B3** **State of the water environment**
- **B4** **Condition of bathing waters**
- **B5** **Water bodies achieving sustainable abstraction criteria**
- **B6** **Natural functions of water and wetland ecosystems**
- **B7** **Health of freshwaters assessed through fish populations**
- **E8** **Efficient use of water**

Long-term trend data on water quality will also be used. The F3 indicator on disruption or unwanted impacts caused by drought was recently developed to focus on disruption or unwanted impacts to public water supply due to drought. The data underpinning this indicator was first reported by all water and sewerage companies in summer 2022.

We are improving wastewater infrastructure and water company environmental performance

Goal 4
Managing exposure to chemicals and pesticides

Tackling sources of pollution in our everyday environments



Chemicals and pesticides help us achieve many important goals, from securing cleaner water and plentiful food, to thriving industry, and more effective medicines – and using them wisely is key to keeping people and wildlife safe.

So, making sure that the way we manufacture, use, manage, and dispose of chemicals and pesticides is safe for communities and the environment is an ongoing priority.

We have made good progress – by improving our understanding of monitoring needs and response, harnessing scientific expertise to tackle emerging threats, and supporting the hard work of farmers.

Now, having left the EU, we have the freedom to consider our approach – so we can phase out the most harmful and persistent pollutants in favour of more sustainable alternatives, make polluters pay, and raise standards around the world.

Our 25 Year Environment Plan goal

We will make sure that chemicals are safely used and managed, and that the levels of harmful chemicals entering the environment (including through agriculture) are significantly reduced.

Since 2018, we have:

- Launched a chemicals evaluation and risk management programme under UK registration, evaluation, authorisation and restriction of chemicals (UK REACH).
- Set out how we will support the agricultural sector to implement Integrated Pest Management through our new farming schemes.
- Developed a prioritisation and early warning system for chemicals of emerging concern (PEWS) which has led to new monitoring for some chemicals.
- Used our expertise as a scientific leader to influence global environment policy.

We have the following targets and commitments:

- Substantially increase the amount of persistent organic pollutants (POPs) material being destroyed or irreversibly transformed by 2030, to make sure there are negligible emissions to the environment.
- Seek to eliminate the use of polychlorinated biphenyls (PCBs) by 2025 in line with our commitments under the Stockholm Convention.
- Reduce land-based emissions of mercury to air and water by 50% by 2030.
- At UN Nature Summit COP15, through the Kunming-Montreal Global Biodiversity Framework, we agreed to contribute to the global target of reducing pollution risk by 2030.

To deliver these, we will:

- Publish a new **Chemicals Strategy** in 2023 to set out our priorities for addressing risks from chemicals, how we will use our regulation and how we can encourage a move to more sustainable use of chemicals.
- Continue to use UK REACH to evaluate and manage the risks posed by chemicals to human health and the environment.
- Improve our understanding of chemicals in the environment, building on our prioritisation and early warning system, to ensure regulation is targeted at the greatest risk.
- Publish a revised UK national action plan for the sustainable use of pesticides to reduce the harm of pesticides and help farmers to transition to integrated pest management with investment and advice.
- Support partners to manage waste streams that are contaminated with POPs to ensure that they are destroyed at end of life and reduce the levels of POPs entering the environment.
- Work with industry to register and remove from use all items of equipment that contain polychlorinated biphenyls (PCBs) by 2025.
- Work with industry to increase the uptake of mercury abatement technology in crematoria through the publication of statutory guidance.
- Work with international partners to raise global standards for chemicals management, and build chemicals management capacity in lower and middle income countries with £6 million of Official Development Assistance investment.

Introduction

The sound use of chemicals and pesticides can help us achieve many of our most fundamental goals – from securing cleaner water and more plentiful food, to making more effective medicines.

Yet when the risks posed by chemicals are poorly managed, we risk undermining our efforts to meet many challenges – from keeping people safe, to improving food and water security, to tackling climate change and helping nature recover.

So we must make sure that the way we manufacture, use, manage, and dispose of chemicals and pesticides is safe for people and the environment.

A new **Chemicals Strategy,** published this year, will set out the action we will take to manage the risks posed by chemicals, and to continue to phase out the most harmful and persistent pollutants in favour of safer and more sustainable alternatives. For pesticides a revised National Action Plan for the Sustainable Use of Pesticides will be published in 2023. This will aim to minimise the risks and impacts of pesticides to human health and the environment, while ensuring pests and pesticide resistance can be managed effectively.

Targets and commitments

In the 25 Year Environment Plan, we committed to:

- Fulfill our commitments under the Stockholm Convention on persistent organic pollutants (POPs) as outlined in the UK's most recent National Implementation Plan.
- Substantially increase the amount of POPs material being destroyed or irreversibly transformed by 2030 and seek to eliminate the use of polychlorinated biphenyls (PCBs) by 2025, to make sure there are negligible emissions to the environment, in line with our commitments under the Stockholm Convention.
- Reduce land-based emissions of mercury to air and water by 50% by 2030.

- Publish a **Chemicals Strategy** to tackle chemicals of concern.

At UN Nature Summit COP15, through the Kunming-Montreal Global Biodiversity Framework we agreed alongside the other parties to a global target to:

- Reduce by half both excess nutrients and the overall risk posed by pesticides and highly hazardous chemicals.

Our delivery plan

Our focus for driving progress towards this goal is spread across three areas:

1. **Ensuring chemicals are safely used and managed** – recognising that chemicals are an important part of our everyday life, manage any risks posed by, and to continue to phase out the most harmful and persistent pollutants in favour of safer and more sustainable alternatives.

2. **Minimising the risks and impacts of pesticides** - reducing their impacts on human health and the environment, while ensuring pests and pesticide resistance can be managed effectively.

3. **Harnessing UK expertise internationally to improve global chemicals management** - managing exposure to chemicals and pesticides is a transboundary issue, requiring global solutions and international cooperation. As a global scientific leader on chemicals management, the UK will use science diplomacy and expertise to influence global environment policy.

1. Ensuring chemicals are safely used and managed

Manage and reduce persistent organic pollutants (POPs) in the environment

Persistent organic pollutants (POPs) are chemicals that remain intact in the environment for long periods. This means they become widely distributed across the country and globally, accumulating in humans and wildlife. POPs are toxic to both humans and wildlife and so have a harmful impact on human health or on the environment. Given the long-range transport of POPs and the harmful impact they can have on human health and the environment, an international convention (the UN Stockholm Convention on Persistent Organic Pollutants) has been agreed requiring parties, including the UK, to take measures to eliminate or reduce the release of POPs into the environment.

Many POPs have been banned for years, but there is an ongoing legacy of contamination. As well as being problematic for health, this also impacts water quality.

We have:

- Used our expertise as a scientific leader within the Stockholm Convention on POPs and its supporting groups and supported its objectives through the UK's contribution to the Global Environment Facility (GEF) to deliver environmental projects that aim to rid the earth of the most toxic and harmful chemicals, creating a clean and healthy planet for all, as part of our £330 million pledge. For the first time, the UK has nominated a substance to be listed under the Convention, demonstrating our commitment to protecting human health and the environment.
- Improved the multi-media emissions inventory (MMEI) (an inventory of estimates of UK emissions of several unintentionally produced POPs to air, water, land and residue) enabling us to track emissions and encourage action to reduce them further.
- Taken action to manage POPs in waste electrical

Around 44.3 tonnes of POPs in waste electrical and electronic equipment are now separated each year and successfully destroyed, rather than being landfilled or contaminating recycling

and electronic equipment. For instance, around 44.3 tonnes of POPs in waste electrical and electronic equipment are now separated each year and successfully destroyed, compared to a baseline where these materials were landfilled or contaminated recycled materials.

We are:

- Implementing our obligations under the Stockholm Convention on POPs as set out in the latest UK National Implementation Plan.
- Acting to ensure that approximately 1,200 tonnes of POPs used as flame retardants in domestic seating (for example, sofas) are destroyed by incineration when they become waste, rather than sent to landfill. This is likely to be the most significant source of release of the POP decabromodiphenyl ether (DecaBDE) to the European environment, around ten times greater in scale than any other waste stream.
- Supporting partners to manage POPs contamination of carpet and automotives wastes.
- Initiating a programme of work to examine the levels of POPs occurring in construction and demolition waste.

There is evidence that cetaceans, such as whales and dolphins, are suffering population level effects from PCBs in the marine environment which impair their reproductive and immune systems

Case Study: Persistent Organic Pollutants in Waste Electrical and Electronic Devices

Many electrical products contain Brominated Flame Retardants (BFRs), some of which are Persistent Organic Pollutants (POPs). We are working to support safe disposal of waste electrical and electronic devices (WEEE) by:

Having worked with others to investigate the extent of the problem, including supporting a study by the Industry Council for Electronic Equipment Recycling;

Supporting businesses to comply by publishing guidance to help business understand how to manage this waste, informing them of their obligations in managing electrical waste, and using existing sector networks and an additional support forum to help enable compliance; and,

Taking an intelligence-led and risk-based approach to enforcement by dedicated chemical inspectors.

As a result, around 44.3 tonnes of the POP Decabromodiphenyl ether (DecaBDE) in plastic is now being separated from WEEE and successfully destroyed each year, compared to a baseline where there was no intentional destruction of POPs. Prior to this work, these materials were all being landfilled or were contaminating recycled materials.

Due to the cooperation between government, the regulator and industry, we have reduced the amount of new POPs entering the environment. This has reduced the risks of them becoming widely distributed geographically, accumulating in the fatty tissue of humans and wildlife. This work has also provided a template for subsequent cooperative work on other waste streams.

Eliminate the use of polychlorinated biphenyls (PCBs)

The use of PCBs in production has been illegal in the UK since 1987. They still exist, however, within some older equipment, predominantly within our national energy infrastructure.

Concentrations also remain high in the marine environment, with evidence that cetaceans such as whales, dolphins and porpoises are suffering population level effects from PCBs which impair the animals' reproductive functions and immune systems, so we must continue our work to eliminate them.

We are working to ensure all items of equipment that contain PCBs are registered and removed from use by 2025.

Reduce land-based emissions of mercury to air and water

Through our plans to remove unabated coal from the UK's energy mix by 2024, we have already seen a significant decrease in mercury emissions, which is released to the atmosphere when coal is burned. Coal now accounts for only 1.8% of the UK's electricity mix, compared with 40% almost a decade ago.

As a result of these reductions in mercury emissions from UK power generation, and the decommissioning of the UK's only mercury chlor-alkali facility, emissions from crematoria now represent a larger proportion of remaining total mercury emissions.

We are working with industry to increase the uptake of abatement technology in crematoria through the review of the statutory guidance for the sector.

Publish a Chemicals Strategy in 2023

The UK has responsibility for chemicals policy and regulation following Brexit.

Given the importance of chemicals and their benefits to society, we want to promote a thriving UK chemicals sector. At the same time, chemicals are ubiquitous, can cause harm to human health and the environment and need to be safely used and managed throughout their life-cycle.

Through a Chemicals Strategy we will:

- Set out our approach to managing priority and emerging chemicals of concern, such as Per- and Polyfluorinated Substances (PFAS), a large group of persistent chemicals which are used in a wide range of products, including stain repellents and fire-fighting foams; Endocrine Disrupting Chemicals (EDCs), substances that affect how hormones function; and the combination effects that different chemicals can have on the environment.
- Set out an approach to regulation that is risk-based, while also adhering to the environmental principles policy statement enshrined in the Environment Act.

- Set out how we will continue to use UK REACH to evaluate and manage the risks of chemicals as well as consider improvements to UK REACH. Current work under UK REACH is set out in the annual UK REACH Work Programme, published by the Health and Safety Executive.
- Set out how we will complete the transition to UK REACH through development of a new UK REACH Alternative Transitional Registration model; an innovative approach focusing on improving our understanding of the uses and exposures of chemicals across Great Britain.
- Improve our understanding of chemicals in the environment, continuing to develop monitoring methods to allow water bodies and other environments to be scanned for a broader range of chemicals beyond those already monitored.
- Use our Prioritisation and Early Warning System to inform decision-making and regulation.
- Promote innovation to support the circular economy, drive the use of safer and sustainable chemicals and reduce the risks to human health and the environment caused by hazardous chemicals in waste.
- Develop new testing methods based on scientific advances, which work towards increased efficiency of chemical hazard assessment and can also reduce the use of protected animals.

2. Minimising the risks and impacts of pesticides

A pesticide may only be placed on the market following a thorough scientific risk assessment that concludes all safety standards are met. Pesticides that pose unacceptable risks are not authorised. Decisions on the use of pesticides will continue to be based on careful scientific assessment of the risks, with the aim of achieving a high level of protection for people and the environment, while improving agricultural production.

The number of approved active substances used in pesticides has declined and is expected to continue to decline. There are increasing resistance issues where some pesticides are no longer effective methods of control and it is likely there will be additional pest control challenges resulting from climate change in future years.

The link between pesticide use and biodiversity loss is complex, but there is growing evidence that pesticides have the potential to impact non-target species such as pollinators and soil-dwelling invertebrates, which provide essential services to farmers and growers and are crucial for a thriving natural environment.

We want to encourage sustainable pest management practices through Integrated Pest Management (IPM) to reduce our reliance on pesticides, and where they are needed, to deploy them in a more targeted way. IPM aims to reduce reliance on chemical pesticides by making use of a wider variety of crop protection methods, including lower risk alternatives and promoting natural processes. For example, creating habitats for natural predators of plant pests, or using crop rotations to break pest, weed and disease cycles. When alternative methods are ineffective or unavailable, IPM also aims to optimise and minimise the use of chemical pesticides through targeted and precise application.

Deliver a National Action Plan for Sustainable Use of Pesticides

We will:

- Publish the **UK National Action Plan for Sustainable Use of Pesticides** in 2023, alongside the devolved administrations. The National Action Plan will put IPM at the heart of a holistic approach to pest, weed and disease management, while ensuring pests and pesticide resistance can be managed effectively.

- Minimise the risks and impacts of pesticides to human health and the environment through the greater uptake of IPM across all sectors and the development and introduction of alternative approaches or techniques, to reduce reliance on the use of conventional chemical pesticides.

Investing in research and development

We have:

- Supported a number of IPM research and development projects. These include research into non-chemical alternatives for pests such as cabbage stem flea beetle and the collection of more data to understand changing pest pressures.
- Supported a theory of change project to further understand how best to increase the uptake of effective IPM.
- Set out how we will support the agricultural sector to implement IPM through our new farming schemes
- Invested in tests and trials as part of our future farming schemes to develop an online IPM tool and guidance for farmers on making effective IPM decisions.

We will:

- Continue to support research and development with upcoming projects including understanding the yield impacts and benefits of IPM approaches, and further building the evidence base for the environmental impacts of pesticides.

Natural processes can reduce reliance on chemical pesticides

- Provide financial incentives through our new farming schemes, including the Sustainable Farming Incentive to support greater uptake of IPM on-farm and reduce reliance on using pesticides.

Support safe and compliant use

To make sure that pesticides are used safely and sustainably, we want to support pesticide users to achieve high levels of compliance with any conditions on their use.

We have:

- Put controls in place for anyone working with plant protection products. This includes an obligation for all operators to register with Defra, together with a programme of risk-based inspection visits. This will enable us to better understand compliance with the legislation and to target our pesticide enforcement resources more effectively.
- Invested in 18 Pesticide Enforcement Officers at the Health and Safety Executive who will play a key role in delivering an official controls programme.

3. Harnessing UK expertise internationally to improve global chemicals management

Managing exposure to chemicals and pesticides is a transboundary issue, requiring global solutions and international cooperation. As a global scientific leader on chemicals management, the UK will use science diplomacy and expertise to influence global environment policy.

We have:

- Jointly led international efforts to establish a new framework for international chemicals management, bringing together governments, industry and civil society.
- Successfully proposed the listing of Medium Chain-Chlorinated Paraffins (MCCPs) as a new POP under the Stockholm Convention, using our evidence and

technical expertise to lead on this internationally. MCCPs are used in products including polyvinyl chloride (PVC), adhesives, and paints.

- Contributed scientific and technical expertise to Organisation for Economic Cooperation and Development working parties to shape guidelines on the sound management of chemicals and standardisation of methods.

- Worked with international partners to raise global standards for chemicals and pesticides management, with £6 million of ODA investment.

We will:

- Continue to play a prominent and positive role in the negotiations for a new Science Policy Panel for pollution (the 'IPPC' for pollution). The UK was one of the first countries to provide funds with a contribution of £250,000 to develop the panel proposal. Continue to lead work on the listing of MCCPs through developing the Risk Management Evaluation for consideration by the Stockholm Convention's POPs Review Committee in September 2023.

- The UK will continue to lead efforts to improve the effectiveness of our Multilateral Environment Agreements - for example, pushing for a stronger compliance mechanism for the Stockholm Convention, and strongly advocating that chemicals recommended for listing under the Rotterdam Convention are agreed.

As a global scientific leader on chemicals management, the UK will use science diplomacy and expertise to influence global environment policy

Build global capacity for chemicals management

Drawing on the UK's globally respected domestic expertise, Defra will invest £6 million of Official Development Assistance funding over three years to build capacity in lower- and middle-income countries. This will support scalable projects on sustainable agriculture (in Vietnam) and sustainable waste management (in South Africa).

Monitoring and Evaluation

We will monitor progress towards delivering the EIP23 through the Annual Progress Report and the Outcome Indicator Framework. The framework contains 66 indicators, arranged into 10 broad themes. The relevant indicators for managing exposure to chemicals and pesticides are:

H3 **Emissions of mercury and persistent organic pollutants to the environment.**

H4 **Exposure and adverse effects of chemicals on wildlife in the environment.**

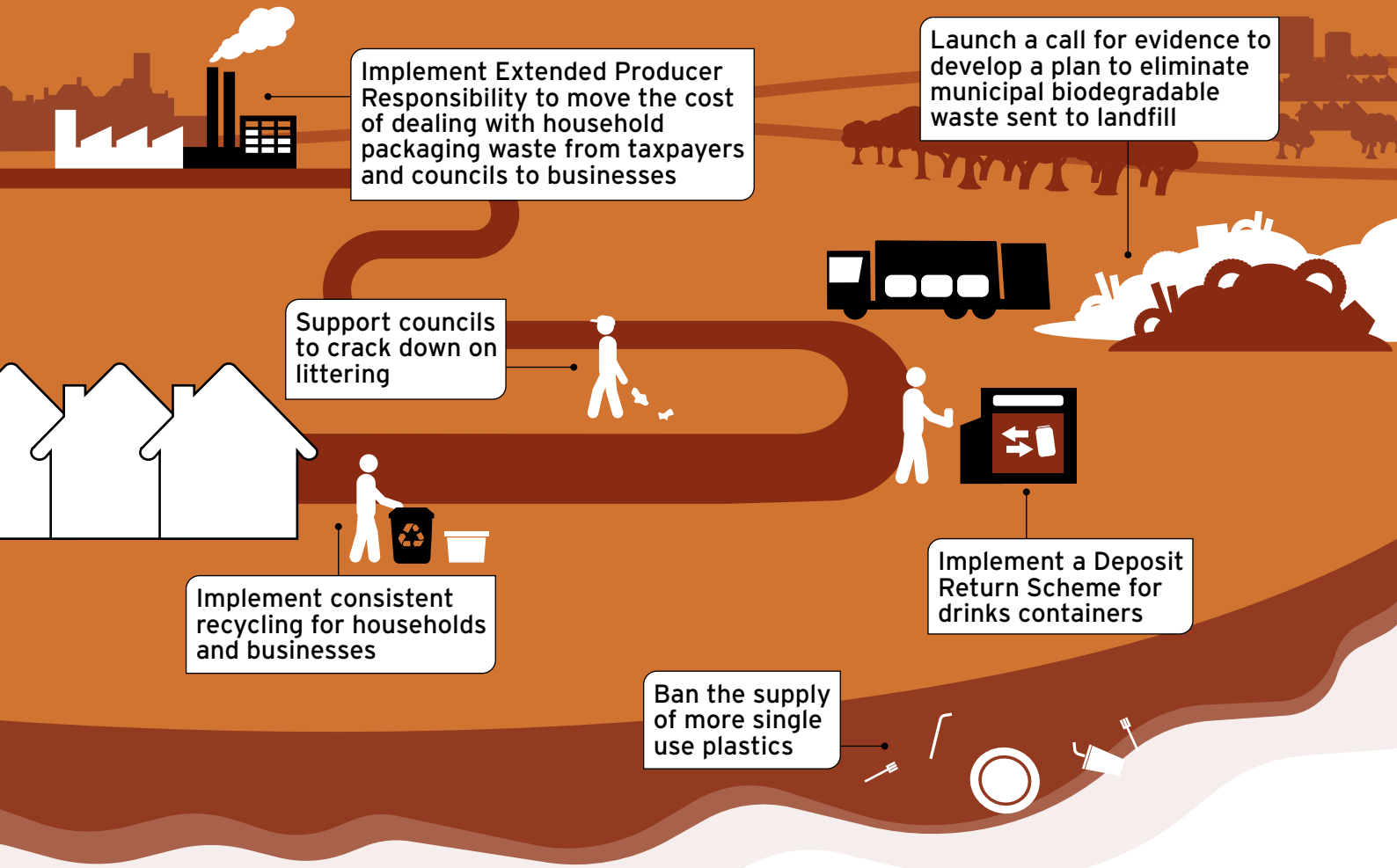
J5 **Prevent harmful chemicals from being recycled.**

We provide long-term chemicals monitoring in England to assess and manage risk from substances known to be harmful and inform policy development. Defra will continue to develop monitoring methods to allow water bodies to be scanned for a broad range of chemicals beyond those already monitored. This information, along with established targeted screening, will be fed into the **prioritisation and early warning system programme** to inform decision making and regulation.

Integrated Pest Management (IPM) is at the heart of our approach to minimise the risks of pesticides to the environment. Our policies will help farmers access the tools they need to increase their use of IPM.

Goal 5
Maximise our resources, minimise our waste

Key policies to reduce waste and maximise our resources



Resources on our islands – indeed on our planet – are finite and precious. Their extraction and manufacture can cause environmental harm. We want to make it easier for people to do the right thing to maximise the use of these resources and minimise their waste.

In 2018, we published our **Resources and Waste Strategy** which set out long-term commitments and ambitions to eliminate avoidable waste by 2050.

However, the pandemic has set us back. People needed new single-use products like facemasks and test kits, and understandably prioritised public health by buying products with additional packaging. Between 2019 and 2020 there was a large increase in residual waste, as the household recycling rate fell by 1.5 percentage points and total waste from households increased by 0.5 million tonnes.

We need to get back to the better habits we were starting to learn and to support people to make it easier to do so. Our plan aims to make it the norm to reduce, reuse, and recycle so we can reduce residual waste and make our economy truly circular and sustainable.

Our 25 Year Environment Plan goal

We will minimise waste, reuse materials as much as we can and manage materials at the end of their life to minimise the impact on the environment.

Since 2018, we have:

- Published the **Resources and Waste Strategy,** setting out our approach to eliminating avoidable waste by 2050.
- Published the **Net Zero Strategy** in 2021, committing us to working towards the near elimination of biodegradable municipal waste to landfill from 2028, and providing free separate food waste collections for all household from 2025.
- Provided approximately £9 million in funding a year to the Waste and Resources Action Programme (WRAP) for action on resource efficiency and minimising waste, which includes support for foodwaste prevention, action on recycling, textiles and plastic packaging.

- Introduced a Plastic Packaging Tax, charging £200 per tonne on plastic packaging manufactured in, or imported into the UK, that does not contain at least 30% recycled plastic.
- Increased the single-use carrier bag charge to 10p in 2021. Bag usage at major retailers has fallen by 97% since the charge was introduced in 2015.
- Restricted the supply of plastic straws and cotton buds and banned drinks stirrers.
- Increased our packaging recycling rate from 62.1% in 2018 to 63.2% (provisional) in 2021 and tonnes recycled from 7.347 million tonnes in 2018 to 8.019 million tonnes in 2021 – an additional 672,000 tonnes.
- Funded WRAP to help businesses measure and report their food waste which has helped the food supply chain to report a reduction in food waste by over 19,000 tonnes (8%), equivalent to almost £62 million.
- Launched a **Chewing Gum Task Force** with Keep Britain Tidy and the gum industry to tackle gum littering with up to £10 million funding available over 5 years.
- Provided new powers for councils to tackle anti-social behaviour.
- Provided new powers to combat waste crime.

We have the following targets and commitments:

- We will eliminate avoidable waste by 2050 and double resource productivity by 2050.
- We will explore options for the near elimination of biodegradable municipal waste to landfill from 2028.
- We will eliminate avoidable plastic waste by 2042.
- We will seek to eliminate waste crime by 2042.
- We will halve 'residual' waste (excluding major mineral waste) produced per person by 2042. For the purposes of the target, we define 'residual' waste as waste that is sent to landfill, put through incineration or used in energy recovery in the UK, or that is sent overseas to be used in energy recovery.

- The residual waste target is underpinned by the following interim targets, by 31 January 2028:
    - Reduce residual waste (excluding major mineral waste) produced per person by 24%.
    - Reduce residual waste (excluding major mineral waste) in total tonnes by 21%.
    - Reduce municipal residual waste produced per person by 29%.
    - Reduce residual municipal food waste produced per person by 50%.
    - Reduce residual municipal plastic waste produced per person by 45%.
    - Reduce residual municipal paper and card waste produced per person by 26%.
    - Reduce residual municipal metal waste produced per person by 42%.
    - Reduce residual municipal glass waste produced per person by 48%.

To deliver these, we will:

- Implement consistent recycling for households and businesses, to boost recycling rates.
- Introduce a Deposit Return Scheme for plastic and metal drinks containers from October 2025 to drive very high recycling rates, to incentivise citizens to do their civic recycling duties and bring positive recycling behaviours into public consciousness.
- Implement packaging Extended Producer Responsibility from 2024 to move the cost of dealing with household packaging waste from taxpayers and councils to the packaging producers.
- Mandate recycling labelling for packaged products by 31 March 2026 except for plastic films and flexible which we will mandate by 31 March 2027.
- Ban the supply of single-use plastics like plastic plates and cutlery from October 2023. We will also explore options further, including with stakeholders, for the potential for technological innovation in the production of coffee cups, and behavioural science in how they are used.
- Introduce a mandatory digital waste tracking service to modernise existing waste record keeping and implement reforms to the waste carriers, brokers and dealers regime and bring forward legislation to tackle abuse of certain types of waste exemptions.
- Launch a call for evidence to support development of a plan to achieve the near elimination of biodegradable municipal waste going to landfill from 2028.

Introduction

Resources on our islands – indeed on our planet – are finite and precious. Their extraction and manufacture can cause environmental harm. We want to make it easier for people to do the right thing to maximise the use of these resources and minimise their waste.

Success relies on us, as a society, to change our relationship with how we use resources. In 2018, we published our **Resources and Waste Strategy** which set out long-term commitments and ambitions to eliminate avoidable waste by 2050. We were making great strides forward in people's attitudes towards reuse, with recycling rates increasing over the longer term, but when COVID-19 arrived we were knocked back. We reverted to single use plastics as a default, to protect our own health. People needed new single-use products like facemasks and test kits, and understandably prioritised public health by buying products with additional packaging. Between 2019 and 2020 there was a large increase in residual waste, as the household recycling rate fell by 1.5 percentage points and total waste from households increased by 0.5 million tonnes.

Everything we use and consume requires resources that come from somewhere. We need to reclaim the ground lost and remind people of the positive action they have got out of the habit of doing over the last few years. Our plan aims to make it the norm to reduce, reuse, and recycle so we can reduce residual waste and make our economy truly circular and sustainable.

We cannot continue with our stagnant household and business recycling rates, leaving households and businesses to navigate complex collection rules. We know that consumers want to take the right action but too often they 'wishcycle' – confused about what they can and cannot recycle, often putting items in the recycling bin in the hope they are doing the right thing and ending up contaminating what could have been recycled.

Transition towards more circular resource use is an essential part of the action we need to take to tackle greenhouse gas (GHG) emissions and improving the state of the natural world.

To achieve this, we are making sure that the polluter pays principle is implemented and to design waste out of the way we do things right across our economy–and keep harmful waste out of our environment. We will help each of us to cut back on single-use items that most of us can do without.

Targets and commitments

Long term target:
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.

Interim target 1:
By 31 January 2028, the total mass of residual waste excluding major mineral wastes in the most recent full calendar year does not exceed 437 kg per capita.

We set a stretching long-term target to halve 'residual' waste (waste that is sent to landfill, put through incineration or used in energy recovery in the UK or overseas) by 2042. This is an intentionally broad target, which will include the most environmentally harmful materials like plastics, rather than banning a single type of material and risk producers moving to a different, more harmful material.

This interim target reflects the trajectory that will be required for the long-term target. Achieving the interim target will mean a 24% reduction of residual waste from 2019 levels, setting us on track towards achieving the long-term target, which is equivalent to a 50% reduction from 2019 levels.

We will halve 'residual' waste (excluding major mineral waste) produced per person by 2042

Interim target 2:
By 31 January 2028, the total mass of residual waste excluding major mineral waste in the most recent full calendar year does not exceed 25.5 million tonnes.

This sets an overall waste tonnage interim target alongside the per capita target. This will ensure that progress towards the long-term target also involves a substantial reduction in the overall tonnage of waste sent to residual end-of-life treatment, irrespective of any unexpected population change. Achieving this target will reduce the total mass of residual waste by 21% from 2019 levels.

Interim target 3:

By 31 January 2028, the total mass of municipal residual waste in a year does not exceed 333 kg per capita.

Interim target 3 covers the narrower scope of municipal waste. This is waste from households plus waste similar in composition to household waste, such as commercial waste. We propose this target because it captures where current policy interventions, the Collection and Packaging Reforms, are focused. It also provides a reference point for the material-based interim targets, which currently can only be satisfactorily measured at a municipal level. Achieving this target will reduce the total mass of municipal residual waste by 29% compared to 2019 levels.

Interim targets 4-8:

By 31 January 2028, the total mass of:

- Residual municipal food waste in the most recent full calendar year does not exceed 64 kg per capita. This is equivalent to a 50% reduction from 2019 levels.
- Residual municipal plastic waste in the most recent full calendar year does not exceed 42 kg per capita. This is equivalent to a 45% reduction from 2019 levels.
- Residual municipal paper and card waste in the most recent full calendar year does not exceed 74 kg per capita. This is equivalent to a 26% reduction from 2019 levels.
- Residual municipal metal waste in the most recent full calendar year does not exceed 10 kg per capita. This is equivalent to a 42% reduction from 2019 levels.
- Residual municipal glass waste in the most recent full calendar year does not exceed 7 kg per capita. This is equivalent to a 48% reduction from 2019 levels.

We are setting material-based interim targets to ensure all key waste material streams, not only the heaviest, are reducing in tonnage. Further, including a plastic waste interim target specifically will enable us to track our progress against our previous commitment to eliminate all avoidable plastic waste by 2042.

Other targets and commitments

Resources and Waste Strategy and Net Zero Strategy ambition

We have also set out our long-term commitments to:

- Reduce food waste, including achieving the Sustainable Development Goal 12.3 to halve per capita global food waste at the retail and consumer levels by 2030.
- Significantly reduce and where possible prevent all kinds of marine plastic pollution – in particular material that came originally from land.
- Develop policies towards the near elimination of biodegradable municipal waste to landfill from 2028 as part of the **Net Zero Strategy.**

Family recycling cardboard at recycling centre

- Achieve a municipal recycling rate of at least 65% by 2035.
- Seek to eliminate waste crime and illegal waste sites by 2042 prioritising those of highest risk.
- Deliver a substantial reduction in litter and littering behaviour.

Government estate

The government has ambitions for waste on its own estate. In 2021 we achieved our target of sending less than 10% of waste to landfill. We also reduced our waste by 51% against a 2014 to 2015 baseline, saving an estimated £33.5 million in 2020 to 2021 alone.

The current Greening Government Commitments, to be met by 2025, are to:

- Reduce the overall amount of waste generated by 15% from the 2017 to 2018 baseline.
- Reduce the amount of waste going to landfill to less than 5% of overall waste.
- Increase the proportion of waste which is recycled to at least 70% of overall waste.
- Remove Consumer Single Use Plastic (CSUP) from the central government office estate.

Our delivery plan

To deliver against our goal and targets, we are taking action across a number of areas:

1. **Delivering our collection and packaging reforms** – implementing reforms to collections and packaging, producer responsibility and introducing a deposit return scheme.
2. **Enabling people to take the right action** – providing incentives and ensuring the infrastructure, information and skills are in place.
3. **Reducing our use of materials** – preventing waste from occurring in the first place and managing it better when it does, doubling resource productivity.

In 2020 113,000 people worked in the waste and waste treatment sector in the UK

4 **Tackling waste crime** – so as not to allow our ambition to be undermined by criminality.

5 **Global leadership in tacking waste and pollution** – tackling plastic pollution in our interconnected oceans.

1. Deliver our collection and packaging reforms

Deliver consistent collections

Different local authorities currently collect different materials for recycling, which leads to incorrect messaging about what can or cannot be recycled, making it harder for households to recycle. We will be supporting frequent and comprehensive rubbish and recycling collections.

Defra will:

- Introduce a consistent household and business waste collections policy. This will ensure the same recyclable waste streams (paper and card; glass; metal; plastic; food waste; and garden waste (from households only)) are collected for recycling from all households and businesses. The measure that will make the biggest impact in driving progress towards our targets is requiring separate food waste collections, as many local authorities already do. We will provide capital funding for local authorities in England to prepare to implement free separate food waste collections for all households.

- Require this core set of recyclable waste streams to be collected from households and businesses, with the exception of plastic films and micro-firms which will have a two year exemption .

Implement Extended Producer Responsibility for Packaging

We know producers want to prioritise the sustainability of their packaging, but that can sometimes be more costly or come at the expense of on-shelf visual appeal. By reforming the current packaging producer responsibility system we can introduce measures to incentivise producers to make better more

sustainable decisions in the design and use of packaging.

Packaging Extended Producer Responsibility (EPR) will move the full net cost of dealing with packaging waste generated by households from local taxpayers and councils to businesses that handle and use packaging.

Once EPR is fully operational this shift of cost from local authorities to producers is estimated to be around £1.2 billion per year across all local authorities. Packaging waste recycling targets will be set for six packaging materials (plastic, card, steel, aluminium, glass and wood) for each year from 2024 to 2030.

EPR will be introduced on a phased basis from 2024, focusing on payments for household packaging waste in the first phase.

We are engaging with stakeholders to shape the future vision of waste reforms through industry wide sprint events, deep dive sessions and fortnightly forums. This will also help ensure business readiness for reform related changes.

2. Enabling people to take the right action

Work to make sure people understand how and why to reduce waste

We want to help people make choices so we can move to a truly circular and sustainable economy.

Since 2018, Defra has:

- Launched a £15 million pilot scheme to reduce food waste. Funding has been awarded to many projects including employing specialists to help businesses measure and act on food waste. Results include an additional 15,000 tonnes of surplus food redistributed. A further £10 million supported resource efficiency projects with the goal of diverting, reducing, and better managing waste.
- Awarded £12 million to the redistribution sector since 2019 to make sure more surplus food gets to those who have a need.

Our policies aim to reduce and prevent food waste

- Funded and supported behaviour change campaigns to help business and consumers waste less food.
- Increased our packaging recycling rate from 62.1% in 2018 to 63.2% (provisional) in 2021 and tonnes recycled from 7.4 million tonnes in 2018 to 8 million tonnes in 2021 – an additional 672,000 tonnes.

Defra will:

- Continue to support the RecycleNow campaign, which communicates clear information on high impact actions individuals can take to recycle.
- Mandate recycling labelling for packaged products by 31 March 2026 except for plastic films and flexible which we will mandate by 31 March 2027.
- Fund WRAP to continue food waste prevention work. This includes guidance, research and campaigns including Food Waste Action Week. This funding will also support governance of the Courtauld Commitment 2030, a cross sector voluntary agreement to halve food waste between 2007 and 2030.
- Consider options to improve food waste reporting by large food businesses in England. By increasing the number of businesses measuring and publicly reporting their food waste, we expect to drive action to reduce it.

Eliminate avoidable plastic waste by 2042

Since its introduction in 2015 the single-use carrier bag charge has reduced the total number of single-use carrier bags sold from 2.1 billion in 2016 to 2017 to 496 million in 2021 to 2022. The average person in England now buys around 3 single-use carrier bags each year from the main supermarkets, compared with 140 in 2014. We further decreased their usage through the increase of the 5p charge to 10p and its extension to all businesses in 2021.

Single-use plastic plates and cutlery will be banned from October 2023

We are going further, working towards all plastic packaging on the market being recyclable or reusable by 2025. Since 2018, we have:

- Restricted the supply of single-use plastic drinking straws, plastic-stemmed cotton buds and plastic drink stirrers.

- Introduced a Plastic Packaging Tax, charging £200 per tonne on plastic packaging manufactured in, or imported into, the UK that does not contain at least 30% recycled plastic.
- Announced a mandatory takeback requirement for fibre-based composite cups, as part of EPR.

Defra will:

- Ban the supply of single-use plastic plates, cutlery, balloon sticks and expanded and extruded polystyrene food and drinks containers from October 2023.
- Review progress of the mandatory takeback requirement for fibre-based composite cups requirement and consider whether the obligation should be extended to all sellers of filled fibre-based composite cups.
- Explore options further, including with stakeholders, for the potential for technological innovation in the production of coffee cups, and behavioural science in how they are used.
- Consider next steps following our call for evidence on other problematic items including wet wipes, cigarette filters and sachets.

We are making it easier to recycle your waste electronic and electrical items

Make it easier to recycle electrical items

We all end up with unwanted or unusable waste electrical and electronic equipment, but it can be difficult or inconvenient for people to do the right thing, making existing communication campaigns challenging to resonate effectively. Since 2020 Defra has mandated large retailers to offer a free, 1 for 1 take back service for old electrical appliances.

To make this easier going forward, Defra will:

- Consult on improvements to the producer responsibility scheme for waste electronic and electrical equipment in 2023 making it easier for people to properly dispose of their electrical waste including ensuring provision of adequately funded communications to consumers.
- Consult on improvements to the batteries regulations to increase collection of batteries from the household,

strengthen producer responsibility schemes, and address supply and safety challenges around novel battery technology. This will also support the transition to electric vehicles.

Eliminating biodegradable waste to landfill

In the absence of oxygen (below the surface), anaerobic degradation of biodegradable waste produces methane and carbon dioxide. Methane's global warming potential is roughly 80 times greater per tonne emitted than carbon dioxide over 20 years, and 25 times greater over 100 years.

To achieve the near elimination of biodegradable waste to landfill, we will launch a call for evidence to support development of a plan to achieve the near elimination of biodegradable municipal waste going to landfill from 2028.

3. Reducing our use of materials

Publish the new programme to maximise resources and minimise waste for England

We are designing our policies to move to a more circular model of resource use. Since 2018 the government has extended the life range of household products such as washing machines and televisions through Ecodesign and Energy Labelling regulations.

Defra will publish the new maximising resources and minimising waste programme in England. The programme will set out our priorities for action across 7 key sectors - construction, textiles, furniture, electronics, vehicles, food, and plastics, packaging and single-use items - to manage resources and waste in accordance with the waste hierarchy.

The Deposit Return Scheme for drinks containers will be introduced from October 2025

Implement a Deposit Return Scheme

UK consumers go through an estimated 14 billion plastic drinks bottles and nine billion drinks cans a year. Not only does this represent a substantial amount of single-use material, but it also drives littering. Drinks bottles and cans regularly feature among the most commonly found items on UK beaches.

Recycling rates of drinks containers have stagnated at 70% but by charging a deposit when a container is bought and refunding it on return we expect at least 90% of plastic bottles and aluminium and steel cans to be collected.

Defra will introduce a Deposit Return Scheme (DRS) for drinks containers, for cans and plastic bottles. We intend this to start from October 2025.

4. Tackling waste crime

Support councils to tackle anti-social behaviour such as litter and fly-tipping

Anti-social behaviour by a minority can make life miserable for many. As part of cross-government efforts to crack down on anti-social behaviour, we will support councils by enabling them to improve enforcement. Since 2018, Defra has:

- Given councils new powers to tackle littering from vehicles.
- Helped councils make it easier for people to do the right thing with their litter by publishing guidance on 'binfrastructure' in 2019 and providing nearly £1 million to help councils purchase new bins.
- Awarded over £450,000 in grant funding in 2022 to help several councils tackle fly-tipping at hotspots; published a report on the drivers, deterrents and impacts of fly-tipping; and published the first part of a fly-tipping toolkit on presenting robust prosecutions.
- Introduced a fixed penalty for householders who fail in their household waste duty of care and published materials to help councils raise awareness among residents of their duty of care.
- Launched the Chewing Gum Taskforce in 2022 which will see major chewing gum producers invest up to £10 million over five years to help tackle chewing gum littering. The Task Force has recently announced funding of £1.25 million to help more than 40 councils across the UK clean gum off pavements and invest in long-term behaviour change to prevent gum being dropped in the first place.

Defra will:

- Award a further £800,000 available in grant funding for councils to tackle fly-tipping.
- Continue to deliver commitments in the **Litter Strategy for England** (published in 2017), such as reviewing the Code of Practice on Litter and Refuse.
- Publish the remaining parts of the fly-tipping toolkit. Amongst other content, this supports local authorities to set up and run effective partnerships to tackle fly-tipping and promote duty of care around household waste.
- Provide statutory guidance on the proportionate use of litter fining powers.
- Bring forward further measures in due course to tackle anti-social behaviour.

Strengthen powers to take action against waste crime

We are strengthening powers to crack down on waste related criminal activity, which costs the economy about £1 billion each year. Legitimate businesses are undermined by rogue operators who dump or export waste illegally. We want to increase penalties and better detect illegal activity to stamp this out.

Since 2018, we have:

- Strengthened the powers to tackle waste crime, by introducing new powers to stop illegal waste sites posing a risk to the environment, including the ability to lock up sites and to force rogue operators to clean up all their waste. Agencies now have stronger powers of entry and access to evidence in prosecuting waste crimes.
- Launched the Joint Unit for Waste Crime in January 2020 to tackle serious and organised crime in the sector. Since then, the sharing of intelligence and tactical coordination between the law enforcement agencies has led to regular action to disrupt the activities of organised crime groups in the sector, with some significant impacts.

Building on reforms already made, Defra will:

- Introduce a mandatory digital waste tracking service to modernise existing waste record keeping. This will enable regulators to better detect illegal activity and tackle waste crime, including fly-tipping, illegal waste sites, and illegal waste exports.
- Tighten the waste exemptions regime to stop criminals using exemptions to hide illegal waste activity.
- Strengthen the regulation of those controlling and transporting waste to require more background checks and to make it easier for regulators to take action against non-compliant operators.

5. Global leadership in tackling pollution

Pollution happens at a global as well as a domestic scale. Pollution from mismanaged waste may be burned, dumped on land, and can end up in the ocean and then washes up on our shores. We tackle this by regulating export of wastes from the United Kingdom and engaging internationally to drive up standards and ensure effective global regulation.

Regulating export shipments of waste

Legislation is in place to control exports of waste. This legislation imposes strict conditions on the types of waste that can be exported and sets out procedures that waste exporters must follow.

Exporters must ensure that waste is dealt with appropriately throughout the shipment and at the receiving facility. Exporters found guilty of an offence under the regulations can be fined and/or imprisoned for up to two years.

In 2021 we updated the UK plan for Shipments of Waste, the plan strictly limits when waste can be shipped to or from the UK for disposal.

Defra will:

- Ban the export of plastic waste to countries that are not members of the Organisation for Economic Cooperation and Development (OECD). This will help ensure that the waste we export is recycled to UK equivalent standards.

- Internationally, following the UK's active participation in the negotiations, from 1 January 2025 waste electrical and electronic equipment will only be able to be exported if the destination country agrees. This increases protection for vulnerable countries from unwanted imports, reducing the human health and environmental hazards stemming from undocumented e-waste.

Play a leading role in tackling waste and pollution globally

Since 2018 the UK government has:

- Worked with WRAP and the Ellen MacArthur Foundation to launch the UK Plastics Pact. The Pact has brought together businesses from across the whole plastic lifecycle to tackle plastic waste. We have also provided WRAP with funding to support the development of Plastic Pacts around the world.

- Co-led (with Japan and China) work to update international guidelines under the Basel Convention on the environmentally sound management of plastic wastes.

- Championed high ambition at the negotiations for a new treaty on plastic pollution, so this treaty can deliver the international action needed to end plastic pollution by 2040.

- Launched the UK Methane Memorandum at the UN Climate Summit COP27, to specifically address what the UK has done to reduce methane emissions, sharing our best practice with others.

- Demonstrated global leadership on methane and produced a Methane Action Plan to improve effectiveness at cutting emissions across related industry sectors. As well as committed to developing

new monitoring techniques and regulatory approaches to reduce methane emissions in the waste sector.

And we will go further to:

- Work with partner countries through the UK's Blue Planet Fund to strengthen policies and regulations needed to eradicate plastic pollution and mismanaged waste. This includes continuing to invest in the Global Plastic Action Partnership (GPAP) to establish up to 25 plastic partnerships with countries by 2025 to reduce plastic pollution and waste. We have already established partnerships with Indonesia, Ghana, Vietnam, Pakistan, Nigeria, Maharashtra in India and Ecuador. GPAP also supported 11,000 waste pickers to continue working during the COVID-19 pandemic by providing personal safety packages.
- In Ghana, our collaboration with Miniplast, a national manufacturer of industrial and household products, led to an increase in the company's recycling capacity to over 1000 tonnes per month, with targets to increase this to 5000 tonnes by 2025.
- Our Blue Planet Fund investment into the United Nations Tide Turners Plastic Challenge Badge project has supported over 500,000 participants in 35 countries by 2022 including Kenya, India and Malaysia.

Case study: UK Plastics Pact

Plastic waste is one of the biggest global environmental challenges we face, and it requires collaborative action to tackle this issue. The UK Plastics Pact (UKPP) is an initiative to create a circular system that keeps plastic in the economy and out of the natural environment. Led by the charity Waste and Resources Action Programme (WRAP) and supported by government through funding, it is a coalition whose members cover the entire plastics value chain and are responsible for, approximately two thirds of the total plastic packaging placed on the UK market.

Since 2018, there has been an 84% reduction in problematic and unnecessary single-use plastic items, with a total of 620 million of these items being taken off UK shelves by members. We're also seeing positive action on the recyclability of plastic packaging. Up from 66% in 2018, 70% of plastic packaging from Pact members is now recyclable at home. To further progress towards this target, WRAP is encouraging businesses and consumers to adopt reuse systems and habits. Nearly half of members are already running pilots and trials in this space, and a further third plan to do so by 2025.

Monitoring and evaluation

We have a suite of indicators that measure progress against the **Resource and Waste Strategy** and inform its Evaluation Plan. From these we developed waste and resource related indicators in the Outcome Indicator Framework (OIF) which, alongside the Annual Progress Reports, monitor progress towards delivering the EIP. The Outcome Indicator Framework contains 66 indicators, arranged into 10 broad themes.

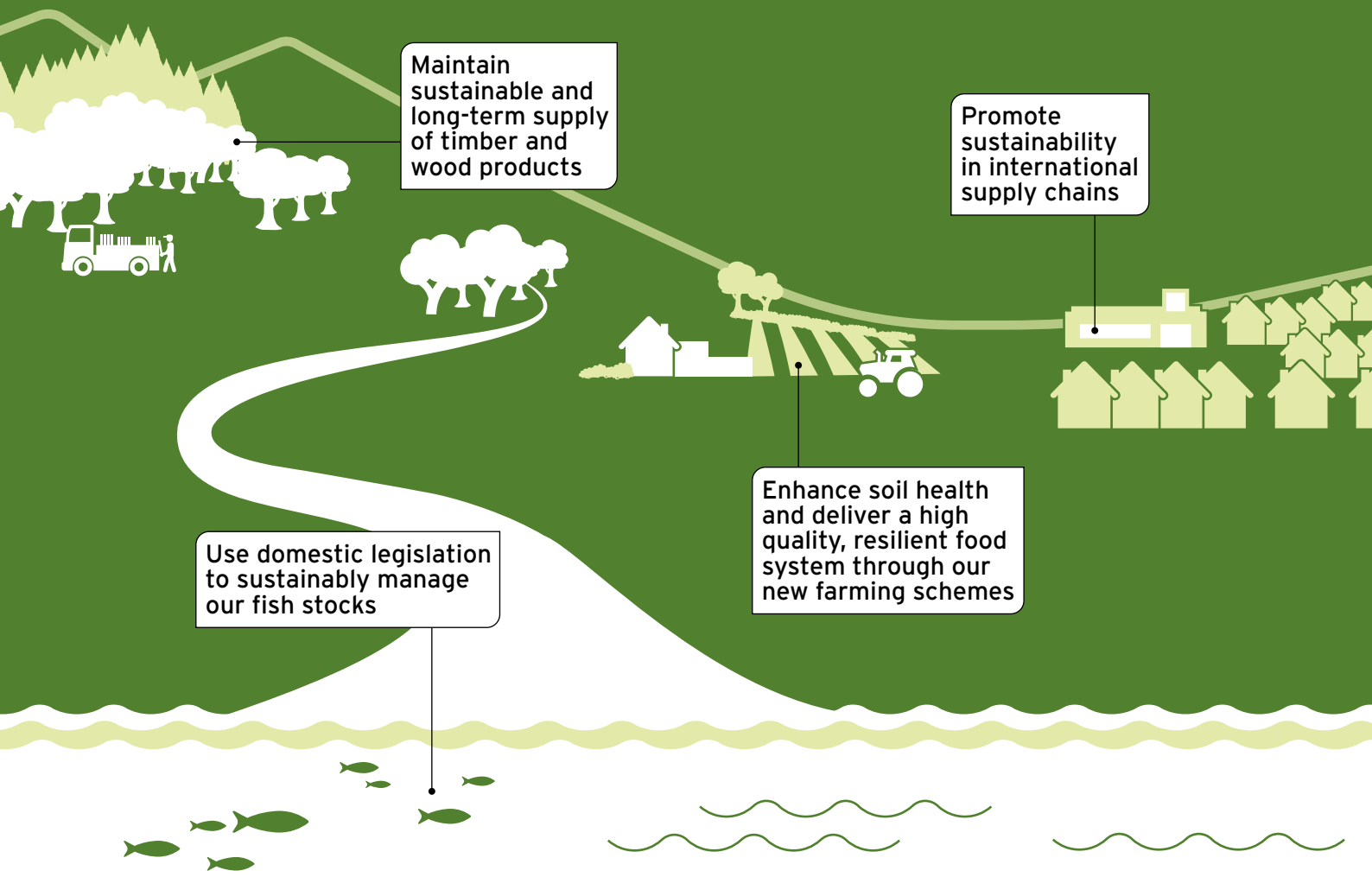
The relevant Outcome Indicator Framework indicators for 'Maximise our resources, minimise our waste' are listed below:

- **C1** **Clean seas: marine litter**
- **J1** **Carbon footprint and consumer buying choices**
- **J2** **Raw material consumption**
- **J3** **Municipal waste recycling rates**
- **J4** **Residual waste arising by type and sector**
- **J5** **Prevent harmful chemicals from being recycled**
- **J6** **Waste crime.**

Our collection and packaging reforms will make it easier for households to recycle

Goal 6
Using resources from nature sustainably

Key policies to make sure we are using our natural resources sustainably



The natural environment is a valuable asset and a major source of national wealth. It is essential for securing our basic needs, maintaining our biodiversity and sustaining our economy; and, in 2020, the value of the UK's natural capital was estimated to be £1.8 trillion. Protecting and enhancing our natural capital will help deliver benefits, including long-term flood risk reduction, boosts to wildlife, improvements to water and air quality, and opportunities for biodiversity net gain.

Using our precious, finite, natural resources more sustainably and efficiently is an essential part of the action we need to take to meet our environmental challenges. This means maximising their availability in a sustainable way.

The impact of our use of resources extends beyond our borders. We are continuing to develop sustainable supply chains and growing the market for sustainably produced commodities globally.

There is good work underway – but we need to scale up quickly to protect and enhance our natural capital for every generation to come.

Our 25 Year Environment Plan goal

Use resources from nature, such as timber, fish and food, more sustainably and efficiently.

Since 2018, we have:

- Championed international forest protection and restoration and sustainable agriculture, including through the Glasgow Leader's Declaration on Forests and Land Use as UN Climate Summit COP26 President, the Policy Dialogue on Accelerating Transition to Sustainable Agriculture, and the launch of the Forest Agriculture and Commodity Trade (FACT) dialogue.
- Published the **England Trees Action Plan** setting out our long-term vision for England's forestry sector to 2050 and the measures we will take to boost tree planting and improve woodland management, including for sustainable timber production.
- Taken back control of our waters, letting us manage our own fish stocks to increase their sustainability through the first UK Fisheries Act 2020 since 1981.
- Published our government **Food Strategy** setting out how we will broadly maintain domestic food production whilst meeting our net zero and other commitments.

We have the following targets and commitments:

- Halt and reverse forest loss and land degradation globally by 2030.
- Ensure that all fish stocks are recovered to and maintained at levels that can produce their maximum sustainable yield.
- Through our new farming schemes, bring at least 40% of England's agricultural soil into sustainable management by 2028, and increase this to 60% by 2030.
- Deliver a sustainable, nature positive, affordable food system that provides choice and access to high quality products.

To deliver these, we will:

- Implement legislation to make it illegal for larger businesses operating in the UK to use key forest-risk commodities that have been grown on land that is illegally occupied or used.
- Deliver a package of measures to protect forests internationally and support sustainability, in response to by advice from the Global Resource Initiative.
- Implement Fisheries Management Plans to reduce negative ecosystem impacts and help to deliver the recovery of stocks.
- Continue to deliver the agricultural transition to reinvest £2.4 billion per year over the course of this Parliament to incentivise farmers and land managers to improve soil health, restore peatland and establish and restore woodlands and forests, through our new farming schemes.

Introduction

The natural environment is a valuable asset and a major source of national wealth. It is essential for securing our basic needs, maintaining our biodiversity and sustaining our economy; in 2020, the value of the UK's natural capital was estimated to be £1.8 trillion. Protecting and enhancing our natural capital will help deliver benefits, including long-term flood risk reduction, boosts to wildlife, improvements to water and air quality, and opportunities for biodiversity net gain.

The flow of services and products directly obtained from ecosystems such as agricultural biomass, water extraction and timber was £27.6 billion in 2020. Using these precious, often finite, natural resources more sustainably and efficiently is an essential part of the action we will take to meet our environmental challenges. For some resources, such as timber and fish, this means maximising availability in a sustainable way, whilst generating environmental benefits.

For other resources, such as peat, it means reversing historical overuse and restoring and protecting peatlands. There is good work already underway – but we need to scale up quickly to protect and enhance our natural capital for every generation to come. This chapter sets out how we are managing valued natural resources including timber and forestry, fish, food and soil.

The impact of our use of resources extends beyond our borders. So we are continuing to develop sustainable supply chains and growing the market for sustainably produced commodities globally.

Targets and commitments

Sustainable Supply Chains

Halt and reverse forest loss and land degradation by 2030, in line with our commitment under the Glasgow Leaders' Declaration on Forests and Land Use.

Implement due diligence legislation for forest risk commodities and support the progress of the Forest and Climate Leaders' Partnership (FCLP) launched in 2022.

Planting more trees

Planting more trees is critical to achieving net zero, providing more habitat and growing our future domestic timber resource. In the 25 Year Environment Plan we recognised this and committed to increasing woodland cover in England to 12% by 2060.

As set out in the 'Thriving plants and wildlife' chapter, we have gone further in our environmental targets, published in December 2022, and set a target of 16.5% of England to be trees and woodland by 2050. We expect this to include 12% woodland cover, with the remainder made up by non-woodland trees. This is key for our **Net Zero Strategy** and to deliver our manifesto commitment to plant 30,000 ha of trees per year across the UK by the end of this Parliament.

Managing fisheries more sustainably

Develop Fisheries Management Plans as a way of managing fisheries more sustainably and driving progress towards this goal. They will include plans on how to maintain and restore fish stocks to sustainable levels. The timetable for delivery of the 43 Fisheries Management Plans is set out in the **Joint Fisheries Statement,** published in November 2022.

Improving and protecting soil health

Through new farming schemes, bring at least 40% of England's agricultural soil into sustainable management by 2028, and increase this to 60% by 2030.

A sustainable, nature positive, affordable food system

The government's **Food Strategy** set out our objective to deliver a sustainable, nature positive, affordable food system that provides choice and access to high quality products. This aims to support healthier and home-grown diets for all.

Our delivery plan

Continuing to drive progress towards this goal will require concerted action across a range of sectors, with direction set by government but delivery often in the hands of industry:

1. **Shifting to more sustainable supply chains** – Global trade has helped countries meet increasing demand while spreading prosperity. Shifting to sustainable supply chains gives us the opportunity to promote and support production that uses lower emissions and better protects the environment.

2. **Maintaining a sustainable and long-term supply of timber and wood products** – planting and establishing more trees and woodlands will play an important role in supporting the green economy, levelling up rural areas and creating thousands of new jobs.

3. **Managing fisheries more sustainably** – the fishing industry forms the foundation for, and contributes significantly to, the continued prosperity of coastal communities around the UK. The industry prides itself on delivering valuable employment opportunities to otherwise remote or rural areas and providing healthy, sustainable food to the UK as a whole.

4. **Improving and protecting soil health** – healthy soil will provide natural protection against the impacts of climate change, such as flooding and drought and will increase the diversity of our plants and animals and their ability to thrive.

5. **Supporting a prosperous, healthy and nature positive food system** – our food system is dependent on maintaining a healthy and sustainable natural environment, providing us with the inputs we need to continue to grow, rear and produce food domestically. This is complemented by international trade to provide our high level of food security.

1. Shifting to more sustainable supply chains

Tackle deforestation in international supply chains

Around 90% of global deforestation is driven by agriculture, much of it to produce the commodities which are internationally traded and which we use daily. So action we take at home and support we can provide abroad can make a real difference.

We have:

- Championed international forest protection and restoration and sustainable agriculture, supporting partnerships, dialogues, and trade between producer and consumer countries that will support the transition to sustainable supply chains and protecting forests. This includes the Forest, Agriculture and Commodity Trade (FACT) Dialogue, Glasgow Leaders Declaration on Forests and Land Use (GLD), and Forest and Climate Leaders' Partnership (FCLP).
- Signed a Voluntary Partnership Agreement (VPA) with Indonesia in March 2019, a bilateral agreement between a timber-producing country and the UK. VPAs aim to reduce illegal logging by strengthening the sustainability and legality of forest management, improving forest governance, and promoting trade in legally and sustainably produced timber. We expect to progress other VPAs with partners such as Ghana and Vietnam.
- Convened the Global Resource Initiative (GRI) independent taskforce to provide advice on how we could reduce the global environmental footprint of our supply chains. Their recommendations focused on the issue of addressing forest loss. In our response, we have set out how we are now delivering a package of measures on this. Our approach to taking forwards the recommendations of the GRI includes:
    - Supporting producers to shift to more environmentally and economically sustainable land use including through Overseas

> We championed international forest protection and sustainable agriculture during our COP26 Presidency

Development Aid (ODA) programming and the development of markets for sustainably produced agricultural products.

- Increasing market demand and strengthening price signals for sustainably produced commodities.
- Supporting the development of strong partnerships between commodity producer and consumer countries and the private sector to support collective global action.

We will continue to deliver our package of measures on addressing forest loss, including:

- Using our trade agreements and trading relationships to support UK ambition on forestry, nature and sustainable supply chains to support the UK's strong environmental and climate commitments.
- Leveraging our role in global food supply chains to achieve greater sustainability of commodity production and trade, which will support halting and reversing forest loss.

Tackle illegal deforestation in our supply chains

A significant proportion of deforestation is illegal, around 95% in some key forests. Globally, recent research estimates that at least 69% of tropical deforestation for commercial agriculture between 2013 and 2019 was conducted in violation of national laws.

The Environment Act introduced new provisions to make it illegal for larger businesses operating in the UK to use key commodities that have been grown on land that is illegally occupied or used.

We will now operationalise these provisions through secondary legislation. Businesses in scope will also be required to undertake a due diligence exercise on their supply chains, and to publicly report on this exercise every year, or risk fines and other civil sanctions. The government has committed to implementing these regulations at the earliest opportunity.

Ensure high levels of environmental protection in our approach to trade

The government has been clear that it will not weaken our current environmental protections and will continue to ensure a high level of protection of the environment in new trade agreements.

We will:

- Use our trade agreements and our bilateral and multilateral trading relationships, as well as Multilateral Environmental Agreements, to support UK ambition on forestry, biodiversity nature, and sustainable supply chains.
- Seek to include provisions to deepen cooperation on natural resources and ozone depleting substances through our trade agreements.
- Encourage trade on a sustainable footing that contributes to the delivery of global environmental targets at the World Trade Organisation. The UK is an active Member in three trade and environment forums: the permanent multilateral Committee on Trade and Environment; and the plurilateral Trade and Environmental Sustainability Structured Discussions and Dialogue on Plastic Pollution.

2. Maintaining a sustainable and long-term supply of timber and wood products

Encourage productive planting to increase supply of domestic timber

In 2021 Defra published the **England Trees Action Plan** setting out our long term vision for England's forestry sector to 2050 and the measures we will take to boost tree planting and improve woodland management, including for sutainable timber production.

Defra will work in partnership with the commercial forestry sector and others to boost tree planting and overcome barriers to this activity by:

- Creating guidance on how to encourage more well-designed multi-functional woodland creation aligned with the UK Forestry Standard, such as continuous cover forestry. This will support the planting of a mix of conifer and hardwood species in a way which maximises the benefits of our woodlands for carbon, nature and for timber.
- Funding a £1 million project to better understand the financial implications of woodland creation, to help build the evidence base and economic case for planting trees.
- Improving regulatory processes to make tree planting a simpler, quicker and more attractive option for land managers on lower productivity land, while retaining strong environmental and biosecurity safeguards.
- Delivering the mechanisms set out in the 'Thriving plants and wildlife' chapter to boost woodland creation rates in England. This aims to increase the long-term availability of soft and hardwoods.

Make best use of our domestic timber resource

Our timber supports sustainable wood product markets, rural jobs and timber processing sectors. We will encourage greater rates of sustainable woodland management and timber harvesting across England, while supporting natural regeneration and restocking of existing woodlands. We will also work with other government departments and industry to support the safe and sustainable use of timber in the built environment and in public procurement.

Since 2018, Defra has:

- Supported farmers and land managers with the Countryside Stewardship Woodland Management Plan grant to support sustainable management of their woodlands in line with UK Forestry Standard requirements.
- Awarded £4.27 million to support the purchase of large items of forestry equipment under the previous Countryside Productivity scheme.
- Introduced a new Timber in Construction Innovation Fund, which will provide £1.5m of funding to increase and facilitate the use of homegrown wood and wood fibre in construction from sustainably managed English woodlands. The fund will support projects which aim to increase the volume of carbon stored in the built environment, better utilise our hardwood resource and bring novel or improved wood-rich products, systems and/or processes to market.

Defra will:

- Provide grants through the Farming Equipment and Technology Fund to enable land managers to purchase forestry equipment, such as forwarders, tree shears, forestry grabs, trailers and winches. As of November 2022, 490 pieces of forestry equipment with a value of over £890,000 were supported under the first round of FETF.
- Open new rounds of the Woods into Management Forestry Innovation Funds through the Nature for Climate Fund. This will stimulate the development and testing of new ideas to help improve the ecological

condition of woodlands and their resilience to climate change through increased demand for wood and increased levels of woodland management. For example:

- The £4.5 million Regional Woodland Restoration Innovation Funds supports innovative projects to encourage and broaden innovation in the forestry sector. This aims to improve the ecological condition of existing woodlands and create a market pull for locally sourced timber and coppice products.

- The £1.25m Routes to Market for Ash Timber Innovation Fund supports projects to develop new uses for ash timber from trees felled due to ash dieback. This includes the delivery of new furniture supply chains for ash boards and plywood. The fund has already supported research into the use of rotary veneer technology to add value to small diameter ash logs from small woodlands, helping to improve potential revenue opportunities and make more efficient use of this felled ash timber resource.

- The Temporary Infrastructure Innovation Fund is making up to £1.25 million available to support projects exploring innovative means to overcome vehicle access barriers to neglected or under managed woodland.

- The Timber in Construction Innovation Fund is providing up to £1.5 million to support the development of innovative timber products, supply chains and ways of working with wood.

- Finalise development of the Timber in Construction Policy Roadmap, to outline the steps required to safely increase the use of timber in construction in England.

- Work across government to increase demand for sustainable timber products by identifying opportunities in public procurement policies and reviewing the government's timber procurement policy.

- Continue to support delivery of Nature for Climate Fund funded land acquisition to accelerate tree planting and secure a future supply of timber, including by introducing a freehold element to run alongside existing leasehold and grant offers.

Enhance tree nursery capacity to give us a pipeline of healthy and diverse seeds and saplings

The nursery sector is currently able to deliver 150 million trees per year, which needs to increase significantly to enable the sector to fully deliver on our targets and commitments. Defra will deliver investment through:

- The £1.2 million Seed Sourcing Grant, which is supporting the sector in increasing the quantity, quality and diversity of Seed Stands and Seed Orchards in England.
- The Tree Production Innovation Fund, which is investing £5.7 million in projects to encourage innovation in the nursery sector and overcome tree production barriers by increasing seed germination and establishments rates, automating labour-intensive processes and developing sustainable weed control solutions.
- The £8.8 million Tree Production Capital Grant, which is supporting nurseries and seed suppliers to modernise their facilities to improve the quantity, quality, diversity and biosecurity of planting stock available for planting in England, for example by adopting mechanisation and automation.

In the UK in 2022, 245,000 thousand people were working in agriculture, forestry and fishing

Support the skills, technical knowledge to build capability for the future

Our tree planting ambitions will require thousands of new jobs in the forestry sector to plant and manage our current and future treescapes. This is a huge opportunity to contribute to levelling up rural areas across the country.

Defra will:

- Deliver a Forestry Training Fund to unlock access to practical forestry training courses for new entrants to the sector and provide upskilling opportunities for the existing workforce.
- Expand the Professional Forester scheme, so that individuals can "earn and learn" via a three-year degree level apprenticeship.
- Continue to work with industry to support increased

opportunities for apprenticeships, T Levels and other technical training routes into the forestry sector, while looking to resolve barriers to education and training provision.

- Scope options for a digital skills hub to bring together key resources on forestry education, careers and skills opportunities, and work with the Department for Education to explore how best to connect schools with careers in nature-based sectors, such as forestry.

Case study - Stourhead (Western) Estate – Owned by Nick Hoare

Stourhead (Western) Estate is an example of how sensitive woodland management can support productive forestry alongside the delivery of environmental benefits and improved resilience to pests, diseases and climate change. Located within Cranborne Chase Area of Outstanding Natural Beauty, the site contains over 650 hectares of forest which produces around 6,500m3 of timber each year. The estate is managed using innovative continuous cover forestry (CCF) practices to maximise the delivery of biodiversity benefits while still continuing to generate a competitive income from timber sales.

The estate is one of the best examples of permanently irregular, mixed coniferous stands in the UK, with species including Douglas fir, cedar and spruce. It consists of interspersed conifer and broadleaf planting where CCF has been practiced for the last 20 years. CCF is not suitable for all types of woodland or for all locations but where it can be used it helps to create a structurally, visually and biologically more diverse woodland capable of delivering quality sustainable timber and a wide range of ecosystem services. The irregular structure enables the estate to support a wealth of biodiversity, including 248 moth species, 13 bat species (including both Lesser and Greater Horseshoe and Barbastelle), 26 bird species and 128 plant species. This holistic approach to forestry also makes the woodland more resilient to pests, diseases and climate change.

The Estate is preparing positively for the future. By widening the range and genetic diversity of the UK-grown tree species being planted and adopting modern approaches to woodland management, it is developing forest stands with a high resistance to pests, diseases, extreme weather and climate change. The Estate expects to plant nearly 80 hectares of additional trees in 2023 to expand the woodland and further increase the economic and nature benefits it provides.

3. Managing fisheries more sustainably

Sustainable management of fisheries requires appropriate management of our diverse stocks. The economic sustainability of our seafood sectors and of fishing-dependent communities can only be built on environmental sustainability.

The Fisheries Act 2020 gives the UK full control of its waters for the first time since 1971, allowing us to sustainably manage our seas

Apply an ecosystem-based approach to marine and fish stock management

Since 2018, Defra has:

- Delivered a new legal framework for fisheries management which commits us to balancing environmental, economic and social considerations when managing our fisheries.
- Published the **Joint Fisheries Statement** with the devolved administrations in Scotland, Wales and Northern Ireland. Recognising that action on fisheries and the marine environment can be most effective when we take coordinated action across our sea, the statement sets out our policies for achieving, or contributing to the achievement of, the Fisheries Act's eight fisheries objectives.
- Put in place fisheries agreements with our partners across the North-East Atlantic, including the EU, Norway and the Faroe Islands. These are important parts of unlock sustainable fishing across all of our seas, setting

shared goals and catching limits regardless of nationality of boat. To further support this, we have joined 5 priority Regional Fisheries Management Organisations, as well proactively arguing in organisations like the Food and Agriculture Organisation for stronger ocean governance measures globally.

- Committed to maintain funding to EU levels over this Parliament. In England a significant proportion of this money is part of the Fisheries and Seafood Scheme, a grant scheme which is investing in safeguarding the long-term sustainability, resilience and prosperity of the seafood sector.

- Established the £100 million UK Seafood Fund funding infrastructure, science and innovation, and skills and training projects throughout the UK seafood industry. This includes funding to reduce carbon emissions through electric boat engines, solar panels and new technology as well as improving sustainability through better research into fish stocks. In the first round of the Infrastructure scheme this included nearly £9 million to processors in Scotland and over £10 million to processors in Grimsby and Cornwall.

Defra will:

- Deliver Fisheries Management Plans, with the first plans coming in 2023. We will work closely with the fishing sector and other stakeholders. In addition to sustainably managing stocks, these plans will seek to support the delivery of the appropriate objectives from the **UK Marine Strategy**. These plans will promote selectivity, reduce negative impacts on the ecosystem and help to deliver the recovery of stocks.

- Publish each year a transparent and scientifically robust assessment of the sustainability outcomes of our annual fisheries negotiations. This assessment will analyse our performance in the quota-setting process against scientific advice. Once all negotiations for 2023 are complete, we will publish this year's report.

- Continue to invest in the multi-year Marine Natural Capital and Ecosystem Assessment Programme (mNCEA). This will build a robust evidence base which

brings together ecological, societal, and economic information. This is already being put to use in considering how best to use our forage fish, including sand eels and Norway pout, to support the wider ecosystem.

Tackle illegal, unregulated and unregistered (IUU) fishing activity

Illegal, unregulated and unregistered fishing activity results in a loss globally of between $10-23 billion a year in illicit catches, as well as severely impacting our ability to manage our stocks sustainably.

We have established the IUU Fishing Action Alliance with the USA and Canada. It will drive action to implement international agreements, improve monitoring control and surveillance and promote data sharing.

We will also:

- Continuing to promote effective monitoring, control, surveillance and enforcement internationally.
- Advocate for increased data sharing so we can more effectively manage our shared resources. This helps third countries to manage UK vessels when they are in their waters, as well as making sure that the product they have on board is legal.
- We are taking action to improve the robustness of our seafood supply chains by requiring all licensed vessels fishing in English waters, regardless of nationality or size, to report their location, speed and direction via Vessel Monitoring Systems devices in 2023. This will provide positional data for all licensed fishing vessels for the first time, improving our ability to control, enforce and manage their activity.

4. Improving and protecting soil health

Support farmers and land managers

Approximately 70% of England's soil is agricultural. So Defra has introduced the arable and horticultural soils standard and improved grassland soils standard under the Sustainable Farming Incentive. Farmers are being rewarded for actions that protect the soil from erosion, increase soil organic matter, and enable the plants and organisms that live in the soil to function effectively. This includes the introduction of herbal leys and the use of grass-legume mixtures or cover crops.

Defra will continue to incentivise farmers and land managers under our new agri-environment schemes to manage land in a way that improves and protects the overall health and structure of the soil.

By 2028 we will bring at least 40% of England's agricultural soil into sustainable management through our new farming schemes, increasing this to up to 60% by 2030.

> We are supporting our farmers to bring 60% of England's soils into sustainable management by 2030

Establish comprehensive baseline data

We monitor soil health as part of the Natural Capital and Ecosystem Assessment (NCEA), but on top of this Defra will:

- Establish a soil health indicator under the 25 Year Environment Plan Outcome Indicator Framework.
- Publish a baseline map of soil health for England by 2028.
- Support farmers and land managers to establish their own soil health baseline, so they can best manage the health of their soil.
- Provide a methodology and tools to collect consistent information about the health of the soil under all land uses.
- Share current guidance and best practice with farmers and land managers to improve their knowledge and work with them on how to improve soil health.

Prevent valuable soil resources from being sent to landfill

In 2016, soil made up 58% of material sent to landfill in the UK. In construction projects, the careful re-use of soil can avoid soil being designated a waste material and to bring it back to beneficial use, helping create more green spaces and increasing biodiversity. We are working to:

- In 2023, publish a revised Code of Practice for the sustainable use of soil on construction sites, which will help to reduce the amount of soil sent to landfill.
- Begin development of a Soil Re-Use and Storage Depot scheme to help prevent soil that would otherwise be classified as waste going to landfill, and encourage remediation and re-use of soil. We will start piloting this by 2026.

Secure the integrity of future soil carbon codes

There are several proprietary soil carbon codes and growing interest in an agricultural soil carbon market. However, there are concerns around the additionality and permanence of increases in soil carbon storage for climate change mitigation benefits. Any soil carbon code must be underpinned by scientifically robust methodologies to protect buyers and sellers and ensure the integrity of the market.

Defra will support the development of high-integrity markets for ecosystem services. This includes minimum requirements that carbon codes should adhere to.

5. Supporting a prosperous, healthy and nature positive food system

Our new farming schemes are designed to support the foundations of food production and the natural environment, recognising the key role that farming and food supply have to play in restoring our natural environment. Food production relies on long-term environmental foundations such as access to water, the presence of pollinators and fertile soil; a healthy environment will help us to improve our food security.

Our food security is dependent on strong domestic production, balanced with sustainable international trade. The government **Food Strategy** set the objective to deliver a sustainable, nature positive, affordable food system, as well as to broadly maintain the current level of food we produce in England.

We have made several commitments in the government **Food Strategy** to help us deliver a sustainable and resilient food system:

> The government food strategy set out our ambition to deliver a sustainable and resilient food system

We are developing Fisheries Management Plans (FMPs) as a way of managing fisheries more sustainably and driving progress towards this goal. Lobsters are a species included as one of the 6 'frontrunner' FMPs.

- We will publish a **Land Use Framework** for England in 2023.
- To drive more sustainable practices across the entire food system we have committed to deliver a new food data partnership. This will ensure a level playing field so that food businesses can more effectively compete in the areas of health, sustainability and animal welfare.
- Through the food data partnership, we will also develop a mandatory methodology for eco-labels. This aims to provide a consistent approach across industry where eco-information is voluntarily used, mitigate any potential greenwashing; and promote accurate information to consumers around the environmental impact of their food.
- We are investing in agri-food innovation across the supply chain, including joint investment with UK Research and Innovation in food systems research and innovation, as well as in farming and seafood innovation. We will work with farmers and growers to ensure regulation supports this innovation to support better outcomes for the environment.
- The **International Development Strategy** confirmed our commitment to promoting climate-resilient, sustainable food systems globally. We will continue to work internationally to promote sustainable food supply chains. For example, under our Presidency of the UN Climate Summit COP26 we took forward the Agricultural Breakthrough to make sustainable agriculture the most attractive and widely adopted option for farmers by 2030 through the Policy Dialogue on Accelerating Transition to Sustainable Agriculture.
- We will consider options to address risks of carbon leakage within the food system. Our reporting on the environmental and health impacts of the food system will include an assessment of our global environmental impact.
- We are developing an updated approach to public sector food and catering. We have consulted on the sourcing of public sector food, menu choices, and catering practices. This includes proposals around on the sustainable sourcing of products, new standards for caterers to measure and minimise food waste, and to remove waste.

Monitoring and Evaluation

We will monitor progress towards delivering the EIP23 through the Annual Progress Report and the Outcome Indicator Framework. The framework contains 66 indicators, arranged into 10 broad themes. The relevant indicators for using resources from nature more sustainably and efficiently are:

- **J2** **Raw material consumption**
- **C10** **Productive seas: fish and shellfish stocks fished sustainably**
- **C11** **Productive seas: status of sensitive fish and shellfish stocks**
- **D3** **Area of woodland in England**
- **E1** **Area of productive agricultural land**
- **E2** **Volume of agricultural production**
- **E3** **Volume of inputs used in agricultural production**
- **E4** **Efficiency of agricultural production measured by Total Factor Productivity**
- **E5** **Percentage of the annual growth of trees in English woodlands that is harvested**
- **E6** **Volume of timber brought to market per annum from English sources**
- **E7** **Healthy soils**
- **E8** **Efficient use of water**
- **E9** **Percentage of our seafood coming from healthy ecosystems, produced sustainably**

For **timber and forestry**, the Forestry Commission's Key Performance Indicators also report on "Percentage of woodland that is sustainably managed". Increasing the area of woodland that is sustainably managed is likely to support an increase in domestic timber supplies. Forest Research also publish forecasts of expected future softwood and hardwood availability through the National Forest Inventory.

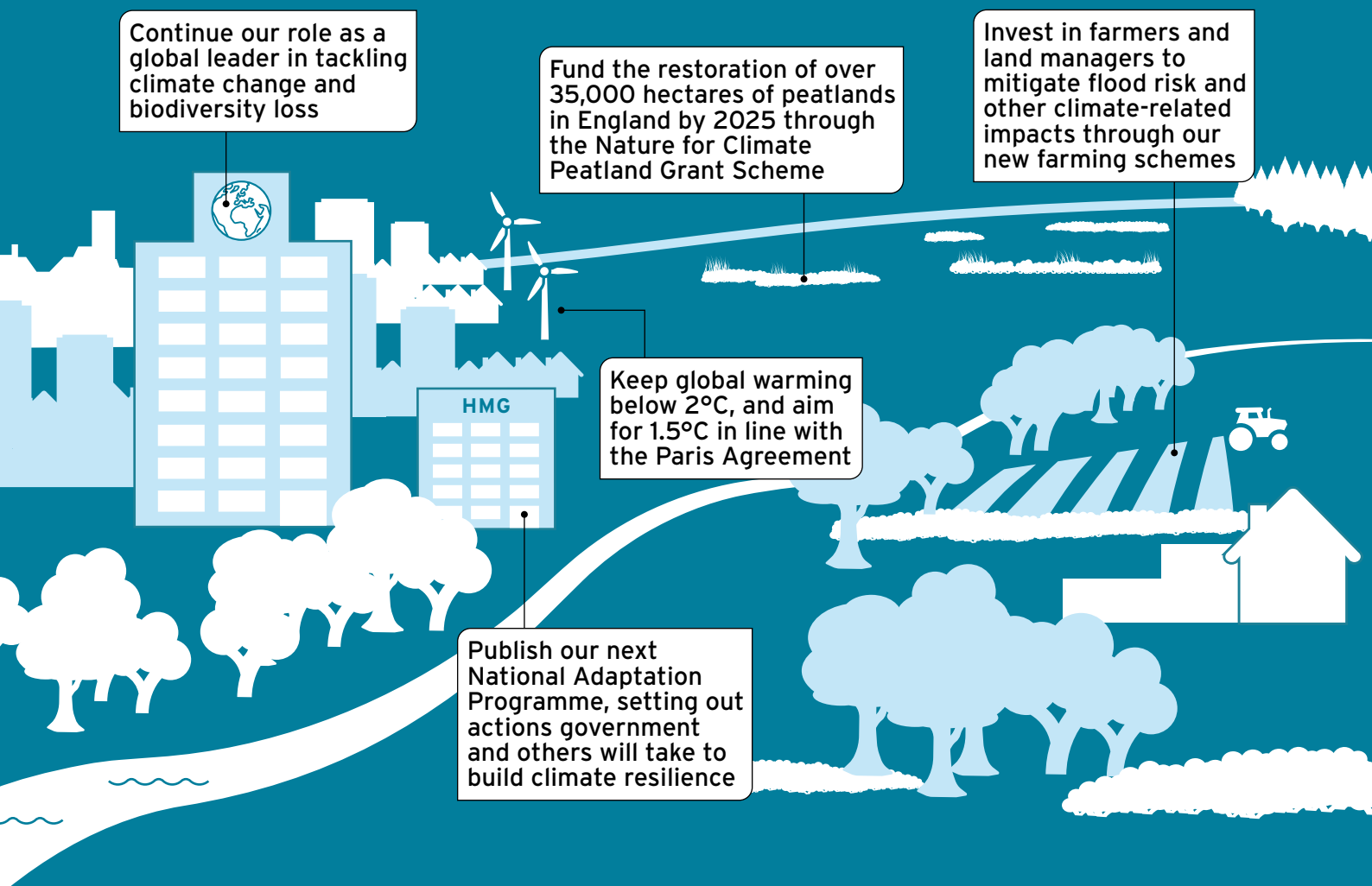
To further support this in **fisheries**, we have committed to have robust and transparent processes in place to ensure UK-produced fish is legal, including requirements around vessel monitoring for all boats.

For **soil**, our new soil health baseline will help track soil health. We are also developing a voluntary soil structure monitoring scheme, to help those that actively manage soil. This will focus on farmland initially and develop to consider other habitats, including urban. The Natural Capital and Ecosystem Assessment will also include soil monitoring.

For **food**, we will monitor delivery of the **Food Strategy** including drawing together evidence on the impacts of individual policies to determine the overall progress of the strategy. The government must also report on food security to Parliament at least once every three years. The next food security report is due in 2024.

Goal 7
Mitigating and adapting to climate change

Key policies and actions to mitigate climate change, and adapt to its impact



Leaving the environment in a better state than we found it requires us to mitigate and adapt to climate change.

Due to climate change, we will see more intense and changeable weather and coastal erosion; an increase in risks from pests, pathogens and invasive non-native species; and knock-on impacts to our ecosystems, habitats, species and agricultural, forestry and marine productivity. This means that we must go further to build the climate resilience of our ecosystems.

The relationship is also two-way: we can only reach net zero with Nature-based Solutions. Our habitats are crucial carbon sinks, and deliver increased co-benefits compared to other carbon solutions. As set out during our presidency of the UN Climate Summit COP26, we must deploy nature at scale domestically and around the world in order to keep 1.5°C alive.

Nature and land-based sectors therefore must go beyond net zero and become carbon negative by 2050 in order to support the rest of the economy. We will support that transition, by investing in the necessary innovation and transformational change across the country.

Our 25 Year Environment Plan goal

Take all possible action to mitigate climate change, while adapting to reduce its impact.

Since 2018, we have:

- Put Net Zero into law, the first developed country to do so, and published the **Net Zero Strategy**, which sets out our policies and proposals for decarbonising all sectors of the UK economy to meet our net zero target.
- Increased total spend from the Nature for Climate Fund on peat restoration, woodland creation and management to more than £750 million by 2025.
- Promoted advances in climate resilient crops through the Genetic Technology Bill to mitigate impacts of climate change.
- Built the climate resilience of UK business and infrastructure through adaptation reporting by 120 organisations in the water, energy, transport, financial and telecommunication sectors.
- Held the Presidency of the UN Climate Summit COP26 in 2021 where all parties agreed to the Glasgow Climate Pact, the first to interlink the issues of climate change and biodiversity loss.
- Announced an Agricultural Breakthrough at COP26 where parties agreed to make climate resilient, sustainable agriculture the most attractive and widely adopted option for farmers by 2030.

We have the following targets and commitments:

- A UK-wide legally binding target of net zero emissions by 2050, including carbon budgets 4, 5, and 6 from 2023 to 2037; and our 2030 Nationally Determined Contribution.
- Produce a UK Climate Change Risk Assessment to identify risks, followed by a **National Adaptation Programme** to address those risks every five years.
- Under the Montreal Protocol we are committed to phasing out the production of ozone-depleting substances; under the Kigali amendment, we are committed to reducing HFC consumption by 85% by 2036.
- Under the Paris Agreement, we are committed to limiting global warming to well below 2 degrees Celsius compared to pre-industrial levels, and aiming for 1.5 degrees under our presidency of the UN Climate Summit COP26.

To deliver these, we will:

- Publish the third **National Adaptation Programme** (NAP3) in 2023 that will set out our five year strategy to build the UK's climate resilience.
- Later in 2023 we will update on our progress and plans to reach net zero.
- Publish a Land Use Framework in 2023 to setting out how we will balance multiple demands on our land including climate mitigation and adaptation.
- Investing in farmers and land managers to mitigate flood risk and other climate change-related impacts in our natural environment, through our new farming schemes.
- Continue our role as a global leader in tackling climate change, biodiversity loss and land degradation and push for an integrated approach to international action.
- Deliver our commitment to spend £11.6bn of International Climate Finance between 2021 and 2026, including at least £3 billion on solutions that protect and restore nature.
- Expand the number of organisations in scope for adaptation reporting on their climate resilience preparedness.
- Fund the restoration of over 35,000 hectares of peatlands in England by 2025 through the Nature for Climate Peatland Grant Scheme.

Introduction

Climate change was identified by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) as one of the direct drivers of biodiversity loss. Building the resilience of our environment, by creating more joined up and buffered places for nature as well as tackling hazards which are increased by climate change, is crucial to leaving our environment in a better state.

As global temperatures increase, we will see more intense and changeable weather and coastal erosion; an increase in risks from pests, pathogens and invasive non-native species; and knock-on impacts to our ecosystems, habitats, species and agricultural, forestry and marine productivity.

In 2021 we published the **Net Zero Strategy** which sets out cross-government policy to meet net zero by 2050. Nature-based Solutions, like restoring peat and planting trees, are key to delivering our climate change agenda. They deliver multiple benefits for climate, biodiversity, and people, and will therefore play a critical role in our plans to tackle the interrelated climate and biodiversity crises.

Our land-based sectors are integral to the UK's wider approach to net zero as a significant carbon sink. Throughout this document we have set out the actions to deliver net zero on our land reflecting the inherent link between nature, biodiversity and our climate goals, focusing on the contribution that farming and a reduction in fluorinated gases use can make to tackling climate change and delivering our nature ambitions. Waste decarbonisation is set out in the 'Clean and plentiful water' and 'Maximise our resources, minimise our waste' chapters, and our plan for trees is set out in the 'Thriving plants and wildlife' chapter.

As well as seeking to achieve net zero to mitigate the impacts of climate change, we must also adapt to become more resilient to the changing climate – and help other countries to adapt.

Our Net Zero Strategy, published in 2021, set out policies and proposals for decarbonising all sectors of the UK economy to meet our net zero target by 2050. This Environmental Improvement Plan sets out land use considerations for net zero alongside nature, biodiversity and climate adaptation goals

Targets and commitments

Net zero

The 2019 Climate Change Act, updating the 2008 Climate Change Act, set out:

- A legal requirement to reduce net greenhouse gas emissions by at least 100% (net zero) by 2050 relative to 1990 levels.
- A framework of carbon budgets to ensure continued progress towards the net zero target, capping emissions in successive five-year blocks. We have seperately published the fourth (2023 to 2027), fifth (2028 to 2032), and sixth (2033 to 2037) **carbon budgets.**
- A requirement for a Climate Change Risk Assessment (CCRA) every 5 years, responded to by a **National Adaptation Programme** (NAP) for England.

In addition to our carbon budgets, at the UN Climate Summit COP26 we agreed an ambitious Nationally Determined Contribution through the UN process to reduce emissions in 2030 by at least 68% compared to 1990 – the highest reduction target set by a major economy to date.

International commitments

Fulfil the Montreal Protocol, including the Kigali amendment to phase down the use of hydrofluorocarbons (HFCs) by 85% by 2036.

At the UN Climate Summit COP27, we:

- Confirmed the government would triple funding for climate adaptation as part of our international climate finance, from £500m in 2019 to £1.5bn in 2025.
- Announced a range of investments worth over £100 million to support developing economies to respond to climate-related disasters and adapt to the impacts of climate change.

Our delivery plan

To deliver against our goal and these commitments, we are:

1. **Reaching net zero domestically** – Nature-based Solutions are crucial to helping to meet our climate ambitions. Changes in farming practice are required to limit the emissions whilst maintaining agricultural profitability and increasing productivity; combined with other work across different sectors.

2. **Building resilience by adapting to climate change** – while we aim to limit global warming to 1.5°C, evidence shows that we must be prepared for warming up to 4°C. Adapting to climate impacts is embedded across our 25YEP goals and throughout the EIP.

3. **Leading action internationally to tackle climate change** – our domestic climate change goals alone will not be sufficient to keep temperature rises below 1.5°C; international collaboration is essential to leave the environment in a better place for future generations.

We will restore and manage our peatlands

1. Reaching net zero domestically

Net emissions from natural resources (agriculture, forestry and other land use, waste and fluorinated gases) in England were responsible for 54.5 metric tons of carbon dioxide equivalent (MtCO2e) in 2020.

Alongside the delivery plan below, later in 2023, government will update on our progress and plans to reach net zero.

Reduce our agricultural emissions through our new farming schemes

Agricultural emissions contributed 27.3 MtCO2e in England in 2020. Changes in farming practice are required to limit the emissions whilst maintaining agricultural profitability and increasing productivity. We will regulate where appropriate and necessary, and pay farmers and land managers to go beyond regulatory requirements to

deliver carbon savings through our new farming schemes. This includes providing incentives and grants to farmers to decarbonise agricultural emissions through adopting sustainable land management approaches, new technology, and innovative practices to improve farm efficiency.

To achieve our greenhouse gas emissions targets, we will take a range of measures, as informed by our research and evidence projects including on:

- **Land management:** good land management can help increase carbon storage and reduce emissions in agriculture, including integrating cover crops and nitrogen-fixing break crops in rotations. We are exploring how we can pay for a range of actions through our new farming schemes to support farm decarbonisation and Nature-based Solutions. This includes the potential to support environmentally sensitive tillage practices, such as no till and direct drilling.

- **Innovation and technology:** wide-spread application of innovation, science and technology can be transformational. We are exploring these through innovation and productivity schemes such as the £270 million Farming Innovation Programme and the Farming Investment Fund. We're also exploring innovations at different stages of development including methane inhibiting feed additives for livestock and improving fuel and energy efficiency on farms.

- **Improving skills and productivity:** skills development and productivity improvements can drive reduced emissions. Examples include improving herd health and making use of nutrient management plans.

Defra will:

- Continue to review uptake of relevant actions under the Sustainable Farming Incentive, Countryside Stewardship Plus and Landscape Recovery.

- Further invest in innovation schemes (such as Farming Innovation Programme) and monitor progress to inform development of future measures.

The government estimates that, along with other regulations, the policies underpinning the Net Zero Strategy and the British Energy Security Strategy could support up to 480,000 green jobs in 2030

- Publish a government response in 2023 to the call for evidence on methane suppressing feed products, which could support more sustainable beef and dairy production. An application for use of 3-nitroxypropanol (3-NOP) is currently under consideration for use as a methane suppressing additive in dairy cows and cows for reproduction by the Food Standards Agency and Food Standards Scotland. We recognise the potential for these products to help decarbonise livestock farming systems.
- Publish a government response to our call for evidence on agricultural and land-use Monitoring, Reporting and Verification within the UK Emissions Trading Scheme (ETS) consultation.

Many of the actions farmers can take to enhance the natural environment and contribute towards net zero will contribute to multiple targets. For example, planting trees and restoring peat to create habitats are critical actions for mitigation of climate change.

Agroforestry systems can also contribute to net zero and support soil health and water quality whilst providing shade for crops and livestock. Our aim is for silvo-arable agroforestry (where arable crops are grown with trees) to become much more widespread to support the woodland and tree cover target. We will support this transition through Sustainable Farming Incentive and Countryside Stewardship Plus, with new offers being launched from 2024. Countryside Stewardship Plus will also pick up from the current Nature for Climate Fund to be the primary vehicle for other tree planting from 2025 onwards, supported by Landscape Recovery.

We will continue to monitor reductions against carbon budgets and introduce further measures as necessary to reduce and sequester emissions in these sectors.

Calculate carbon through Monitoring, Reporting and Verification (MRV)

Farm-level MRV of greenhouse gas emissions will help enable farmers and other land managers to better understand their sources of emissions and open up new financial opportunities, such as combining private commercial

opportunities with our new farming schemes support. It will increase confidence in traded carbon in the private sector and could unlock greater consumer choice and hence marketing opportunities for farmers through eco-labelling opportunities.

In June 2022, the government made a commitment in the **Food Strategy** to develop a mandatory methodology which must be used by those who wish to use eco-labels or make sustainability claims about their products. MRV will help with providing consistent emissions data to use on such labels which will enable consumers to make informed choices in line with their values.

We will agree a standardised methodology on the calculation of carbon. This will help prepare for the possible inclusion of agriculture in the UK Emissions Trading Scheme.

Drive long-term, stable demand for woodland carbon

We are exploring the inclusion of greenhouse gas removals in the UK Emissions Trading Scheme, including the potential inclusion of high integrity woodland carbon, such as Woodland Carbon Units. A call for evidence on this issue closed in June 2022, and a Government Response will be published in due course.

Manage, restore, and protect our peatlands, and end the use of peat in horticulture

Peatlands, with their acidic, low oxygen conditions, lock away organic carbon and have created England's largest terrestrial carbon store. They provide a home for rare wildlife, regulate our water supply, and support flood protection and drought management. But only 13% of England's peatlands are in a near natural state. Drained and degraded peatlands are a significant ongoing source of carbon emissions.

Our **England Peat Action Plan** set out the government's long-term vision for the management, protection and restoration of our peatlands, so that they provide a wide range of benefits to wildlife, people and the planet. The aim is to restore approximately 280,000 hectares of peatland in England by 2050.

Restore damaged peatlands

The Nature for Climate Fund is already providing over £33 million to restore 20,000 hectares of peatlands, with a further bidding round in 2023. This helps to implement the **England Peat Action Plan** which set out a series of actions to restore these important carbon sinks.

To further restore and protect our peatlands, Defra will:

- Fund over 35,000 hectares of peatlands to be restored in England by 2025, through the Nature for Climate Peatland Grant Scheme.
- Beyond 2025, the main delivery vehicles for peat will be incentives through the government's new farming schemes:
    - From 2024, Countryside Stewardship will provide a key funding stream for wetter modes of farming.
    - Landscape Recovery will provide long-term funding to support large-scale peatland restoration projects.
    - The Farming Innovation Programme supports applications for research and development in paludiculture.
- Continue to work with partners to develop the Peatland Restoration Roadmap, which will set out a detailed trajectory for restoration to 2050. This will capture detailed actions required to achieve our restoration target. It will be informed by data from the England Peat Map and findings of the Lowland Agricultural Peat Task Force.
- Mobilise private investment by developing the Peatland Code further, including by expanding the Code to cover lowland peat and exploring further carbon pricing opportunities for the sector. We have funded the accreditation with the UK Accreditation Service, established the UK Land Carbon Registry to permit the sale of carbon savings through the Code, and funded research to support the launch of version 2 which will apply to a broader range of peatland habitats.

Support responsible management measures to improve lowland peat

Degraded lowland peat accounts for 3% of England's overall greenhouse gas emissions. Reducing these emissions, by rewetting our agricultural peat soils, is essential to meeting legally-binding net zero targets. We are committed to halting the degradation of our lowland peat soils which causes such significant harm to the environment. We are committed to working with farmers and other land managers to halt the degradation of our lowland peat soils.

Defra will:

- Build on the recommendations of the Lowland Agricultural Peat Task Force, setting the foundations to rewet peat soils and change the way we farm on them.
- Launch a £6.6 million lowland peat research and development programme.
- Continue to deliver the £5.6 million Paludiculture Exploration Fund.
- Develop new farming scheme options to support the restoration of lowland peat and wetter farming methods.
- Publish the new England peat map.
- Continue to implement the **England Peat Action Plan**, ensuring it prioritises emissions savings. We will be examining what actions are now required beyond planned incentive schemes to stop the deterioration of our peat soils and their associated emissions. We will update on next steps in due course.

Case study: The Lapwing Estate - Reverse Coal

The Lapwing Estate covers 5,000 acres of land near Doncaster, crossing the county borders of Nottinghamshire, Lincolnshire and South Yorkshire. Home to one of the country's leading organic farms, the estate is now being used to re-think how lowland agricultural peat soils can be more responsibly managed.

A project called "Reverse Coal" is underway to abate emissions, store carbon and produce food. The project has received funding from BEIS as part of its Greenhouse Gas Removal project and academic support from the UKCEH and University of Lincoln. Using water from an onsite reservoir, the project is seeing lowland peat fields re-wet to reduce and potentially reverse emissions. On the re-wetted peat, short willow coppice is set to be grown and pyrolyzed to create biochar, then buried in a contained waterlogged condition to store carbon. The energy released from this reaction will be used to power a vertical farm to house food crops displaced from the peat. The project operates on a closed system.

We are encouraging farmers to introduce agroforestry systems

Protect our peatlands from further harm

We have:

- Introduced regulations that ban the burning of vegetation on deep peat on our most protected sites in England, unless licensed.
- Continued to work closely with the professional horticulture sector on speeding up their transition to peat-free alternatives ahead of a ban for the professional horticulture sector, recognising that the professional horticulture sector faces additional technical barriers that will take longer to overcome.

We will ban the sale of peat for use in the amateur gardening sector by 2024 when legislative time allows. This builds on work with the sector since 2011, and investments made in peat-free alternative growing mediums.

Reduce F-gas consumption and production

Fluorinated gas (F-gas) total 9.9 MtCO2e emissions in England in 2020. Global action to reduce the use of HFCs was agreed under the Kigali Amendment to the Montreal Protocol. This is expected to avoid 0.1°C of warming by 2050 and 0.4°C by 2100.

The UK is ahead of schedule in meeting the Kigali HFC phasedown target of 85% reduction in consumption by 2036, having already phased down HFCs placed on the market by 55%.

Current legislation on refrigeration, air-conditioning and heat pumps, is already driving a move away from F-gas use as industry innovates and takes up alternative options; additional action could see even greater reductions.

We will also continue to work with the NHS on changing prescribing practices to reduce F-gas emissions by improving management of pulmonary diseases and switching patients to different types of inhalers where the product is at least as good as current models. Industry are also taking action by developing and securing regulatory approval of MDIs (types of inhalers) that use propellants with lower global potential.

We will explore options to accelerate the reduction of emissions. We will consider investing in research and development to support this.

We're ahead of schedule in meeting the Kigali target, having already phased down HFCs placed on the market by 55%

2. Building resilience by adapting to climate change

Manage climate risk

Examples of work across our goals to manage climate risk include:

- Delivering over £3 billion in climate financing over the next five years, including £200 million for a new Climate Innovation Facility to scale-up technologies to help deal with the impacts of climate change, such as drought-resistant agriculture and sustainable forestry, in markets where private investors have been reluctant to take on the risk alone.
- Launching a £10 million Water Management Grant Scheme which will help prepare land managers for future climate impacts on clean and plentiful water.
- The Nature Recovery Network will help to make our habitats and species healthier and more resilient to climate impacts. This will improve society benefits from ecosystem services such as flood resilience, water provisioning and healthier pollinator populations.
- Investing in climate science and research, such as the latest UK Climate Projections, which increases understanding of how the climate will change to 2100, with better understanding of climate extremes.
- Supporting government departments and other government bodies to consider climate risks in project appraisals and investments through HMT Green Book supplementary guidance.
- Promoted advances in climate resilient crops through the Genetic Technology Bill to mitigate impacts of climate change.
- Built the climate resilience of UK business and infrastructure through adaptation reporting by 120 organisations in the water, energy, transport, financial and telecommunication sectors.

We will publish the Third National Adaptation Programme (NAP3) in 2023, which will provide policies and objectives for adaptation

We know more action is needed. The Climate Change Risk Assessment identifies 61 climate risks and opportunities that need action to improve resilience to a changing climate.

The government will:

- Publish the third **National Adaptation Programme** (NAP3). NAP3 will set out the range of adaptation actions against climate risks to all sectors for a five-year period (2023 to 2028). It will provide policies and objectives for adaptation, filling the gap between current action and the growing level of climate change risk.
- Continue to work across government to ensure adaptation is embedded in departmental decision making across policy themes.
- Use the NAP3 and EIP23 to co-ordinate and monitor actions and policies that will contribute towards our 25YEP goals, ensuring their delivery and management are suitable and adaptive to a changing climate.
- Pay for natural flood risk management and other measures to adapt to the impacts of climate change in the countryside, through our new farming schemes.

Case study: Storm Arwen: from devastation to woodland regeneration

Climate change is one of the biggest threats to our forests. With more extreme weather, drought and wildfire, increasingly putting pressure on forests, our management plans are now heavily focused on protecting and future proofing our precious woodlands.

The Defence Infrastructure Organisation (DIO) work with Landmarc Support Services to manage land and facilities across the Ministry of Defence's 190,000 hectares of UK training estate. In 2021 Storm Arwen bought strong winds of up to 100mph causing widespread damage across the Defence Training Estate. The scale of work to clear windblown and fallen trees was considerable, covering an area of 6,000 hectares and more than 20,000 windblown trees.

Whilst the immediate impact of Storm Arwen was devastating, from a longer-term forestry perspective, it provides an opportunity to re-structure the affected woodlands to make them more resilient; not only to climate change but also to pests and diseases, such as ash dieback.

3. Leading action internationally to tackle climate change

We are an active participant of international treaties, including the UNFCCC and CBD

Reset the global relationship on nature through international leadership on climate change and biodiversity loss

The UK recognises that action needs to be taken internationally to meet the stretching goals of the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework.

We are recognised as global leaders, through our presidency of the UN Climate Summit COP26, the critical role we played at the subsequent Climate Summit COP27 and UN Nature Summit COP15 negotiations and as President of the G7. During our presidency, we secured the Glasgow Climate Pact, recognising the explicit link between climate change and biodiversity for the first time in a UN agreement

We will:

- Implement the 10 Point Plan for Financing Biodiversity, which provides the blueprint for how to finance nature's recovery and has been endorsed by over 40 countries across six continents.
- Drive progress on an agricultural breakthrough, when parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed to make climate-resilient, sustainable agriculture the most attractive and widely adopted option for farmers everywhere by 2030 – which is being enhanced through the Policy

Dialogue to Accelerate Transition to Sustainable Agriculture and Food Systems.

- Support local action on forestry, including delivering our commitments to the IPLC Forest Tenure Pledge, supporting the donor working group and delivery of the FCDO Global Land Governance Programme, and continuing to support delivery of the Glasgow Leaders' Declaration on Forests and Land Use.

Promote Nature-based Solutions internationally

Nature-based Solutions are a mechanism by which biodiversity loss, climate change and poverty can be addressed in a sustainable way and are therefore central to the delivery of the global Sustainable Development Goals. Nature-based Solutions bring together our environmental and net zero goals.

We will build on the G7 commitment to the 2021 Nature Compact through the successful negotiation of a multilaterally agreed definition of Nature-based Solutions at the United Nations Environment Assembly.

Provide and promote international climate finance

The UK is a global leader in its contribution to international climate finance. We hope this incentivises other nations to provide financial support to help the global effort to mitigate and adapt to climate change.

The UK will continue to support the use of Nature-based Solutions, through our International Climate Finance and other Official Development Assistance. These funds provide support for:

- £20.7 million in Disaster Risk Financing to support countries which face climate-related disasters, helping them to afford insurance and to access reliable funding, more quickly, after a disaster.
- £13 million to support vulnerable countries to adapt to climate impacts, and towards efforts to avert, minimise, and address loss and damage.
- £20 million for our Sustainable Cooling and Cold Chain Solutions programme to enable developing countries to

International Climate Finance is a UK government commitment to support developing countries to respond to the challenges and opportunities of climate change. EIP23 sets out some of how our funding will support this pledge, through the use of nature-based solutions and climate adaptation

make rapid progress on reducing hydrofluorocarbons and adopt energy efficient cooling solutions in both vaccine and food cold chains.

- Ensure that in 2023, all new bilateral UK Official Development Assistance spending aligns with the Paris Agreement.

We will also:

- Deliver our commitment to doubling our International Climate Finance contribution to at least £11.6 billion between 2021 and 2026, including investing at least £3 billion of International Climate Finance in development solutions that protect and restore nature, with at least half of this spent on forests.
- Deliver key programmes that will support developing countries to help meet global commitments to better protect 30% of land by 2030, including the £100 million Biodiverse Landscapes programme and further funding of up to £29 million announced at the UN Nature Summit COP15.
- Support developing countries to better integrate nature in decision-making. The UK is providing £9 million to the UNDP Climate Promise, a key UN programme supporting countries to deliver against the Paris Agreement including through Nature-based Solutions.
- The UK is providing £40 million to a Global Centre on Biodiversity for Climate to support research and development that can generate evidence and unlock new approaches to addressing biodiversity and climate challenges simultaneously.
- Deliver the £500 million Blue Planet Fund to support developing countries to protect and restore marine environments including through access to UK scientific expertise. This includes funding for biodiversity loss, sustainable fisheries, pollution, and climate change:
    - The UK Ocean Country Partnership Programme: delivering marine science technical assistance across marine pollution, biodiversity loss and supporting sustainable seafood.

- The Global Fund for Coral Reefs: combating the global threats to coral reefs and protecting the marine biodiversity that they host.
- The Global Plastic Action Partnership: taking collaborative action on tackling plastic pollution in developing countries.
- The Ocean Risk and Resilience Action Alliance: applying science and incentivising investments into critical ecosystems like mangroves, that provide resilience against climate change, supporting the world's most vulnerable communities.
- The Global Ocean Accounts Partnership: supporting the development and maintenance of ocean natural capital accounts.
- The Climate and Ocean Adaptation and Sustainable Transition: building coastal adaptation, resilience and prosperity in developing countries with a focus on Nature-based Solutions, coastal livelihoods and vulnerable coastal communities.
- The Sustainable Blue Economies programme: supporting ODA eligible Small Island Developing States to strengthen the management of their marine environment and resources to build sustainable blue economies and strengthen their climate resilience.

Our £500 million Blue Planet Fund will support developing countries to protect and restore marine environments

Monitoring and Evaluation

Monitoring progress in adaptation

Globally, monitoring the success of actions taken for climate change adaptation is a major gap. We have begun an adaptation indicators programme, working with the Organisation for Economic Co-operation and Development (OECD) on its international indicators project. This will add value to the currently available insights of the Outcome Indicator Framework, which reports a number of indicators relevant to climate change adaptation, in turn supporting the NAP3 programme to be more targeted in its monitoring.

Adaptation at sea requires specific action. The UK will carry out monitoring and assessment of the resilience of marine biodiversity to climate change in 2023.

Monitoring progress in mitigation

The Climate Change Committee publishes an annual progress report providing a comprehensive overview of the government's progress in reducing emissions. Government will respond to the Committee's 2022 progress report by the end of March 2023. We also produce an annual greenhouse gas inventory, with the latest emissions, to allow us to monitor its progress towards international and domestic targets. In addition, each year, we publish updated Energy Emissions Projections, analysing and projecting future energy use and greenhouse gas emissions in the UK.

Defra has engaged academics involved in the development of the global warming potential to inform our **Net Zero Strategy.** The standard metric for reporting greenhouse gas emissions under international agreements is the 100-year Global Warming Potential. It measures the ability of a gas to trap energy in the climate system over 100 years. It is currently the best method for comparing the intensity of greenhouse gas emissions across and between sectors and countries.

The global warming potential of different gases are:

- Carbon dioxide (CO_2): 1
- Methane (CH_4): 28
- Nitrous oxide (N_2O): 265

We will monitor progress towards delivering the EIP23 through the Annual Progress Report and the Outcome Indicator Framework. The framework contains 66 indicators, arranged into 10 broad themes. The relevant indicators for mitigating and adapting to climate change are:

A2 Emissions of greenhouse gases from natural resources

J1 Carbon footprint and consumer buying choices

To provide a baseline for monitoring peat condition and location, Defra is developing a new England Peat Map and a Peat Restoration Register.

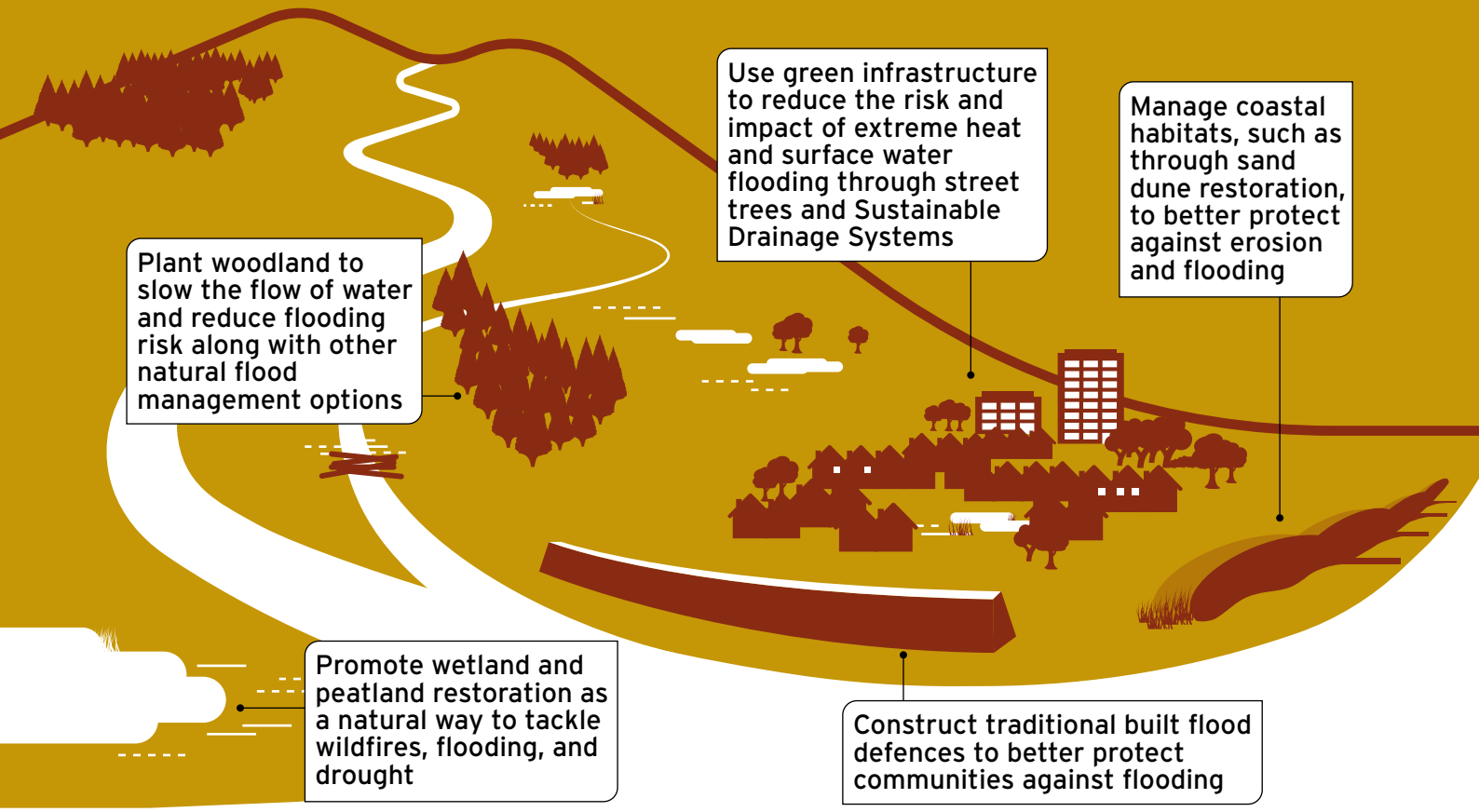
Monitoring is embedded in our farming reforms. Our monitoring work in the Future Farming and Countryside Programme involves developing and tracking metrics – including how our activities are contributing to net zero.

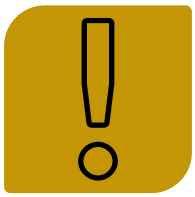
For measures being delivered by standards within our new farming schemes, our uptake forecasting and environmental impact modelling within our monitoring and evaluation programme will track who is doing the action, so we can track live progress towards trajectories.

Our policies will help us adapt to, as well as help mitigate, climate change.

Goal 8
Reduced risk of harm from environmental hazards

Key policies to help us manage environmental hazards





Natural hazards pose a risk of harm to our health, the environment, and to our economy. We are experiencing a greater number of longer, more intense wildfires, floods, and droughts – and temperatures and sea levels are rising. Millions of us are already affected by environmental hazards, and that number will grow as our climate changes.

We need to act now to secure a safe, healthy environment that supports our lives and our economy in a way that is both effective and cost-effective. That is why we have made significant investments to improve coastal and flood defences.

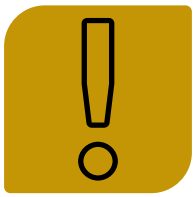
Now, we will go even further – from rewarding our farmers for taking action, to continuing to support communities that suffer repeated flooding, and implementing sustainable solutions that harness the power of nature and technology to keep our towns and cities cool in a warming climate.

Our 25 Year Environment Plan goal

We will reduce the risk of harm to people, the environment and the economy from natural hazards including flooding, drought, and coastal erosion.

Since 2018, we have:

- Better protected 314,000 homes between 2015 and 2021 by investing £2.6 billion in flood defences.
- Invested a further £170 million in 2020 to accelerate delivery of shovel-ready flood defence schemes.
- Published our **Policy Statement** setting out the government's long-term ambition to create a nation more resilient to flood and coastal erosion risk.
- Published the **National Flood and Coastal Erosion Risk Management Strategy**, providing a framework to guide the delivery of flood and coastal erosion management and protection.
- Launched a £200 million Flood and Coastal Resilience Fund to test innovative practical resilience actions and develop new ways of planning for the long term.



We have the following targets and commitments:

- Invest in flood and coastal defence projects to better protect more properties.
- Double the number of government funded projects which include Nature-based Solutions to reduce flooding and coastal erosion.
- Maintain at least 94% of major flood and coastal erosion risk management assets fit for their designed purpose, through to March 2025. Our long-term aim is for this to reach 98%.

To deliver these, we will:

- Deliver projects funded by the £100 million Frequently Flooded Allowance, as part of the capital programme of investment, to support communities who have suffered repeated flooding.
- Invest a further £22 million per year, on top of baseline funding, for maintaining our flood defences between 2022 to 2023 and 2024 to 2025.
- Mitigate surface water flooding by making sustainable drainage systems mandatory in new developments, as set out in detail in the 'Clean and plentiful water' chapter.
- Invest in improving our flood forecasting capability for surface water flood risk.
- Deliver our £200 million flood and coastal resilience innovation fund to support the development of new innovative solutions to reduce risk.
- Reward farmers for actions to reduce risks and impacts from floods, droughts, and wildfires through our new future farming schemes.
- Provide grants from the £10 million natural environment investment readiness fund to explore revenue generation from Nature-based Solutions to reduce flood risk.
- Upskill those involved with land management and the public on managing wildfire risks.
- Roll out more green infrastructure in towns and cities to help reduce peak temperatures.

Introduction

Natural hazards pose a risk of harm to people, the environment, and to our economy. Conversely, we know that a safe, healthy environment provides both the essential underpinning of our lives and a vital engine of our economy.

Currently, the incidence, intensity and duration of risks like wildfires, rising temperatures, flooding and rising sea levels is increasing as our climate changes.

Millions of us are already affected to the tune of hundreds of millions of pounds – and these numbers will grow, at home and around the world, as the population increases and the impact of climate change grows.

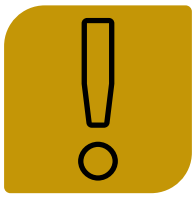
So, we must take action to boost our resilience now – through early action that will minimise costs and maximise our impact. To meet the scale of the challenge ahead we need everyone to play their part – including businesses and those responsible for key infrastructure. We want to encourage and incentivise a greater range of non-government investment to build our resilience to flood and coastal erosion risks. We can achieve this by encouraging new and innovative methods, such as green finance, and by raising awareness of the benefits of investment.

We will continue to reduce the risk of harm from environmental hazards, so that our country is more resilient in the long-term, including taking account of future climate change impacts.

Our priorities are to:

- Create a nation more resilient to future flood and coastal erosion risk.
- Reduce impacts of droughts so that water companies can maintain supply in all except the most extreme droughts (set out in detail in the 'Clean and plentiful water' chapter).
- Protect against wildfires, working with a range of bodies to reduce incidents of wildfires and manage them when they do occur.

> The extreme temperatures experienced during July 2022 were the highest in recorded history for many places across the UK



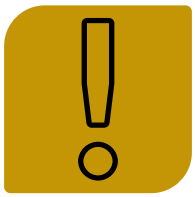
- Following the joint hottest summer on record in the UK, reduce risks from heat, taking coordinated action across sectors to reduce exposure to high temperatures.

We will look for co-benefits in the actions we take to build resilience. For example, Nature-based Solutions which have been developed to reduce flood risk include actions to slow the flow of water, create natural storage and replenish flood plains and peatlands. These actions can build resilience against other hazards such as droughts and support our other goals, such as in the 'Thriving plants and wildlife' chapter.

We are working to reduce risk, and to mitigate the impact when hazardous events do take place. To mitigate impacts, we are improving community and property resilience and improving our response and recovery capability. The focus of EIP23 is the action we are taking to manage risk reduction whilst delivering environmental improvement, so we have not included our work to improve health outcomes and reduce property impacts.

Targets and commitments

- Invest in flood and coastal defence schemes to better protect more properties from flooding and coastal erosion impacts.
- We will double the number of government funded projects to reduce flooding and coastal erosion through nature based solutions.
- Through to March 2025 we will maintain at least 94% of major flood defences to be fully fit for their designed purpose. Our long-term aim is for this to be 98% of major flood defences.



Our delivery plan

To deliver against our goal, we are:

1. **Upgrading and expanding our national flood defences and infrastructure** - existing flood defences led to an estimated saving of around £1.7 billion in potential economic costs from the flooding that took place between November 2019 and March 2020 alone.

2. **Using nature to reduce flood and coastal erosion risk** – we are looking for opportunities to take actions which have co-benefits across many EIP23 goals.

3. **Managing the flood risk from surface water** - this affects 3.2 million properties in England.

4. **Better preparing our communities** – to support the understanding of the impacts of these hazards and how people and communities can be better prepared.

5. **Supporting sharing best practice and innovative approaches at a local level** – recognising that government can support local partners on the ground coming together to maximise local action.

6. **Building resilience to increasing wildfire risk** – recognising the negative impact that wildfires have on biodiversity, air quality, and to human life.

7. **Reducing risks from heat** – as our climate changes, looking for natural ways to reduce peak temperatures where we live.

1. Upgrading and expanding our national flood defences and infrastructure

Investment in flood and coastal erosion schemes

The current flood investment plan sets out the schemes identified to protect more properties. We will also:

- Accelerate delivery for flood defence schemes in 23 areas with an additional investment of £170m. These schemes will better protect more than 10,000 local businesses and safeguard around 100,000 jobs.
- Deliver an expected 80 schemes through the £100m Frequently Flooded Allowance to support communities where 10 or more properties have flooded twice or more in the last 10 years.

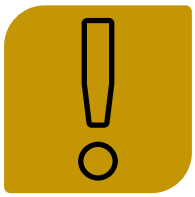
Around 2,500 workers in Great Britain in 2020 were constructing water projects, and our floods programme is set to support 10,000 jobs

Reservoir safety

As set out in the 'Clean and plentiful water' chapter we recognise that we need to build more reservoirs. As we do this, we also need to make sure new and existing reservoirs are safe.

We are modernising reservoir safety by taking forward the recommendations from the **Reservoir Review** reports so we have a reservoir safety regime fit for now and the future. This includes all registered reservoirs having onsite emergency flood plans and involves:

- Working with industry to ensure we build up the capacity of inspecting engineers now and for the future.
- Ensuring all inspections by supervising and inspecting engineers are systematic, detailed, and impartial, to provide robust and clear advice to owners.
- Improving the risk classification of reservoirs and safety management practice of owners and operators.



Continue to invest in the maintenance of existing defences

As well as building new assets, it is important for us to maintain our existing flood and coastal defences, so they remain functional and are resilient to climate change. We will continue to invest in flood and coastal defence maintenance, with an extra £22 million per year in 2022 to 2023 and 2024 to 2025 to secure and maintain a high level of readiness.

2. Using nature to reduce flood and coastal erosion risk

Use Nature-based Solutions for flood management

Whilst hard infrastructure will still be needed to manage flood risk in future there are also ways of managing flood risk naturally which supports progress towards our other environmental goals and targets.

We began this work by delivering the £15 million Nature Flood Management Programme, which supported 60 projects between 2017 and 2021.

We will:

- Use the learning from the Natural Flood Management Programme to improve development and delivery of future natural flood management projects. This includes highlighting the value of forging strong community-based partnerships, supported by effective local leadership.
- Double the number of government-funded flood resilience projects using Nature-based Solutions.
- Continue the deployment of the £750 million Nature for Climate Fund to deliver woodland creation and peatland restoration projects which will have natural flood management co-benefits.
- Make sure Local Nature Recovery Strategies include proposals for Nature-based Solutions which improve flood risk management where appropriate.

> We will double the number of government-funded flood resilience projects using Nature-based Solutions

We are also working with private companies to invest in natural flood management:

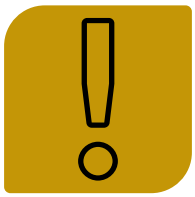
- The £10 million Natural Environment Investment Readiness Fund provides grants to explore revenue generation from Nature-based Solutions to reduce flood risk and address other challenges such as water quality.

Case study: The Wyre Natural Flood Management (NFM) Project

A successful pilot project demonstrating how private investment can be blended with public sector funding to finance natural landscape restoration to deliver our environmental goals.

The Wyre NFM Project was initiated in 2019 by a group of partners - working closely with local farmers - including United Utilities, Rivers Trust, FloodRe, Co-op Insurance and Environment Agency, with support from Triodos Bank, to create a commercial business case for natural flood management. The actions were part of a catchment-based approach in the River Wyre, which suffers from significant flooding and water quality issues that impact adversely on local communities, businesses and future development.

The project will deliver over 1000 targeted measures such as tree planting, creation of temporary water storage areas, leaky dams and a network of hedges to significantly reduce flooding to local communities at risk. These will be repaid through the sale of the benefits accrued from the enhanced or improved functioning of the ecosystem services such as flood risk reduction, carbon sequestration, increasing biodiversity and improving water quality.



Incentivise actions for the farming sector to reduce flood and coastal erosion risk through our new farming schemes to:

- Actively manage or restore land so that it is available to store flood waters.
- Slow the flow of flood water in prioritised catchments in England, reducing downstream flood risk.
- Restore river, intertidal and coastal habitats to restore natural protections from floods and coastal erosion. This will help increase our resilience to climate change, including sea level rise.
- Improve farm productivity through more efficient use of water, and to secure water supplies for crop irrigation, through the Farming Investment Fund.
- Take action to improve soil health, as set out in the 'Using resources from nature more sustainably and efficiently' chapter. This will improve infiltration and storage of water, helping to mitigate the risk of flooding and drought, alongside other co-benefits for biodiversity, food production, and carbon storage.

We have also expanded the Catchment Sensitive Farming Initiative, covered in the 'Clean and plentiful water' chapter, to add provision of flood risk management and resilience to the list of environmental outcomes sought from farmers and land managers.

Case Study: Hills to Levels, Somerset

The Hills to Levels project started in 2015 as a holistic approach to addressing flood risk through changes in land management in Somerset, delivered by the Farming and Wildlife Advisory Group South West. The project has used numerous smaller management techniques with the idea that every farm, field and stream has a role to play across the 2871km2 catchment.

This project was possible with the help of key stakeholders, including the Environment Agency, the RSPB, Wildlife Trusts and the Somerset Rivers Authority.

As of June 2022, 1,115 natural flood management structures have been implemented, including leaky dams, runoff attenuation features (such as leaky ponds and swales), floodplain re-connection, and cross-slope hedge and tree planting schemes. As well as protecting properties downstream, many features offer wider environmental benefits such as the creation and enhancement of habitat. For example, 8.5km of hedgerow and 19ha of woodland have been planted in Somerset under Hills to Levels umbrella projects. Many of these schemes will also contribute to future carbon sequestration.

The project focuses strongly on land management, with 200 soil husbandry visits and 62 soil management plans delivered to date. Hills to Levels has also run four reverse auctions in the county, delivering grant funding for land management interventions, including 1562ha of maize management to reduce runoff, and 346ha grassland subsoiling to improve soil structure and infiltration since 2018.

3. Managing the flood risk from surface water

Surface water flooding generally occurs after extreme rainfall when water cannot immediately drain away or soak into the ground.

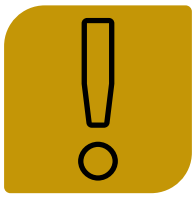
We are delivering our **Surface Water Management Action Plan** to support local authorities with their responsibilities to manage the risks from surface water flooding.

We will also:

- Consider recent recommendations made by the National Infrastructure Commission. The government will publish a response to the recommendations in 2023.
- Invest in improving our flood forecasting capability in "hotspot" areas to improve surface water flood risk information, and improve the speed of communication of storm forecasts to local responders.
- Support local authorities to manage surface water flood risk, including improving surface water flood risk maps.
- As set out in the 'Clean and plentiful water' chapter, we are requiring water companies to produce Drainage and Wastewater Management Plans.

Surface water flooding generally occurs after extreme rainfall when water cannot immediately drain away or soak into the ground

Leaky wooden barriers on the River Lune in Cumbria, helping to restore peat and reduce flooding downstream



4. Better preparing our communities

Increase the public's understanding of the risk of flooding for their home

We want to encourage everyone to be aware of their risk of flooding and/or coastal erosion, including as those risks change with a changing climate. We will:

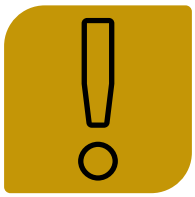
- Improve our digital services which allow homeowners to check their flood risk. This will include incorporating improved surface water risk information from local authority mapping and data from the new national assessment of flood risk by 2025.
- Continue to promote take up of our flood warning service. In England all places at high risk of flooding from rivers and seas will be covered by the flood warning service from 2022 to 2023. **Check for Flooding** provides access to issued flood warnings, together with information on rainfall, and river, sea and groundwater levels.
- Support an industry-owned voluntary code of practice to promote consumer and business confidence in measures to reduce the impact of flooding on buildings.

Support the effective management of flood and coastal erosion risks in the planning system

Planning policy is already clear that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. Where this is not possible, development should be flood resilient and resistant, safe for its users for the development's lifetime, and not increase overall flood risk.

The Department for Levelling Up, Housing and Communities has:

- Amended the **National Planning Policy Framework** to make sure that all sources of flood risk, including future flood risk, are considered in the planning



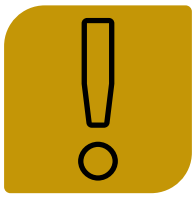
system. This should mean that any new development is safe for its lifetime and that it doesn't increase the risk of flooding elsewhere.

- Published a significantly updated **Planning Practice Guidance on Flood Risk and Coastal Change** in August 2022.

We will:

- Continue to provide robust and constructive advice to planning authorities and monitor how and where this is not followed.
- Make sustainable drainage systems mandatory in new developments, as described in the 'Clean and plentiful water' chapter.
- Work with the Department for Levelling Up, Housing and Communities, and planning authorities, to ensure that planning legislation, guidance and advice reflects the most up to date understanding of flood risk.

We will also set policy direction for Property Flood Resilience measures that supports consumer and industry confidence, and therefore take-up.



5. Supporting sharing best practice and innovative approaches at a local level

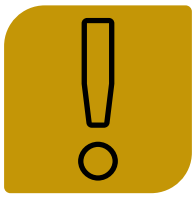
Local partners need to take ownership and responsibility for managing and mitigating flood and coastal erosion risk. We want to provide the right tools to enable locally driven innovation and solutions to be embedded.

We have launched a £200 million Flood and Coastal Resilience Innovation Fund. This will explore and promote good practice to achieve local resilience. The programme will:

- Provide funding to 25 local areas to test and demonstrate innovative practical resilience actions – such as the Making Space for Sand initiative in Cornwall and The Blue Heart project in East Sussex.
- Develop long-term adaptation pathways for the Thames and Humber estuaries, the Severn Valley, and Yorkshire. These projects will look ahead at least 50 years at what flood defences are needed. These trials will develop ways of planning ahead in the long term to make wise investment choices for the decades to come.
- Set up a £36 million Coastal Transition Accelerator Programme, trialling opportunities in East Riding of Yorkshire and North Norfolk to adapt to a changing climate in areas at significant risk of coastal erosion. Learning from this programme will be shared with other coastal communities to inform future climate resilience and adaptation.

We are also:

- Reforming local flood risk management planning so that every area of England will have a more strategic and comprehensive plan that results in long-term local action to manage flood risk. This will complement the actions set out above, securing long term investment plans for each area of England. Flood plans will join up with other place-based plans - for example Local Nature Recovery Strategies - to support an integrated approach to land, water and the environment.



- Working with local authorities to ensure that Shoreline Management Plans remain current and relevant, regularly reviewing the best evidence to inform and refine recommendations and focus investment on priority areas.

6. Building resilience to increasing wildfire risk

The **Climate Change Risk Assessment** recognised that wildfire is an increasing threat, and a coordinated approach is essential to mitigate and adapt to its impacts on people, property, infrastructure, and the environment, including natural capital and our natural carbon stores; as well as to plan the most effective response to wildfire incidents.

Confirm responsibilities, duties and communications to help prevent and mitigate the risk of wildfires

Open access land can be legally restricted when there is a danger of exceptional fire risk. Byelaws can also be brought in to limit activity that could increase the risk of fires in particular places across the country.

We have taken specific actions to reduce risk:

- Introducing licencing to manage the burning of protected blanket bog.
- Using the Peat Grant Scheme under the Nature for Climate Fund to restore degraded peatland and make it more resilient to wildfires.

The Home Office, as the lead department for wildfires has also:

- Published the **Wildfire Framework for England** that sets out the shared responsibilities across government. This framework will be reviewed and revised as necessary on an annual basis.
- Provided support and guidance to local authorities and other statutory bodies to ensure effective communications during periods of high wildfire risk.

Upskill those involved with land management and the public on managing wildfire risks

We need upskilling across society to tackle the increased risk from wildfires. We have worked with partners across government and beyond, including the National Fire Chiefs Council, to design and deliver an accredited vegetation fire training programme. That continues to upskill land managers by consolidating knowledge and skills to prevent future wildfires and improving prescribed fire operations.

7. Reducing risks from heat

The extreme temperatures experienced during July 2022 were the highest in recorded history for many places across the UK. High temperatures will increase risks to life, wellbeing and productivity and are already impacting people in the UK. Our work on adaptation, as set out in the climate chapter, is important to tackle this.

There are natural solutions for managing heat in our towns and cities which deliver co-benefits for our biodiversity goals, as well as cooling our homes and streets

Use nature to reduce peak temperatures

There are natural solutions for managing heat in our towns and cities which deliver co-benefits for our biodiversity goals, as well as cooling our homes and streets.

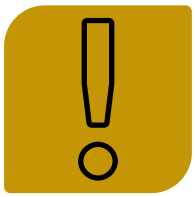
Environmental enhancements such as tree planting can reduce the impact of extreme heat. Urban areas with trees are cooler in summer and warmer in winter. Well positioned trees also improve the environmental performance of buildings by acting as a buffer or 'overcoat' reducing thermal gain in summer.

We have published a **Local Authority Tree and Woodland Strategy Toolkit** to support local authorities to develop their own local tree and woodland planting strategies.

We will:

- Deliver on our commitments to build more parks and incorporate green infrastructure in towns and cities.
- Extend the Urban Tree Challenge Fund to support the planting and establishment of trees in urban areas.

Urban areas with trees are cooler in summer and warmer in winter



Support heat adaptation for buildings

Improving the energy efficiency of new homes is important, but we need to manage any unintended consequences of increasing the risk of overheating. This not only impacts productivity and causes people discomfort but can be dangerous for the very old and very young.

The Department for Levelling Up, Housing and Communities has:

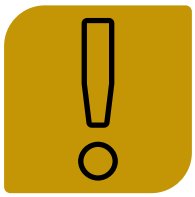
- Introduced a new overheating requirement in the building regulations. This means that new residential buildings must now be designed to reduce overheating.
- Ensured that the **National Planning Policy Framework** is clear that Local Plans should consider the long-term implications of climate change, including the risk of overheating from rising temperatures. This can be achieved in a variety of ways, for example through natural ventilation in buildings, or through the provision of multi-functional green infrastructure.

Develop a Single Adverse Weather and Health Plan

The health risks from natural hazards are linked and impact on each other, particularly as our climate continues to change, a clear plan that draws the impacts and challenges together will help support better preparedness.

The UK Health and Security Agency is developing this plan for England in 2023. The plan will:

- Support preparedness for the impacts of climate change by providing guidance on hot and cold weather, drought, flooding and thunderstorms.
- This will inform actions across the health system and local communities to reduce the health impacts of adverse weather.
- It will also include commitments to improved early warning alerting systems (heat health and cold weather alerts) to enable early action to be taken in response.



Monitoring and Evaluation

We have committed to develop a national set of indicators that will enable us to track progress on our aim of increasing resilience in flood and coastal erosion risk management. These will build on what is already set out in Defra's Outcome Indicator Framework. We will provide an update on progress in spring 2023.

Delivery of the £5.2bn capital programme is monitored on an ongoing basis and is reported on annually. Our evaluations include:

- A post-programme assessment of the 2015 to 2021 capital programme, published in April 2022.
- A planned evaluation of our current £5.2bn capital investment programme.
- On-going evaluations of our Flood and Coast Innovation Programme (expected to report at the end of this programme in 2027).
- An evaluation of the Property Flood Resilience Repair Grant.

We will monitor progress towards delivering the EIP23 through the Annual Progress Report and the Outcome Indicator Framework. The framework contains 66 indicators, arranged into 10 broad themes. The relevant indicators for reduced risk of harm from environmental hazard are:

F1 **Disruption or unwanted impacts from flooding or coastal erosion**

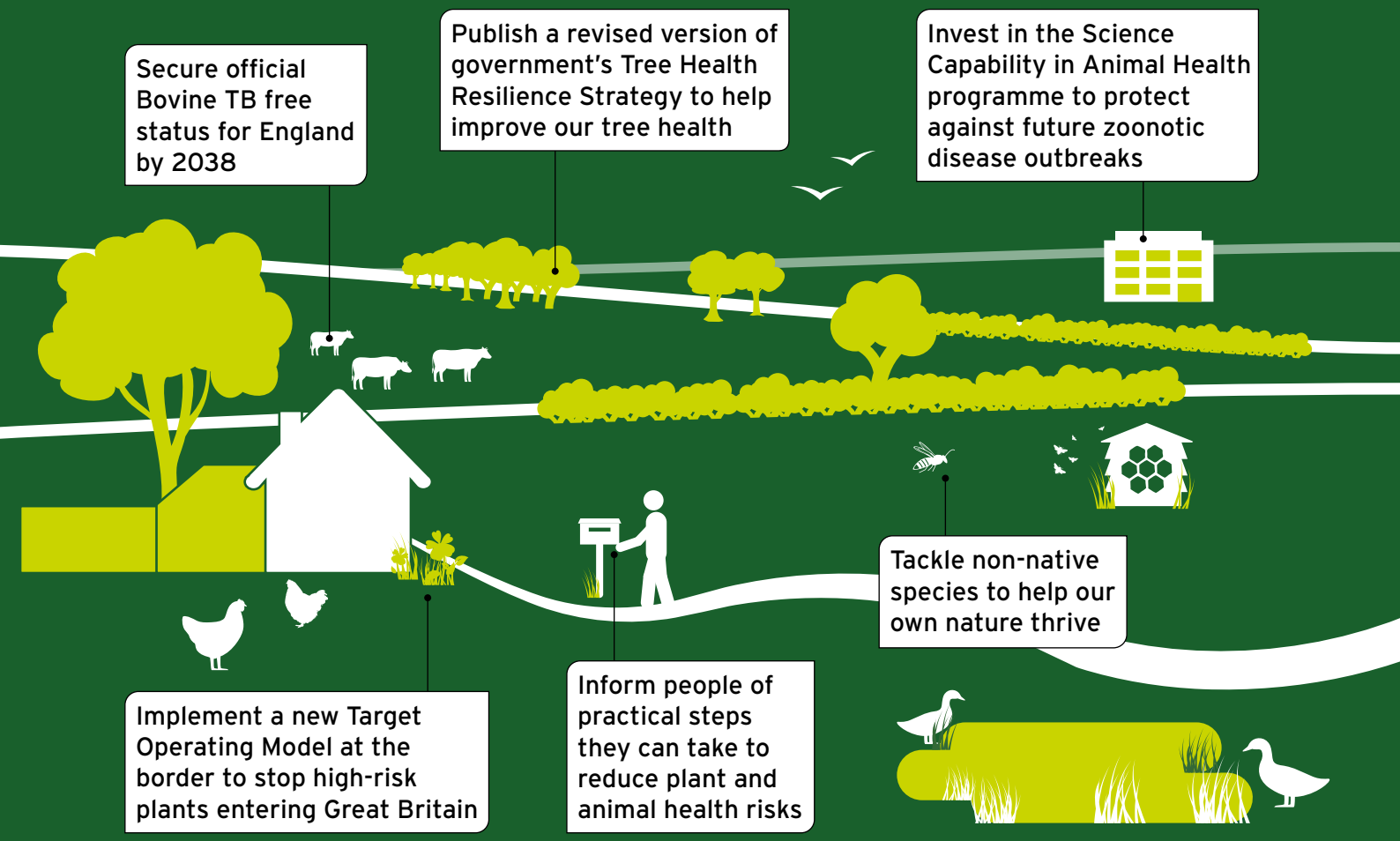
F2 **Communities resilient to flooding and coastal erosion**

F3 **Disruption or unwanted impacts caused by drought**

Foss Barrier, York

Goal 9
Enhancing biosecurity

Key policies to enhance biosecurity, to protect nature and livelihoods



Across our landscapes and in the waters around these islands, our native flora and fauna have evolved within webs of wildlife that have changed relatively slowly over millions of years – so when a new species is suddenly introduced, that delicate balance can be overturned very quickly and with devastating consequences.

The risks of pests, pathogens, and invasive non-native species that were already on the rise with the growth of trade and travel is increasing as our climate changes – and with the intensification of farming, so too has the risk of diseases being passed from animals to humans.

We need to act now to enhance biosecurity so we protect public health, wildlife, and farm animals, increase the resilience of our plants and trees, and bolster British trade.

That is why we have taken action – including improvements to import regimes, controls, and certification for plants.

Now we will do even more – from creating more bio-secure supply chains, to encouraging responsible habits, and investing in our scientific capability to protect against the outbreak of animal diseases in the future.

Our 25 Year Environment Plan goal

We will enhance biosecurity to protect our wildlife and livestock and boost the resilience of plants and trees.

Since 2018, we have:

- Published a new **Plant biosecurity strategy for Great Britain** in 2023, and implemented a stronger plant import regime, strengthening controls against threats like Xylella and emerald ash borer, and introducing the phytosanitary certification of all imports of plants for planting and a ban on imports of the highest risk trees.
- Established the Non-Native Species Inspectorate to reduce the risk of non-native species becoming established, and made notable progress towards eradicating 9 species from the UK, as well as tackling asian hornet incursions.
- Published a **Tree Health Resilience Strategy** aiming at no net loss to the extent, connectivity, diversity and condition of our domestic treescape. Planted the UK's

first archive of tolerant ash trees and delivered new grant schemes to fund the restocking and restoration of landscapes degraded by disease.

- Delivered a £5.8 million quarantine laboratory and a new centre for forest protection, to provide a hub for world leading research, education and training on tree pests and diseases.

We have the following targets and commitments:

- Reduce the number of establishments of invasive non-native species by at least 50% in 2030, compared to levels seen in 2000, supporting delivery of the convention on biological diversity global target on invasive alien species.
- Ensure at least 97% of export health certificates (EHCs) and licences are issued correctly within agreed timeframes to support safe and secure trade.
- Invest in our Science Capability in Animal Health programme at Weybridge.
- Achieve official bovine tuberculosis free status for England by 2038.

To deliver these, we will:

- Deliver the five-year action plan of the 2023 **Plant biosecurity strategy for Great Britain**. Mitigating threats such as Xylella, by strengthening our risk-based biosecurity regime even further, creating more biosecure plant supply chains and encouraging the adoption of more responsible behaviours across society.
- Continue to develop the new Non-Native Species Inspectorate to improve enforcement of existing controls, implementing action plans for the main pathways of introduction, and seeking to eradicate the highest risk invasive species.
- Publish a revised version of government's **Tree Health Resilience Strategy,** aiming to improve the baseline diversity, health and condition of our trees, woods and forests, and drive the long-term changes needed to adapt to climate change and disease pressures such as ash dieback.
- Seize the opportunity of Brexit to implement a new Target Operating Model which will enable a targeted and risk-based regime of border import controls. We will also invest in a new Science Capability in Animal Health programme at Weybridge, to protect against future zoonotic disease outbreaks.

Introduction

Successful ecosystems are where plants and animals thrive in a habitat suited to their needs. Our species have evolved and adapted specifically to the habitats across our country. When a new species is suddenly introduced, that delicate balance can be overturned very quickly with devastating consequences.

The UK has world-leading biosecurity measures and capabilities. Our approach to biosecurity is internationally recognised as delivering the highest standards of protection from pests, disease and invasive non-native species. This is underpinned by world-class scientific experience and capabilities from both within the government's science base and the wider UK science and research community.

However, as the climate warms and we regularly travel to and trade with more countries, we are facing a wider range of pests, pathogens, and invasive non-native species. Between the 1960s and 2020, the number of invasive non-native species established in or along 10% or more of Great Britain's land area has increased in the freshwater, terrestrial and marine environments.

In 2022, the UK has experienced its largest outbreak of bird flu, and infections could rise even higher over this winter. The outbreak has led to the death of 97 million birds globally (3.8 million in the UK). In response and to reduce the impact on the environment and support farmers, we have imposed mandatory housing for all poultry, amended our culling compensation scheme and relaxed the sale regulations of defrosted poultry.

It is estimated that ash dieback, caused by an airborne fungal pathogen, will cost our economy £15 billion in the coming decades and lead to the loss of over 90% of our native ash. *Xylella fastidiosa*, another highly damaging plant pathogen, can affect over 550 plant and tree species, and has had severe impacts in parts of Europe, where it is estimated it has the potential to cause annual production losses of up to €5.5 billion. Its arrival here would have major implications for the nursery sector and the biodiversity of our woodlands.

Moreover, biosecurity threats can become threats to humans as well. Over the past 30 years, more than 30 new,

or newly recognised, human diseases have been identified, including SARS-CoV-2, the virus responsible for COVID-19. Around 70% of these have been zoonoses – diseases that are naturally transmissible, directly or indirectly, from animals to humans.

Our aim is to enhance biosecurity against these threats – to protect public health, wildlife, and farm animals, increase the resilience of our plants and trees, and bolster British trade reflecting the UK's priorities after Brexit.

Targets and commitments

Reducing the establishment of invasive non-native species (INNS)

In 2022, we committed to reducing the rates of introduction and establishment of INNS by at least 50%, by 2030. This supports our delivery of the Convention on Biological Diversity Global Target on Invasive Alien Species.

Upholding high health standards to trading partners

In 2020, we committed to issuing 97% of Export Health Certificates (EHCs) and licences correctly within agreed timeframes. In 2021 to 2022, this was fully met by the Animal and Plant Health Agency (APHA).

Investing in world-leading scientific capability

We will invest in a new Science Capability in Animal Health programme at Weybridge, to protect against future zoonotic disease outbreaks, and bolster our role in fighting current and emerging animal and plant health diseases.

Progress on freedom from bovine tuberculosis

We will continue to implement and enhance our long-term strategy, which aims to secure freedom from bovine tuberculosis for England by 2038.

> We are investing in our Science Capability in Animal Health programme at Weybridge to ensure we are prepared to manage future threats

Our delivery plan

Delivering our biosecurity goal, targets, and commitments will require a range of actions that improve our biosecurity safeguarding and response measures:

1. **Tackling invasive non-native species** – to protect native species and the ecosystems that rely on them.
2. **Protecting and enhancing animal and plant health** – building our capabilities domestically and implementing a new biosecurity regime to protect our borders.

1. Tackling invasive non-native species

Invasive non-native species are one of the top five drivers of biodiversity loss globally. There are around 2,000 non-native species established in Great Britain across terrestrial, marine, and freshwater environments, and the rate of new establishments is increasing as a result of climate change, trade, and other human activity. However, we are leaders in Europe in tackling new establishments, with notable progress towards eradicating nine species, as well as successfully removing 100% of all invasive Asian hornet nests since their first appearance in 2016.

> We have successfully removed all invasive Asian hornet nests since 2016

Case study: The Asian hornet

The Asian hornet (Vespa velutina) is an aggressive predator of honeybees and other insects. In 2004, it was unintentionally introduced to France and has now spread across Europe. It reached the Channel Islands in 2016.

We anticipated its arrival in Great Britain, allowing us to put in place a contingency plan, an alert mechanism encouraging members of the public to report potential sightings and an effective triage system. This allowed us to respond rapidly when it was first detected in GB in 2016. Staff from the Animal and Plant Health Agency quickly found and destroyed the nest in under a week.

While this eradication was successful, there have been repeated introductions over the years, with APHA staff responding to eradicate nests in each case. By the end of 2021, 12 nests had been detected and destroyed, with a maximum number of 3 nests found in a single year. This is in contrast to areas that have not been able to deliver rapid eradication, such as Flanders in Belgium.

We will build on this work to protect against invasive non-native species by:

Delivering an effective response to invasive non-native species

The new **Great Britain Invasive Non-Native Species Strategy** will provide the framework to co-ordinate the actions of government, agencies and external partners. As part of implementation, Defra will:

- Implement Pathway Action Plans which seek to prevent the introduction of invasive species. These plans will coordinate the work done by Defra, by working closely with voluntary organisations, industry and the public to tackle some of the main pathways of introduction, including horticulture, recreational boating, angling, zoos and botanic gardens.

- Enhance enforcement through the continued development of the Non-Native Species Inspectorate which seeks to prevent new species from establishing in GB by improving compliance with existing controls through intelligence-led inspections, and risk awareness raising with trade bodies and businesses. Update the regulatory list of species of special concern to ensure that the most harmful species are regulated effectively, including to control import and sale.

- Implement contingency responses to and eradications of the highest risk species of greatest concern.

- Continue to look for ways to offer funding and support for landowners and local action groups to tackle widespread invasive non-native species, including through our new farming schemes.

- Continue to raise awareness of invasive species biosecurity across organisations, industry bodies, and the general public, recognising that often people are not fully aware of invasive species and their impacts.

Removing invasive non-native species from the water environment

Aquatic species are more invasive than terrestrial ones. To slow the spread of invasive non-native species and limit the impacts on the water environment, Defra will:

- Continue to support the development and deployment of biocontrol, such as introducing the weevil to tackle floating pennywort.

- Maximise the effectiveness of awareness raising campaigns, such as 'Check, Clean, Dry' and 'Be Plant Wise'.

Tackling grey squirrels and their impact

Grey squirrels are a widespread, invasive non-native species and a key threat to our native red squirrel. They outcompete red squirrels for food and can spread the squirrel pox virus to them. The economic cost of damage from grey squirrels to our woodlands, not including costs to our biodiversity, is estimated at £37 million per year in England and Wales.

Since 2014, significant work has been completed to manage the adverse effects of grey squirrels, including:

- Introducing new Countryside Stewardship grants to support landowners to manage grey squirrels in their woodlands.
- Establishing a national partnership, the UK Squirrel Accord which has been essential in taking forward grey squirrel fertility control research.

Further action will be needed. Defra will update the 2014 **Grey Squirrel Action Plan** detailing commitments to support landowners to manage the numbers of grey squirrels and impacts of grey squirrels on woodlands, native biodiversity and ecosystem services more effectively. This includes:

- Embedding effective grey squirrel management into woodland and new farming schemes, including considering funding for capital items, such as traps.
- Encouraging, where appropriate, public bodies and adjoining landowners to work collaboratively with each other to improve the effectiveness of grey squirrel management, such as coordinating the use of traps and other management methods.

2. Protecting and enhancing animal and plant health

We have strengthened protections against threats like Xylella and emerald ash borer

Continue to improve our safeguarding measures

To ensure that trading partners, consumers, and industry can be confident in the UK's biosecurity and high health status, Defra will:

- Implement a new Target Operating Model, that will set out our targeted and risk-based regime of border import controls for goods from the EU and the rest of the world.
- Deliver the **2023 Plant Biosecurity Strategy for GB** - enhancing our horizon scanning, strengthening our regulatory regime, creating more biosecure plant supply chains and encouraging the adoption of more responsible behaviours across society.

- Continue to review and enforce robust measures against Xylella - including controls on countries where Xylella is known to occur, which ban imports of coffee and Polygala, and introduce stringent requirements for the inspection, testing and pre-quarantine of high-risk species such as olive, lavender, rosemary and almond prior to import.

- Ensure outbreak readiness, through the regular update and rehearsal of our contingency plans for responding to and investigating emergency threats to animal and plant health, including Avian Influenza and Xylella.

- Explore additional measures for high-risk tree imports, that are a combination of further prohibitions, enhanced inspections and enforced holding for prescribed periods (in isolation or on nursery sites). This will include rigorous analysis of the evidence, consultation with industry and consideration of land space requirements and operation costs.

- Maintain a robust UK aquatic animal health regime enforced by the Fish Health Inspectorates of the four UK administrations.

- Continue to lead on Antimicrobial Resistance. Sales of antibiotics for use in livestock have reduced by 55% since 2014 to the lowest ever recorded level.

- Through the Animal Health & Welfare Pathway provide advice and financial support for livestock farmers in England in improving on-farm standards of health and welfare, with a key focus on the control or eradication of priority endemic diseases amongst cattle, pigs, and sheep.

- Continue to provide financial support and guidance for landowners to help them manage and recover from tree pests and diseases.

- Publish a revised version of government's **Tree Health Resilience Strategy**, which aims to improve the baseline diversity, health and condition of our trees, woods and forests, and drive the long-term changes needed to adapt to climate change and pest and disease pressures such as ash dieback and the European spruce bark beetle (Ips typographus).

Build our scientific capability and expertise

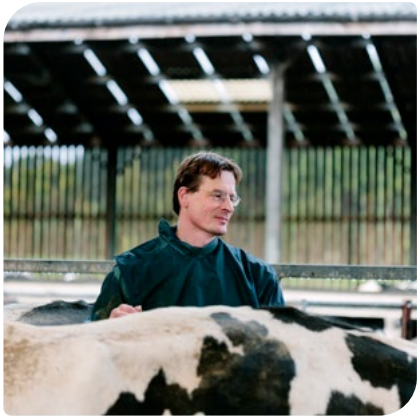
To build science capability and make best use of both existing and innovative technology, keeping pace with changing threats and ensuring preparedness for the future, Defra will:

- Rebuild and provide £200 million for a specific programme of investment in the Science Capability in Animal Health programme at Weybridge. New equipment and specialist testing facilities will mean scientists can identify pathogens for existing and emerging disease threats and maintain our high biosecurity standards against Bovine TB, Salmonella and Avian Influenza.
- Continue to develop the Centre for Forest Protection providing a hub for UK and international research on tree pests and diseases. To understand the genetic variation within our tree population, the potential to optimise traits of interest such as disease resistance, and to support the restoration of threatened species such as elm and ash.
- Ensure a skills pipeline for the next generation of animal and plant health scientists, including new apprenticeship and fellowship opportunities and postgraduate courses.

Maintain progress on managing bovine TB

Bovine TB (bTB) remains a pressing animal health challenge in England. Along with the recent investment in our Weybridge facilities Defra will continue to work towards achieving bTB free status in England by 2038 by:

- Running UK field trials to secure marketing authorisation for a cattle vaccine which can be deployed within the next five years.
- Evolving badger control policy by phasing out the current intensive culling policy and supporting badger vaccination and surveillance.
- Improving diagnostic testing to root out the disease more effectively.



Eradicating bovine TB will ensure healthy cattle for our future

- Incentivising industry behaviours to prevent the spread of bTB through the increased uptake of effective biosecurity measures and managing the risk posed by movement of cattle. This includes funding the TB Advisory Service, which offers cattle keepers free bespoke advice to help reduce the risk of TB, and commissioning TB accreditation schemes through the Cattle Health Certification Standards body.
- Creating partnership across government, industry and stakeholders through more effective governance at every level.

Monitoring and Evaluation

To ensure the **Plant Biosecurity Strategy** is credible, robust and is delivered fully, it is essential that new systems are put in place to assess how we are progressing against the vision, outcomes and commitments set out in the strategy, and to track, measure, and evaluate the strategy fully over its lifetime. We will develop an evaluation framework and provide an update on progress after three years, followed by a final evaluation in five years.

For invasive species, the number of new establishments is tracked by the Non-Native Species Information Portal, which feeds into a relevant indicator in the Outcome Indicator Framework. We are exploring a range of other indicators and metrics for this portal to measure our progress in tackling invasive species, including for the reduction of introductions and changes in the distribution of species.

Defra's Outcome Delivery Plan includes an indicator of the percentage of cattle herds that are bovine tuberculosis free. This is updated quarterly.

We will also monitor progress towards delivering the EIP23 through the Outcome Indicator Framework. The relevant indicators for biosecurity are:

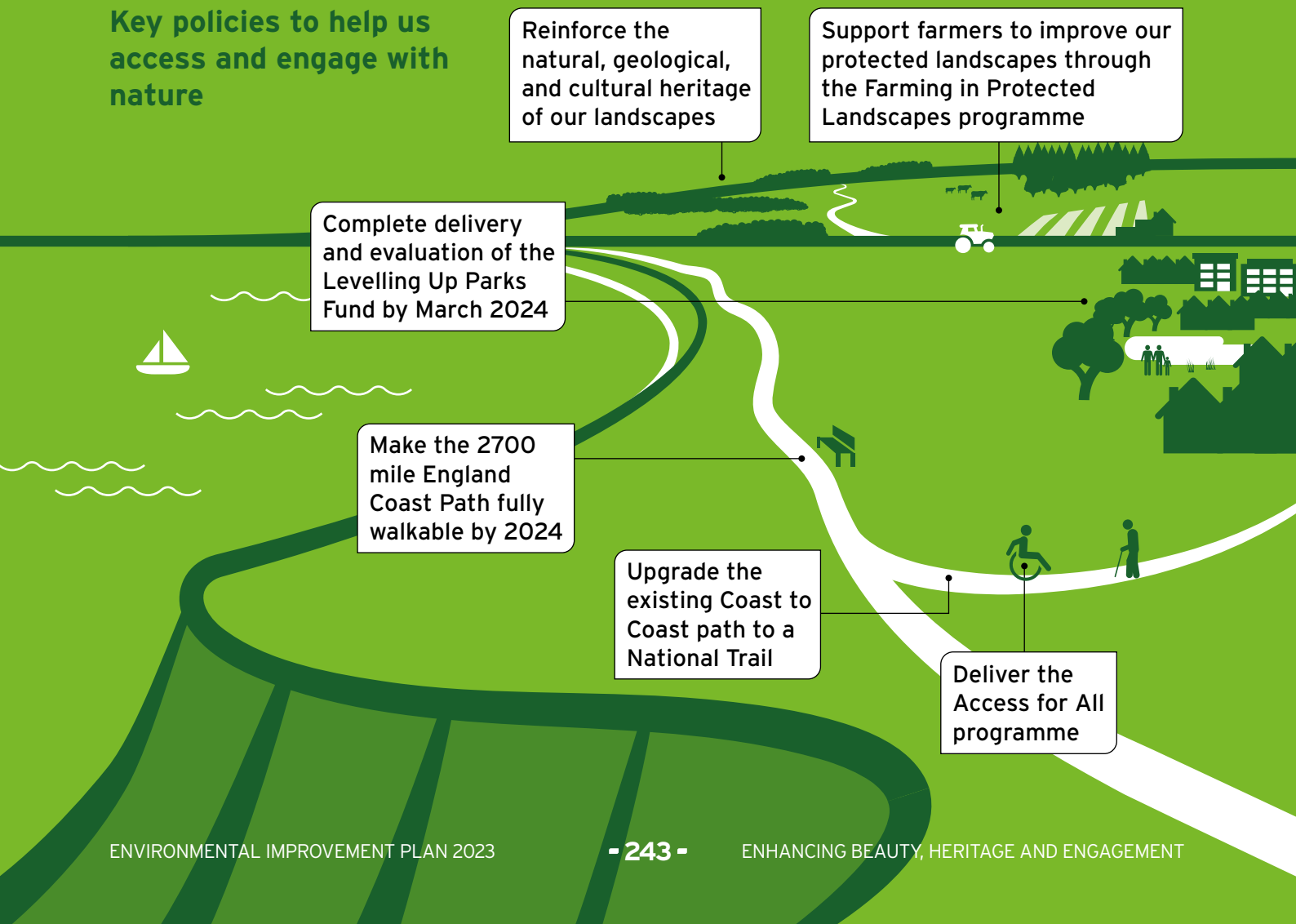
H1 **Abatement of the number of invasive non-native species entering and establishing against a baseline.**

H2 **Distribution of invasive non-native species and plant pests and diseases.**

We work diligently to prevent plant pests and diseases entering our country

Goal 10
Enhancing beauty, heritage and engagement with the natural environment

Key policies to help us access and engage with nature



We all understand that spending time in nature is part of what makes the United Kingdom such a special place.

Our landscapes and coastlines are our national treasures, at the heart of our heritage and the story of these islands – and they have so much to offer our health and wellbeing as well as our economy. We want everyone to enjoy them and appreciate the hard work and way of life of our rural farming communities, so we all play our part in helping nature recover. We also recognise that to restore nature, we need to enjoy its beauty responsibly.

We have made significant progress – including extending the England Coast Path, helping children understand and enjoy wildlife, and improving access to nature for disadvantaged urban communities.

Now, we will do even more – from designating new protected landscapes, to improving green spaces close to where people live, and helping the next generation become champions for nature.

Our 25 Year Environment Plan goal

We will conserve and enhance the beauty of our natural environment, and make sure it can be enjoyed, used by and cared for by everyone.

Since 2018, we have:

- Opened nearly 400 more miles of England Coast Path and published our plans for more than 99% of the route.
- Opened around 250 more miles of walking and cycling routes since 2020, including through the Active Travel Fund and the National Cycle Network upgrade programme, helping more people to enjoy healthy activity in nature.
- Launched the Green Social Prescribing programme to prevent and tackle mental ill health.
- Delivered the Children and Nature programme and Green Recovery Challenge Fund to support children from disadvantaged backgrounds to have better access to nature.
- Launched the Farming in Protected Landscapes programme to enable farmers and other land managers to deliver projects for climate, nature, people and place.
- Launched the Levelling Up Parks Fund to create or significantly refurbish over 100 green spaces. The fund also targeted the 100 most deprived urban communities across the UK which also lack accessible green space.

We have the following targets and commitments:

- Work across government to fulfill a new and ambitious commitment that everyone should live within 15 minutes' walk of a green or blue space.
- Make the England Coast Path fully walkable by the end of 2024.
- Deliver a new National Trail along the route of the Coast to Coast path by 2025.

To deliver these, we will:

- Increase the accessibility of green and blue spaces through the £14.5 million 'Access for All' programme.
- Create or significantly refurbish over 100 green spaces through the Levelling Up Parks Fund.
- Complete our delivery of the England Coast Path and the new Coast to Coast National Trail.
- Green the Green Belt as set out in the **Levelling Up White Paper** by identifying key areas for nature restoration through the roll out of Local Nature Recovery Strategies.
- Invest in a new national landscapes partnership for National Parks, Areas of Outstanding Natural Beauty, and National Trails.
- Extend the delivery of our successful Farming in Protected Landscapes programme, using lessons learned to inform future farming schemes.
- Publish our ambitions for improving the quantity, quality and permanency of woodland access.
- Invest in active travel, with a vision for half of all journeys in towns and cities to be cycled or walked by 2030. £35 million funding has already been committed this financial year.
- Continue to progress assessments to designate two new Areas of Outstanding Natural Beauty (AONB) and two AONB extensions.
- Scale up green social prescribing across the healthcare system.
- Develop the Climate Action Award pilot, and roll out in 2024. This will recognise the achievements of children and young people in taking action to increase biodiversity and develop their skills and knowledge of climate change.
- Deliver a new Natural History GCSE by 2025.
- Continue contributions to targeted grant schemes which support our work on heritage.

Introduction

We want everyone to be able to enjoy our nature and national heritage in landscapes and coastlines across the country. In line with the Countryside Code, we need to respect and conserve nature, and encourage managed access – so that everyone can enjoy and secure those treasures for every generation to come.

Many of the actions we have set out to deliver in EIP23 will, in protecting and improving our natural environment, increase its natural beauty and enable even greater enjoyment of it. In this chapter we have set out how we are taking action for people across the country to increase our connection with the environment that surrounds us. This will in turn encourage greater care for the environment and further action to improve it.

Targets and commitments

We will:

- Work across government to fulfill a new and ambitious commitment that everyone should live within 15 minutes' walk of a green or blue space.
- Make the England Coast Path fully walkable by the end of 2024.
- Deliver a new National Trail along the route of the Coast to Coast path by 2025.
- Continue to work with navigation authorities as appropriate, recognising the value of access to blue space, particularly within inner city environments. For example, announcing future funding for the Canal and River Trust to support local access improvements and awareness.
- Conserve and enhance the natural, geological and cultural diversity of our landscapes, and protect our historic and natural environment for the benefit and enjoyment of future generations.

Our delivery plan

Our actions include:

1. **Improve access to nature** – creating new routes, more green and blue spaces and increasing their accessibility to people of all backgrounds.
2. **Protect our landscapes and their heritage** – recognising the pride in place that comes with embracing shared histories in communities across the country, and particularly the role that farmers play as the original custodians of the land.
3. **Nature for wellbeing** – connecting with nature as a way of improving physical and mental health.
4. **Connecting children and nature** - boosting the number of young people who can connect with nature.

> We will make the England Coast Path fully walkable by the end of this Parliament

1. Improve access to nature

Improve routes to and through nature

Paths to and through nature improve access, creating ways to enjoy nature responsibility and safely, providing significant benefits to people's health and to the economy. Physical health benefits from active visits to National Trails alone are estimated to save the NHS between £46 and £107 million per year.

We have:

- Opened nearly 400 more miles of the England Coast Path since 2018 and published our plans for more than 99% of the route.
- Published our proposal for the new Coast to Coast National Trail.

We will:

- Have a fully walkable new 2700-mile England Coast Path by the end of 2024.
- Upgrade the existing Coast to Coast route between St

Bees and Robin Hood's Bay to a National Trail. We will make the path more accessible to people of different abilities. We will also develop link routes and circular routes to provide more options for users and work to improve inclusivity for visitors on bikes, mobility scooters, wheelchairs and on horseback.

- Continue to develop policy to add more accessible routes to and through nature and enhance existing ones.

Create more green and blue spaces and enhance existing ones, and support responsible access and behaviour

Alongside improving access routes, we also need to create more green and blue spaces. This will help ensure that everyone has the opportunity to connect with nature.

Everyone should have the opportunity to connect with nature

We have:

- Launched the £9 million Levelling Up Parks Fund to improve the equality of access and quality of green space in over 100 neighbourhoods across the UK, identified through the Index of Multiple Deprivation. The fund includes £2 million from Defra to support tree planting parks.
- Refreshed the Countryside Code, including a version for countryside visitors and a version for land managers, so that everyone can enjoy and benefit from nature while giving it the respect it deserves.

We will:

- Continue to develop policy to increase the amount of high quality green and blue spaces for people to enjoy, in both rural and urban settings, and to support responsible, permissive access to nature.
- Continue to promote the refreshed Countryside Code with key partners including the National Farmers Union, Country Land and Business Association and the Campaign to Protect Rural England.
- Green the Green Belt as set out in the **Levelling Up White Paper** by identifying key areas for nature restoration through the roll out of Local Nature Recovery Strategies.

Create more woodland, and improve access to new and existing woodland

The annual mental health benefits associated with visits to the UK's woodlands are estimated to be £185 million, and for England specifically, visits are estimated to save the NHS £141 million per year in reduced treatment costs.

We have:

- Supported land managers to provide woodland access through our Countryside Stewardship and England Woodland Creation Offer schemes.
- Published the **Local Authority Tree and Woodland Strategy Toolkit,** providing guidance for local authorities to develop effective tree and woodland strategies to harness the long-term benefits that trees can bring to local communities, including for public access.
- Invested over £250 million across the Urban Trees Challenge Fund, Local Authority Treescapes Fund and via England's Community Forests and our Woodland Creation partners to support tree planting and regeneration in urban and peri-urban areas, particularly in areas with high levels of social and tree canopy deprivation. In 2022, 82% of the woodlands planted by England's Community Forests have full or partial public access.

> The annual mental health benefits associated with visits to the UK's woodlands alone, are estimated to be £185 million

To take this further, we will:

- Continue to work with land managers, businesses, civil society bodies and community groups to encourage greater access to existing woodland and incentivise woodland creation, including in and around towns and cities.
- Work with local authorities and relevant parties to ensure urban tree planting is well designed, delivers multiple benefits and avoids trade-offs, such as issues for air quality and human health.

As committed in the **England Trees Action Plan**, publish our ambitions for improving the quantity, quality, and permanency of woodland access, including how we will:

- Improve information and data on current provision of woodland access for all uses and rights; their proximity to people, and the communities they might support to allow better targeting of resources and provide better information to the public.
- Consider options to review existing forest road infrastructure on the public forest estate and consider extending access rights and opportunities for cyclists and horse-riders across this estate.

Support the development of green infrastructure

Good quality green infrastructure is important for health and wellbeing, air quality, nature recovery and for delivering net zero targets, as well as for adapting to climate change by providing urban cooling and reducing flood risk. It can help to address issues of social disparities and environmental decline, whilst also making better places to live.

Good quality green infrastructure is important for health and wellbeing, air quality, nature recovery and for delivering net zero

We have:

- Launched the Green Infrastructure Framework: Principles and Standards for England. This will help local planning authorities and planning developers to create or improve green and blue infrastructure, particularly where provision is poorest.
- Updated the Outdoor Recreation Valuation Tool (ORVal) model. This tool is used to demonstrate in monetary terms the recreational value of parks and paths. We have also published detailed analysis of this model.

We will:

- Monitor and evaluate the impact of the Green Infrastructure Framework.
- Support local authorities and developers to understand what good access means and how it can be improved.
- Encourage more urban street trees, using the amended National Planning Policy Framework which has an expectation that all new streets are tree-lined and that opportunities are taken to include trees elsewhere in developments (such as through parks and community orchards). Urban trees can intercept

rainwater and regulate storm water run-off, clean air through trapping particulate air pollution, sequester carbon and provide valuable community spaces.

Make green and blue spaces more inclusive and support more people to benefit from nature

Green and blue spaces can support communities through providing opportunities for a diverse range of people to connect with nature. We know that over 90% of adults report that time spent outdoors is good for their physical and mental health. Currently, 38% of people do not have green or blue space within 15 minutes' walk of their home.

That is why we are setting a new and ambitious commitment to work across government and beyond to ensure that anyone can reach green or blue space within 15 minutes from their front door. We will track our progress against this commitment by using our new Green Infrastructure Framework. In parallel, we will work to reduce other barriers which prevent people from accessing green and blue spaces, such as physical challenges, lack of confidence and lack of information.

The Access for All programme will increase access to green and blue spaces across the country

Defra has run the £80 million Green Recovery Challenge Fund (GRCF), to enable a range of outdoor activities in nature across England. This includes the Generation Green project which was awarded £2.5 million to provide more opportunities to connect young people from diverse backgrounds to nature – many for the first time.

We are committed to making improvements to the accessibility of green and blue spaces, so that everyone can enjoy the benefits they bring. We will:

- Drive accessibility improvements through our delivery programmes, for example by continuing to make the England Coast Path as accessible as possible and doing the same for the new Coast to Coast National Trail.
- Continue to promote sport and physical activity in green and blue spaces in order to support health and wellbeing.

We will deliver the £14.5 million 'Access for All' programme, including:

- Targeted improvements to increase access to green and

blue spaces in our most deprived urban areas through our Forests for Everyone and Active Forests Programmes.

- A review of maps of open access land so that as many people as possible can take advantage of this national asset.
- Improving accessibility in national landscapes such as new gates, walking routes, inclusive cycles, E-trikes, bikes or wheelchairs.
- Improvements to our network of National Trails to make sure that these can be enjoyed by as many people as possible.

Invest in active travel

The Department for Transport are investing in active travel. This includes delivering thousands of miles of safe, continuous routes for cycling and creating Active Travel England to support local authorities to deliver ambitious and transformational schemes. Around 250 more miles of walking and cycling routes have been opened since 2020.

To take this further, the Department for Transport and Active Travel England will:

- Invest in active travel, with a vision for half of all journeys in towns and cities to be cycled or walked by 2030. £35 million funding has already been committed this financial year.
- Continue to fund Sustrans for the National Cycle Network, aiming to deliver improved surfacing, widened paths and greater accessibility, such as the removal of barriers that impact disabled people and cyclists.

Connecting with nature helps improve physical and mental health

2. Protect our landscapes and their heritage

Enhance nature outcomes for National parks and Areas of Outstanding Natural Beauty (AONBs)

Our Protected Landscapes comprise nearly 25% of England's entire land area. They are incredibly diverse landscapes which are integral to the health of the climate, wildlife, and people.

Since 2018 we have:

- Helped to establish and scale up National Trails UK, to enable our National Trails to represent themselves jointly for the first time.
- Begun work on a national landscapes partnership to tackle common objectives such as nature recovery and improved public access.
- Launched a landmark programme for Protected Landscapes. This includes proposals for new Protected Landscapes to safeguard more of England's beautiful and iconic landscapes and actions to drive nature recovery. We have also launched a new all England mapping tool.

We will:

- Invest in a new National Landscapes Partnership to enable National Parks, AONBs and National Trails to collaborate more closely on national priorities such as improving nature and access for all parts of society. This will include building capacity in National Parks Partnerships and the National Association of AONBs to generate more private finance to deliver more for nature, climate, people, and place.
- Provide new guidance to strengthen Protected Landscapes' management plans, promoting the importance of supporting thriving local communities and access for all, alongside climate change mitigation and adaptation and nature recovery.
- Support the National Association of Areas of Outstanding Natural Beauty (AONB) to rebrand AONBs

as National Landscapes. This will reflect renewed values and boost understanding of their national significance with more diverse communities, including residents, partners and visitors.

- Continue assessments to designate 2 new AONBs and 2 AONB extensions.
- Use the All-England mapping tool to identify landscapes to improve nature and access.
- Develop an accreditation model for towns and cities to improve access to green and blue space in areas with high environmental and social need. This will set a recognised standard for locally-led action to aspire to, with up to 6 pilots to be launched in 2023.

Support farmers and landowners to improve our Protected Landscapes

In July 2021, we launched the Farming in Protected Landscapes (FiPL) programme with over £50 million of funding until March 2024. Farming in Protected Landscapes enables Protected Landscapes (National Parks and AONBs in England) and farmers to work together to deliver projects across 4 themes: Climate, Nature, People and Place.

The Farming in Protected Landscapes programme has supported over 1,800 projects so far

We have:

- Supported over 1,800 projects and accelerated delivery in Protected Landscapes to meet the 30 by 30 commitment.
- Funded almost 200 projects supporting public engagement, 150 projects to make the landscape more inclusive for visitors and restored nearly 6km of drystone walls in the first year.
- Engaged nearly 2,000 farmers at the programme midpoint.

In recognition of the positive feedback and outcomes delivered by FIPL, we will be extending the programme with £10m additional funding each year until March 2025. This will enable us to continue to support the important role that protected landscapes play in delivering our commitments. We will continue to learn from FiPL and work to ensure the best concepts of FiPL are integrated within future environmental land management schemes within Protected Landscapes.

Conserve and enhance our natural heritage

We need to make sure we continue to conserve our natural heritage. Funding will play an important role. In 2019 England's heritage sector generated an estimated Gross Value Added (GVA) contribution of £14.7 billion to UK Gross Domestic Product, with every £1 of GVA generated supporting an additional £1.50 of GVA in the wider community. Heritage provides people with a sense of belonging and contributes to increasing their quality of life. It also brings tourism, giving local people a sense of pride in their community and place.

Targeted grant schemes which support our work on heritage, include:

- Ongoing Countryside Stewardship funding which has enabled us to remove 195 sites from the Heritage at Risk register since 2018.
- The National Lottery Heritage Fund which has awarded over £1.8 billion to more than 4,200 land, nature and biodiversity projects across the UK since 1994. The Fund awards 20% of its funding to heritage projects and 40% to community projects, including environmental projects.
- The £8 million Historic Buildings Restoration project has funded the restoration of 126 historical buildings in selected National Parks.
- The £95 million Cultural Development Fund (CDF), which invests in innovative locally-led projects in the cultural, creative industries and heritage sectors.
- The National Academy for Social Prescribing's Thriving Communities, which has awarded £1.8 million to encourage use of cultural and heritage projects alongside nature to benefit the wellbeing of communities.

To take this further, Defra and the Department for Digital, Culture, Media & Sport (DCMS) will:

- Continue to provide support through existing schemes and through the development of future farming schemes. This will include securing a legacy for the woodland access created through the Nature for Climate Fund Tree Programme.
- Continue to support existing and new UNESCO Global Geoparks, Biosphere Reserves and World Heritage Sites.

Conserve our Geoheritage

England has many important geological sites that have considerable scientific, educational and heritage value.

We have already supported the recently designated Black Country UNESCO Global Geopark in the West Midlands, through the declaration of the Saltwells National Nature Reserve (NNR), a former quarry. This illustrates the links between geoheritage, the industrial history of Dudley, and a place widely used by the local community for walking and exploring the natural world.

We will continue to provide opportunities for people to experience geoheritage through our network of National Nature Reserves.

Include considerations of marine heritage and ensure that heritage is considered in future marine plans

We need a strong evidence base with ecological, societal, and economic information brought together in a holistic way. This will improve our understanding and help us make better decisions about the marine environment.

We will:

- Run the marine Natural Capital and Ecosystem Assessment (mNCEA) programme. The programme has started to review evidence on the cultural value of UK fisheries and demonstrate the strong ties that fishers and their communities have with their fishing work and their surrounding urban and natural landscapes.
- Work to ensure the marine historic landscape and historic sites are considered in future marine plans, which guide and direct licensing decisions in the waters adjacent to England.

The Marine Management Organisation will work with Historic England.

The ocean is our most interconnected ecosystem

3. Nature for wellbeing

Incorporate the use of green and blue spaces into the healthcare system

The evidence is clear that spending time in nature is beneficial for our physical and mental health and the Government recognises the importance of improving access for all to green and blue spaces. Creating new greenspace, preventing loss of existing greenspace, and making them more inclusive, accessible and better quality could help to deliver improved population health outcomes, reduced health disparities and environmental sustainability.

We have already launched the world's first strategy to tackle loneliness, which recognises the crucial role which green and blue spaces can play in combating loneliness and fostering community participation and cohesion. Since 2018 we and our partners have:

- Invested over £50 million in tackling loneliness.
- Reached millions of people through national communications.
- Developed a network of over 150 organisations to join us in this work.
- Launched the £5.77m cross government 'Preventing and tackling mental ill-health through green social prescribing' programme to examine how to increase use and connection to the natural environment through referral to green and/or blue social prescribing to improve mental health. The programme has recorded over 6,000 referrals to activities so far, and is gathering evidence on the effectiveness of green social prescribing and how best to implement it. Emerging findings from the programme are encouraging, showing significant improvements in participants' mental health.

But we are taking this further, and will:

- Explore options for how best to embed green social prescribing, including across multiple healthcare pathways.

- Drive the roll-out of social prescribing more broadly, so that at least 900,000 people will be referred to social prescribing by 2023 to 2024.
- Work with the National Lottery Community Fund and Groundwork to develop a Northern Network of 5 Green Community Hubs in high deprivation areas as centres for nature-based activities for green social prescribing.

Case Study - National Education Nature Park and Climate Action Award

School land in England covers an area over twice the size of Birmingham. We will encourage education providers to think of this land, the Nature Park, as one whole 'Park'. This will enable the education estate to play its part in increasing biodiversity and give children and young people the opportunity to take action to improve their environment while developing a connection to nature, learning about their surroundings and enhancing key numeracy and data science skills.

The Nature Park will also provide access to digital mapping tools to enable nurseries, schools and colleges to map their existing biodiversity and report on progress whilst developing digital skills. Over time, this will provide valuable data on biodiversity for use across government, with researchers and bioscientists.

The Climate Action Award will recognise the achievements of children and young people in taking action to increase biodiversity and develop their skills and knowledge of climate change. This will be piloted during academic year 2022/23 with a view to national roll out in 2023/24.

The Natural History Museum is leading a consortium of organisations, including the Royal Horticultural Society, the Royal Society, the Royal Geographical Society, Manchester Metropolitan University, Learning Through Landscapes, the UK Centre for Ecology and Hydrology and the National Biodiversity Network Trust to develop the Nature Park and Climate Action Award.

4. Connecting children and nature

Increase the number of children connecting with nature through school

School land in England covers an area over twice the size of Birmingham. Access to green space for children is associated with improved mental wellbeing, overall health, improved behaviour, cognitive development and is even associated with higher standardised test scores. We will work closely with the Department for Education to build on the learning from the Children and Nature Programme by continuing to research how best to deliver outdoor learning. Since 2018, we have completed the Children and Nature Programme to support children in their attendance and engagement with school, attainment and mental health and to support an increase in care farming places which involves providing farm-related therapeutic activity with people with defined needs.

The Department for Education will:

- Ensure learning in and about nature happens at every level of education; for example, by supporting teaching on climate change via the curriculum and by putting in place a new occupational standard for further education teachers to build sustainability into their teaching by 2023.
- Encourage education providers to think of school land as one whole 'National Education Nature Park'. This will give children and young people the opportunity to take action to improve their environment including through increasing its biodiversity, learning about their surroundings, and enhancing key numeracy and data science skills.
- Develop the Climate Action Award pilot, with a view to national roll out in 2023 to 2024. This will recognise the achievements of children and young people in taking action to increase biodiversity and develop their skills and knowledge of climate change.
- Deliver a new Natural History GCSE by 2025. The estimated annual value of environmental knowledge in 2010 was £2.1 billion through its contribution to greater lifetime earnings that are associated with educational qualifications in relevant subjects.

We want nature to be part of everyone's childhood

There were around 2,900 environmental related educators in the UK as of 2019

Monitoring and evaluation

We will monitor progress towards delivering the EIP23 through the Annual Progress Report and the Outcome Indicator Framework. The framework contains 66 indicators, arranged into 10 broad themes. The relevant indicators for enhancing beauty, heritage and engagement with the natural environment are:

- **G1** **Changes in landscape and waterscape character.**
- **G2** **Condition of heritage features including designated geological sites and scheduled monuments.**
- **G3** **Enhancement of green/blue infrastructure.**
- **G4** **Engagement with the natural environment.**
- **G5** **People engaged in social action for the environment.**
- **G6** **Environmental attitudes and behaviours.**
- **G7** **Health and wellbeing benefits.**

Since 2018 we have also introduced a monitoring programme for our most important geological sites. We will also develop a Standard Evaluation Framework for examining the health impacts of outdoor interventions, so we can consistently measure the public health impacts from our work to increase access to the outdoors.

Nature is good for the soul

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