HM Government

Government response to the Climate Change Committee

2021 Report to Parliament – Progress in adapting to climate change

Presented to Parliament pursuant to Section 37
of the Climate Change Act 2008

October 2021

HM Government

Government response to the Climate Change Committee

2021 Report to Parliament – Progress in adapting to climate change

October 2021

This publication is available at www.gov.uk/official-documents.

Any enquiries regarding this publication should be sent to us at climate@defra.gov.uk.

ISBN 978-1-5286-2945-4

E number E02675875 10/21

Printed on paper containing 75% recycled fibre content minimum

Printed in the UK by APS Group and HH Associates Ltd. on behalf of the Controller of Her Majesty's Stationery Office

Contents

Executive summary

The UK average surface temperature has already warmed by 1.2°C since the pre-industrial period, and is predicted to warm further by mid-century, even under an ambitious decarbonisation scenario.[1] While we accelerate efforts towards net zero, the Government will continue to take robust action to ensure the country is well prepared to face the challenges, and maximise the opportunities, that a changing climate brings.

In the UK we are already seeing the significant impacts of climate change. 2020 was the first year to fall in the top-10 for all three variables: temperature, rainfall and sunshine; and extreme weather events have included the UK's third warmest day and two of the three wettest days on record.[2] The work that the Climate Change Committee (CCC) does to highlight the projected impacts of current and future climate risks is critical to informing the Government, and wider, action. The Government's next National Adaptation Programme will address these risks, and will aim to continue to build a more resilient nation.

The COVID-19 pandemic has taught us the importance of preparing for and building resilience to systemic risks. It has also shown the powerful role that nature can have in helping communities to recover. The Government has used the recovery phase as an opportunity to reassess existing approaches and ensure adaptation forms a key part of our green, resilient recovery, including through the Green Recovery Challenge Fund. The key actions highlighted below, and others, are essential as we deliver an ambitious, inclusive COP26 in November, where we will join our global partners in championing action to ensure a more resilient future.

Taking the CCC's Progress Report on adaptation together with its Independent Assessment of UK Climate Risk, the Government accepts the central message that it must take greater action to build resilience to the impacts of climate change. The Government considers climate change adaptation to be a priority and looks forward to working with the CCC and others in further strengthening our preparedness for climate risks and opportunities across all sectors.

Over the past two years the Government has made progress in adapting to climate change in line with the CCC's recommendations. Sectoral highlights include:

[1] Independent Assessment of UK Climate Risk (2021)
[2] The Met Office's 2021 State of the UK Climate report

- **Natural Environment** – The Government has driven forward ambitious policies to support the protection, enhancement and resilience of the natural environment and the mobilisation of nature-based solutions to tackle climate change. The landmark Environment Bill, which will enshrine the 25 Year Environment Plan (25YEP) on a statutory footing, will include a historic legally binding target to halt the decline in species abundance by 2030, while the England Peat and Trees Action Plans each lay out the Government's vision for more sustainably managed and resilient peatlands and woodlands. The environmental land management schemes will be key mechanisms for enhancing our natural landscape's resilience and its adaptive benefits to society, by rewarding farmers for their roles as environmental stewards and improving the resilience of their agri-businesses as well. The Government has also invested significant funding into nature, including the £640 million Nature for Climate Fund and £80 million Green Recovery Challenge Fund.
- **Infrastructure** – The Government is working with nearly 100 public bodies and businesses to report on activities to strengthen their resilience to climate change. The Adaptation Reporting Power focuses on a range of critical sectors, such as rail, road, energy, water, cultural and heritage, natural environment and finance. In the water sector, the Government has developed a new Strategic Policy Statement for Ofwat, the water sector regulator. Subject to consultation, this puts resilience, including to the impacts of climate change, at the heart of the regulator's priorities, building on Ofwat's statutory resilience objective.
- **People and the Built Environment** – The Government is working to ensure homes are fit for the future. The Heat and Buildings Strategy highlights the need to consider key risks including overheating, indoor air quality, flood risk and water scarcity when developing future policies to future-proof buildings, in addition to the importance of active and passive cooling measures. The Future Buildings Standard consultation sets out proposals to reduce the risk of overheating in new residential buildings by introducing a new overheating mitigation requirement in the Building Regulations. In addition, the Government is conducting research to understand the future cooling demand in buildings in different climate scenarios, and has committed to making changes to the Flood Re scheme, to allow insurers to help flooded households make their homes more resilient to future flooding.
- **Business and Industry** – The Government is implementing economy-wide, climate-related financial disclosures for businesses and investments products, which will support investment decisions to be aligned with our transition to a lower-carbon, climate resilient economy – not just in the UK, but globally. Large firms will be required to report on their impact on climate and the environment – and the risks these pose to their business. This will be supported by the Green Technical Advisory Group and a UK Green Taxonomy, a common framework for determining which activities can be defined as environmentally sustainable. The Green Taxonomy will help clamp down on greenwashing – unsubstantiated or exaggerated claims that an investment is environmentally friendly – and make it easier for investors and consumers to understand how a firm is impacting the environment.
- **Local Government** – The Association of Directors of Environment, Economy, Planning and Transport (ADEPT), in conjunction with the Defra-hosted Local Adaptation Advisory Panel (LAAP), has published adaptation guidance for all local authorities. This good practice guide outlines practical steps to enhance

local resilience and can be used by authorities new to adaptation, or those who are more experienced in this field. ADEPT has also published its blueprint to accelerating resilience to climate change risks and green recovery at the local level. Adaptation should be mainstreamed across all sections of society, and is fundamentally place-based. Local authorities and communities have a critical role to play in developing community resilience.

- **International Dimensions** – The Integrated Review has committed the Government to publish a resilience strategy. This will set out how the UK can improve its resilience to a wide range of risks, including climate change impacts. The transnational nature of many of these risks means that no single government can address them alone; the Government will continue working with international partners, recognising that a resilient UK is crucial to global resilience and vice versa.
- **Research** – The UK is a world leader in climate science, developing extensive research and innovation capabilities over the past few decades to ensure policies are built upon a robust, ever-growing evidence base. Key examples of activities and funding in recent years include the updated set of UK Climate Projections (UKCP18), world-leading projections developed by the Met Office Hadley Centre with funding from Defra and BEIS. These provide locally relevant climate change information on a similar resolution to that of weather forecast models (2.2km), and provide a key tool to help the Government, businesses and the public understand the future climate and enable them to make climate-resilient decisions. More broadly, the £18.7 million UK Research and Innovation and Met Office Strategic Priority Fund (SPF) on Climate Resilience continues to deliver research excellence, ensuring it achieves its multidisciplinary aims to address research gaps identified in the second Climate Change Risk Assessment.

Adapting to climate change is a whole-of-government challenge, requiring a collaborative, joined-up approach. Fully considering the risks that climate change poses to the successful delivery of government policies, programme and investments will prevent them from becoming devalued or made obsolete as our climate changes. The Government has taken steps to strengthen its underpinning governance and mechanisms to support this approach and drive systematic and robust adaptation efforts across government. Examples include:

- Updating the Government's Green Book Supplementary Guidance on Accounting for the Effects of Climate Change[3] to set out how Government should embed consideration of climate change risks and opportunities in policy, programme and investment decisions, drawing on climate evidence and assessments;
- Publishing the UK's Adaptation Communication,[4] making the UK one of the first countries in the world to fulfil a key commitment of the Paris Agreement. The Communication sets out what the UK is doing to prepare for the effects of climate change at home, and support those facing impacts overseas;

[3] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/934339/Accounting_for_the_Effects_Of_Climate_Change_-_Supplementary_Green_Book_..._.pdf

[4] https://www.gov.uk/government/publications/the-uks-adaptation-communication-to-the-united-nations-framework-convention-on-climate-change-unfccc-2020

- Establishing new government-wide adaptation governance to provide senior-level oversight and strategic direction on the delivery of statutory duties on adaptation and resilience policy across the Government; and
- Establishing a project with the Organisation for Economic Cooperation and Development (OECD) which seeks to tackle the challenges faced in the UK and internationally on the monitoring of adaptation progress.

The Government is now preparing for the next National Adaptation Programme. The CCC has set out clearly ten principles for good adaptation, which the Government will follow, building on the achievements made to date, and ensuring that climate risks are robustly addressed. In the meantime, the Government will act to address the eight highest priority risk areas, highlighted in the CCC's Independent Assessment of UK Climate Risk,[5] and will report on progress made in 2023.

[5] https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/

Introduction

2021 is a significant year for adaptation on the international stage. As incoming president and host of the 26th United Nations Climate Change Conference (COP26), which will be held in Glasgow in November, increasing ambition and action on adaptation and loss and damage is a top priority for the UK. The Government is encouraging countries and non-state actors to put climate risk at the centre of decision making, prioritise national adaptation planning, enable action at the local level, and increase the availability, efficiency and accessibility of adaptation finance. The Government is urging all countries to do more to prepare for the impacts of climate change and increase the resilience of all communities - particularly the most marginalised.

The UK was among the first countries to legislate for climate change adaptation. The Climate Change Act 2008 (the Act) provides a legally binding framework to cut UK greenhouse gas emissions as well as a framework for building the UK's ability to adapt to a changing climate. This framework allows us to track the diverse and challenging set of climate risks our country faces, and to develop a co-ordinated response to the challenges. In terms of adaptation to climate change, the Act requires:

- **A UK-wide assessment every five years of the risks and opportunities for the UK arising from climate change.** The second UK Climate Change Risk Assessment (CCRA) was published in January 2017 and outlines the UK and devolved governments' views on the key climate change risks and opportunities that the UK faces today.[6] Drawing on the evidence collated in the CCC's Independent Assessment of UK Climate Risk published on 16th June, UK and devolved Governments are now working to prepare the third CCR A for publication in January 2022. This report will state the Government position relative to the CCC's evidence and advice.
- **A programme for climate change adaptation to address the risks identified in the CCRA to deliver resilience to climate change on the ground.** The

[6] UK Climate Change Risk Assessment 2017 https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2017

second National Adaptation Programme (NAP),[7] covers England and reserved matters, and was published in July 2018, setting out the UK Government's objectives, proposals and policies for responding to the risks identified in the 2017 CCRA. The UK and devolved governments are now preparing for the third NAP.

- **A strategy for use of the Act's Adaptation Reporting Power (ARP),** to invite or direct organisations such as infrastructure providers and key public bodies to report on their climate change risks and what they are doing to address them. In July 2018, alongside the NAP, the Government published the third Adaptation Reporting strategy. The Government is working closely with reporting organisations to ensure that the current cycle of reporting, which runs between 2019 and 2021, helps improve adaptation in key sectors and contributes to the development of the National Adaptation Programme.

The Act also established the Adaptation Sub-Committee of the CCC,[8] commonly known as the 'Adaptation Committee' (AC).[9] Its role is to provide independent advice on the preparation of the UK CCRA, to report biennially to Parliament on the UK Government's progress in the implementation of the NAP, and to advise the devolved administrations, as required.

The CCC's 2021 Progress Report on Adapting to Climate Change was published alongside its annual assessment on progress towards emissions reduction targets. The Government is responding in parallel to these two assessments. This document sets out the Government's response to the Progress Report and the CCC's recommendations on adaptation, and should be read alongside the Net Zero Strategy, which includes the Government response to the CCC on Reducing Emissions. Some recommendations are relevant to both, and departments have worked closely to develop shared responses to reflect this. This is in recognition that policies supporting net zero should be made resilient to current and future climate change risks, to prevent locking in future vulnerabilities, unintended consequences and maladaptation. For example, the Government must consider the impact that climate change will have on the suitability of our land for different uses, such as the impact of hotter, drier summers and warmer, wetter winters on agriculture, habitat restoration and forestry. Likewise, resilience to weather extremes must be built into the energy systems and infrastructure which will support net zero, from conception.

The Government welcomes the CCC's constructive assessment, in recognising areas of good progress, notably on the policies and strategies in the Government Policy Statement and National Strategy on flood and coastal erosion risk management, and investment in river and coastal flood alleviation, as well as recommendations, and reflections on areas for further development. The Government's response addresses the CCC's recommendations and highlights a range of important developments

[7] The second National Adaptation Programme and the third strategy for climate adaptation reporting (2018) https://www.gov.uk/government/publications/climate-change-second-national-adaptation-programme-2018-to-2023

[8] The CCC is referred to throughout this document. This includes the functions of the Adaptation Committee (AC).

[9] This report will refer to the Committee on Climate Change (CCC) and the Adaptation Committee (AC)

which will support progress over the coming months and years in all sectors, including our communities, businesses, and natural environment.

The Government's engagement, including with delivery partners, business, local government, research bodies and the public, is key as we work together to strengthen the resilience of the nation. Examples where the Government has worked in partnership to make progress against the CCC's recommendations include through:

- The Local Adaptation Advisory Panel (LAAP), a forum for dialogue on climate change adaptation between local authorities, central government and delivery bodies;
- The Infrastructure Operators Adaptation Forum (IOAF), a network coordinated by the Environment Agency, aiming to reduce vulnerability and realise opportunities around interdependencies between infrastructure systems;
- Supporting and building the capability of organisations reporting under the third cycle of the Adaptation Reporting Power (ARP), which opened in January 2019 and runs until December 2021. Over 90 organisations providing infrastructure and other services have confirmed their participation so far, including for the first time all four financial regulators.
- Facilitating and nurturing research endeavours with organisations like the Met Office and UK Research and Innovation (UKRI) to deliver cutting edge programmes that have not just informed domestic approaches, but also set examples for the international community, feeding into bodies such as the Intergovernmental Panel on Climate Change (IPCC) and World Meteorological Organisation (WMO).
- The £150 million Flood and Coastal Resilience Innovation Programme which supports 25 locations to bolster resilience to flooding and coastal change through innovative actions.

The 2021 Progress Report comes at an important moment, mid-way through delivery of the second five-year NAP, and as the Government begins to look forward to the third cycle of adaptation planning under the Climate Change Act 2008.

As part of this third cycle of planning, on 16 June the CCC published their latest Independent Assessment of UK Climate Risk.[10] This offers a detailed and up to date insight into the growing risks and opportunities to the UK from climate change and will help inform greater ambition and action on enhancing resilience. It sets out 61 risks and opportunities across a range of sectors, most of which are in the highest urgency category. It also sets out the importance of integrating adaptation into policies, including for net zero, and in taking early action to prevent lock-in or avoid irreversible changes.

The CCC's Independent Assessment of UK Climate Risk will inform the third UK CCRA, due for publication in January 2022. This states the Government's position relative to such advice and marks the formal end of the third CCRA cycle.

The Government fully recognises the urgency outlined in the CCC's Independent Assessment and will carefully consider and respond to the CCC's findings and

[10] CCC's Independent Assessment of UK Climate Risk: https://www.ukclimaterisk.org/

recommendations, paying particular attention to the eight priority risk areas which have been flagged by this report. The third CCRA will ultimately facilitate the development of an ambitious and effective third NAP, to build a more resilient country, and the Government welcomes the CCC's advice on principles for the next NAP.

Response to recommendations

Here the Government provides detailed responses to each of the Climate Change Committee's (CCC) recommendations made in the Progress Report. Additional progress data can be found in an updated National Adaptation Programme (NAP) Actions Tracker, provided to the CCC by the Government, and published alongside the 2021 Progress Report.[11] The tracker also sets out new actions in response to the priority risks and opportunities of the second Climate Change Risk Assessment (2017), including new actions in response to the International Dimensions.

Overarching Recommendations

1. Ensure all policy decisions, and procurement decisions, are consistent with the Net Zero goal and reflect the latest understanding of climate risks.

Now and ongoing

In the last two years the Government has made important commitments to significantly strengthen the governance for net zero and climate adaptation. Net zero and adaptation are at the heart of government decision-making and this is driven, first and foremost, by the Prime Minister. Two Cabinet committees were established in 2020. The Prime Minister chairs the Climate Action Strategy Committee which considers matters relating to the delivery of the UK's domestic and international climate strategy. The COP26 President chairs the Climate Action Implementation Committee which considers matters relating to the delivery of COP26, net zero and building the UK's resilience to climate impacts.

With regards to policy decisions, the Green Book sets out guidance on how to appraise policies, programmes and projects, to help public servants give objective advice to decision makers. Achieving net zero is both a policy objective and a legal requirement and is already considered in the existing Green Book methodology, alongside climate change adaptation. When setting out the strategic case for a policy, achieving net zero is regarded as an objective for any relevant proposals and as a legal constraint on all proposals. Also, as part of the economic case, the Green

[11] https://www.theccc.org.uk/wp-content/uploads/2021/06/CCC-Second-NAP-Monitoring-Action-Tracker.xlsx

Book requires an assessment of environmental costs and benefits to objectively advise decision makers about these impacts.

The 25 Year Environment Plan recognises that, in order to achieve the Government's 25-year goals, we need to adapt to climate change and ensure that all policies, programmes and investment decisions take into account the possible extent of climate change this century. The Green Book Supplementary Guidance on Accounting for the Effects of Climate Change supports the appraisal of climate risks and the necessary adaptation of policies, programmes and projects to include climate resilience and consider flexibility in decision making. Taking account of these effects is a requirement of public policies.

As for procurement, the Government Commercial Function has developed a new commercial policy measure for all central government departments and arm's length bodies. The measure has been introduced by the publication of a Procurement Policy Note (PPN) on Gov.uk on 5 June 2021, World Environment Day, and came into effect for new major procurements published after 30 September. 'PPN 06/21: Taking Account of Carbon Reduction Plans in the procurement of major government contracts'[12] requires suppliers bidding for major government contracts to commit to achieving net zero by 2050 at the latest, and publish a 'Carbon Reduction Plan' detailing their operational emissions in the UK. Suppliers who fail to make this commitment or publish their plan risk being deselected in the procurement process.

This is the first measure globally which will deselect suppliers for failing to commit to achieving net zero by 2050 and will have a significant impact upon the behaviour and pace of carbon reduction in the Government's supply chain and the economy as a whole.

The measure supports a number of key government priorities including building back better the green recovery; and demonstrates that the UK is leading the way on environmental considerations before the COP26 summit in Glasgow.

2. Review guidance documents used in policy and business case development (e.g. the Green Book) and ensure these are consistent with the requirements of Net Zero and account for the impacts of climate change.

By 2022

The Green Book and its supplementary guidance is continuously updated so it reflects latest evidence. BEIS recently updated carbon values to reflect the latest evidence, targets and wider context.

Achieving net zero is both a policy objective and a legal requirement and is considered in the existing Green Book methodology. As part of the economic case, the Green Book also requires an assessment of environmental costs and benefits to objectively advise decision makers about these impacts.

[12] Procurement Policy Note 06/21: Taking account of Carbon Reduction Plans in the procurement of major government contracts https://www.gov.uk/government/publications/procurement-policy-note-0621-taking-account-of-carbon-reduction-plans-in-the-procurement-of-major-government-contracts

The Green Book Supplementary Guidance on Accounting for the Effects of Climate Change supports the appraisal of climate risks and the necessary adaptation of policies, programmes and projects to include climate resilience and consider flexibility in decision making. Taking account of these effects is a requirement of public policies.

3. Work towards securing more climate finance commitments from developed countries to get back on track for mobilising $100 billion a year in climate finance as soon as possible.

By 2021 (COP26)

Securing the $100 billion is a major focus of the UK's COP26 Presidency, as well as our Presidency of the G7. Every G7 country has committed to increase finance to meet the $100-billion target, and to scale up finance for adaptation. The progress the Government has seen from the G7 is commendable, but there is further to go before COP26. That is why the Government is calling on all donors who have not already done so to pledge ambitious increases in climate finance to 2025 and to do so well in advance of COP26. The UK is leading by example: the Government has doubled its International Climate Finance to £11.6 billion to 2025, and the Government is committed to a balanced split between adaptation and mitigation in its climate finance. The Government is aiming to increase access to, and overall quantum of, adaptation and resilience-focused climate finance, including through its work with the multilateral development banks and other public and private sources.

4. Provide a clear commitment prior to COP26 regarding the timescale by which the UK's official development assistance (ODA) contribution will return to 0.7% of GNI given the UK's commitment to align its ODA spend with Paris Agreement requirements and the need for increased finance to achieve the Paris Agreement.

By 2021

The UK has spent more than £10 billion in 2021 to fight poverty and help the world's poorest. The Government is focusing on seven global challenges where the UK can maximise impact, including tackling climate change, supporting the global recovery from the pandemic and helping millions of girls around the world access education.

The Government will use the COP26 Presidency to galvanise international action and lead innovation in international development. Over the next five years, the UK will spend £11.6 billion on supporting countries to tackle climate change by developing climate action plans, increasing action on mitigation and adaptation, and investing in research and science.

The Government has now set out the fiscal circumstances under which the UK will return to spending 0.7% on ODA, providing a clear measure based on fiscal responsibility, assessed against independent objective forecasts, which will be reviewed every year.

5. The next National Adaptation Programme, due in 2023, should ramp up adaptation ambition, implementation and evaluation. It should:

- **Set out the Government's vision for a well-adapted UK, alongside the measurable outcomes that the Government is aiming to achieve by the end of the next NAP period (2028).**
- **Include a detailed monitoring and evaluation framework, including which indicators will be used to monitor progress in reducing risk and showing the effectiveness of different adaptation responses for each risk in CCRA3.**
- **Report how departments have addressed the top eight priority risks set out in the CCRA3 Advice Report for urgent action between 2021 and 2023 (see recommendations by department below).**
- **Set out how adaptation is being integrated into policy, and the measurable actions by department for adaptation across each of the 61 risks and opportunities set out in the CCRA3 Technical for the period 2023 – 2028 (see recommendations by department below).**
- **Ensure the adaptation actions and the programme as a whole are framed around the principles for good adaptation outlined in the CCRA3 Advice Report:**

    - **Adapt to 2ºC warming, assess the risks for 4ºC**
    - **Prepare for unpredictable extremes**
    - **Assess interdependencies**
    - **Understand threshold effects**
    - **Integrate adaptation into relevant policies**
    - **Ensure adaptation is sufficiently financed**
    - **Avoid lock-in**
    - **Address inequalities**
    - **Consider opportunities from climate change**

- **Specific actions to manage international climate risks should be included, setting out the direct response to the risks identified in CCRA3.**

2023 onwards

The CCC's recommendations will inform the development of the next National Adaptation Programme (NAP3), expected to run between 2023 and 2028. As the Government enters its third cycle of adaptation planning under the Climate Change Act 2008, it has a critical opportunity to strengthen its approach, learning from and building on previous NAPs. For example, the Government understands the importance of indicators for evaluating the effectiveness of adaptation policies. Defra has initiated an adaptation indicators programme, including collaborating with the Organisation for Economic Co-Operation & Development (OECD) on its international indicators project. This work will help the third NAP have a more targeted and effective approach to monitoring.

The Government will consider the CCC's findings and recommendations in both the Progress Report of 24 June and the risks, opportunities and eight priorities areas outlined in its Independent Assessment on UK Climate Risk, published on 16

June. The next NAP will address the risks and opportunities for a 2ºC warming scenario, to continue to build a more resilient country, with a focus on enhanced ambition, implementation, and evaluation. Throughout the process of delivering the current second NAP, the Government has continued to develop and evolve its approach. Noting the CCC's advice on international risks, the Government's latest NAP actions update[13] included new actions in response to the international impacts of climate risk, from the Foreign, Commonwealth and Development Office, Ministry of Defence, and Department for International Trade. These are embedded alongside domestic-facing NAP actions. The Government intends to further embed action that responds to international risks in its next NAP.

The Government commends the work of the CCC and authors across the UK in updating the evidence base behind the Independent Assessment on Climate Risk, which will inform the next stage of its adaptation work. The Government looks forward to continuing engagement with partners to strengthen the country's resilience to climate change, including advice from the CCC and others, as it takes forward planning for NAP3.

Recommendations for the Department of the Environment, Food and Rural Affairs (Defra)

6. Ensure that adaptation is integrated into major upcoming policies in the next two years related to the priority CCRA3 risks for which it has lead responsibility, coordinating work with other relevant departments as necessary:

- **Risks to the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards**
- **Risks to soil health from increased flooding and drought**
- **Risks to natural carbon stores and sequestration from multiple hazards**
- **Risks to crops, livestock, and commercial trees from multiple hazards**

In addition, for the coming five-year period 2023 - 2028, Defra should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the other risks and opportunities in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

National Adaptation Programme (NAP)

The Covid-19 pandemic has highlighted more than ever how important our natural environment is to our wellbeing, livelihoods and resilience to shocks and impacts. Nature needs to be at the heart of our response to climate change. We know that restoring, expanding and maintaining habitats is good for our wildlife. Additionally, nature recovery measures such as planting trees can help us to mitigate

[13] https://www.theccc.org.uk/wp-content/uploads/2021/06/CCC-Second-NAP-Monitoring-Action-Tracker.xlsx

and adapt to climate change by sequestering carbon and helping make the country more resilient to climate risk, by reducing flood risk.

The second NAP was published in July 2018, setting out the Government's strategy for adapting to the climate change we are already experiencing, and projected future changes. It builds on the first NAP, published in 2013, and on the 2018 25 Year Environment Plan (25YEP). The future success of the 25YEP's goals relies strongly on identifying and proactively addressing risks which might impact their delivery. The Government has made strong headway on implementing the second NAP and developing it further by ensuring that adaptation is embedded in policies concerning the natural environment – from the landmark Environment Bill which will place the 25YEP on a statutory footing, the England Trees and Peat Action Plans, the Nature Recovery Network, to the environmental land management schemes. Further details are laid out below in response to this recommendation. Other highlights include the Government's progress in:

- **Investing in nature**: including the £640 million Nature for Climate Fund for the creation, restoration and adaptive management of woodland and peatland, the £80 million Green Recovery Challenge Fund as part of the Government's wider green economic recovery package to restore nature and connect people with the natural environment, and the Policy Statement on Flood and coastal erosion risk management which commits to doubling the number of government-funded projects including nature-based solutions to reduce flood and coastal erosion risk;
- **Harnessing the power of nature for flood management**. The Working with Natural Processes Evidence Base[14] summarises the effectiveness of Nature Based Solutions measures from a Flood and Coastal Erosion Risk Management perspective as well as the wider ecosystem service benefits they may deliver – from floodplain restoration to riparian woodland planting;
- **Protecting and enhancing our coastal habitats**. Natural England is leading the LIFE Recreation ReMEDIES project, which aims to restore seagrass and maerl habitat in five Special Areas of Conservation. The Environment Agency's Restoring Meadow, Marsh and Reef (ReMeMaRe) initiative is working to restore our estuarine and coastal habitats.

The CCC's Independent Assessment of UK Climate Risk offers a detailed and up to date insight into the growing risks and opportunities to the natural environment and agriculture from climate change. This evidence will be indispensable in informing greater action and ambition in the third National Adaptation Programme and addressing gaps where the Government needs to go further.

Biodiversity

In the 25 Year Environment Plan, the Government committed to establishing a Nature Recovery Network (NRN) on land– an expanded and increasingly connected network of places that are richer in wildlife and more resilient to climate change.

[14] https://www.gov.uk/flood-and-coastal-erosion-risk-management-research-reports/working-with-natural-processes-to-reduce-flood-risk

To establish the NRN Defra has set out three sets of policies:

1. Local Nature Recovery Strategies to provide a spatial prioritisation framework for the NRN. They will identify priorities and opportunities for nature recovery and help drive investment and action to expand, improve and connect habitats;

2. A National Partnership, led by Natural England, to initiate partnership action to support development of the Network; and

3. A range of funding streams for nature, including at a landscape scale, such as the schemes that reward environmental benefits or Nature for Climate.

The Government's intention is that a legally binding target to halt the decline in species abundance by 2030 will drive a range of actions across government and more widely to ensure that pressures on species, including from climate change, are addressed.

The EA is supporting the delivery of the NRN through support and advice to Local Nature Recovery Strategies, providing evidence to help inform their mapping and by integrating the goals for the NRN (including connectivity, additional habitat, improved habitat) within their plans and regulatory frameworks. This includes River Basin Management Plans and the Water Company Price Review Process.

Natural England is playing a key role across a number of the CCRA3 Advice Report priority risks, particularly risks to terrestrial and freshwater habitats and species, soil health and carbon stores. It is doing this through actions such as:

- Developing science and evidence to underpin advice and guidance, including: the NE and RSPB Climate Change Adaptation Manual,[15] NE Nature Network Evidence Handbook[16] and the NE Review of Carbon Storage and Sequestration by semi-natural Habitats.[17]
- Provision of land management and conservation advice through the national network of agri-environment and Catchment Sensitive Farming advisers
- Building resilience through the restoration of priority habitats, including high carbon ones such as saltmarsh, sea grass and woodland. A new £12.5 million Shared Outcomes Fund project on 'Nature-based Solutions for Climate Change at the Landscape Scale' is starting this year.
- Embedding climate change adaptation into management plans for National Nature Reserves
- Working with partners to develop adaptation indicators for the natural environment, including publishing papers and reports[18]
- Working with the Environment Agency to develop approaches to conservation that enable adaptation to sea level rise.

[15] http://publications.naturalengland.org.uk/publication/5679197848862720
[16] http://publications.naturalengland.org.uk/publication/6105140258144256
[17] http://publications.naturalengland.org.uk/publication/6105140258144256
[18] For example:https://www.science.org/lookup/doi/10.1126/science.aaw9256CCSIG_2020-General-considerations-of-adaptation-1.pdf

Soils - Risks to soil health from increased flooding and drought

Soils underpin many environmental, economic and societal benefits, including food production, biodiversity and carbon storage. Protecting and improving soil is essential for supporting these benefits and adapting to the impacts of the increased risk of flooding and drought.

To help achieve the Government's 25YEP commitment for sustainably managed soils by 2030, Defra is considering several actions to support land managers and farmers to achieve sustainable soil management, e.g. improving soil structure, nutrient and carbon content, and biological diversity; all aspects that would reduce the impacts posed by increased flood and drought risk.

For example, the Sustainable Farming Incentive will support sustainable approaches to farm husbandry that will also improve soil health. Defra has recently published more details on the first phase of piloting the scheme, including the actions Defra will pay farmers to take to manage their soil.[19]

Soils - Risks to natural carbon stores and sequestration from multiple hazards

The Government recognises the importance of maintaining and, where possible, enhancing soil carbon content. Due to the rich nature of our soil types, land uses and climatic characteristics, Defra is considering soil carbon as a measure of soil health in conjunction with several other soil parameters (e.g. soil structure, earthworm count, pH) to ensure that soil health is being delivered in the most appropriate way.

The Sustainable Farming Incentive will encourage measures which can lead to soil carbon sequestration (e.g. introduction of herbal leys, use of grass-legume mixtures and cover crops) to help achieve our Carbon Budget targets and net zero goal.

To meet the 25YEP ambition for sustainably managed soil by 2030, Defra is developing a healthy soils indicator, soil structure monitoring methodology and a soil health monitoring scheme, all of which will help land managers and farmers track the soil health over time and the impact of their management practices. This will allow Defra to produce a robust baseline from which it can monitor improvements in soils health, identify trends and make informed policy decisions. The Forestry Commission has also published new guidance[20] on cultivation, aiming to minimise soil disturbance while achieving successful establishment of new woodlands.

Peat

Peat restoration and more responsible management of peatlands are both climate mitigation and adaptation measures. Therefore, adaptation has been integrated into the England Peat Action Plan (EPAP) which was published in May 2021.[21] The

[19] https://www.gov.uk/guidance/sustainable-farming-incentive-pilot
[20] https://www.gov.uk/government/publications/guidance-on-cultivation-and-ukfs-compliance-for-application-in-england-operations-note-53/guidance-on-cultivation-and-ukfs-compliance-for-application-in-england-operations-note-53
[21] https://www.gov.uk/government/publications/england-peat-action-plan

Lowland Agricultural Peat Task Force is examining how to protect carbon stores in lowland agricultural peatlands whilst maintaining their use for agriculture and adapting to climate change. The Task Force will present recommendations to government in summer 2022.

Defra is funding at least 35,000 ha of peatland restoration by 2025, including through the Nature for Climate Fund, though this is just the start of the Government's ambition for peatland restoration to 2050 and beyond. Forestry Commission and Natural England have published a decision support framework for peatland protection and the establishment of new woodland.[22]

Risks of wildfire to natural carbon stores

The Government recognises that expert knowledge in connection with the management of our landscapes to make them wildfire resilient and that required to plan for the eventuality of wildfires, is inconsistent. Learning from the CCRA3 research and analysis into wildfire and climate change, and using industry standards and guidance, the Government has worked with the environmental, conservation and forestry sectors to develop a suite of nationally accredited training. The added knowledge and skills will help promote good practice and create a framework for further wildfire resilience. The first of these courses is due to be delivered later in 2021; with a view to a further roll out in 2022.

Blue Carbon

The Government recognises the important role that blue carbon habitats play to tackle biodiversity loss and support adaptation and resilience to climate change, alongside carbon sequestration benefits.

The UK is a global leader in ocean protection with 38% of UK waters in Marine Protected Areas, covering the majority of saltmarsh and seagrass habitats. The Government's focus is now on ensuring these are effectively protected.

On 8th June 2021, the Government published its response to the Benyon Review into Highly Protected Marine Areas (HPMAs).[23] The Government accepted the central recommendation to take forward pilot sites, and will designate a number of sites in 2022. The Joint Nature Conservation Committee (JNCC), Natural England and Cefas, have developed and published ecological criteria to start selecting potential HPMAs locations. These are based on the principles outlined in the Benyon Review and include identifying potential sites with habitats considered to be of importance to the long-term storage of carbon.

Environmental land management schemes

22 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/992439/Decision_support_framework_for_peatland_protection_and_the_establishment_of_new_woodland__Interim__June_2021_FINAL.pdf

23 https://www.gov.uk/government/publications/highly-protected-marine-areas-hpmas-review-2019/benyon-review-into-highly-protected-marine-areas-final-report-executive-summary

To be effective, the environmental land management schemes will need to take account of the changing climate. Defra is assessing the climate risks under different climate pathways to identify which scheme activities are more or less vulnerable to climate change. This understanding will be used to support the schemes' adaptiveness in the face of climate change, recognising risks vary spatially. Defra is also using modelling to assess which environmental land management activities should be prioritised, in which areas, to ensure that the natural environment is as resilient as possible to a changing climate. For example, Defra is developing maps of tree planting locations under different climate pathways so it has a dynamic, risk based understanding of spatial suitability under specific scenarios.

Environmental land management schemes will support a more resilient natural environment by creating bigger, better and more connected environmental features across England. The actions Defra is considering paying for - including habitat creation, management and restoration, connectivity improvement and species management - will be critical for building the resilience of our terrestrial and freshwater habitats, including natural carbon stores, from climate change risks.

The CCC rightly highlights climate change threats to soils, which will in turn threaten food security and agri-business resilience, increase flood risk, reduce water quality and adversely impact biodiversity and carbon storage. In 2022, the first offer through the Sustainable Farming Incentive will be on soil health, which will support farmers to create more resilient and healthy soils. Defra will provide details about the priorities for other environmental land management schemes as it continues to test, learn and adapt in advance of their full roll out in 2024.

Environmental land management schemes are part of an integrated response to climate change, agriculture and the environment, and will be a key delivery mechanism for the 25YEP, net zero, and the new legally binding targets introduced through the Environment Bill.

Agri-tech and innovation

The Government's policy development and delivery for agriculture's contribution to net zero can provide a multitude of adaptive benefits. For example, Defra intends to offer greater support for agroforestry through the 2020s, which will help to sequester carbon; reduce soil erosion and flood risk; improve tolerance to drought; and reduce heat stress and wind exposure in livestock through the provision of shelter and shade. Agroforestry systems can also help to diversify farm businesses, improving economic resilience to the impacts of climate change.

Defra continues to support research to promote agricultural resilience. For example, the Genetic Improvement Networks (GINS) research projects aim to enhance the productivity, sustainability and resilience of the main UK crops. This includes work to increase the resilience of major UK crops to climate change and pest and disease risks. Defra awarded £5.5 million between 2018 to 2023 towards the GINs.

Defra is also supporting the UKRI Transforming Food Production (TFP) Initiative, through which a public investment of £90 million will be made over four years to

support the rapid development and deployment of advanced precision agricultural solutions. This initiative is enhanced by an additional £12 million of Defra funding to support collaborative agricultural R&D under the "Farming Innovation Pathways" competition, which will be delivered through TFP initiative.

Defra is also working closely with the Met Office Hadley Centre for Climate Science and Services to better align its crop breeding work with pressures identified in their analyses of the effects of climate change on farming.

Defra is exploring expanding the scope of its breeding work to increase sustainability and resilience of a wider range of agricultural products. This includes an ongoing project to scope the potential for a forage crop network, and a recently launched competition for a similar scoping study on soft fruit. Defra is currently refreshing its Agriculture and Food Climate Service in partnership (£100k per year over the next three to five years) with the Met Office to align the work with challenges identified by the CCRA and develop novel solutions to enhance resilience in agri-food systems.

Forestry

The England Trees Action Plan (ETAP) illustrates a 2050 vision for trees, noting environmental challenges and the need for woodlands to be resilient. The ETAP commits to actions that directly contribute to enhancing resilience, including to:

- Support the Forestry and Climate Change Working Group in implementing its adaptation plan, launch a climate change competition to highlight best practice and the need to adapt new and existing woodlands to the effects of climate change, and publish guidance on managing woodlands for a changing climate;
- Launch the Centre for Forest Protection; and
- Develop a Woodland Resilience Implementation Plan.

Building on the Tree Health Resilience Plan, the ETAP commits to improve the tree health grants provided to treat and/or fell diseased trees and expand grant support for resilient restocking in response to pest or disease instances. Defra has also supported the establishment of the UK Plant Health Alliance, developed the Plant Health Management Standard and launched the Plant Health Certification Scheme to improve biosecurity standards. In 2022 Defra will publish a new GB Plant Biosecurity Strategy.

Defra intends to spend over £500 million of the Nature for Climate Fund on trees and woodlands between 2020 and 2025. With this funding, Defra aims to at least treble woodland creation rates by the end of this Parliament, reflecting England's contribution to meeting the UK's overall target of planting 30,000 hectares per year by the end of this Parliament. This will increase the resilience of our woodland and provide stepping-stones to help wildlife adapt to climate change. The new England Woodland Creation Offer will provide additional contributions, for example by incentivising planting that provides riparian shade to protect freshwater habitats from the impacts of climate change and to catchments where woodland creation will provide flood resilience.

The Forestry Commission (FC) published its climate change position statement in 2019, committing to: lead by example, make our woodlands more resilient; provide advice and support to landowners and managers so they can make changes now; and keep learning through research, monitoring and the exchange of knowledge. FC will also prepare its third Adaptation Reporting Power report by the end of 2021.

Advocacy continues to be a focus, as the majority of woodlands are in private hands. In the 2020 British Woodlands Survey, 69% of respondent woodland owners did not have a UKFS compliant management plan and only some adaptation actions were being taken. FC and Defra have therefore established a digital climate change resilience campaign and published resilience case studies to make the concept of resilient woodlands tangible. FC will publish a new UKFS Practice Guide on adaptation. This sets out how to comply with climate change adaptation requirements of the UK Forestry Standard, which defines sustainable forest management in the UK and underpins forestry regulations, forestry grants and third-party forestry certification.

7. Implement a public engagement programme about national adaptation objectives, acceptable levels of risk, desired resilience standards, how to address inequalities, and responsibilities across society. The findings from the programme should feed into the vision and desired outcomes of the next National Adaptation Programme.

By 2021

Climate change affects the whole of society. Adapting to climate change will require engagement and action from national and local government, the private sector, civil society and the public – as we all work together to strengthen the resilience of our nation.

The recent RESIL RISK study,[24] supported by the UKRI and Met Office-funded UK Climate Resilience Programme, demonstrated a strong level of public interest and support for domestic climate adaptation interventions. The Government intends to provide opportunities to involve the public in this conversation. As Defra embarks on planning to develop the third NAP, it will take on board views and ideas from across society and sectors.

The Government is also committed to hearing and learning from the views of different groups on how climate change impacts them, and how it can improve policies accordingly. For example, in July 2020, the Youth Steering Group published their review of environment and climate policy.[25] The Group, set up by the Department for Digital, Culture Media and Sport and led by the British Youth Council, conducted a review of priorities for environmental action and provided recommendations to Ministers in Defra and BEIS. Their recommendations provide invaluable insight into how the Government can improve its approach to engaging the public when it comes to climate change issues.

[24] https://www.ukclimateresilience.org/projects/resilrisk-understanding-uk-perceptions-of-climate-risk-and-resilience/

[25] https://www.byc.org.uk/news/2020/uk-government-must-collaborate-with-young-people-to-tackle-climate-change-emergency

The Government looks forward to developing and showcasing its thinking with stakeholders as we approach COP26 and to continued collaboration as it designs the third NAP.

8. Fund a programme of work to design and populate the appropriate new priority adaptation indicators for England. These should complement other environmental and social indicators collated by government. The CCC could be tasked to coordinate this activity in partnership with other relevant organisations such as the Office for Environmental Protection and Environment Agency.

By 2021

The Government understands the importance of effectively monitoring adaptation progress to ensure accurate and impactful policymaking and it welcomes the CCC's recommendation. In early 2021 Defra initiated an adaptation indicators programme which seeks to further the capabilities of the department and the Government as a whole. This includes collaborating with the Organisation for Economic Co-operation & Development (OECD) on its international project for indicators, which will enable us to benefit from international knowledge transfer and evidence gap analyses of UK capabilities.

The Environment Agency has also committed to developing an approach to monitoring and evaluating its adaptation interventions. A knowledge sharing group has been set up between the EA, Defra, the CCC, Office of National Statistics and others in the academic community who are working on this challenge.

Finally, the Government's existing Outcome Indicator Framework for the 25 Year Environment Plan contains a suite of indicators which are sensitive to adaptation, such as 'Species supporting ecosystem functions', and 'Diverse seas – condition of seafloor habitats'. In combination these indicators provide evidence on the degree of successful adaptation, whether further adaptation is needed, and how resilient our natural assets are to climate change. Some indicators are currently in development or interim and Defra has a program of work planned to develop them fully. In future, the Government will assess the Outcome Indicator Framework to ensure the indicators meet the evidence requirements of the 25YEP and the future Environmental Improvement Plans being introduced through the Environment Bill.

All this work will be supplemented by government activities to address the specific priorities set out within the CCC Progress Report, this Government response and the CCC's Independent Assessment of UK Climate Risk.

9. Publish an overarching strategy that clearly outlines the relationships and interactions between the multiple action plans in development for the natural environment, including those for peat, trees, nature and plant biosecurity. This must clearly outline how the different strategies will combine to support the Government's climate change goals on both Net Zero and adaptation, along with the wider environment and other goals.

By 2021

Defra accepts the spirit of the recommendation and will provide further clarity of its environmental ambitions following the refresh of the 25-YEP in January 2023. Climate change mitigation and adaptation is one of the ten 25YEP goals, each of which is crucial to deliver against together. Defra is committed to developing joined-up solutions that deliver for climate and the environment.

The 25YEP sets out a comprehensive and long-term approach to protecting and enhancing our natural environment for the next generation. Policies that support delivery of the Government's vision for the management, protection, and restoration of our peatlands and treescape were set out in the England Trees Action Plan, and the England Peat Action Plan that were published in May 2021. A Nature Recovery Green Paper will be published in 2021 which will set out the Government's approach to driving nature recovery. The paper will provide the primary vehicle for developing and engaging on future plans and proposals for nature recovery.

The Environment Bill requires the Government to have an Environmental Improvement Plan (EIP) which sets out the steps it will take to improve the environment, covering at least 15 years. When reviewing its EIP, the Government must consider whether further or different steps are needed to improve the natural environment, as compared to those set out in the current 25YEP. The Government must report annually on implementation of the EIP and review it at least every five years. The first review is due in January 2023. This will consider progress, and further measures needed, towards environmental improvement.

10. The commitment in the 25 Year Environment Plan to achieve 75% restoration for terrestrial and freshwater protected sites should be extended to include all priority habitat sites.

By 2021

The Government has committed to setting legally binding targets for biodiversity, including a new legally binding target for species abundance for 2030. The Government's current thinking regarding potential objectives for setting at least one additional biodiversity target include improving the condition of our protected sites on land, restoring habitats and improving the status of species. Targets will be set following a robust, evidence-led process that includes seeking independent expert advice, stakeholders and public engagement and Parliamentary scrutiny.

11. Make long-term targets for biodiversity, set out under the Environment Bill, and associated timeframes outcome-based and linked directly to the goals set out in the Government's 25-YEP.

By June 2022

The Environment Bill is a key mechanism in driving forwards the Government's ambition on biodiversity. Defra has amended the Bill to require a new historic legally binding target to be set to halt the decline in species abundance.

The duty to set this target will sit alongside the requirement to set at least one long term biodiversity target. Further development of the species abundance target will take place at the same time as the first suite of long-term legally binding targets, to be brought forwards by 31 October 2022.

As set out in the Environment Bill: environmental targets policy paper,[26] a central principle for targets development is they should help meet goals and outcomes set out in the 25 Year Environment Plan (or in future Environmental Improvement Plans) as well as wider government environmental policy ambitions. The 25 Year Environment Plan is an ambitious project and will evolve as policies develop.

Another principle is that, where possible, targets will be based on environmental outcomes. "Outcomes" refer to the intended final results or benefits to the environment. This approach allows flexibility and innovation towards meeting targets. In some cases, however, an action-based target, alleviating a specific environmental pressure, may be more suitable. This is particularly the case if environmental outcomes cannot easily be measured, are unpredictable or depend on factors outside government control.

12. Make interim targets for biodiversity statutory and link them clearly to the long-term targets set out in the Environment Bill.

By June 2022

The interim targets of up to five years are intended to set the trajectory for progress and ensure the Government takes early, regular steps to achieve long term targets.

The Bill introduces a comprehensive statutory cycle of monitoring, planning and reporting, which ensures that the Government will take early, regular steps to achieve long-term targets, and can be held to account by the Office for Environmental Protection (OEP) and Parliament if it fails to do so. This cycle creates a "triple lock" to drive short-term progress to meet targets.

The triple lock legislated for through the Environment Bill, requires: (1) the Government to have an Environmental Improvement Plan which sets out the steps it intends to take to improve the environment, and review it at least every five years; (2) the Government to report on progress towards achieving targets every year; and (3) the OEP to hold us to account on progress towards achieving targets and every year can recommend how the Government can make better progress. The

[26] https://www.gov.uk/government/publications/environment-bill-2020/august-2020-environment-bill-environmental-targets

Government must respond to these recommendations, which will be published and laid before Parliament.

The OEP will have the power to bring legal proceedings if the Government breaches its environmental law duties, including its duty to achieve long-term targets. It is critical that the Government achieves long-term targets to deliver significant environmental improvement and the Bill's framework provides the strong assurance that it will do so.

13. Introduce legislation to extend the ban on rotational burning of peat from certain protected upland bog sites to all peatland before the start of the burn season in 2021; end peat extraction and ban its sale for all horticultural uses including in the professional sectors and apply this to imports by 2023; mandate water companies to restore peatland under their ownership; and ensure lowland peat soils are not left bare.

2021-2023

Defra has brought forward legislation to introduce new restrictions on managed burning of heather on protected blanket bog, with a ban on burning unless covered by a license granted by the Secretary of State. The Government will keep under review the environmental and economic case for extending the approach to additional areas of blanket bog after assessing how the new regime works in practice.

Defra will consult on banning the sale of peat and peat-containing products in the amateur sector by the end of this Parliament. Defra will publish a full consultation in 2021 to examine the feasibility of a range of measures to end the use of horticultural peat in both the amateur and professional sectors. Defra is also working with the water companies on their ambitious contribution to net zero, including their goal to restore 10,000 ha of peat located in water sector owned land by 2023.

Defra will actively consider measures for peat soils as it develops new schemes for environmental land management.

14. Extend current ambition set out by the UK Government and the devolved administrations to implement a comprehensive delivery mechanism to address degraded peatland (hectares given are for the UK):

- **17% of upland peat is restored, equivalent to 200,000 hectares (and where this is not possible, stabilise the peat) by 2025; 58% by 2035 (700,000 hectares) and the remaining area by 2045;**
- **Rewet and sustainably manage 12% of lowland peat used for crops by 2025 (24,000 hectares), rising to 38% by 2035 (72,000 hectares);**
- **Rewet 8% of lowland grassland area by 2025 (18,000 hectares), rising to 25% by 2035 (54,000 hectares);**
- **Remove all low-productive trees of less than YC8 from peatland (equivalent to 16,000 hectares by 2021-2025 Progress in adapting to climate change: 2021 Report to Parliament 30 2025), and restore all peat extraction sites by 2035 (equivalent to 50,000 hectares by 2025).**

2021-2025

In the England Peat Action Plan Defra committed to fund at least 35,000 ha of peatland restoration by 2025, through the Nature for Climate Fund and other sources. However, this was just the start of the Government's ambition for peatland restoration, it aims to restore approximately 280,000 hectares of peat in England by 2050, including via funding from the new environmental land management schemes, and where it is not possible to restore peatlands, it will support new responsible management measures for.

The Lowland Agriculture Peat Taskforce will provide recommendations in summer 2022 on how to improve the condition of lowland farmed peatlands, both to reduce emissions and support continued profitable agriculture. From 2024, the Local Nature Recovery scheme will provide a key funding stream for wetter modes of farming, including paludiculture. To prevent delay, the Farming Innovation Programme will be open to supporting applications for R&D in paludiculture from the 20th October 2021, with more competitions to follow in 2022 and beyond.

15. Set out a clear mechanism to account for the consequences of higher water temperatures and low flows (including drying up) in water bodies for freshwater habitats and species, and for meeting the Water Framework Directive (WFD) targets. This is lacking in current plans to revise the River Basin Management Plans (RBMPs).

By June 2022

The approach to managing the water environment that River Basin Management Plans (RBMPs) enshrine is based on the premise that the best safeguard against future shocks to aquatic ecosystems is their restoration and maintenance to good ecological status – which reflects an environment that is close to natural (healthy despite human uses). Ecological status is assessed through reference to normalised benchmarks that reflect what is regarded as a healthy ecosystem under our current climatic conditions. RBMPs are also, by design, adaptive as they are updated every six years so targeting only the current plans is not in itself an adequate response to the long-term challenge that has been outlined.

The UK Technical Advisory Group (UKTAG) has been set up to offer scientific advice on approaches to the classification of water bodies and is operated jointly on behalf of all UK Admins. The recommendations it makes are reflected in updates to the classification that are agreed at the start of each plan cycle. Plans for the period 2021-27 are being prepared and any changes will need to be incorporated in the next and subsequent plan cycles.

Given that the action identified relates to goals and endpoints under modified climatic conditions, the appropriate course is to seek the advice of the UKTAG. The Government will therefore commission this action and respond based on UKTAG's conclusions. This request has been anticipated by UKTAG, and its Chair is planning to seek academic support to investigate how environmental standards will need to change to take into account a shifting climate and therefore shifting baseline.

The Environment Agency are also proposing work to revise approaches to water body risk assessment so they and partners can be better prepared for anticipating changes in pressures to the water environment from climate change, in addition to tackling failure of standards once they have occurred.

16. Extend the statutory requirements of marine plan policies to the decisions of public and private organisations. At present only public authorities are duty bound under law to apply the plan policies to their decisions meaning there is a significant gap in the protections they are designed to provide.

Now

Extending the statutory requirements of marine plans to private organisations would not result in any material improvements in protections. Public authorities make decisions in accordance with the relevant marine plan policies, so developers are thereby bound by these when applying for consent. This will cover the vast majority of marine activities, as detailed in Clause 66 of the Marine and Coastal Access Act 2009.

Any activity not covered by a consent (a licence, a bylaw, a permit etc.) is likely to have been determined as low impact from an environmental standpoint due to it being very small scale, short-term, or not occurring in a sensitive area. In these cases, while not captured by the marine plans, there may be relevant non-statutory guidance in place, such as on wildlife watching relating to reducing disturbance impacts on species.

17. Make changes ahead of the next round of reporting under the Adaptation Reporting Power (ARP). When used effectively, the ARP can present updated risks and adaptation actions that allows for an assessment of preparedness of all infrastructure sectors and their interdependencies. In particular:

- **The next round of reporting must be mandatory.**
- **The deadline for reporting must allow sufficient time for consideration of all the reports in the fourth UK Climate Change Risk Assessment, and the CCC's statutory assessment of progress on adaptation.**
- **The list of organisations reporting should be expanded to ensure comprehensive coverage of critical infrastructure and services, such as canals and food supply chains, as recommended by the ARP3 consultation.**

By 2023

The Government recognises the importance of reports provided under the Adaptation Reporting Power. They provide crucial information about the preparedness of our infrastructure sectors for climate change. They also promote the integration of effective climate risk management and action planning into the work of the organisations involved.

The Government will consult in due course on its approach to the fourth round of ARP reporting. This will involve detailed consideration of a range of options to ensure appropriate coverage across sectors and to maximise the value of the

process in providing insight and information to inform future risk assessments and progress reports.

18. Work with Port Operators and the British Ports Association to ensure the format of reporting under the Adaptation Reporting Power is appropriate for port operators and that the right operators are being asked to report. Defra should work with these organisations to identify what further support could be offered to enable more comprehensive reporting on adaptation by the ports sector.

By 2023

The Government recognises the need to ensure key infrastructure operators such as ports prepare for climate change and report on the action that they are taking to manage the risks and adapt to the impacts. The Government will consult in due course on its approach to the fourth round of reporting under the Adaptation Reporting Power, including options to ensure appropriate coverage across all relevant sectors. As part of this the Government will seek the views of port operators and the British Port Association as well as other infrastructure providers as to how best to ensure their sectors are appropriately represented and that organisations are well placed to report.

19. Improve information sharing on climate risks to infrastructure interdependencies at a local level, especially for electricity, digital and ICT networks. As reported in our previous assessment in 2019, NAP actions to enhance arrangements for information sharing between local infrastructure operators and improve understanding of critical risks arising from interdependencies have not been completed. Defra's link with Local Resilience Forums is key, and BEIS and DCMS should engage with utility companies to encourage standardised benchmarking and data sharing on climate risks to electricity networks, digital & ICT.

Now and ongoing

The telecoms sector has significantly increased its participation and representation at local-level forums and exercises. Climate risks are no longer seen as separate and hold the same weight in risk frameworks. Planning for such risks have now been mainstreamed, with the sector working closely with Local Resilience Forums (LRFs) and the Emergency Services to mitigate against climate risks alongside established risks as listed in the National Risk Register. The sector acknowledges the limitations surrounding the sharing of sensitive data with LRFs and local emergency responders. To overcome this obstacle, it prepares ready-made impact assessments of sensitive sites which are in turn shared at the local level in the event these are affected by a risk materialising. This has proved useful for recent sites that have been flooded.

20. Work with the Environment Agency to set out the measures being taken to improve the uptake of property-level flood resilience (PFR) following stakeholder responses to its PFR call for evidence and consultation. This should include improved data collection to monitor progress. Plans for the new national flood risk assessment and 2025 long-term investment scenarios must ensure that the evidence they provide can be used to identify the most effective locations for PFR, and smart targets for their installation with timescales.

By 2022

On 29th July 2021, the Government published its responses to the call for evidence on property flood resilience and the Flood Re consultation. The Government has made a commitment to make changes to the Flood Re scheme to allow insurers to help flooded households to make their homes more resilient to future flooding by installing PFR measures - and benefit from discounted insurance premiums if they have resilience measures installed. The Government will work with Flood Re to ensure these changes are implemented by April 2022 – subject to parliamentary time and industry action - so that they help to address some of the barriers constraining the PFR market including data collection to monitor progress and determine the efficacy of PFR measures. The Government has also committed to publishing a PFR roadmap by the end of 2022 to further accelerate take-up of property flood resilience measures, including through the implementation of the changes to the Flood Re scheme. The roadmap will identify outcomes Defra wants to see for the market and the actions required across industry and the Government to deliver them. It will ensure all relevant bodies are playing their part and that consumers can have assurance about the quality of products and their installation.

The Government will continue to refine and improve its understanding and forecasting of risk. The Environment Agency (EA) is developing a new National Flood Risk Assessment (NaFRA2) which will provide a wide range of data, covering risk from rivers, the sea and surface water. The Assessment will be published in 2024 and will provide a richer, more accurate evidence base to better inform the Government's management of risk. Once complete, the EA will develop ongoing updates to ensure it remains up to date and continuously improves - for example, extending to flooding from groundwater and sewers once they are better understood. The EA is beginning its development of the next Long-Term Investment Scenarios (LTIS), due to be published in 2025. This will help the Government understand what future flood and coastal erosion risk management could look like, considering the role of flood and coastal defences and other approaches including PFR and natural flood management. Findings from this will inform the Government's national approach to investment in flood and coastal erosion risk management towards the end of the 2021 to 2027 investment programme and beyond. Defra will work with the EA to determine how LTIS can describe the role of PFR at a national level to manage risk in different future climate change scenarios, and how NaFRA2 can provide the evidence for risk management authorities to work with people and communities to identify locations for PFR.

21. Set out measures to ensure the resilience of the food supply chain, including to the risks of extreme weather in England and internationally, as part of its white paper responding to the independent review of the National Food Strategy for England.

By 2022

The Government's Food Strategy White Paper will cover the entire food system from farm to fork, building on work already underway in the Agriculture Act, Fisheries Act, and Environment Bill as well as docking into wider government priorities including building back better, levelling up, the Net Zero Strategy and the Obesity Strategy. It is a government-wide White Paper and will set out the Government's ambition and direction for food system transformation, including on the resilience of the food supply chain. As a part of this, it will also contain a response to the recommendations from Henry Dimbleby's independent review into the food system, which was published in July 2021. The Government has committed to responding to the Review's recommendations in the Food Strategy White Paper within 6 months of the release of the final report.

The Government has a commitment in the Agriculture Act (2020) to publish a regular report on the subject of food security. The food security report will be a significant body of work that will use a set of core measurements and indicators for each of the key topic areas. This will include a range of themes which cover both global and domestic food security, from global food availability to consumer safety and confidence. The UK food security report will inform future discussions and debate to shape future policy on UK food security, to ensure that key challenges are met.

Defra supports industry to become more sustainable, for example through funding of the Waste and Resources Action Programme (WRAP). WRAP's Courtauld 2030 voluntary agreement works across the food and drink sector to cut carbon, reduce food waste and protect water resources. This includes an objective to achieve sustainable water management in the food supply chain, improving quality and availability of water in the 20 most important product and ingredient sourcing areas in the UK and overseas.

22. Work with the Environment Agency, Ofwat and other stakeholders to set out targets and supporting measures for reducing water use by business. This could be through ensuring that any water reduction targets linked to the Environment Bill include business as well as household water use, as well as responding to advice and recommendations from Defra's new Senior Water Demand Reduction Group.

By 2022

Defra is exploring the possibility of a water demand target under the Environment Bill, which would cover water demand and leakage in both the household and non-household sector. Defra will be working with, and responding to recommendations from, the recently established Senior Water Demand Reduction Group which contains representation from the Environment Agency, Ofwat and other water stakeholders.

Defra's recently published draft Strategic Policy Statement for Ofwat includes the expectation that Ofwat will work with the water retailers, incumbent water companies and other stakeholders to contribute to the delivery of the Industry Action Plan to improve water efficiency in the business sector. This Plan includes improving understanding of non-household water consumption through smarter use and better sharing of data.

The Environment Agency is committed to designing an approach to working with regulated industries around impacts (including those related to water scarcity) associated with a 4°C rise in global mean temperature by 2100.

Recommendations for the Ministry of Housing, Communities and Local Government (MHCLG)[27]

23. Ensure that adaptation is integrated into major upcoming policies in the next two years related to the priority CCRA3 risks for which MHCLG has lead responsibility, coordinating work with other relevant departments as necessary:

- **Risks to human health, wellbeing and productivity from increased exposure to heat in homes and buildings (with DHSC).**

In addition, for the coming five-year period (2023-2028), MHCLG should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks and opportunities in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

The Future Buildings Standard consultation set out proposals to reduce the risk of overheating in new residential buildings by introducing a new overheating mitigation requirement in the Building Regulations. MHCLG is considering the responses to the consultation and will publish its response in due course.

The Government is undertaking research to examine the overheating risk in existing buildings. However, it does not want to delay the implementation of the overheating standard in new residential buildings by waiting for this evidence, particularly when vulnerable building occupants may be at risk. The Government will ensure that the outcomes will be fed into appropriate reports and programmes.

MHCLG is reviewing the Decent Homes Standard to consider whether it needs to be updated to deliver what is required for safety and decency today. This includes consideration of external environments, energy efficiency, thermal comfort and climate adaptation measures.

[27] From September 2021 known as the Department for Levelling Up, Housing and Communities

24. Ensure that developments and infrastructure are compliant with Net Zero and appropriately resilient to climate change through proposed amendments to the Planning Bill.

2021-22

DLUHC has published clear policies in the National Planning Policy Framework, which sets out how the Government expects the planning system to help mitigate and adapt to climate change and addresses the need to reduce carbon emissions.

The Framework expects Local Plans to take account of climate change over the longer term; local authorities should adopt proactive strategies to reduce carbon emissions and recognise the objectives and provisions of the Climate Change Act 2008. Support for transition to a low carbon future is one of the core planning principles set out in the Framework.

The National Model Design Code provides tools and guidance for local planning authorities to help ensure developments respond to the impacts of climate change, are energy efficient, embed circular economy principles and reduce carbon emissions.

We will make sure that the reformed planning system supports our efforts to combat climate change and help bring greenhouse gas emissions to net zero by 2050.

25. Ensure that all types of current and future flood risk are included in policies to assess flood risk to new developments. Housing targets for local authorities should take account of flood risk, amongst other environmental issues. Assessments and management of flood risk in new developments must as a minimum:

- **Include evidence that the development will be safe over its full lifetime, with a consideration of the downstream interactions and impacts of new developments (i.e. it should not increase flooding in other areas).**
- **Include an assessment of current and future flood risk under both 2°C and 4°C global climate scenarios.**
- **Assess and manage the risk of flooding to local infrastructure as well as housing.**
- **Include a consideration of better preparedness as set out in the Government's recent FCERM Policy Statement.**
- **Ensure there are properly funded and trained staff in local authorities.**

By 2022

We are committed to building the homes that this country needs and we are clear that appropriate planning must be in place to ensure new homes are sustainable, safe and resilient to the effects of climate change, including the increased risk of flooding. The National Planning Policy Framework (NPPF) is clear that all sources of flood risk need to be considered, taking into account future flood risk, to ensure that any new development is safe for its lifetime without increasing the risk of flooding elsewhere. The Government conducted a review of the policy for development in areas at risk which examined key elements of planning policy related to flood risk and

concluded that there are robust measures in place to protect people and property from flooding which all local planning authorities are expected to follow.

Our standard method for calculating local housing need is only the starting point in the process of planning for new homes. Local Authorities will still need to consider the environmental constraints they face locally, such as flood risk, before determining their housing requirement. The local housing need methodology does not dictate where homes should go. The National Planning Policy Framework (NPPF) is clear that plans should be informed by a strategic flood risk assessment and that authorities should take a sequential, risk-based approach to the location of development- taking into account all sources of flood risk and the current and future impacts of climate change. Informed by the NPPF, it is up to councils to decide how many, where and what sort of homes should be built once constraints have been taken into account.

The NPPF is clear that areas at little to no risk of flooding from any source should always be developed in preference to areas at a higher risk of flooding. Where development is necessary, and where there are no suitable sites available in areas with a lower risk of flooding, the proposed development should be made safe without increasing flood risk elsewhere. Where these requirements are not met, new development should not be allowed.

The Environment Agency use climate change allowances when they provide advice on flood risk assessments and strategic flood risk assessments. These have recently been updated so that they are provided at a much higher resolution (catchment scale) so that the significant variation between catchments will not result in under or over-estimating the flood risk. Climate change is an important consideration within planning policy. The NPPF states that current and future flood risk needs to be considered when making decisions on placing any new development.

The Government's policies are clear that inappropriate development should not be allowed to go ahead in the functional flood plain, where water has to flow or be stored in times of flood, whether they are domestic or non-domestic development including infrastructure.

26. To address the issue of increased risk of surface water flooding in new developments, commit to ensuring that new developments do not put more water into the public sewers than what was there before, taking account of climate change. To incentivise this, end the automatic right to connect to the public sewer; planning reforms should enact Schedule 3 of the Flood and Water Management Act (2010); and technical SuDS standards should be made mandatory and be updated to deliver SuDS that provide multiple economic, social and environmental benefits.

By 2022

The Government's planning practice guidance already includes a hierarchy for sustainable drainage options that favours non-sewer solutions. The guidance is clear that draining to a combined sewer should be the least favoured option in new development.

Government planning policy is also clear that Sustainable Drainage Systems (SuDS) are to be provided in all major, new developments, unless there is clear evidence that this would be inappropriate, and that they should be given priority in new developments in flood risk areas.

The Government's review of the effectiveness of the sustainable drainage policy in the planning process, published August 2018, concluded that the ability or otherwise of a development to connect to the public sewer is not a key determinant on the arrangements made for drainage in new development proposals.

Defra published a report[28] in February 2021 which assessed whether updating the non-statutory technical standards for SuDS could help provide for multi-functional benefit SuDS. The report recommended updating the standards with a more robust and easily understood suite of standards, covering considerations such as biodiversity, extreme rainfall and water quality. Defra will consider the evidence and how it could inform future change to boost uptake.

In August 2021, the Government announced a review of the case for implementing Schedule 3 to the Flood and Water Management Act 2010 starting by October. This review will look at the benefits and cost of implementation as well as options for ensuring that sustainable drainage, or SuDS, are incorporated in future developments.

By September 2022 the Government will publish a statutory plan to reduce sewage discharges and the harms they cause. This plan will be informed by the work of the Government led Storm Overflows Taskforce, which will report this year with options to significantly reduce the frequency and impact of sewage discharges. The taskforce's recommendations will also extend to existing legislation, such as section 106 of the Water Industry Act 1991. Defra will consider the points raised in the Review of surface water responsibilities alongside the taskforce's report.

The Environment Agency has committed to working with water companies to support the development of drainage and waste water management plans help reduce flood and contamination risks from climate change.

27. To help improve the information on SuDS and surface water flood risk, urgently begin collecting data on sewer capacity and SuDS location, type and capacity. This would bring the level of information in line with that for river and coastal flood risk defences.

By 2021

The Government published its progress update on implementation of its Surface Water Management Action Plan and has responded to the recent independent review into surface water and drainage responsibilities.

The Government fully supports the use of blue-green infrastructure, such as sustainable drainage systems (SuDS) and grey water recycling to manage surface

[28] http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=20287&FromSearch=Y&Publisher=1&SearchText=WT15122&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description

water, across existing and new communities. In the FCERM Policy Statement the Government has committed to increasing the provision of sustainable drainage systems.

In England, the responsibility for local flood risk management, including surface water, falls to lead local flood authorities (county and unitary authorities) who must identify and manage these risks as part of their local flood risk management strategy. To manage these risks, lead local flood authorities will work closely with other risk management authorities, such as highway authorities and water and sewerage companies. In addition, Flood Risk Management Plans provide for managing flood risk for all sources of flooding for Flood Risk Areas within River Basin Districts. These are being updated to include measures to address climate change challenges, encourage natural flood management and support the National Strategy and will be consulted on in October 2021.

To increase awareness of the risk the Government has provided grants to 28 lead local flood authorities to update their surface water risk maps, ensuring they are a more accurate guide for local action, benefiting 3.3 million people.

28. The consultation process for surface water flood risk must be improved. This should be done by adding statutory consultees for all development type and sizes. Consultees must have the appropriate skills to provide advice on surface water flood mitigation. Ensure that Local Authorities fully justify planning decisions where applications can proceed either without or going against formal flood risk mitigation advice.

By 2022

Lead local flood authorities are already statutory consultees on major planning applications (10 houses or more).

New guidance for local planning authorities, designed to drive up compliance with planning rules, will reaffirm that they must refer planning decisions to Ministers when the Environment Agency is sustaining an objection on flood risk. Under the plans, the Government will also consider how planning decisions in areas at risk from surface water flooding could be subject to the equivalent rules in future.

Defra has reviewed the case for implementing section 42 of the Flood and Water Management Act 2010 which would enable a mandatory build standard for new sewerage assets in new developments. As a result, Defra is starting work to consider possible policy options for implementation, on which it would consult in due course. The implementation of section 42 would mean new sewerage assets constructed from the implementation date would be automatically adopted by sewerage companies. Sewerage companies would of course wish to ensure during the construction of the development that those sewerage assets were built to the mandatory standard.

The Government’s strategic policy statement to Ofwat sets out the Government’s priorities and objectives for Ofwat’s regulation of the water sector in England,

including resilience to flooding. Following the 2017 strategic policy statement[29] and 2019 Price Review[30] the water industry has committed to doing more to tackle natural hazards, such as flooding and is investing £1 billion to reduce the impact of flooding on communities across England and Wales. The Government is currently consulting on a new strategic policy statement,[31] which includes a focus on a resilient water sector, including greater resilience to flooding.

Water companies and other risk management authorities should work together to manage water in a more integrated way to improve flood resilience, enhance the natural environment and deliver value for customers. The Environment Agency and Ofwat will help enable this through their respective roles and strategies – specifically the new national strategy and Ofwat strategy.[32] In the lead up to the 2024 Price Review, the Environment Agency and Ofwat will develop a joint approach for how water companies should consider flood and coastal resilience in the context of their statutory roles and duties (by April 2022). All risk management authorities should actively participate in local flood risk management strategies and Drainage and wastewater management plans, to share their expertise and engage with communities in the collective endeavour to manage flooding in communities.

Through the Environment Bill the Government is seeking to make drainage and sewerage management planning a statutory planning activity. The expectation is that this should lead to improvements in how sewerage companies work with partners who use or have an impact on wastewater networks, including via delivery of measures to reduce surface water run-off into sewers such as retrofitted sustainable drainage systems. The Government supports and promotes the use of sustainable drainage systems, and other blue-green infrastructure, especially where it can reduce surface water flood risk, and has made commitments in its policy statement and 25 Year Environment Plan.[33]

All local planning authorities and risk management authorities should ensure they can deliver their statutory functions.

The Government's policy statement[34] includes a commitment to work with the Environment Agency to support all local planning authorities in receiving and understanding the appropriate expert advice on all sources of flood risk so that they can make the right decisions.

[29] Strategic policy statement to Ofwat: incorporating social and environmental guidance https://www.gov.uk/government/publications/strategic-policy-statement-to-ofwat-incorporating-social-and-environmental-guidance

[30] Ofwat 2019 price review https://www.ofwat.gov.uk/regulated-companies/price-review/2019-price-review/

[31] Water industry: government's strategic policy statement to Ofwat https://www.gov.uk/government/consultations/water-industry-governments-strategic-policy-statement-for-ofwat

[32] Ofwat: our strategy https://www.ofwat.gov.uk/about-us/our-strategy/

[33] 25 Year Environment Plan https://www.gov.uk/government/publications/25-year-environment-plan

[34] Flood and coastal erosion risk management: policy statement https://www.gov.uk/government/publications/flood-and-coastal-erosion-risk-management-policy-statement

The new national strategy[35] also recognises the importance of the Environment Agency and other risk management authorities supporting the development of planning skills and capabilities needed to ensure new development and spatial plans are resilient to flooding and coastal change.

29. Implement a strong set of standards – with robust enforcement – that ensure both new and existing buildings are designed for a changing climate and deliver high levels of energy efficiency and low-carbon heat. Including:

- **Publish robust definitions of the Future Homes Standard and Future Buildings Standard which are legislated in advance of 2023 and ensure no fossil fuels are burnt in new buildings. This must include coordination with DfE, MoJ, DHSC as well as BEIS and HMT.**
- **Regulate the overheating requirement as set out in the Future Buildings Standard consultation. Expand the requirement to cover refurbishments of existing buildings and conversions of non-residential buildings to residential.**
- **Work with BEIS on the Heat and Buildings Strategy and use standards to set a clear direction for retrofit across the buildings stock.**
- **Ensure that the remit of the new buildings safety regulator covers climate change mitigation and adaptation, strengthened through an explicit responsibility for sustainability; and is fully equipped to monitor and enforce compliance with buildings standards.**
- **Work with HM Treasury to ensure that local authorities are properly funded to enforce buildings standards.**
- **Close loopholes allowing homes to be built which do not meet the current minimum standards for new dwellings. This includes provisions around the expiry of planning permission and permitted development rights relating to change of use. Make accurate performance testing and reporting widespread, committing developers to the standards they advertise.**

2021-2022

In the short term, the Government's priority will be to implement an interim 2021 Part L uplift for new homes and buildings as swiftly as possible. Work on a full technical specification for the Future Homes Standard (FHS) has been accelerated and the Government will consult on this in 2023. The Government intends to introduce the necessary legislation in 2024, ahead of implementation in 2025.

The Building Regulations will continue to set a performance-based standard rather than mandating or banning the use of any technologies. Regulations through the FHS will ensure all new homes in England are ready for net zero by having a high standard of energy efficiency and low carbon heating installed as standard. This should mean that all new homes will be fitted with a low carbon heat source such as a heat pump or connected to a low carbon heat network.

[35] National flood and coastal erosion risk management strategy for England https://www.gov.uk/government/publications/national-flood-and-coastal-erosion-risk-management-strategy-for-england--2

To ensure the Gas Act is in line with the FHS, the Energy White Paper confirmed that the Government will seek views on the feasibility of ending the connection of new build homes to the natural gas grid.

The Future Buildings Standard consultation sets out the Government's proposals to reduce the risk of overheating in new residential buildings by introducing a new overheating mitigation requirement in the Building Regulations. MHCLG is carefully considering the responses to the consultation and will publish its response in due course.

The Government is undertaking research to examine the overheating risk in existing buildings. However, the implementation of the overheating standard in new residential buildings should not be delayed by waiting for this evidence, particularly when vulnerable building occupants may be at risk.

MHCLG will continue to work closely with BEIS to implement the Heat and Building Strategy. This strategy sets out the actions the Government will take for reducing emissions from buildings, including in relation to retrofitting existing building stock.

The remit of the new Building Safety Regulator includes overseeing the safety and performance of all buildings. The first key aspect of this role is understanding and advising on existing and emerging building safety standards and safety risks. The second is the oversight of building control bodies to monitor their performance, identify patterns of regulatory failure and take enforcement action if their performance is below the expected standard. This will encourage building control bodies to improve safety and performance of all buildings and drive-up continuous improvement and culture change.

These measures will improve the efficacy of building regulations across the board. Climate change mitigation and adaptation are intrinsic components of the building regulations and will remain so.

To support successful implementation of the 2021 interim Part L uplift and therefore better support the wider implementation timeline for the FHS from 2025, the Government is introducing significantly more stringent transitional arrangements, effective from mid-2022, that apply to individual homes rather than an entire development which was previously the case. This means that if a developer submits an initial notice, a building notice or full plans for a building prior to mid-2022 then they will have 12 months from when the Regulations come into effect to commence work on that individual building after which, the new regulations will apply.

The FHS consultation put forward a comprehensive package of measures to improve compliance, reduce the performance gap and provide more information to energy assessors, building control and homeowners. The Government will introduce all the proposals set out in the consultation to help address the performance gap. This will reduce the performance gap by improving the accuracy of as-built energy calculations and providing clearer information about the as-built specifications of new buildings to both building control bodies and homeowners.

30. Introduce an urban greenspace target to reverse the decline and ensure towns and cities are adapted to more frequent heatwaves in the future and that the 25-Year Plan goals are met.

By 2022

MHCLG is working closely with Defra to understand how the planning system can support the implementation of the 25 Year Environment Plan (25YEP) and complement the aims of the Environment Bill.

Chapter 3 of the 25YEP highlights the range of important environmental, health and social benefits provided by green infrastructure in urban areas, and notes that as we build more homes, preserving, improving and creating green spaces in urban areas is more important than ever. The Government stands by its commitment to encourage investment in green infrastructure in urban areas, as well as planting more trees in our towns and cities and clarifying planning policy for biodiversity net gain.

Green infrastructure in urban areas will be a vital tool to not only improve the health of our local, urban areas but also to help resist future, more frequent heatwaves in the future.

Recommendations for the Department for Business, Energy and Industrial Strategy (BEIS)

31. Ensure that adaptation is integrated into major upcoming policies in the next two years related to the eight priority risks identified in the Committee's advice on the third UK Climate Change Risk Assessment (CCRA3) for which BEIS has lead responsibility, coordinating work with other relevant departments as necessary:

- **Risks to the supply of food, goods and vital services due to climate-related collapse of supply chains and distribution networks (with Defra and DIT)**
- **Risks to people and the economy from climate-related failure of the power system**

In addition, for the coming five-year period 2023-2028, BEIS should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the other risks and opportunities in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

The Government is committed to supporting climate adaptation as well as mitigation, and will outline appropriate actions in the next National Adaptation Programme. The UK is already leading the fight against climate change by delivering on our world-leading target of net zero greenhouse gas emissions by 2050. However, adapting to the inevitable changes in our climate is also vital. While the Government continues to reduce the UK's contribution to climate change, it is also taking robust action to improve the resilience of the UK's people, economy and environment.

The Government has a commitment in the Agriculture Act (2020) to publish a regular report on the subject of food security. The food security report will be a significant body of work that will use a set of core measurements and indicators for each of the key topic areas. This will include a range of themes which cover both global and domestic food security, from global food availability to consumer safety and confidence. The UK food security report will inform future discussions and debate to shape future policy on UK food security, to ensure that key challenges are met.

On supply chains specifically, DIT is examining risks to critical non-food supply chains, encompassing those risks wrought by climate change. This work will identify the specific risks that the UK's critical non-food supply chains will face from climate change in the coming years and implement actions to support the resilience of those supply chains into the future.

BEIS is working with the energy industry, regulators and other stakeholders to improve and maintain the resilience of energy infrastructure, networks and assets, to reduce vulnerabilities, and ensure an effective response to actual or potentially disruptive incidents- taking into account future system changes and climate change risks. For example, BEIS and Ofgem are jointly consulting on proposals for an expert, impartial Future System Operator (FSO) with responsibilities across both the electricity and gas systems, to drive progress towards net zero while maintaining the resilience of the energy system and minimising costs for consumers.

The Government is considering how to ensure flexible demand and supply (including through smart technologies and energy storage) of energy to households over summer and winter is taken into account across the full range of energy performance, fuel poverty and heat policies, including regulation and subsidy schemes, including by:

- Building on existing work to consider how smart technologies could be recognised in the Standard Assessment Procedure (SAP) methodology and, for non-domestic premises, the Simplified Building Energy Model (SBEM). Considering the merits of introducing a separate 'smart readiness indicator'.
- Encouraging the uptake of smart meters, enabling a move towards a system which measures actual, rather than modelled, energy performance.
- Working with the construction sector through the CO_2nstruct Zero initiative to decarbonise the construction supply chain, through better design, reduced waste and by reducing emissions from construction plant and equipment.
- Investigating the role of energy storage and smart technologies as part of development work on the Future Homes and Future Buildings Standards.
- Considering flexibility across subsidy schemes and market mechanisms for our domestic and non-domestic buildings, and also considering smart technologies under the Government's policy framework for energy-related products

As part of the Government's action to decarbonise buildings to reach net zero, it will ensure buildings are resilient to the impacts of climate change by implementing appropriate adaptation measures to mitigate risks of overheating and decreased indoor air quality.

In addition, the Government is working with the energy industry, regulators and other stakeholders to improve and maintain the resilience of energy infrastructure,

networks and assets, to reduce vulnerabilities, and ensure an effective response to actual or potentially disruptive incidents, taking into account future system changes and climate change risks.

32. BEIS should ensure that Net Zero and adaptation are considered together in the forthcoming Net Zero Strategy. There should be a focus on maximising synergies and minimising trade-offs between mitigation and adaptation actions and the risks from climate change to achieving Net Zero. Actions that have multiple benefits across climate change mitigation, adaptation, biodiversity, and health should be high on the Government's agenda for action over the next five-year period.

By 2021

The Net Zero Strategy (NZS) outlines how the Government will mitigate climate change while maximising opportunities to adapt to it and deliver other environmental objectives. Trees, for example, can be planted in ways which allow them to secure carbon, benefit wildlife and improve flood resilience. Peatland restoration, meanwhile, can help to mitigate flood risks and improve biodiversity whilst preserving the carbon store.

The NZS commits to ensuring that decarbonisation policies are resilient to climate change risks. Cooling in buildings, with its current and potential future demand, will need to be delivered in a way that considers the heating and cooling systems of the whole building. Improving the condition, diversity and connectivity of our wildlife habitats can also help species to survive climate impacts.

The NZS's Climate Science Annex discusses what climate science tells us on the need for mitigation and adaptation policy. There are cross-government forums where adaption and net zero are regularly discussed.

33. Improve understanding of and support action on overheating in existing residential buildings and encourage retrofit of passive cooling measures. The Heat and Building Strategy must consider overheating risks. The following steps are needed:

- **Further research to understand when overheating occurs in existing homes, including ongoing monitoring of temperatures in the housing stock, monitoring of overheating exceedances in homes, and the number of homes currently adapted.**
- **Guidance and information for homeowners with the steps that can be taken if their homes overheat. This should include an outline of behavioural options and the measures that can be installed to reduce internal temperatures. Green Building Passports and home retrofit plans could provide holistic guidance and help to unlock green finance.**
- **Overheating risk considered and mitigated against if necessary when doing energy efficiency retrofit programmes.**
- **Making finance available to install adaptation measures. This could be via grant schemes or green finance for private owners, with public funding targeted at low-income or vulnerable households alongside energy efficiency retrofit.**

By 2022

The Heat and Buildings Strategy highlights the need to consider key risks including overheating, indoor air quality, flood risk and water scarcity when developing future policies to future-proof buildings, in addition to the importance of active and passive cooling measures.

BEIS recently published *Cooling in the UK,* a research project led by AECOM that assesses potential future cooling needs in buildings.[36] The report found that while cooling demand in the UK will likely increase, the impacts on demand can be minimised through appropriate policy interventions.

BEIS plans to undertake further work in this area, building upon the findings of AECOM's report.

BEIS also recently published *Energy Follow Up Survey (EFUS) 2017 Reports*, research led by BRE primarily on winter heating patterns, energy consumption and thermal comfort but with one section by Loughborough University on summer overheating.[37] The latter identified patterns of overheating in different dwelling and household types from both interview responses and temperature measurements. However, evidence on any connection with energy efficiency ratings and measures was inconclusive so further research is currently being planned.

34. Support businesses to play their full role in the Net Zero transition and in adapting to climate risks and opportunities, for example by extending and expanding the role of the Net Zero Business Champion beyond COP26, building on the Race to Zero and Race to Resilience campaigns and providing sufficient resources to fully support businesses of all sizes to engage in the transition, to input to policy development and to set their own robust Net Zero and adaptation action plans.

2021-2022

As the UK's Net Zero Business Champion, Andrew Griffith MP's role is to support the Government's efforts to mobilise the business and investment community and to showcase UK businesses as global leaders in tackling climate change in this important period leading up to COP26 in November.

By November, the aim is to encourage as many UK businesses as possible, of all sizes, to join the UN 'Race to Zero' campaign – a global effort to reduce the amount of greenhouse gases we all generate to zero by 2050. As of September 2021, over 2600 UK businesses of all sizes have made a Race to Zero pledge, which includes over 1,700 small businesses that have made the SME Climate Commitment through the UK Government's Business Climate Leaders campaign. With the publication of the Net Zero Strategy, and following COP26, the Government will continue to work

[36] Cooling in the UK https://www.gov.uk/government/publications/cooling-in-the-uk
[37] Energy Follow Up Survey (EFUS) 2017 Reports https://www.gov.uk/government/publications/energy-follow-up-survey-efus-2017-reports

closely with businesses to encourage them to start their net zero journey by reducing their emissions.

BEIS is working across government, and with regulators to drive progress on the Task Force on Climate-related Financial Disclosures (TCFD) through the UK's incumbent Presidency of COP26 and G7 Presidency.

TCFD can deliver high-quality disclosure on how organisations will manage the material financial risks and opportunities arising from climate change and will improve transparency and encourage better informed pricing and capital allocation. As a result, over time, TCFD will support investment decisions aligned with our transition to a lower-carbon economy. The Government sees implementation of the TCFD recommendations as a key building block on the road to a greener economy, not just in the UK, but globally.

BEIS also works with the Environment Agency, as it helps businesses to understand and prepare for climate risks through its regulatory roles. It has committed to transforming its regulatory approach beyond the immediate environmental impacts of an activity by:

- Exploring systems approaches to account for cumulative impacts and interdependencies
- Enabling innovation, responding to future challenges and new technologies as part of a transition to a net zero economy
- Fostering operator accountability and continuous improvement, for example by making use of national and international standards

35. Develop further ways to embed Net Zero and climate risk in financial decisions by UK firms, building on the UK's Green Finance Strategy. This should include implementing mandatory climate disclosure, adoption of a robust green taxonomy with clear guidance on how it should be used. It should also consider the recommendations of the Committee's Finance Advisory Group, such as making Net Zero and adaptation plans mandatory for financial institutions and monitoring financial flows into climate action.

2021-2025

In his Mansion House speech, the Chancellor announced plans to introduce economy-wide Sustainability Disclosure Requirements for businesses and investment products. The SDR will ensure that firms report on their impact on climate and the environment – and the risks/opportunities these pose to their business. It builds on and streamlines existing sustainability reporting requirements such as the Government's commitment to economy-wide Task Force on Climate-related Financial Disclosures (TCFD) reporting – where the UK is already a world-leader – and taxonomy disclosures.

The Government is implementing a UK Green Taxonomy. This will clearly set out the criteria which specific economic activities must meet to be considered environmentally sustainable. The first two Technical Screening Criteria (TSC) on climate change mitigation and adaptation will be made by the end of 2022. To support the development of the TSCs, the Government has announced the appointment of a Green Technical Advisory Group (GTAG) in June 2021. Made up a

of range of financial and business stakeholders, taxonomy and data experts, and subject matter experts, and chaired by the Green Finance Institute, this will provide independent, non-binding advice to the government on developing and implementing a Green Taxonomy in the UK context.

Ahead of COP26, the Government is rallying the financial services sector to commit to net zero through membership of the Glasgow Financial Alliance for net zero, and will work closely with the regulators to encourage and support firms to publish transition plans, providing further details before the end of 2021.

36. Make monitoring and data analysis of climate risks more accessible, alongside better digitisation of past records. Further efforts should be taken to make the evidence on climate risks more usable for decision makers through co-design of research programmes with end users, where the user drives the research question from the beginning of the process. A major gap is the lack of projections of impacts in 2ºC and 4ºC scenarios; this needs addressing as an urgent priority ahead of CCRA4.

By 2022

BEIS has commissioned the £5 million, 4-year Climate Services for a Net Zero Resilient World (CS-N0W) programme, delivered through a consortium of transdisciplinary academic partners (including UCL, the Tyndall Centre and UKRI-NERC centres) led by consultancy Ricardo, to undertaken original research and analysis and use the results to inform relevant departmental policies and activities.

The programme comprises over 14 separate sub-projects and includes: quantifying the impact of future climate change on residential heating and cooling needs for housing across the UK; developing an improved understanding of adaptation/mitigation co-benefits; modelling the future availability of water resources in relation to siting of new energy infrastructure; and modelling future climate change impacts at different levels of global warming.

This approach to climate service provision establishes a user-led framework that will provide BEIS, other BEIS-relevant departments and agencies with quality-assured information to help inform decisions made during policy formation and delivery. The intention is to build on this programme in future years, to broaden and deepen its scope across BEIS policy areas, and to work with Other Government Departments to explore how successors to this programme can meet user needs across the entire impacts and adaptation space.

BEIS has published the *Cooling in the UK* study which has made projections of future cooling demand in UK buildings. These projections are based on different climate scenarios and estimate the impact on the energy system as a result.

Recommendations for the Cabinet Office

37. Cabinet Office should ensure that adaptation is integrated into major upcoming policies in the next two years related to the priority CCRA3 risk for which it has lead responsibility, coordinating work with other relevant departments as necessary:

- **Multiple risks to the UK from climate change impacts overseas**

In addition, for the coming five-year period (2023-2028), Cabinet Office should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the other risks and opportunities in the CCRA3 for which it is the lead department (see Progress Report Annex).

By 2023.

In addition to actions to tackle Climate Change and biodiversity loss, the Integrated Review has already committed the Government to publish a Resilience Strategy. This will set out how the UK can improve its resilience to a wide range of risks, including climate change impacts. By 2030, the Government aims to have improved its ability to assess and understand the risks we face. The Government will use its systems, infrastructure and capabilities to better prepare for, respond to and recover from risks in all parts of the UK at a local, regional and national level. The transnational nature of many of these risks means that no single government can address them alone; the UK Government will continue its work with international partners, recognising that a resilient UK is crucial to global resilience and vice versa.

38. Cabinet Office should build a strong climate resilience capability for the UK, including making use of storyline or 'what-if' scenarios to assess risks, in addition to or instead of using 'reasonable worst-case' approaches. It should develop an early warning system for global climate shocks. It should consider how more allowance and flexibility can be built into policy making and policy implementation. This could include enhancing the ability of the Government to make fast decisions by bringing in technical advice and expertise quickly when needed, and both protecting, and enhancing, monitoring and surveillance systems to enable faster reactions as events unfold.

By 2023

The Government produces a number of risk assessment products that support building climate resilience and regularly reviews its approach. The Government is currently reviewing the National Security Risk Assessment (NSRA) methodology, including the use of 'reasonable worst cases'. To ensure external challenge, the Cabinet Office has commissioned the Royal Academy of Engineering (RAEng) to lead part of it. In line with the CCC's suggestions, RAEng's emerging recommendations include: separating out chronic and acute risks within the NSRA to drive appropriate planning; using multiple scenarios to better encapsulate uncertainty; and opening the process up to greater external scrutiny as a matter of course. RAEng's final recommendations will be delivered in mid-September and, alongside input from risk-owning departments across government, these will be used to formulate a revised NSRA methodology.

Climate shocks have the capacity to generate significant cascading risks such as heatwaves, wildfires and flooding. The Government continues to refine its horizon scanning capabilities to improve its ability to detect indicators of increased likelihood of extreme events such as those associated with climate change.

The new National Situation Centre (SitCen) is being established to bring together data and expertise for situational awareness and crisis response. It will incrementally add value across the full range of national security risks, many of which will be impacted both in frequency and severity by climate change. The SitCen will support the work of lead departments by bringing together experts from across government, industry and beyond, and through developing digital data capabilities to understand vulnerabilities, drive insights and support decision making.

Recommendations for the Department of Health and Social Care (DHSC)

39. For the coming five-year period 2023-2028, DHSC should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the four risks and opportunities in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

DHSC recognises the risks of climate change to health and wellbeing and impact on health system, as well as potential benefits. Knowing that the threat of climate change requires sustained action from multiple health actors, DHSC will work with the UK Health Security Agency (UKHSA), NHS England & NHS Improvement (NHSE&I) and partners across the health and social care system to develop the actions and commitments for the forthcoming 2023-2028 National Adaptation Programme (NAP). This work will focus on actions and deliverables that address the risks identified in the CCRA and increase health system resilience to current and future climate impacts (i.e. heatwaves and overheating, flooding). This work will also reflect any health commitments that are made in relation to COP26.

To enable effective delivery of the third NAP actions within the required timescales, DHSC is working with its arms' length bodies to establish a cross-system climate resilience working group to coordinate and drive adaptation and health protection actions across the sector and ensure the opportunities for tackling climate change are fully realised and inequalities are not exacerbated. Where evidence gaps are identified, DHSC will support operational, policy-focused research with real-world implications.

Increased frequency and severity of extreme weather events (i.e. heatwaves) is a key health risk posed by climate change, particularly for older people and other vulnerable groups. DHSC is working with its arms' length bodies and other stakeholders in the health and care sector to ensure the health system is better adapted to manage this risk. Aiming to mainstream adaptation activity, DHSC will continue to support UKHSA on the development of the Single Adverse Weather and Health Plan and associated early warning systems. This work includes raising

awareness amongst the public and health and care workforce of actions they can take to protect themselves and vulnerable people in a heatwave and exploring steps that can be taken to improve the resilience of health and care settings to hot weather. Work also includes reducing the evidence gap around the costs of extreme weather events and adaptation in the health and social care sectors.

UKHSA's Health Protection Research Unit (HPRU) with King's College London under the theme of Emergency Preparedness and Response carries out work relevant to this area, as does the HPRU with the London School of Hygiene and Tropical Medicine, under the theme of Environmental Change and Health. These are helping to build the evidence base around the impacts of extreme weather events arising from climate change, to inform relevant policy development.

The Third Health and Social Care Adaptation Report is due for publication by NHSEI and UKHSA in autumn 2021. The report recognises the risks and opportunities in the CCRA. It assesses health sector vulnerability to existing and future climate risks and opportunities in the CCC's Advice to government, including overheating.

For the risk to health from vector borne diseases, DHSC is already progressing work with UKHSA, including through improved surveillance, clarity on eradication approach and preparations to respond to potential health threats of this nature. There are several workstreams in train that will strengthen disease surveillance systems, such as adding additional diseases to the Health Protection (Notification) Regulations 2010 and strengthening UK-wide coordination as a result of the Health Security (EU Exit) Regulations 2021.

DHSC is exploring what more can be done to tackle the specific and increasing threat of vector-borne diseases. It is also establishing the UK Health Protection Committee, which will provide a governance mechanism for work across the UK – including with the new UKHSA – to enhance domestic capability.

UKHSA's Climate Change and Health Group is leading the fourth iteration of the Health Effects of Climate Change (HECC) Report in the UK, due 2023. The HECC report will include an update of the evolving risks for health under UKCP18 climate projections. This is a statutory deliverable under the NA P. A programme of research will be developed and undertaken to build and synthesise evidence on risks, projections, opportunities, and adaptation for health related to climate change.

40. Assess health sector vulnerability to existing and future climate risks, particularly, for care homes and home-based care. Following this, develop a cross-sector approach to address risks. This cross-sector approach should include input from CQC, PHE, NHS, MHCLG and local level public health bodies.

By 2022

DHSC agrees with this recommendation. DHSC will coordinate a cross-sector assessment of health system resilience to climate change that will consider projections for our changing climate and the impact of changing models of care (i.e. increasingly complex care being delivered in the home setting). This action will help DHSC identify to what degree our health system is susceptible to, or unable to cope with, adverse effects of climate change. There is considerable potential for health

system leadership across society as healthcare professionals, advocates, employers and procurers. As such, DHSC will work with partners in supporting workforce development on climate change and health.

Government is currently analysing the economic impacts of this climate risk, and the costs and benefits of intervention. This work includes looking at the cost to the NHS of staff working in overheating buildings which can be used to leverage further adaptation/mitigation action. DHSC is working with the Care Quality Commission (CQC) regarding a proposal to incorporate overheating risks into care home inspections. To support this, DHSC has linked with Professor Mike Davies at UCL, who is part of ClimaCare (a UCL-based project looking at the climate resilience of care settings) on his work looking at adaptation in care homes.

CQC's recently launched strategy contains a commitment to addressing environmental sustainability as England's health and care system regulator. To deliver on this new commitment, CQC will be considering providers' actions on climate change and environmental sustainability in its new regulatory model. This will include using its assessments to identify trends in climate related events that affect service provision, supporting providers in reducing their environmental footprint, and reviewing measures in place to respond to extreme weather events, such as high temperatures and flash flood events.

DHSC will continue to support health partners on operational, policy-focused research with real-world implications to build the evidence base and support/enable the frontline.

41. Fund the strengthening and widening of vector and pathogen surveillance and early warning mechanisms, due to the increasing risk of disease spread as a result of climate change and other factors.

Now and ongoing

In the past decade, approximately 75% of newly emerging infections have been of zoonotic origin. Despite the difficulty in predicting where and when novel infectious diseases will next emerge, the Government has procedures in place to risk assess novel pathogens and their potential impact on human health. This is led by specialist groups, such as the Human Animal Infections and Risk Surveillance group (HAIRS) and the Advisory Committee for Dangerous Pathogens (ACDP) who produce expert-authored risk assessments. As a result, the UK has an effective response system for outbreaks, which focuses on minimising the impact of infectious diseases on human health.

Through the UK's G7 Presidency, we have committed to doing more, by establishing an International Zoonoses Community of Experts, creating the Centre for Pandemic Preparedness, and conducting a One Health Intelligence Scoping Study to ensure these systems work better together to identify future threats to health security.

DHSC enhances its preparedness by funding academic research into emerging diseases, including through the Health Protection Research Unit (HPRU) in Emerging and Zoonotic Infections, part of the National Institute for Health Research (NIHR). DHSC also support Defra on UK inputs to The Intergovernmental Science-Policy

Platform on Biodiversity and Ecosystem Services (IPBES) work programme, including ongoing consideration of the inter linkages between biodiversity and health.

PHE's Health Protection Research Unit (HPRU) and the London School of Hygiene and Tropical Medicine are working on climate change research with a focus on 10 topic areas including vector-borne diseases and other infections. As part of this, HPRU will undertake modelling using UKCP18 climate projections to determine how climate change may impact vectors and vector-borne diseases in the UK. The insights from COVID-19 will be used to re-examine future infectious disease threats and the response to these. The HPRU programme runs from 2020 to 2025.

Recommendations for Her Majesty's Treasury (HMT)

35. Develop further ways to embed Net Zero and climate risk in financial decisions by UK firms, building on the UK's Green Finance Strategy. This should include implementing mandatory climate disclosure, adoption of a robust green taxonomy with clear guidance on how it should be used. It should also consider the recommendations of the Committee's Finance Advisory Group, such as making Net Zero and adaptation plans mandatory for financial institutions and monitoring financial flows into climate action.

2021-25

In his Mansion House speech, the Chancellor announced plans to introduce economy-wide Sustainability Disclosure Requirements (SDR) for businesses and investment products. The SDR will ensure that firms report on their impact on climate and the environment – and the risks/opportunities these pose to their business. It builds on and streamlines existing sustainability reporting requirements such as the Government's commitment to economy-wide Task Force on Climate-related Financial Disclosures (TCFD) reporting – where the UK is already a world-leader – and taxonomy disclosures.

The Government is implementing a UK Green Taxonomy. This will clearly set out the criteria which specific economic activities must meet to be considered environmentally sustainable. The first two Technical Screening Criteria (TSC) on climate change mitigation and adaptation will be made by the end of 2022. To support the development of the TSCs, the Government has announced the appointment of a Green Technical Advisory Group (GTAG) in June 2021. Made up a of range of financial and business stakeholders, taxonomy and data experts, and subject matter experts, and chaired by the Green Finance Institute, this will provide independent, non-binding advice to the government on developing and implementing a Green Taxonomy in the UK context.

Ahead of COP26, the Government is rallying the financial services sector to commit to net zero through membership of the Glasgow Financial Alliance for net zero and will work closely with the regulators to encourage and support firms to publish transition plans, providing further details before the end of 2021.

42. For the coming five-year period 2023-2028, HMT should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks in the CCRA3 for which it is the lead department (see Progress Report Annex).

By 2023

HMT will outline actions to address the adaptation gaps identified for risks in which it has an interest in the next National Adaptation Programme.

43. The spending review(s) should ensure departments are fully equipped to deliver the necessary actions across climate change mitigation and adaptation, during the rest of this Parliament and beyond.

By 2021

Ensuring spending decisions contribute to net zero is a major priority for HMT. The Green Book already mandates the consideration of climate and environmental impacts in spending. It has also been updated so that policies must be developed and assessed against how well they deliver on the Government's long-term policy aims such as net zero.

The Green Book directs users to the Climate Change Risk Assessment (CCRA) to consider current and potential future climate risks and vulnerability to risks of an intervention. The CCRA provides a framework that quantifies interactions with climate risk and enables consideration of the role of climate in altering the scale and distribution of costs and benefits over the lifetime of the proposal.

In addition, in the 25 Year Environment Plan, the Government committed to ensure that all policies, programmes and investment decisions consider the possible extent of climate change this century. As part of ensuring this approach is embedded in policy and programme decisions, the Government has revised the Green Book Supplementary Guidance on Accounting for the Effects of Climate Change to include updated information on climate evidence and assessments.

At Spending Review 2020 (SR20), guidance required departments to include the greenhouse gas emissions of bids, and their impact on meeting Carbon Budgets and net zero. HMT has reviewed the learning from this exercise to further embed climate change in spending decisions at SR21 and in the long term. More detail on the Government's approach to embedding net zero in all policy decisions is set out in the Net Zero Strategy.

Recommendations for the Department for Digital, Culture, Media and Sport (DCMS)

44. For the coming five-year period (2023-2028), outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

The telecoms sector in partnership with DCMS has now established a Climate Change Risk Working Group, which has in turn developed a work plan to address the Risks identified in the CCC's Independent Assessment of UK Climate Risk (risks I1, I7, I13). Alongside this, the sector proactively identifies "at risk" sites based on these risks, and is devising plans to mitigate the risk by relocating or reducing the reliance on these sites. Longer-term research, facilitated by the working group, has already begun to explore the high/low temperature tolerance of the equipment that the sector uses to determine what impact this may have on longevity and reliability. This aims to inform the impact assessments on these risks.

There are no progress report priorities for risks to cultural heritage. DCMS continues to counter risks posed to international cultural heritage through its ODA funded cultural heritage protection climate programmes, working with stakeholders and advocacy for the role of adaptation and resilience strategies to protecting cultural heritage in bilateral relationships and multilateral fora. This includes advocating for the inclusion of cultural heritage in National Adaptation Plans at the 2021 G20 summit and ongoing plans to showcase the UK's leadership in cultural heritage protection at COP26 as part of the adaptation track.

In relation to the risks to cultural heritage in the UK identified in the CCC's Independent Assessment (H11), DCMS has been working with its arms length bodies to map and record the impact of climate change on cultural heritage assets across the UK and understand future risk. Historic England has developed collaboration between UK Heritage Agencies and other stakeholders, including the National Trust to hazard map the impact of Climate Change on heritage assets. DCMS is also planning to publish an updated Heritage Statement soon, which will have a focus on Climate Change and the Environment.

45. Resilience standards for the digital sector must include requirements pertaining to climate change risks. In addressing the National Infrastructure Commission recommendations from the Resilience Study, government should incorporate consideration of climate change risks and adaptation actions into any new standards being developed. Standards for digital infrastructure operators should include requirements to:

- **Assess climate risks under both 2°C and 4°C global climate scenarios.**
- **Consider interdependencies with other critical infrastructure, and**
- **Set out actions to reduce risk and monitor progress.**

By 2022

Climate risks are no longer regarded as separate to other risks within resilience planning, holding the same weight in risk frameworks. Sectors now work closely with Local Resilience Forums and the Emergency Services to mitigate against climate change risks alongside other risks listed in the National Risk Register.

Through the continued encouragement to mainstream climate change risks across the digital sector, DCMS is ensuring that all approaches to these risks are standardised and aligned to broader resilience planning and incident management processes.

Recommendations for the COP Unit, the Foreign, Commonwealth and Development Office (FCDO)

46. For the coming five-year period (2023-2028), FCDO should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

FCDO will outline appropriate actions to address the adaptation gaps identified for risks in the CCRA in the next National Adaptation Programme. This will build on ongoing work highlighted in the NAP update to the CCC,[38] which recognises climate change as a threat multiplier.

Recommendations for the Department for Transport (DfT)

47. For the coming five-year period (2023-2028), DfT should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks and opportunities in the CCRA3 for which it is the lead department (see Progress Report Annex).

By 2023

DfT will continue to work with its partners and across government to identify appropriate actions to address the adaptation gap and will provide an update in the next National Adaptation Programme. DfT is developing an internal Climate Change Adaptation Strategy to bring together its ongoing work with industry and operators. DfT will use this to explore expectations, interdependencies, standards, and scenario planning. In parallel, DfT continues to review reports submitted through the Adaptation Reporting Power and work with its partners to identify future risks and opportunities. DfT is also committed to educating its staff in the risks of climate change – to raise awareness of how it might impact and should be considered in their on-going work.

[38] https://www.theccc.org.uk/wp-content/uploads/2021/06/CCC-Second-NAP-Monitoring-Action-Tracker.xlsx

Recommendations for the Department for International Trade (DIT)

48. For the coming five-year period (2023-2028), DIT should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks and opportunities in the CCRA3 for which it is the lead department (see Progress Report Annex).

By 2023

DIT is engaging proactively with the climate change adaptation agenda and is ready to contribute to the next National Adaptation Programme. Its work largely encompasses global supply chains, but also work from investment colleagues to deliver inward investment into UK's adaptation & resilience requirements, such as infrastructure and nature-based investment solutions, and the work of trade promotion teams to share and export UK adaptation and resilience expertise to other countries.

On supply chains specifically, DIT is examining risks to critical non-food supply chains, including risks from climate change. This work will identify the risks that the UK's critical non-food supply chains will face from climate change in the coming years and implement actions to support the resilience of those supply chains into the future. Methods of boosting the resilience of at-risk critical supply chains may include: exploring options to diversify the UK's supply chains to minimise disruption; working with international partners to boost supply chain climate resilience; and building domestic UK capability in key sectors.

The Government will also be promoting the UK as a centre of resilience and risk expertise, with a focus on speciality insurance underwriting, green investment financing, and environmental advisory services including consultancy and standards assurance. Working with the insurance specialty market and other related resilience services DIT will help build capacity in developed and emerging markets and develop and build commercial opportunities for UK firms in the finance, insurance and infrastructure sectors. DIT will also contribute to government's response to risks to finance, led by HMT.

Recommendations for the Home Office

49. For the coming five-year period (2023-2028), The Home Office should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

The Home Office (HO) is the lead government department for immigration, passports, drugs policy, crime, fire, counter-terrorism, and police. The HO plays a fundamental role in the security and economic prosperity of the UK, with a large workforce and estate based across the UK. With such a large estate and workforce the HO is

committed to managing the transition of its estate towards net zero and developing climate resilience in a manner which demonstrates public sector leadership.

The HO is aware of the risks posed by climate change to its estate and operations. The HO is also committed to incorporating resilient designs in relevant maintenance and new build programmes. Robust business continuity plans are in place to manage occurrences of extreme weather events and to ensure the HO estate is resilient to climate change.

Recommendations for the Ministry of Justice (MoJ)

50. For the coming five-year period (2023-2028), MoJ should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

MoJ is committed to preparing for the effects of climate change; and published its Preparing for Climate Change: A Climate Change Adaptation Strategy in 2020. Implementation is currently being developed.

In 2021-22 a Climate Change Risk Assessment of its estate and operations will be commissioned, which will focus on over- and under-heating, drought and flooding vulnerabilities. This will inform development of a detailed Climate Adaptation Action Plan.

MoJ is also exploring how to introduce climate resilience appraisals for key polices, programmes and projects to ensure they account for the effects of climate change and ensure resilience to future climate change risks. MoJ's New Prisons construction programme is already incorporating climate resilience in its design.

Recommendations for the Department for Education (DfE)

51. For the coming five-year period 2023-2028, DfE should outline appropriate actions in the next National Adaptation Programme to address the adaptation gap identified for the risks in the CCRA for which it is the lead department (see Progress Report Annex).

By 2023

DfE is working with University College London on two Natural Environment Research Council (NERC) projects: ARID (School Buildings Adaptation, Resilience and Impacts on Decarbonisation in a Changing Climate) and ASPIRE (Advancing School Performance: Indoor Environmental Quality, Resilience and Educational Outcomes). By 2022 the projects will deliver a digital twin of the school stock and archetype models used to assess low carbon and adaptation measures.

Based on the analysis and report in 2021 of the CIBSE School Design Group, Overheating Working Group, DfE has revised the summertime overheating risk

assessment in the S21 DfE Output Specification by requiring all designs for new and refurbished building funded by DfE to use Design Summer Years that match the IPCC 2ºC and 4ºC global warming scenarios.

In 2020/21 DfE commissioned the Resilient School Building study by leading Architectural and MEP design professionals to assess the range of design parameters affecting the resilience of school buildings to overheating, tested to 2ºC and 4ºC global warming scenarios, across English geographical locations. The findings informed the change to S21 DfE Output Specification of higher floor to ceiling heights, plus the mandating of cross-flow or stack ventilation and increasing resilience to higher temperatures by passive means rather than active cooling.

Research continues on risks identified by the CCC whilst planning for a zero carbon school estate. S21 DfE Output Specification has introduced the requirement for all new schools to be net zero Carbon in Operation.

The risks DfE is actively mitigating also include, flooding, increased rainfall, water shortages and increased air pollution. DfE has trialled flood prevention and overheating amelioration measures and wider sustainability measures across several schools. There have also been trials to improve air quality in schools. There will be opportunities to conduct further pilot studies to assess adaptation measures. Schools do not generally have adaptation plans for prevention of summertime overheating as a centrally driven policy although many Local Authorities have declared climate emergencies. The new S21 standards will have an impact on the retrofit of school buildings to provide the appropriate level of intervention.

The DfE Design Team works with PHE on Indoor Environmental Quality and summertime overheating in Schools. PHE runs the heat wave alert scheme and has some published guidance for early years on what to do in a heat wave. DfE has an opportunity to work with PHE to produce guidance for existing schools on heat waves and possible adaptation measures.

DfE has developed thinking around outdoor learning in new build standards, and the bid currently being developed for Spending Review pilot projects would improve this across the existing estate in a joined-up way across DfE, and with Defra and Other Government Departments.

Glossary

- 25YEP - 25 Year Environment Plan
- ARP - Adaptation Reporting Power
- AC - Adaptation (Sub-Committee) of the Committee on Climate Change
- CCC – Climate Change Committee
- CIBSE - Chartered Institution of Building Services Engineers
- COP- Conference of the Parties i.e., under the United Nations Framework Convention on Climate Change (UNFCCC).
- CQC- Care Quality Commission
- CEFAS - Centre for Environment, Fisheries and Aquaculture Science
- CCRA - Climate Change Risk Assessment
- DAs - Devolved Administrations
- Defra - Department for Environment, Food and Rural Affairs
- DHSC – Department Health and Social Care
- EA - Environment Agency
- EIP - Environmental Improvement Plan
- EU - European Union
- GINs - Genetic Improvement Networks
- HMG - Her Majesty's Government
- IOAF - Infrastructure Operators Adaptation Form
- JNCC - Joint Nature Conservation Committee
- LAs - Local Authorities
- LAAP - Local Adaptation Advisory Panel
- MEP - Mechanical Electrical Public Health Ltd
- MHCLG – Ministry of Housing, Communities and Local Government[39]
- NAP - National Adaptation Programme
- NE - Natural England
- NERC – Natural Environment Research Council
- NHS - National Health Service
- NPPF - National Planning Policy Framework
- NRN - Nature Recovery Network
- OECD - Organisation for Economic Co-operation & Development
- OEP - Office for Environmental Protection
- OGDs – Other Government Departments
- Ofwat - Water Services Regulation Authority
- OIF - Outcome Indicator Framework
- PAs - Protected Areas

[39] From September 2021 known as the Department for Levelling Up, Housing and Communities

- PHE – Public Health England
- R&D - Research and Development
- RBMP - River Basin Management Plans
- SuDS - Sustainable Drainage Systems
- TFP - Transforming Food Production Initiative
- UCL – University College London
- UK – United Kingdom
- UKCP18 - UK Climate Projections 2018
- UKFS – UK Forestry Standard
- UKRI- UK Research and Innovation
- UKTAG – UK Technical Advisory Group

E02675827

978-1-5286-2945-4