Annex 1: Climate risks and opportunities

The 61 climate risks and opportunities, and planned actions to address them by government departments

July 2023

CORRECTION SLIP

Title: The Third National Adaptation Programme (NAP3) Annex 1: Climate risks and opportunities. The 61 climate risks and opportunities, and planned actions to address them by government departments

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Correction 1:

Page 100, Action 2

Text currently reads:

DCMS, Historic England and Arts Council England will work with partners to develop methods to assess the vulnerability of intangible cultural heritage to climate hazards from 2024, using approaches developed for tangible heritage. The evidence base will be improved to inform CCRA4 development in 2026.

Text should read:

Historic England, in consultation with DCMS, will work with partners to identify the research needs to develop methods to assess the vulnerability of intangible cultural heritage to climate hazards from 2024, using approaches developed for tangible heritage in the UK and overseas. The approaches to developing an evidence base will be improved to inform CCRA4 development in 2026.

Date of correction: 6/2/2024

Correction 2:

Page 100, Action 3

Text currently reads:

DCMS and Historic England will develop an action plan by 2024 with partners, such as the Environment Agency, to understand and communicate the threat to cultural heritage from flooding and coastal erosion. This will inform future adaptation and decision-making.

Text should read:

By summer 2024, Historic England, in consultation with DCMS, will develop an action plan identifying partners it can work with, such as the Environment Agency, to understand and communicate the threat to cultural heritage from flooding and coastal erosion. This will inform future adaptation and decision-making.'

Correction 3

Page 100, Action 6

Text currently reads:

DCMS, in collaboration with their arm’s-length bodies, will develop national climate change indicators for heritage by the end of 2025 to monitor and track progress against the goals set in NAP3.

Text should read:

DCMS and Historic England will develop relevant indicators for heritage by the end of 2025 to monitor and track progress against the goals set in NAP3.

This annex contains the reduction goals, actions, and the instruments and levers that respond to the 61 risks and opportunities that were identified by the Department for Environment, Food and Rural Affairs (Defra) in its third Climate Change Risk Assessment (CCRA3).

There are a total of 79 risk action summaries for the 61 risks and opportunities, due to some risks being split across multiple sectors and government departments.

Contents

Infrastructure

I1 – Risks to infrastructure networks from cascading failures (cross-government)

Risk reduction goal

Reduce both the likelihood and severity of a climate hazard cascading through one or more infrastructure networks.

Actions

1. Lead government departments will work with regulatory bodies and infrastructure operators throughout the third National Adaptation Programme (NAP3) period from 2023 to 2028 to implement the actions set out in the UK Government Resilience Framework relating to public and private sector resilience standards.
2. Defra and the Cabinet Office are developing governance structures to manage the implementation of NAP3 by the end of 2023. This will include specific mechanisms to strengthen the approach to identifying and managing cross-sector risks, including in infrastructure sectors. These governance structures will integrate with existing governance of climate risk, including the Domestic and Economic Affairs (Energy, Climate and Net Zero) Committee, UK Resilience Forum, Infrastructure Operators Adaptation Forum, and other infrastructure regulatory forums with a mandate on resilience.
3. Defra will engage the Climate Change Committee (CCC) to shift to a systems-based risk assessment approach in the fourth Climate Change Risk Assessment (CCRA4), which will be published in January 2027. This will enable more effective planning and implementation of resilience measures across infrastructure networks.
4. Defra and the Cabinet Office will continue to support the Met Office and the Office for National Statistics' (ONS) development throughout the NAP3 implementation period to 2028 and beyond of actionable, decision-relevant climate change data (including spatial data) and its uptake by infrastructure operators. This will include building on the Met Office's publicly available geospatial pilot climate data portal, continuing to support the work of the Hadley Centre Climate Programme, and supporting the Office for National Statistics' UK climate change statistics portal and quarterly climate change insights publication.
5. Defra will work with UK Research and Innovation (UKRI) to develop a programme of research and innovation by December 2023 focused on enabling adaptation action. This will include providing decision-support tools so infrastructure operators can co-operate across sectors to understand climate risk at the system-level.
6. Defra will work with the industry-led Infrastructure Operators Adaptation Forum throughout the NAP3 period to 2028 and beyond to continue strengthening collaboration between regulators and operators with a

resilience remit. This includes supporting the development and implementation of the fourth round of the Adaptation Reporting Power (ARP), development of the approach to CCRA4, and implementation of commitments in the UK Government Resilience Framework.

7. Defra will provide guidance to respondents to improve sector-level reporting on climate risks, including on infrastructure sector interdependencies and cascading failures, through the fourth round of ARP in 2024.
8. Throughout the NAP3 implementation period, critical national infrastructure (CNI) lead government departments will work with the National Cyber Security Centre and the Cabinet Office to continue developing the criticalities process (a common approach to collect and structure data on the critical national infrastructure) and the critical national infrastructure knowledge base (a new tool to visualise and interrogate the criticalities data produced) to improve how government captures, visualises and understands links and interdependencies across the UK's critical national infrastructure. These tools, alongside collaboration with the lead government departments, regulators, critical national infrastructure owners and operators, the Met Office and the Office for National Statistics, will support the identification of areas of acute risk, including to climate hazards, and highlight the impacts of cascading risks. This intelligence gathering will ensure data-driven risk analysis informs policy decisions within government and by infrastructure operators.
9. Government will continue to run an exercising programme to stress test infrastructure networks throughout the NAP3 implementation period to 2028 and beyond.

How we will do it

1. UK Government Resilience Framework (Action 1)
2. NAP3 implementation programme (Action 2)
3. CCRA4 (Action 3)
4. Hadley Centre Climate Programme (Action 4)
5. Met Office Climate Services UK (Action 4)
6. Defra and UK Research and Innovation research programme (Action 5)
7. Infrastructure Operators Adaptation Forum (Action 6)
8. ARP4 (Action 7)
9. Knowledge base (Actions 8 and 9)

I2 – Risks to infrastructure services from river, surface water and groundwater flooding (water – Defra)

Risk reduction goal

Maintain and improve the resilience of water infrastructure to flooding despite the changing climate.

Actions

1. The Water Services Regulation Authority (Ofwat) will take a long-term view of the requirements for investment in water infrastructure and consider climate change as part of the methodology for the Price Review 2024, to ensure that water companies can invest in the resilience of their infrastructure.
2. Water companies will follow the National Flood and Coastal Erosion Risk Management (FCERM) Strategy for England, which includes an objective for water companies to develop plans for their infrastructure to be resilient to flooding and coastal change between now and 2030.
3. Defra and the Environment Agency will implement actions set out in the Surface Water Management Action Plan by 2024 to contribute towards improvements in surface water management in England.
4. The Environment Agency will report on the flood risk management performance of risk management authorities (including water companies) annually as part of their duties under the Flood and Water Management Act 2010. Defra will use this information to continually monitor the flood resilience of water infrastructure.
5. Water companies will invest £400 million via 18 schemes in new infrastructure to improve water resilience by increasing water capacity and driving water efficiency, with projects started before April 2025 and completed by 2030.
6. Water companies will publish drainage and wastewater management plans in summer 2023, which will identify mitigations for the flood risk both from and to their sewage assets for the period 2023 to 2028.

How we will do it

1. Drainage and wastewater management plans (Actions 1, 2 and 6)
2. Regional water resources plans (Action 2)
3. Environment Agency annual FCERM report (Action 4)
4. Requirements for reservoir safety management plans under the Reservoirs Act 1975 (Action 2)
5. Storm Overflows Discharge Reduction Plan (Environment Act 2021) (Action 2)
6. Price Review 2024 (Action 1)
7. Surface Water Management Action Plan (Action 3)
8. Plan for Water (Actions 5 and 6)
9. FCERM Strategy for England (Action 2)

I2 – Risks to infrastructure services from river, surface water and groundwater flooding (energy – Department for Energy Security and Net Zero, DESNZ)

Risk reduction goal

Reduce the risks to the energy system from climate change-driven increases in river, surface water and groundwater flooding.

Actions

1. Ofgem will ensure, through RIIO2 (which runs from 2021 to 2026 for gas distribution and electricity transmission and from 2023 to 2028 for electricity distribution), and in future through subsequent price controls, that network companies have sufficient funding to protect new and existing sites that are identified by Environment Agency data to be at risk of flooding. For example, the current engineering technical report 138 standard sets a target for resilience to a 1-in-1,000-year flood event for critical load infrastructure supplying 10,000 customers or more.
2. The energy generation sector will continue to risk assess assets throughout the NAP3 implementation period from 2023 to 2028 to gauge the resilience of their plants to pluvial and fluvial flooding. This occurs periodically for existing assets and during the permitting process for new assets.
3. The Environment Agency will work with distribution network operators to share flood and coastal erosion risk information and explore joint investment opportunities at least until 2026 under the FCERM Strategy Roadmap, to improve resilience of power distribution assets.
4. DESNZ will use the climate services for a Net Zero resilient world (CS-N0W) research programme through to 2025 to explore developing indicators to measure the progress of the mitigation of climate change risks to energy assets.

How we will do it

1. Ofgem network price controls 2021 to 2028 RIIO2 (Action 1)
2. Ofgem regulatory compliance (Action 1)
3. Sector engagement through the Energy Networks Association and Energy Emergencies Executive Committee (Action 1)
4. Periodic assessments by the generation sector. Planning and environmental permitting processes for new plants (Action 2)
5. FCERM Strategy Roadmap to 2026 (Action 3)
6. CS-N0W research programme (Action 4)

I2 – Risks to infrastructure services from river, surface water and groundwater flooding (transport – Department for Transport, DfT)

Risk reduction goal

Minimise the impact on the transport network of climate change-driven increases in incidences of river, surface water and ground water flooding, so that:

- assets remain operational throughout their design life, through coordinated investment and management
- the risk of fatalities and major disruption from the impacts of climate change is reduced as far as possible through coordinated investment in and management of assets and services
- resilience plans enable people and freight to move safely in the event of a loss of service on any given route, while also ensuring staff safety

Actions

1. DfT will develop a transport adaptation strategy, taking a holistic approach to addressing the transport-related risks in the CCRA. We will seek to consult on the strategy by the end of 2023.
2. DfT will expand a programme of research, development, analysis and innovation by the end of 2023 to fill priority evidence gaps and inform effective decision making on climate change adaptation measures across the transport system.
3. Local highway authorities will work towards widening asset management plans throughout the NAP3 period from 2023 to 2028 to improve understanding of vulnerabilities and will create initial risk assessments by the end of 2024.
4. Transport delivery bodies will support and use nature-based solutions (NBS) to reduce the impact of river, surface water and groundwater flooding. For example, National Highways published its Environmental Sustainability Strategy in May 2023, which includes employing NBS such as natural flood management to improve climate resilience of the network and neighbouring communities. Network Rail will review the opportunities for NBS to mitigate climate risk by the end of 2023.
5. Network Rail will develop adaptation pathway strategies by 2029 at regional level to support long-term strategic planning and identify where transformation of rail services may be required.
6. The Railway Safety and Standards Board (RSSB) will lead development of a rail industry-wide climate change adaptation maturity matrix in 2023. This will support rail organisations to increase adaptive capacity by identifying industry-wide and organisational-level improvements to address risks and build capability.
7. Transport delivery bodies will deliver business plans and actions from their ARP3 reports throughout the NAP3 implementation period from 2023 to 2028 to maintain and invest in the aspects of infrastructure that need to be resilient

to the impacts of climate change. Actions will be funded through the normal investment framework for each sector, including through the second Road Investment Strategy period from 2020 to 2025 for National Highways, and control period 7 from 2024 to 2029 for Network Rail.

8. Network Rail will review asset policies and approaches in 2023, including relevant national, regional and operational standards, and will update them where necessary to embed and standardise management of climate change risk.
9. National Highways will implement actions outlined in their ARP3 report through road periods 2 (2020 to 2025) and 3 (2025 to 2030), seeking to improve the drainage network associated with the strategic road network and updating standards and guidance where required.
10. Network Rail will conduct a mapping exercise by the end of 2024 to improve understanding of vulnerabilities and criticality of the transport network and to inform risk assessments that will guide future investment plans.
11. DfT will work with the UK Roads Leadership Group to devise a framework for local authorities to implement the extreme weather recommendations from recent incident reports by the end of 2024.
12. DfT will publish expectations on adaptation in the forthcoming consultation on the local transport plan guidance refresh. The guidance will set out the need to adapt and improve the climate resilience of transport networks and to reflect this in local transport plans and alongside its programme of interventions.
13. Commercial airports will undertake regular monitoring programmes throughout the NAP3 implementation period from 2023 to 2028. These include regular maintenance schedules of infrastructure and assets and regular reviews of contingency and response plans to ensure the sector is resilient.
14. DfT will work with the maritime, ports and aviation sectors, including with industry organisations, to enhance climate impact risk assessments and to embed their findings into business planning and operating procedures ahead of ARP4 reporting in 2024.
15. DfT will encourage transport operators to work through national forums, regional strategic groups and local resilience forums, to enhance engagement on aligned plans for responding to climate risks, data gathering and associated research throughout the NAP3 implementation period from 2023 to 2028 and beyond.
16. DfT will trial a regular monitoring survey for the ports sector over the NAP3 implementation period from 2023 to 2028 to gather information on the frequency of disruption to port operations from extreme weather.

How we will do it

1. DfT's transport adaptation strategy (Actions 1, 2, 14 and 15)
2. Network Rail control periods 6 and 7 (Actions 4 to 8, and 10)
3. Rail industry bodies' business plans (Actions 4 to 8, and 10)
4. Transport for London's Climate Change Adaptation Plan (Actions 4 and 7)
5. Network Rail, Transport for London, National Highways and HS2's ARP3 and ARP4 reports (Actions 4 to 10)
6. Network Rail's adaptation pathway strategies (Action 5)

7. RSSB’s Climate Change Adaptation Working Group (Action 6)
8. Network Rail’s Standards Steering Group (Action 8)
9. National Highways' Design Manual for Roads and Bridges (Action 10)
10. Road Investment Strategy 2 and 3 (Action 9)
11. Local authority asset management plans (Actions 3 and 11)
12. Local transport plans (Action 12)
13. Port weather disruption survey (Action 16)

I2 – Risks to infrastructure services from river, surface water and groundwater flooding (data – Department for Science, Innovation and Technology, DSIT)

Risk reduction goal

Increase the government's understanding of the risk to data infrastructure from river, surface water and groundwater flooding, and make UK data infrastructure more resilient and responsive to changing climate risks.

Actions

1. DSIT will continue to engage industry throughout the NAP3 implementation period from 2023 to 2028 and beyond to promote effective resilience and contingency planning to climate change impacts.
2. DSIT will continue to work with the Cabinet Office, National Cyber Security Centre and the National Protective Security Authority throughout the NAP3 implementation period from 2023 to 2028 on data infrastructure asset mapping to identify critically important systems and support more effective industry-led risk assessment.
3. DSIT will implement the commitment in the National Data Strategy to review the underlying risk management policy framework for data infrastructure within the NAP3 implementation period from 2023 to 2028 to strengthen the sector's approach to climate risk management and long-term, reasonable, worst-case scenario risk assessment.

How we will do it

1. Industry engagement: TechUK, Data Centres Council, Data Centre Alliance and SEGRO (Action 1)
2. Critical national infrastructure policy initiatives (Action 2)
3. Publication of consultation on risk management framework policy proposals (Action 3)

I2 – Risks to infrastructure services from river, surface water and groundwater flooding (telecommunications – DSIT)

Risk reduction goal

Protect critical infrastructure assets from flooding to 1-in-1,000-year flood event standards.

Actions

1. Building Digital UK (BDUK) will publish guidance for telecoms operators so there is a single reference point for environmental regulations and resources, including climate adaptation, relative to telecoms infrastructure delivery by the end of 2023.
2. DSIT will work with the regulator, Ofcom, to hold the telecoms sector to account for their resilience to climate hazards through existing duties and guidance. This will drive the sector's resilience to climate change hazards throughout the NAP3 implementation period from to 2028 and beyond.
3. DSIT will work with the Electronic Communications Resilience and Response Group (EC-RRG) to deliver one seminar every year throughout the NAP3 implementation period from 2023 to 2028 and beyond to increase understanding of climate adaptation risks and the economic benefits of taking adaptive action, including improved collaboration with the Met Office.
4. DSIT will work with the telecoms industry to continue the replacement programme of the fixed-line public switched telephone network with voice over internet protocol technology (VoIP), which carries voice calls over an internet connection by 2025. This will reduce the risk of outages on the fixed-line network caused by flooding by decreasing the network infrastructure footprint and exposure to climate hazards.

How we will do it

1. The Communications Act 2003 (as amended by the Telecommunications (Security) Act 2021) and revised Ofcom security guidance published in 2022 (Action 2)
2. The EC-RRG and other stakeholder groups (Action 3)
3. Public switched telephone network migration to voice over internet protocol technology (Action 4)

I3 – Risks to infrastructure services from coastal flooding and erosion (water – Defra)

Risk reduction goal

Maintain and improve the resilience of water infrastructure to coastal flooding and erosion despite the changing climate.

Actions

1. Ofwat will take a long-term view of the requirements for investment in water infrastructure and consider climate change as part of the methodology for the Price Review 2024, to ensure that water companies can invest in the resilience of their infrastructure.
2. Water companies will follow the National FCERM Strategy for England, which includes an objective for water companies to make their infrastructure resilient to flooding and coastal change between now and 2030.
3. The Environment Agency will report on the flood risk management performance of risk management authorities (including water companies) annually. Defra will use this information to continually monitor the flood resilience of water infrastructure.
4. Water companies will publish drainage and wastewater management plans in summer 2023, which will identify mitigations for the flood risk both from and to their sewage assets for the period 2023 to 2028.

How we will do it

1. Drainage and wastewater management plans (Actions 1, 2 and 4)
2. Regional water resources plan (Action 2)
3. Environment Agency annual FCERM report (Action 4)
4. Requirements for reservoir safety management plans under the Reservoirs Act 1975 (Action 2)
5. Storm Overflows Discharge Reduction Plan (Environment Act 2021) (Action 2)
6. Price Review 2024 (Action 1)
7. FCERM Strategy for England (Action 2)

I3 – Risks to infrastructure services from coastal flooding and erosion (energy – DESNZ)

Risk reduction goal

Reduce the risks to the energy system from climate change-driven increases in coastal flooding and erosion.

Actions

1. Ofgem will ensure, through RIIO2 (which runs from 2021 to 2026 for gas distribution and electricity transmission, and from 2023 to 2028 for electricity distribution), and in future through subsequent price controls, that network companies have sufficient funding to protect new and existing sites that are identified by Environment Agency data to be at risk of flooding. For example, the current engineering technical report 138 standard sets a target for resilience to a 1-in-1,000-year flood event for critical load infrastructure supplying 10,000 customers or more.
2. The energy generation sector will continue to risk assess assets throughout the NAP3 implementation period from 2023 to 2028, to gauge the resilience of their plants to pluvial and fluvial flooding. This occurs periodically for existing assets and during the permitting process for new assets.
3. The Environment Agency will work with distribution network operators to share flood and coastal erosion risk information and explore joint investment opportunities at least until 2026 under the FCERM Strategy Roadmap, to improve resilience of power distribution assets.
4. DESNZ will use the climate services for a Net Zero resilient world (CS-N0W) research programme through to 2025 to explore developing indicators to measure the progress of the mitigation of climate change risks to energy assets.

How we will do it

1. Ofgem network price controls (RIIO2 from 2021 to 2028) (Action 1)
2. Ofgem regulatory compliance (Action 1)
3. Sector engagement through the Energy Networks Association and Energy Emergencies Executive Committee (Action 1)
4. Periodic assessments by the generation sector. Planning and environmental permitting processes for new plants (Action 2)
5. FCERM Strategy Roadmap to 2026 (Action 3)
6. CS-N0W research programme (Action 4)

I3 – Risks to infrastructure services from coastal flooding and erosion (transport – DfT)

Risk reduction goal

Minimise the impact on the transport network of climate change-driven increases in coastal flooding and erosion, so that:

- assets remain operational throughout their design life, through coordinated investment and management
- the risk of fatalities and major disruption from the impacts of climate change is reduced as far as possible through coordinated investment in and management of assets and services
- resilience plans enable people and freight to move safely in the event of a loss of service on any given route, while also ensuring staff safety

Actions

1. DfT will develop a transport adaptation strategy, taking a holistic approach to addressing the transport-related risks in the CCRA. We will seek to consult on the strategy by the end of 2023.
2. DfT will expand a programme of research, development, analysis and innovation by the end of 2023 to fill priority evidence gaps and inform effective decision making on climate change adaptation measures across the transport system.
3. Local highway authorities will work towards widening asset management plans to improve understanding of vulnerabilities and will complete initial risk assessments by end of 2024.
4. Transport delivery bodies will support and use NBS to reduce the impact of coastal flooding and erosion. For example, National Highways published its Environmental Sustainability Strategy in May 2023, which includes employing NBS such as natural flood management to improve climate resilience of the network and neighbouring communities. Network Rail will review the opportunities for NBS to mitigate climate risk by the end of 2023.
5. Network Rail will develop adaptation pathway strategies by 2029 at regional level to support long-term strategic planning and identify where transformation of rail services may be required.
6. RSSB will lead development of a rail industry-wide climate change adaptation maturity matrix in 2023. This will support rail organisations to increase adaptive capacity by identifying industry-wide and organisation-level improvements that address risks and build capability.
7. Transport delivery bodies will deliver business plans and actions from their ARP3 reports throughout the NAP3 implementation period to maintain and invest in the aspects of infrastructure that need to be resilient to the impacts of climate change. Actions will be funded through the normal investment framework for each sector, including through the second Road Investment Strategy period from 2020 to 2025 for National Highways, and control period 7 from 2024 to 2029 for Network Rail.

8. Network Rail will review asset policies and approaches in 2023, including relevant national, regional and operational standards, and will update them where necessary to embed and standardise management of climate change risk.
9. National Highways will implement actions outlined in their ARP3 report through road periods 2 (2020 to 2025) and 3 (2025 to 2030), seeking to improve the drainage network associated with the strategic road network and updating standards and guidance where required.
10. Network Rail will conduct a mapping exercise by the end of 2024 to improve understanding of vulnerabilities and criticality of the transport network and to inform risk assessments that will guide future investment plans.
11. DfT will work with the UK Roads Leadership Group to devise a framework for local authorities to implement the extreme weather recommendations from recent incident reports by the end of 2024.
12. DfT will publish expectations on adaptation in the forthcoming consultation on the local transport plan guidance refresh. The guidance will set out the need to adapt and improve the climate resilience of transport networks and to reflect this in local transport plans and alongside its programme of interventions.
13. Commercial airports will undertake regular monitoring programmes throughout the NAP3 implementation period from 2023 to 2028. These include regular maintenance schedules of infrastructure and assets, regular review of contingency and response plans to ensure the sector is resilient.
14. DfT will work with the maritime, ports and aviation sectors, including with industry organisations, to enhance climate impact risk assessments and to embed their findings into business planning and operating procedures ahead of ARP4 reporting in 2024.
15. DfT will encourage transport operators to work through national forums, regional strategic groups and local resilience forums, to enhance engagement on aligned plans for responding to climate risks, data gathering and associated research throughout the NAP3 implementation period to 2028 and beyond.
16. DfT will trial a regular monitoring survey for the ports sector over the NAP3 implementation period from 2023 to 2028 to gather information on the frequency of disruption to port operations from extreme weather.

How we will do it

1. DfT's transport adaptation strategy (Actions 1, 2, 14 and 15)
2. Network Rail control periods 6 and 7 (Actions 4 to 8, and 10)
3. Rail industry bodies' business plans (Actions 4 to 8, and 10)
4. Transport for London's Climate Change Adaptation Plan (Actions 4 and 7)
5. Network Rail, Transport for London, National Highways and HS2's ARP3 and ARP4 reports (Actions 4 to 10)
6. Network Rail's adaptation pathway strategies (Action 5)
7. RSSB's Climate Change Adaptation Working Group (Action 6)
8. Network Rail's Standards Steering Group (Action 8)
9. National Highways' Design Manual for Roads and Bridges (Action 9)
10. Road Investment Strategy 2 and 3 (Action 9)
11. Local authority asset management plans (Actions 3 and 11)

12. Local transport plans (Action 12)
13. Port weather disruption survey (Action 16)

I3 – Risks to infrastructure services from coastal flooding and erosion (telecommunications – DSIT)

Risk reduction goal

Minimise the impact of current and future coastal flooding and erosion through the appropriate planning of long-lived telecoms infrastructure.

Actions

1. Building Digital UK will publish guidance for telecoms operators so there is a single reference point for environmental regulations and resources, including climate adaptation, relative to telecoms infrastructure delivery by the end of 2023.
2. DSIT will work with the regulator, Ofcom, to hold the telecoms sector to account for their resilience to climate hazards through existing duties and guidance. This will drive the sector's resilience to climate change hazards throughout the NAP3 implementation period to 2028 and beyond.
3. DSIT will work with the EC-RRG to deliver one seminar every year throughout the NAP3 implementation period from 2023 to 2028 to increase understanding of climate adaptation risks and the economic benefits of taking adaptive action, including improved collaboration with the Met Office.
4. DSIT will support the industry to address the threat to submarine communication cables from climate hazards throughout the NAP3 implementation period from 2023 to 2028 and beyond. There will be ongoing engagement with the Environment Agency, Ministry of Defence and National Oceanography Centre for up-to-date analysis and assessment of the current and potential future aspects of climate change, including coastal erosion, to help assess the viability of current and future cable and site locations.
5. DSIT will work with Ofcom and the industry to explore the potential to collect specific data for climate change adaptation reporting, including whether climate change drivers can be identified as a reason for outages, by the end of 2023 to include in reporting from 2024.

How we will do it

1. The Communications Act 2003 (as amended by the Telecommunications (Security) Act 2021) and revised Ofcom security guidance published in 2022 (Action 2)
2. The EC-RRG and other stakeholder groups (Action 3)

I4 – Risks to bridges and pipelines from flooding and erosion (energy – DESNZ)

Risk reduction goal

Reduce the risk to the energy system from pipeline damage caused by climate change-driven increases in flooding and erosion.

Actions

1. National Gas will continue to deliver regular inspections and remedial actions to gas pipelines across the National Transmission System throughout the NAP3 implementation period to 2028 and beyond to improve the resilience of the network to flood and erosion risk.
2. Gas distribution and transmission networks will continue to deliver regular risk assessment and proactive monitoring and inspection regimes throughout the NAP3 implementation period to 2028 and beyond, to monitor asset conditions (for signs of ground movement and loss of cover soil) and undertake engineering responses where necessary.
3. The gas distribution network will continue to deliver its mains pipeline replacement programme, replacing all iron gas distribution mains within 30 metres of a property by 2032, to improve resilience to a range of hazards.
4. The energy sector will complete and implement research and development to enhance the resilience of pipelines to flooding and erosion throughout the NAP3 implementation period from 2023 to 2028.
5. DESNZ will encourage knowledge sharing across operators on risk mitigation approaches via existing engagement forums throughout the NAP3 implementation period, with a review point by end 2025, to enhance resilience to flooding and erosion.
6. DESNZ will use the CS-N0W research programme through to 2025 to explore developing indicators to measure the progress of the mitigation of climate change risks to energy assets.

How we will do it

1. National Gas summer and winter maintenance programmes (Actions 1 and 2)
2. Gas distribution networks maintenance programmes (Actions 2 and 3)
3. Iron Mains Risk Reduction Programme (Action 3)
4. Energy Networks Association’s Climate Change Resilience Working Group (Action 5)
5. CS-N0W research programme (Action 6)

I4 – Risks to bridges and pipelines from flooding and erosion (transport – DfT)

Risk reduction goal

Minimise the impact on bridges in the transport network from climate change-driven increases in flooding and erosion, so that:

- assets remain operational throughout their design life, through coordinated investment and management
- the risk of fatalities and major disruption from the impacts of climate change is reduced as far as possible through coordinated investment in and management of assets and services
- resilience plans enable people and freight to move safely in the event of a loss of service on any given route, while also ensuring staff safety

Actions

1. DfT will develop a transport adaptation strategy, taking a holistic approach to addressing the transport-related risks in the CCRA. We will seek to consult on the strategy by the end of 2023.
2. DfT will expand a programme of research, development, analysis and innovation by the end of 2023 to fill priority evidence gaps and inform effective decision making on climate change adaptation measures across the transport system.
3. Local highway authorities will work towards widening asset management plans to improve understanding of vulnerabilities and will complete initial risk assessments by the end of 2024.
4. Transport delivery bodies will support and use NBS to reduce the impact of flooding and erosion. For example, National Highways published its Environmental Sustainability Strategy in May 2023, which includes employing NBS such as natural flood management to improve climate resilience of the network and neighbouring communities. Network Rail will review the opportunities for NBS to mitigate climate risk by the end of 2023.
5. Network Rail will develop adaptation pathway strategies by 2029 at regional level to support long-term strategic planning and identify where transformation of rail services may be required.
6. RSSB will lead development of a rail industry-wide climate change adaptation maturity matrix in 2023. This will support rail organisations to increase adaptive capacity by identifying industry-wide and organisational-level improvements to address risks and build capability.
7. Transport delivery bodies will deliver business plans and actions from their ARP3 reports throughout the NAP3 implementation period to maintain and invest in the aspects of infrastructure that need to be resilient to the impacts of climate change. Actions will be funded through the normal investment framework for each sector, including through the second Road Investment Strategy period from 2020 to 2025 for National Highways, and control period 7 from 2024 to 2029 for Network Rail.

8. Network Rail will review asset policies and approaches in 2023, including relevant national, regional and operational standards, and will update them where necessary to embed and standardise management of climate change risk.
9. National Highways will implement actions outlined in their ARP3 report through road periods 2 (from 2020 to 2025) and 3 (from 2025 to 2030), seeking to improve the resilience of bridges to flooding and scour risk, and updating standards and guidance where required.
10. Network Rail will conduct a mapping exercise by 2024 to improve understanding of vulnerabilities and criticality of the transport network and to inform risk assessments that will guide future investment plans.
11. DfT will work with the UK Roads Leadership Group to devise a framework for local authorities to implement the extreme weather recommendations from recent incident reports by the end of 2024.
12. DfT will publish expectations on adaptation in the forthcoming consultation on the local transport plan guidance refresh. The guidance will set out the need to adapt and improve the climate resilience of transport networks and to reflect this in local transport plans and alongside its programme of interventions.

How we will do it

1. DfT's transport adaptation strategy (Actions 1 and 2)
2. Network Rail control periods 6 and 7 (Actions 4 to 8 and 10)
3. Rail industry bodies' business plans (Actions 4 to 8, and 10)
4. Transport for London's Climate Change Adaptation Plan (Actions 4 and 7)
5. Network Rail, Transport for London, National Highways and HS2's ARP3 and ARP4 reports (Actions 4 to 8, and 10)
6. Network Rail's adaptation pathway strategies (Action 5)
7. RSSB's Climate Change Adaptation Working Group (Action 6)
8. Network Rail's Standards Steering Group (Action 8)
9. National Highways' Design Manual for Roads and Bridges (Action 9)
10. Road Investment Strategy 2 and 3 (Action 9)
11. Local authority asset management plans (Actions 3 and 11)
12. Local transport plans (Action 12)

I4 – Risks to bridges and pipelines from flooding and erosion (telecommunications – DSIT)

Risk reduction goal

Ensure critical telecoms assets located on bridges and pipelines are resilient to climate change impacts.

Actions

1. DSIT will work with the regulator, Ofcom, to hold the telecoms sector to account for their resilience to climate hazards through existing duties and guidance. This will drive the sector's resilience to climate change hazards throughout the NAP3 implementation period to 2028 and beyond.
2. DSIT will work with the EC-RRG to deliver one seminar every year throughout the NAP3 implementation period from 2023 to 2028 to increase understanding of climate adaptation risks and the economic benefits of taking adaptive action, including improved collaboration with the Met Office.
3. DSIT will implement the Fibre-in-Water pilot project across the UK through to 2024. This aims to improve the resilience of subterranean infrastructure from subsidence by reducing the need to dig up surfaces to install new infrastructure, and will reduce water leakages by improving knowledge of leakage locations and reducing the time to identify and fix them.
4. DSIT will work with Ofcom and the industry to explore the potential to collect specific data for climate change adaptation reporting, including whether climate change drivers can be identified as a reason for outages, by the end of 2023 to include in reporting from 2024.
5. Building Digital UK (BDUK) will publish guidance for telecoms operators so there is a single reference point for environmental requirements and resources, including climate adaptation, relative to telecoms infrastructure delivery in by the end of 2023.

How we will do it

1. The Communications Act 2003 (as amended by the Telecommunications (Security) Act 2021) and revised Ofcom security guidance, published in 2022 (Actions 1 and 2)
2. The EC-RRG and other stakeholder groups (Action 2)
3. Fibre-in-water pilot project, part of the DSIT-led 5G Testbed and Trial Programme (Action 3)
4. National Underground Asset Register (Action 4)

I5 – Risks to transport networks from slope and embankment failure (transport – DfT)

Risk reduction goal

Minimise the impact on the transport network of climate change-driven increases in slope and embankment failure, so that:

- assets remain operational throughout their design life, through coordinated investment and management
- the risk of fatalities and major disruption from the impacts of climate change is reduced as far as possible through coordinated investment in and management of assets and services
- resilience plans enable people and freight to move safely in the event of a loss of service on any given route, while also ensuring staff safety

Actions

1. DfT will develop a transport adaptation strategy, taking a holistic approach to addressing the transport-related risks in the CCRA. We will seek to consult on the strategy by the end of 2023.
2. DfT will expand a programme of research, development, analysis and innovation by the end of 2023 to fill priority evidence gaps and inform effective decision making on climate change adaptation measures across the transport system.
3. Network Rail will implement recommendations on earthworks and drainage management from the Mair, Slingo and Rail Accident Investigation Branch reports following the Carmont derailment through the Weather Risk Taskforce. Action on most recommendations will have started by 2024, with implementation ongoing over the NAP3 period and beyond.
4. Local highway authorities will work towards widening asset management plans to improve understanding of vulnerabilities and will complete initial risk assessments by the end of 2024.
5. Transport delivery bodies will support and use NBS to reduce the impact of river, surface water and groundwater flooding. For example, Network Rail will review the opportunities for NBS to mitigate climate risk by the end of 2023. Network Rail will develop adaptation pathway strategies by 2029 at regional level to support long-term strategic planning and identify where transformation of rail services may be required.
6. RSSB will lead development of a rail industry-wide climate change adaptation maturity matrix in 2023. This will support rail organisations to increase adaptive capacity by identifying industry-wide and organisation-level improvements that address risks and build capability.
7. Transport delivery bodies will deliver business plans and actions from their ARP3 reports throughout the NAP3 implementation period to maintain and invest in the aspects of infrastructure that need to be resilient to the impacts of climate change. Actions will be funded through the normal investment framework for each sector, including through the second Road Investment

Strategy period from 2020 to 2025 for National Highways, and control period 7 from 2024 to 2029 for Network Rail.

8. Network Rail will review asset policies and approaches in 2023, including relevant national, regional and operational standards, and will update them where necessary over the NAP3 period to embed and standardise management of climate change risk.
9. National Highways will implement actions outlined in their ARP3 report through road period 2 (from 2020 to 2025) and in future through road period 3. It will continue to assess and manage hazards though up-to-date standards in the Design Manual for Roads and Bridges, and through mapping risk, collating data and hazard guidance.
10. Network Rail will conduct a mapping exercise by the end of 2024 to improve understanding of vulnerabilities and criticality of the transport network and to inform risk assessments that will guide future investment plans.
11. DfT will work with the UK Roads Leadership Group to devise a framework for local authorities to implement the extreme weather recommendations from recent incident reports by the end of 2024.
12. DfT will publish expectations on adaptation in the forthcoming consultation on the local transport plan guidance refresh. The guidance will set out the need to adapt and improve the climate resilience of transport networks and to reflect this in local transport plans and alongside its programme of interventions.

How we will do it

1. DfT's transport adaptation strategy (Actions 1 and 2)
2. Network Rail control periods 6 and 7 (Actions 3, 5 to 8, and 10)
3. Rail industry bodies' business plans (Actions 3, 5 to 8, and 10)
4. Transport for London's Climate Change Adaptation Plan (Actions 4 and 7)
5. Network Rail, Transport for London, National Highways and HS2's ARP3 and ARP4 reports (Actions 3, and 5 to 10)
6. Network Rail adaptation pathway strategies (Action 6)
7. RSSB's Climate Change Adaptation Working Group (Action 6)
8. Network Rail's Standards Steering Group (Action 8)
9. National Highways' Design Manual for Roads and Bridges (Action 9)
10. Road Investment Strategy 2 and 3 (Action 9)
11. Local authority asset management plans (Actions 4 and 11)
12. Local transport plans (Action 12)
13. Network Rail's Weather Risk Taskforce (Action 3)

I6 – Risks to hydroelectric generation from low or high river flows (energy – DESNZ)

Risk reduction goal

Reduce the risk to hydroelectric generation from climate change-driven increases in low or high river flows.

Actions

1. DESNZ will monitor power companies' engagement with regional water resource planning initiatives and Energy UK's engagement with the National Framework for Water Resources throughout the NAP3 implementation period, with a review point by end 2025, to drive understanding of and resilience to current and future low or high river flows.
2. DESNZ will use research and development throughout the NAP3 implementation period, including the CS-N0W research programme which runs to 2025, to improve understanding of future water availability and impacts on water-intensive energy infrastructure.
3. The energy sector will comply with planning requirements throughout the NAP3 implementation period and beyond to ensure new energy developments are resilient to climate hazards. This includes requirements for power companies to demonstrate resilience of new sites during initial planning processes and of existing sites through their regular business planning process.
4. DESNZ will use the CS-N0W research programme through to 2025 to explore developing indicators to measure the progress of the mitigation of climate change risks to energy assets.

How we will do it

1. Adaptation Reporting Power (ARP) (Action 1)
2. CS-N0W research programme (Action 2 and 4)
3. National planning policy statements (Action 3)
4. Environment Agency's National Framework for Water Resources (Action 3)
5. Environmental impact assessments for projects qualifying as nationally significant infrastructure projects (Action 3)

I7 – Risks to subterranean and surface infrastructure from subsidence (water – Defra)

Risk reduction goal

Water companies will address leakage and drought and invest in infrastructure where necessary to reduce the risk that subsidence poses to their operations.

Actions

1. Ofwat will take a long-term view of the requirements for investment in water infrastructure and consider climate change as part of the methodology for the Price Review 2024, to ensure that water companies can invest in the resilience of their infrastructure.
2. Ofwat is developing an integrated monitoring framework to provide a more complete view of asset health and operational resilience as part of its Price Review 2024 methodology. This will help us to understand operational resilience and asset health risks.
3. Defra will require water companies to reduce leakage rates by 37% by 2038 and 50% by 2050, which will reduce the risk of subsidence. Ofwat will monitor progress on leakage rates throughout the NAP3 period and beyond.
4. Defra will invite water companies to report on the climate risks they face and the work they are doing to mitigate these risks under the ARP in the Climate Change Act 2008, with the fourth round of reports due in 2024.
5. Defra will require water companies to produce water resources management plans setting out how they will secure a resilient and secure water supply for a minimum of 25 years. The next iteration of plans will be produced by 2025 and reviewed annually by regulators. Companies must provide technical annexes that detail how they have assessed the risk to their infrastructure.
6. Water companies will produce drought plans every 5 years setting out how they will monitor water availability, the triggers for drought measures, and supply and demand mitigation actions. This will reduce the risk of subsidence posed by dry soils. These drought plans will inform other aspects of water industry planning, including the next round of water resources management plans in 2024.

How we will do it

1. National Framework for Water Resources (Action 3)
2. Reports provided under the ARP (Action 4)
3. Water resources management plans (published by water companies) under the Water Industry Act 1991 (Actions 1, 2 and 5)
4. Strategic policy statement to Ofwat (Action 1)
5. Price Review (Actions 1 and 2)
6. Regional water resources plans (Action 5)
7. Environment Act (Actions 1 and 5)
8. Drought plans (Action 6)

I7 – Risks to subterranean and surface infrastructure from subsidence (energy – DESNZ)

Risk reduction goal

Reduce the risks to subterranean and surface energy infrastructure from climate change-driven increases in subsidence.

Actions

1. The gas distribution network will continue to deliver its mains pipeline replacement programme, replacing all iron gas distribution mains within 30 metres of a property by 2032, to improve resilience to a range of hazards.
2. Gas distribution and transmission networks will continue to deliver regular risk assessment and proactive monitoring and inspection regimes throughout the NAP3 implementation period from 2023 to 2028, to monitor asset conditions (for signs of ground movement and loss of cover soil) and undertake engineering responses where necessary to ensure resilience.
3. DESNZ will engage with National Underground Asset Register (NUAR) development prior to it becoming operational in 2024 to consider how this knowledge could be used to facilitate further resilience measures by industry.
4. The energy sector will complete and implement research and development to enhance the resilience of pipelines to flooding and erosion throughout the NAP3 implementation period from 2023 to 2028.
5. DESNZ will encourage knowledge sharing approaches across operators on risk mitigation approaches via existing engagement forums throughout the NAP3 implementation period from 2023 to 2028, with a review point by end 2025, to enhance resilience to subsidence.
6. DESNZ will use the CS-N0W research programme through to 2025 to explore developing indicators to measure the progress of the mitigation of climate change risks to energy assets.

How we will do it

1. Iron Mains Risk Reduction Programme (Action 1)
2. National Gas summer and winter maintenance programmes (Action 2)
3. Gas distribution and transmission networks maintenance programmes (Actions 1 and 2)
4. Geospatial Commission’s National Underground Asset Register project (Action 3)
5. Energy Network Association’s Climate Change Resilience Working Group (Action 5)
6. CS-N0W (climate services for a Net Zero resilient world) research programme (Action 6)

I7 – Risks to subterranean and surface infrastructure from subsidence (transport – DfT)

Risk reduction goal

Minimise the impact on the transport network of climate change-driven increases in subsidence.

Actions

1. DfT will develop a transport adaptation strategy, taking a holistic approach to addressing the transport-related risks in the CCRA. We will seek to consult on the strategy by the end of 2023.
2. DfT will expand a programme of research, development, analysis and innovation by the end of 2023 to fill priority evidence gaps and inform effective decision making on climate change adaptation measures across the transport system.
3. Local highway authorities will work towards widening asset management plans to improve understanding of vulnerabilities and will complete initial risk assessments by the end of 2024.
4. Network Rail will develop adaptation pathway strategies by 2029 at regional level to support long-term strategic planning and identify where transformation of rail services may be required.
5. RSSB will lead development of a rail industry-wide climate change adaptation maturity matrix in 2023. This will support rail organisations to increase adaptive capacity by identifying industry-wide and organisational-level improvements to address risks and build capability.
6. Transport delivery bodies will deliver business plans and actions from their ARP3 reports throughout the NAP3 implementation period to maintain and invest in the aspects of infrastructure that need to be resilient to the impacts of climate change. Actions will be funded through the normal investment framework for each sector, including through the second Road Investment Strategy period from 2020 to 2025 for National Highways, and control period 7 from 2024 to 2029 for Network Rail.
7. Network Rail will review asset policies and approaches in 2023, including relevant national, regional and operational standards, and will update them where necessary to embed and standardise management of climate change risk.
8. National Highways will implement actions outlined in their ARP3 report through road periods 2 (from 2020 to 2025) and 3 (from 2025 to 2030), integrating climate change into shrink-swell susceptibility ratings, monitoring risks to earthworks from increased vegetation growth, and researching soil characteristics which affect subsidence risk.
9. Network Rail will conduct a mapping exercise by the end 2024 to improve understanding of vulnerabilities and criticality of the transport network and to inform risk assessments that will guide future investment plans.

10. DfT will work with the UK Roads Leadership Group to devise a framework for local authorities to implement the extreme weather recommendations from recent incident reports by the end of 2024.
11. DfT will publish expectations on adaptation in the forthcoming consultation on the local transport plan guidance refresh. The guidance will set out the need to adapt and improve the climate resilience of transport networks and to reflect this in local transport plans and alongside its programme of interventions.

How we will do it

1. DfT's transport adaptation strategy (Actions 1 and 2)
2. Network Rail control period 6 and 7 (Actions 4 to 7, and 9)
3. Rail industry bodies' business plans (Actions 4 to 7, and 9)
4. Transport for London's Climate Change Adaptation Plan (Action 6)
5. Network Rail, Transport for London, National Highways and HS2's ARP3 and ARP4 reports (Actions 4 to 10)
6. Network Rail's adaptation pathway strategies (Action 4)
7. RSSB's Climate Change Adaptation Working Group (Action 5)
8. Network Rail's Standards Steering Group (Action 7)
9. National Highways' Design Manual for Roads and Bridges (Action 8)
10. Road Investment Strategy 2 and 3 (Action 8)
11. Local authority asset management plans (Actions 3 and 10)
12. Local transport plans (Action 11)

I7 – Risks to subterranean and surface infrastructure from subsidence (telecommunications – DSIT)

Risk reduction goal

Reduce telecoms infrastructure's exposure and vulnerability to subsidence risk.

Actions

1. DSIT will work with the regulator, Ofcom, to hold the telecoms sector to account for their resilience to climate hazards through existing duties and guidance. This will to drive the sector's resilience to climate change hazards throughout the NAP3 implementation period to 2028 and beyond.
2. DSIT will implement the fibre-in-water pilot project across the UK through to 2024. This aims to improve the resilience of subterranean infrastructure from subsidence by reducing the need to dig up surfaces to install new infrastructure, and improving knowledge of where leakage locations are and reducing the time to identify and fix them.
3. DSIT will work with the EC-RRG to deliver one seminar every year throughout the NAP3 implementation period to increase understanding of climate adaptation risks and the economic benefits of taking adaptive action, including improved collaboration with the Met Office. This includes sharing information and guidance on issues such as vulnerability monitoring and drought from organisations such as the Environment Agency, the Geospatial Commission on the National Underground Asset Register, the Met Office and National Highways.
4. DSIT will work with the telecoms industry to continue the replacement programme of the fixed-line public switched telephone network with voice over internet protocol technology, which carries voice calls over an internet connection by 2025. This will reduce the risk of outages on the fixed-line network caused by subsidence by decreasing the network infrastructure footprint and exposure to climate hazards.
5. DSIT will work with Ofcom and the industry to explore the potential to collect specific data for climate change adaptation reporting, including whether climate change drivers can be identified as a reason for outages, by the end of 2023 to include in reporting from 2024.
6. Building Digital UK will publish guidance for telecoms operators so there is a single reference point for environmental requirements and resources, including climate adaptation, relative to telecoms infrastructure delivery by the end of 2023.

How we will do it

1. EC-RRG resilience guidelines for providers of critical national telecommunications infrastructure, 2018 (Actions 1 and 3)

2. The Communications Act 2003 (as amended by the Telecommunications (Security) Act 2021) and revised Ofcom security guidance published in 2022 (Actions 1 and 5)
3. Fibre-in-water pilot project, part of the DSIT-led 5G Testbed and Trial Programme (Action 2)
4. EC-RRG and other stakeholder groups (Action 3)
5. Public switched telephone network migration to voice over internet protocol technology (Action 4)

I8 – Risks to public water supplies from reduced water availability (Defra)

Risk reduction goal

Water companies will use supply and demand management measures to mitigate risks from reduced water availability, ensuring that they can provide a secure and resilient supply to customers.

Actions

1. Ofwat will take a long-term view of the requirements for investment in water infrastructure and consider climate change as part of the methodology for the Price Review 2024, to ensure that water companies can invest in the resilience of their infrastructure.
2. Defra will require water companies to produce water resources management plans setting out how they will secure a resilient and secure water supply for a minimum of 25 years. The next iteration of plans will be produced by 2025 and reviewed annually by regulators. They detail companies' commitments to build new infrastructure, reduce demand and highlight where they will invest in technology to mitigate the risk posed by climate change.
3. Water companies will work with other sectors to produce collaborative regional water resources management plans for the first time in 2023. These detail how companies in each regional zone will work together with other major water stakeholders to ensure security of water supply over a minimum 25-year timeframe.
4. The government will work with regulators to assess the statutory water resources management plans which companies will submit in 2024. It will ensure water companies manage supply and demand to a nil deficit, taking account of climate change.
5. Water companies will produce drought plans every 5 years setting out how they will monitor water availability, the triggers for drought measures, and supply and demand mitigation actions. These drought plans will inform other aspects of water industry planning, including the next round of water resources management plans in 2024.
6. Defra, the Environment Agency and Ofwat will drive the development of new infrastructure projects where necessary to manage the risk. Large-scale water supply water infrastructure projects are currently being submitted through a RAPID accelerated process led by the Environment Agency, Ofwat and the Drinking Water Inspectorate. This project is currently considering 17 water infrastructure projects for funding, and projects will be ready for construction in the next Price Review period (by 2030). Defra will designate the national policy statement for water resources infrastructure to improve planning decisions.
7. Defra will require water companies to reduce leakage rates by 37% by 2038, with interim targets in 2027 and 2031.
8. Defra and Ofwat will work with companies to reduce water demand, with a target to reduce the use of public water supply by 20% by 2038.

9. Defra has worked with the Future Homes Hub and other stakeholders to develop a roadmap to 2030, containing 10 actions on water efficiency in new developments and retrofits. The Plan for Water expanded the details for delivery and included additional actions on water efficiency in new and existing homes.

How we will do it

1. Environment Act (Actions 3 and 7)
2. National Framework for Water Resources (Action 1)
3. Price Review 2024 (Action 1)
4. Regional water resources plans (Action 3)
5. Water resources management plans (Actions 2, 3 and 4)
6. Drought plans (Action 5)
7. RAPID process to accelerate infrastructure (Action 6)
8. Water efficiency roadmap and Plan for Water (Action 9)

I9 – Risks to energy generation from reduced water availability (energy infrastructure – DESNZ)

Risk reduction goal

Reduce the risks to energy generation from climate change-driven reduced water availability.

Actions

1. DESNZ will monitor power companies' engagement with regional water resource planning initiatives and Energy UK's engagement with the National Framework for Water Resources to drive understanding of and resilience to reduced water availability throughout the NAP3 implementation period, with a review point by end 2025. Energy UK is also engaging with the Environment Agency as they develop the abstraction licensing transition into the Environmental Permitting Regulations.
2. DESNZ will use research and development, including the CS-N0W research programme, which runs until 2025, to improve understanding of future water availability and impacts on water-intensive energy infrastructure. Energy UK has been contributing to the Environment Agency project on Humber industrial constraints.
3. The energy sector will comply with planning requirements throughout the NAP3 implementation period to 2028 and beyond to ensure new energy developments are resilient to climate hazards. This includes requirements for power companies to demonstrate resilience of new sites during initial planning processes and of existing sites through their regular business planning process.
4. DESNZ will continue work with industry throughout the NAP3 implementation period, with a review point by end 2025, to understand the future water needs for the power sector in its transition to net zero. Industry will also work on this via private initiatives, such as UK Water Industry Research's work on the feasibility of scaling hydrogen production in relation to water consumption.
5. DESNZ will use the CS-N0W research programme through to 2025 to explore developing indicators to measure the progress of the mitigation of climate change risks to energy assets.

How we will do it

1. ARP (Action 1)
2. CS-N0W (climate services for a Net Zero resilient world) research programme (Actions 2 and 4)
3. National Planning Policy Statements (Action 3)
4. Environment Agency's National Framework for Water Resources (Action 3)
5. Environmental impact assessments for projects qualifying as nationally significant infrastructure projects (Action 3)

6. Energy and Water External Steering Group, which is led by the Environment Agency and has participation from Defra, DESNZ, the Scottish Environment Protection Agency and other stakeholders (Action 4)

I10 – Risks to energy from high and low temperatures, high winds, and lightning (energy infrastructure – DESNZ)

Risk reduction goal

Reduce the risk to the energy system from climate change-driven increases in incidences of severe weather.

Actions

1. Distribution network operators will create and implement an outcomes-focused physical network resilience standard model by the end of 2024 that can be used to predict the impact of severe weather events locally and nationally. This standard model will be used to communicate with stakeholders, set public and government expectations and industry targets, and guide planning and funding decisions by industry and the regulator going forward.
2. Distribution network operators will review and update as required the current distribution and transmission network infrastructure and standards (including engineering technical recommendation 132: overhead line designs and vegetation management) by the end of 2028 to ensure they are fit for purpose, especially for spur lines in rural areas.
3. Ofgem will ensure that distribution network operators are funded throughout the NAP3 implementation period to 2028 and beyond. Their investments will make power supplies more resilient to climate change and more frequent adverse weather events within the existing regulatory arrangements, including the Network Asset Risk Metric Framework.
4. Ofgem will review the approach to network regulation in the future (beyond RIIO2) to ensure that regulation can best enable cost-effective climate adaptation in consumer interests throughout the NAP3 implementation period and beyond. The consultation on this review was published in March 2023 with an intent to decide on an overarching framework approach for gas transmission, gas distribution and electricity transmission, as well as a direction of travel and timetable for decision on electricity distribution in autumn 2023.
5. National Gas will review its standards and specifications for constructing new assets to ensure its operations are resilient to the impacts of climate change throughout their life cycle. National Gas is reviewing and prioritising critical national infrastructure sites which are at greatest risk of climate threat impacts (including high temperatures), with initial risk assessments to be completed by 2024. Establishing vulnerable assets at each of these high-risk sites will then allow National Gas to decide where mitigating interventions or protective action is required.
6. Distribution network operators will continue to use cables and overhead conductors designed and manufactured to international standards. They will also ensure assets are designed to operate safely in much greater maximum

and minimum temperature ranges than those found in the UK throughout the NAP3 implementation period to 2028 and beyond.

7. Network operators will continue to monitor frequency of lightning strikes and the need to provide more earthing, surge arresters, other equipment and automated procedures throughout the NAP3 implementation period from 2023 to 2028.
8. Gas Networks will continue to include risks from lightning in monitoring and risk assessments of buildings and assets, which should also address any likelihood of gas ignition throughout the NAP3 implementation period from 2023 to 2028.
9. DESNZ will use the CS-N0W research programme through to 2025 to explore developing indicators to measure the progress of the mitigation of climate change risks to energy assets.
10. DESNZ will conduct an internal review by 2024 of governance arrangements for climate resilience in the energy system, to ensure they are fit for the new expanded and more diverse low-carbon system given increasing societal reliance on electricity.
11. By 2024, DESNZ will designate parties responsible now and in the future for the maintenance of energy sector codes and standards, with a clear mandate to ensure climate and weather resilience.
12. By 2024, Ofgem will decide whether to extend requirements on reporting of outages.

How we will do it

1. Energy Executive Committee review into Storm Arwen, Ofgem Storm Arwen report and the Storm Arwen Implementation Group (Actions 1 and 2)
2. Ofgem’s review of future network regulation (Action 4)
3. Ofgem network price controls 2021 to 2028 RIIO2 (Actions 3, 5, 6, 7 and 8)
4. DESNZ-funded CS-N0W (climate services for a Net Zero resilient world) research (Action 9)
5. Development of future system operator licence conditions (Action 11)

I11 – Risks to offshore infrastructure from storms and high waves (DESNZ)

Risk reduction goal

Sustain current levels of resilience and safety in offshore infrastructure in the context of increased severity and frequency of climate impacts.

Actions

1. DESNZ will continue to work with regulatory bodies throughout the NAP3 implementation period to 2028 and beyond to ensure that current and new offshore installations are suitably designed to minimise, mitigate or reduce as far as reasonably possible the risk of damage caused by extreme weather conditions at sea.
2. DESNZ will continue to work with regulatory bodies throughout the NAP3 implementation period to 2028 and beyond to ensure that risks to offshore infrastructure and personnel are minimised in accordance with relevant sector guidelines. They will also ensure operators maintain sufficient risk assessments and procedures to minimise risk to personnel at sea.
3. DESNZ will continue to work with regulatory bodies throughout the NAP3 implementation period to 2028 and beyond to ensure that climate risks are considered within the codes, standards and guidance for other offshore infrastructure and vessels operating within and across the UK continental shelf.
4. The government will conduct research and provide further documentation throughout the NAP3 implementation period from 2023 to 2028 on the performance and reliability of new types of offshore infrastructure. It will establish suitable channels for sharing knowledge with relevant organisations, such as infrastructure companies with experience constructing in extreme weather regions.

How we will do it

1. The Health and Safety at Work Act 1974 (Actions 1 to 4)
2. The Offshore Installations (Offshore Safety Directive) (Safety Case, etc) Regulations 2015 (Actions 1 to 4)
3. All applicable active marine guidance notes (Actions 1 to 4)
4. Marine guidance note draft XXA(M): Special purpose ships code – application to offshore vessels (Actions 1 to 4)
5. Marine guidance note draft XXB(M): Ship construction and equipment – use and application of international maritime organization codes and guidelines for offshore vessels (Actions 1 to 4)

I12 – Risks to transport from high and low temperatures, high winds, and lightning (DfT)

Risk reduction goal

Minimise the impact on the transport network of climate change-driven increases in incidences of high and low temperatures, high winds, and lightning, so that:

- assets remain operational throughout their design life, through coordinated investment and management
- the risk of fatalities and major disruption from the impacts of climate change is reduced as far as possible through coordinated investment in and management of assets and services
- resilience plans enable people and freight to move safely in the event of a loss of service on any given route, while also ensuring staff safety

Actions

1. DfT will develop a transport adaptation strategy, taking a holistic approach to addressing the transport-related risks in the CCRA. We will seek to consult on the strategy by the end of 2023.
2. DfT will expand a programme of research, development, analysis and innovation by the end of 2023 to fill priority evidence gaps and inform effective decision making on climate change adaptation measures across the transport system.
3. Local highway authorities will work towards widening asset management plans within the NAP3 period to improve understanding of vulnerabilities and will complete initial risk assessments by the end of 2024.
4. Transport delivery bodies will support and use NBS to reduce the impact of high and low temperatures, high winds, and lightning. For example, Network Rail will review the opportunities for NBS to mitigate climate risk by the end of 2023.
5. Network Rail will review recommendations from extreme heat taskforces during 2023 and develop a plan based on available resources for implementation throughout the NAP3 period to 2028 and beyond.
6. Network Rail will develop adaptation pathway strategies by 2029 at regional level to support long-term strategic planning and identify where transformation of rail services may be required.
7. RSSB will lead development of a rail industry-wide climate change adaptation maturity matrix in 2023. This will support rail organisations to increase adaptive capacity by identifying industry-wide and organisational-level improvements to address risks and build capability.
8. Transport delivery bodies will deliver business plans and actions from their ARP3 reports throughout the NAP3 implementation period to 2028 and beyond to maintain and invest in the aspects of infrastructure that need to be resilient to the impacts of climate change. Actions will be funded through the normal investment framework for each sector, including through the second

Road Investment Strategy period from 2020 to 2025 for National Highways, and control period 7 from 2024 to 2029 for Network Rail.

9. Network Rail will review asset policies and approaches in 2023, including relevant national, regional and operational standards, and will update them where necessary over the NAP3 period from 2023 to 2028 to embed and standardise management of climate change risk.
10. National Highways will implement actions outlined in their ARP3 report through road periods 2 and 3, seeking to improve the drainage network associated with the strategic road network and updating standards and guidance where required.
11. Network Rail will conduct a mapping exercise by the end of 2024 to improve understanding of vulnerabilities and criticality of the transport network and to inform risk assessments that guide future investment plans.
12. DfT will work with the UK Roads Leadership Group to devise a framework for local authorities to implement the extreme weather recommendations from recent incident reports by the end of 2024.
13. DfT will publish expectations on adaptation in the forthcoming consultation on the local transport plan guidance refresh. The guidance will set out the need to adapt and improve the climate resilience of transport networks and to reflect this in local transport plans and alongside its programme of interventions.
14. Commercial airports will undertake regular monitoring programmes throughout the NAP period to 2028 and beyond. These include regular maintenance schedules of infrastructure and assets and regular review of contingency and response plans to ensure the sector is resilient.
15. DfT will work with the maritime, ports and aviation sectors, including with industry organisations, to enhance climate impact risk assessments and to embed their findings into business planning and operating procedures ahead of ARP4 reporting in 2024.
16. DfT will encourage transport operators to work through national forums, regional strategic groups and local resilience forums, to enhance engagement on aligned plans for responding to climate risks, data gathering and associated research over the NAP3 period to 2028 and beyond.
17. DfT will trial a regular monitoring survey for the ports sector over the NAP3 period from 2023 to 2028 to gather information on the frequency of disruption to port operations from extreme weather.

How we will do it

1. DfT's transport adaptation strategy (Actions 1, 2, 15 and 16)
2. Network Rail's Weather Risk Taskforce (Action 5)
3. Network Rail control periods 6 and 7 (Actions 4 to 9, and 11)
4. Rail industry bodies' business plans (Actions 4 to 9, and 11)
5. Transport for London's Climate Change Adaptation Plan (Actions 4 and 8)
6. Network Rail, Transport for London, National Highways and HS2's ARP3 and ARP4 reports (Actions 4 to 11)
7. Network Rail's adaptation pathway strategies (Action 6)
8. RSSB's Climate Change Adaptation Working Group (Action 7)
9. Network Rail's Standards Steering Group (Action 9)
10. National Highways' Design Manual for Roads and Bridges (Action 10)

11. Road Investment Strategy 2 and 3 (Action 10)
12. Local authority asset management plans (Actions 3 and 12)
13. Local transport plans (Action 13)
14. Port weather disruption survey (Action 17)

I13 – Risks to digital from high and low temperatures, high winds, and lightning (data infrastructure – DSIT)

Risk reduction goal

Increase the government's understanding of the risk to data infrastructure from high and low temperatures, high winds, and lightning and make UK data infrastructure more resilient and responsive to changing climate risks.

Actions

1. DSIT will continue to engage industry throughout the NAP3 implementation period to 2028 and beyond to promote effective resilience and contingency planning to climate change impacts.
2. DSIT will continue to work with the Cabinet Office, National Cyber Security Centre, and the National Protective Security Authority throughout the NAP3 implementation period from 2023 to 2028 on data infrastructure asset mapping to identify critically important systems and support more effective industry-led risk assessment.
3. DSIT will implement the commitment in the National Data Strategy to review the underlying risk management policy framework for data infrastructure within the NAP3 implementation period from 2023 to 2028 to strengthen the sector's approach to climate risk management and long-term, reasonable, worst case scenario risk assessment.

How we will do it

1. Industry engagement: TechUK, Data Centres Council, Data Centre Alliance and SEGRO (Action 1)
2. Critical national infrastructure policy initiatives (Action 2)
3. Publication of consultation on risk management framework policy proposals (Action 3)

I13 – Risks to digital from high and low temperatures, high winds, and lightning (telecommunications – DSIT)

Risk reduction goal

Increase the resilience of telecoms infrastructure to severe weather impacts.

Actions

1. DSIT will work with the regulator, Ofcom, to hold the telecoms sector to account for their resilience to climate hazards through existing duties and guidance. This will drive the sector's resilience to climate change hazards throughout the NAP3 implementation period from 2023 to 2028 and beyond.
2. DSIT will work with the telecoms industry to continue the replacement programme of the fixed-line public switched telephone network with voice over internet protocol technology, which carries voice calls over an internet connection by 2025. This will reduce the risk of outages on the fixed-line network caused by severe weather by decreasing the network infrastructure footprint and exposure to climate hazards.
3. DSIT will support the industry through the EC-RRG throughout the NAP3 implementation period from 2023 to 2028 to increase cooperation with the power sector. This will improve cross-sector communications during severe weather incidents, accelerate recovery processes, and identify opportunities to make the mobile network more resilient to power outages.
4. DSIT will work with the EC-RRG to deliver one seminar every year throughout the NAP3 implementation period from 2023 to 2028 to increase understanding of climate adaptation risks and the economic benefits of taking adaptive action, including improved collaboration with the Met Office.
5. DSIT will work with EC-RRG and Ofcom to understand the requirements of and improve the information provided by the telecommunications sector during incidents. This will improve reporting systems and procedures at national and local level to facilitate engagement with category 1 and 2 responders by the end of 2024.
6. DSIT will work with Ofcom and the industry to explore the potential to collect specific data for climate change adaptation reporting, including whether climate change drivers can be identified as a reason for outages, by end of 2023 to include in reporting from 2024.
7. Building Digital UK (BDUK) will publish guidance for telecoms operators so there is a single reference point for environmental requirements and resources, including climate adaptation, relative to telecoms infrastructure delivery by the end of 2023.

How we will do it

1. The Communications Act 2003 (as amended by the Telecommunications (Security) Act 2021) and revised Ofcom security guidance published in 2022 (Action 1)
2. EC-RRG resilience guidelines for providers of critical national telecommunications infrastructure, 2018 (Actions 1 and 3)
3. Public switched telephone network migration to voice over internet protocol technology (Action 2)
4. Government coordination of action and engagement with the sector through the EC-RRG and other stakeholder groups (Actions 3, 4 and 5)
5. EC-RRG 2021/22 Severe Storms Post-Incident Report Action Plan (Actions 3 and 4)

Natural environment

N1 – Risks to terrestrial species and habitats from changing climatic conditions and extreme events, including temperature change, water scarcity, wildfire, flooding, wind, and altered hydrology (including water scarcity, flooding and saline intrusion) (Defra)

Risk reduction goal

Halt the decline in species abundance by 2030 and protect 30% of land in England in a way that recognises and responds to climate change risks by 2030 to reduce the risk to terrestrial species and habitats.

Actions

1. Defra will work with stakeholders to create and restore habitats and ecosystem functions, including those most at risk from climate change. This includes restoring and creating over 500,000 hectares of wildlife-rich habitat outside of Protected Sites by 2042, including 140,000 hectares by 2028, and restoring 75% of Protected Sites to favourable condition by 2042 – all in a manner that is suitable in the context of climate change. This will provide the conditions and functions such as connectivity and buffering to increase the resilience of terrestrial habitats and species to climate change risks.
2. Defra will continue to support stakeholders to carry out ecosystem restoration and management in an integrated landscape context, considering the current and future role of Protected Sites and wider habitats in the wider context of biogeographic change. This will help create a resilient and dynamic network of nature recovery through the NAP3 implementation period to 2028 and beyond.
3. Defra will continue to support stakeholders to use spatial prioritisation for habitat restoration and creation, informed by climate projections, such as projected hazard and land suitability mapping, through the NAP3 implementation period to 2028 and beyond. This will support the creation of the right habitat types and the right management approaches in the right place.
4. Defra will continue to support stakeholders to target activity to support vulnerable species and habitats, including larger-scale multi-taxa projects through the NAP3 implementation period to 2028 and beyond to support their specific ecological requirements and increase their resilience and adaptive capacity to climate change risks.
5. Natural England will work with land managers to manage and improve the condition of Protected Sites. This includes a consideration of climate change pressure on site features by 31 January 2028, to support their resilience and adaptation to climate change.

6. Defra will use process-based models to predict the response of individual species over time to landcover or habitat changes by April 2025. As more data is made available, we will work to incorporate updated climate change scenarios into the project.
7. The Home Office, supported by Defra, will scope out a Wildfire Strategy and Action Plan by mid-2024, reporting on the outcomes of the scoping exercise. Defra will develop 'adaptation of land management to wildfire risk guidance' by 2026. Defra will work with public and private sector land managers to develop wildfire management plans for 20,000 hectares of habitat by 2025. This will be supported by research programmes beginning from 2023. This action will reduce the risk of wildfires impacting on social, economic and environmental assets across the chapter themes of NAP3.
8. The Environment Agency will produce new long-term investment scenarios by the end of 2025 to quantify the benefits of natural flood management for the next 50 to 100 years in England. This will provide evidence to leverage funding and action to support the resilience of terrestrial, freshwater and coastal habitats and species under a changing climate.

How we will do it

1. Natural England's landscape-scale nature recovery projects (Actions 1, 2, 3 and 4)
2. Local Nature Recovery Strategies (Actions 1, 2, 3 and 4)
3. Environmental Land Management schemes (Actions 1, 3, 4 and 7)
4. Protected Sites – designation and management (Actions 1, 2, 4 and 5)
5. Protected Site strategies (Action 5)
6. Protected Landscapes Management Plans, refreshed Management Plan Guidance (2023), Protected Landscapes Targets Outcome Framework (2023) (Action 2)
7. Biodiversity Net Gain (Actions 2 and 4)
8. Green Infrastructure Framework (Action 1)
9. Species Survival Fund (Actions 1, 2 and 3)
10. Nature-based Solutions for Climate Change Programme (Actions 1, 2 and 4)
11. Green Finance (Action 1)
12. Nature for Climate Fund (Actions 1, 2 and 8)
13. Adaptation of land management to wildfire risk programme (Action 7)
14. Wildfire risk research and development, including: England wildfire risk map; wildfire risk reduction measures; cause and motives of wildfire ignitions; statistical analysis of wildfire incidents; economic, social and environmental impacts of wildfires; and vegetation fire observer and behaviour protocols and products by 2028 (Action 7)
15. Land use research and analysis (Actions 3 and 6)
16. Natural flood management Evidence Directory (Action 8)
17. Long Term Investment Scenarios (Action 8)

N2 – Risks to terrestrial species and habitats from pests, pathogens and invasive non-native species (Defra)

Risk reduction goal

Reduce the number of new establishments of all invasive non-native species (INNS) in Great Britain (GB) by at least 50% by 2030 (compared to 2000 levels) and reduce further impacts of INNS that are already established under a changing climate.

(For the goal and actions regarding pests and pathogen risks, see N7 and N8. For the goal and actions regarding aquatic pathogens, see N12).

Actions

1. Defra will continue to identify and prioritise INNS for prevention, eradication and long-term management, taking climate change into account, through to 2030 in line with the GB INNS Strategy. This includes INNS that are likely to i) establish, ii) spread or iii) increase in impact as a result of climate change; iv) damage carbon rich habitats; or v) exacerbate climate-related pressures.
2. Defra will implement priority pathway action plans and contingency plans and keep them up to date with changes in evidence, governance and legislation by 2030 to prevent the introduction or spread of INNS described in Action 1.
3. The INNS Inspectorate and Animal and Plant Health Agency will continue to inspect at the border and post-border, to prevent the introduction and establishment of new INNS identified in Action 1, through to 2030 in line with the GB INNS Strategy.
4. Defra will continue to develop and maintain an effective INNS surveillance, early detection and monitoring mechanism through the NAP3 implementation period and beyond, to prevent the introduction, establishment or minimise the impacts of INNS identified in Action 1.
5. Defra will continue to regulate, where appropriate, the keeping, breeding, transportation, selling, use or exchange, reproduction, growth, cultivation, or release of INNS that pose the most significant risk through to 2030. The list of species of special concern will be reviewed every 6 years. This will minimise the risk of establishment and spread of INNS identified in Action 1.
6. Defra will continue to instigate and carry out eradications of GB priority INNS, using risk analysis methods (including risk assessment and risk management criteria that consider, for example, the potential impact of species and the feasibility of management) to identify and prioritise species. This will be supported by actions in the GB INNS Strategy through to 2030.
7. Defra will provide funding to land managers and other stakeholders to support long-term management and control of INNS by 2030. This will minimise and manage the impact of established INNS in a cost-effective and strategic manner.
8. Defra will implement a communications strategy up to 2030 to raise awareness of INNS issues among key target audience and, where

appropriate, the general public to inform people about the measures they can take to reduce the risks from INNS.

9. Defra will continue to improve and incorporate climate change scenarios in species risk assessments and other evidence bases up to 2030 to improve our understanding of the impacts of INNS under different climate change scenarios.

How we will do it

1. The GB INNS Strategy (Actions 1, 2, 3, 4, 5, 6, 7, 8 and 9)
2. GB risk analysis mechanism for INNS (Actions 1, 2, 5, 6 and 9)
3. GB Non-Native Species Information Portal and alert system (Actions 1, 2, 4 and 6)
4. The Evidence Strategic Plan (Actions 1, 2, 4, 6, 7, 8 and 9)
5. The retained EU Invasive Alien Species Regulation (Actions 3, 5 and 6)
6. The Wildlife and Countryside Act (Actions 3 and 5)
7. The Invasive Alien Species (Enforcement and Permitting) Order 2019 (Actions 3, 5 and 6)
8. Environmental Land Management schemes (Action 7)
9. GB INNS Inspectorate (Actions 2, 3 and 8)
10. Regulation of emerging forestry species (Action 5 – see N8)

N3 – Opportunities from new species in terrestrial habitats colonisations (Defra)

Goal

Facilitate the movement and expansion of native species within the UK in response to climate change opportunities.

(Linked goal – N1: Halt the decline in species abundance by 2030 and protect 30% of land in England in a way that recognises and responds to climate change opportunities by 2030.)

Actions

1. Defra will create and restore habitats and ecosystem functions as set out in N1 Action 1 to establish resilient, functioning and connected ecosystems and habitats and facilitate the natural movement of species within and across landscapes.
2. Defra will continue to increase opportunities for the persistence and expansion of native threatened species, including those identified as vulnerable to climate change, through the NAP3 implementation period to 2028 and beyond.
3. Defra will make Protected Site designation and management more dynamic to promote adaptation to the changing climate. The climate change risk posed to Sites of Special Scientific Interest (SSSIs) will be considered as part of condition assessment. Natural England will pilot the development of adaptive management plans for SSSIs identified as being at high risk in autumn 2023. Natural England will further develop the adaptive management for features identified to be at high risk on Natural England-managed National Nature Reserves to support management planning from April 2024.

How we will do it

1. Natural England's landscape-scale nature recovery projects (Actions 1 and 2)
2. Local Nature Recovery Strategies (Actions 1 and 2)
3. Environmental Land Management schemes (Actions 1 and 2)
4. Species Survival Fund (Actions 1 and 2)
5. Protected Sites – designation and management (Actions 1 and 3)
6. Nature for Climate Fund (Actions 1 and 2)
7. Natural England Climate Change Adaptation Plan (Actions 1, 2 and 3)

N4 – Risk to soils from changing climatic conditions, including seasonal aridity and wetness (Defra)

Risk reduction goal

Protect and improve soil health so that soil maintains its multiple functions and is more resilient to impacts from climate change.

Actions

1. Defra will establish soil monitoring schemes by spring 2024, collect robust baseline data of soil health across all land use types in England to measure and monitor soil health and inform targeted interventions and land management practices by 2028.
2. Defra will begin a regulatory baseline review on existing domestic legislation for soil health in 2023 to understand the scope and impact of existing regulations and where further regulatory cover may be required.
3. Defra will encourage landowners to sustainably manage at least 40% of England's agricultural soils by 2028 so that it will be more resilient to the impacts of drought and flooding and better able to support food and biomass production.
4. Defra will publish the updated Soil Construction Code of Practice for the Sustainable Use of Soils on Construction Sites by spring 2024 to reduce the amount of compacted and contaminated soil onsite and increase the amount of soil reused on construction sites. Defra will review the implementation of the Soil Construction Code of Practice once published.
5. Defra will complete the update of the predictive Agricultural Land Classification map for England by March 2025 to help inform decisions on the appropriate sustainable development of land.
6. Defra will continue to conduct additional research on new technologies and innovations that could help improve the resilience of all soil and land use types from climate change impacts and prevent future soil contamination through the NAP3 implementation period and beyond.
7. Defra will begin developing a Soil Re-Use and Storage Depot scheme to help prevent soil that would otherwise be classified as waste going to landfill and encourage remediation and re-use of soil. Piloting will start by 2026.

How we will do it

1. Natural Capital and Ecosystem Assessment Programme (Action 1)
2. England Ecosystem Survey (Action 1)
3. Forest Soil Survey (Action 1)
4. Soil Structure Scheme (Action 1)
5. Healthy soil indicator (Action 1)

6. Environmental Land Management schemes (Sustainable Farming Incentive) or the Common Agricultural Policy Basic Payment Scheme (cross-compliance rules) (Action 3)
7. Farming rules for water (Action 3)
8. Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Action 4)
9. Environmental Permitting Regulations (Action 4)
10. Definition of Waste Code of Practice (Action 4)
11. Agricultural Land Classification system (Action 5)
12. Priority outcomes: environment (PO1), net zero (PO2), floods and resilience (PO3), agriculture, food, fisheries, animal welfare and biosecurity (PO4), as set out in the Outcome Delivery Plan (Action 7)
13. Environmental targets for biodiversity and water (Action 7)

N5 – Risks to natural carbon stores and sequestration (blue carbon) from changing climatic conditions including temperature change and water scarcity (Defra)

Risk reduction goal

Increase the extent and improve the condition of blue carbon habitats so they are more resilient to climate change and improve our understanding of climatic risks.

Actions

1. Defra will continue to manage and, where appropriate, reduce non-climate pressures on blue carbon habitats, through the NAP3 implementation period to 2028 and beyond, to help protect them and build their resilience. Our target is that 70% of designated features in Marine Protected Areas (MPAs) will be in favourable condition by 2042, with the remainder in recovering condition. Defra also intends to explore more sites following the designation of the first 3 Highly Protected Marine Areas in English waters. We will begin the process of exploring further sites in 2023.
2. Defra will restore and create new habitats, including through the cross-Defra Restoring Meadows, Marsh and Reef (ReMeMaRe) initiative. This initiative aims to restore at least 15% of the 3 priority habitats – seagrass meadows, saltmarsh and native oyster reefs – by 2043.
3. Defra will improve data gathering and monitoring to inform spatially targeted policy through the NAP3 implementation period, including through the marine Natural Capital and Ecosystem Assessment programme (2022 to 2025).
4. Defra has identified the priority areas for blue carbon research through the UK Blue Carbon Evidence Partnership's evidence needs statement, published in June 2023. Defra is funding the partnership until March 2024 to coordinate research to address these gaps.

How we will do it

1. UK Marine Strategy (Actions 1 and 3)
2. UK Marine Policy Marine Policy Statement and Marine Plans (Action 1)
3. Marine Protected Areas and Highly Protected Marine Areas (Action 1)
4. Restoration initiatives including Reducing and Mitigating Erosion and Disturbance Impacts Effecting the Seabed (ReMEDIES), ReMeMaRe and Marine Restoration Potential mapping (MaRePo) partnership (Actions 1 and 2)
5. Environmental Land Management schemes (Action 2)
6. Local Nature Recovery Strategies (Action 2)
7. The Big Nature Impact Fund and the Natural Environment Investment Readiness Fund (Action 2)
8. Biodiversity and Marine Net Gain (Action 2)

9. Research and development and evidence programmes including the Marine Climate Change Impacts Partnership (Action 3)
10. Natural Capital Ecosystem Assessment programmes (Actions 3 and 4)
11. UK Blue Carbon Evidence Partnership (Action 4)

N5 Forestry – Risks to natural carbon stores and sequestration from changing climatic conditions (Defra)

Risk reduction goal

Create and maintain healthy, functioning woodlands, which will increase the resilience of these carbon stores for future climate conditions.

Actions

1. Defra and the Forestry Commission (FC) will seek to treble tree planting rates over the current Parliament on a path to achieve the new statutory target of increasing tree canopy and woodland cover from 14.5% to 16.5% by 2050. As a result, these new woodlands will, in combination with action 3, store carbon securely, reduce greenhouse gas emissions, increase biodiversity and reduce the risk of climate hazards such as drought, flooding and windblow.
2. Defra, the FC and Forestry Climate Change Partnership will continue upskilling the forestry sector's understanding of climate change and measures to limit its impact through the NAP3 implementation period and beyond. This will ensure land managers have the information needed to implement adaptive measures, which will increase uptake of adaptation action, as evidenced by the British Woodland Survey.
3. Defra and the FC will ensure new woodlands have current and future climate conditions considered in their design and species choice. Grant applications for new woodland will be evaluated by 2028 to assess progress against this action.
4. Defra and the FC will set out plans in the updated Tree Health Resilience Strategy to increase adaptive management of existing trees and woodlands (including ancient woodland) in 2024 to reduce loss from hazards such as wildfire, drought and windblow.
5. The Home Office, supported by Defra, will scope out a Wildfire Strategy and Action Plan by mid-2024, reporting on the outcomes of the scoping exercise. Defra will develop 'adaptation of land management to wildfire risk' guidance by 2026. Defra will work with public and private sector land managers to develop wildfire management plans for 20,000 hectares of habitat by 2025. This will be supported research programmes beginning from 2023. This action will reduce the risk of wildfires impacting on social, economic and environmental assets across the chapter themes of NAP3.
6. Defra and the FC will support land managers to increase the number of woodlands within high-risk areas that have wildfire management plans within woodland management plans by 2030 to mitigate the risk of this increasing climatic hazard.
7. Defra and the FC will continue to support implementation of Continuous Cover Forestry more widely to maintain forestry habitats and have higher long-term carbon stocks than woodlands managed on a rotational clear-fell basis. There will be an increase in woodlands in Continuous Cover Forestry management

by 2050, as evidenced by a reduction in the proportion of clear-fell felling licences applied for.

8. Defra will use climate risk forecasts to inform net zero woodland creation policies, so that tree planting is spatially targeted to account for climate risk. This will be implemented in the post-Nature for Climate Fund forestry policies, including urban tree cover, by 2026.
9. Defra and the FC will improve inter-annual monitoring of tree growth rates and consider more frequent reporting of woodland condition and tree mortality. With this information on impacts and further analysis, data for woodland wildfire, wind damage and inter-annual variation in growth rates could directly measure the impacts of climate change on our natural carbon stores. Defra will review the monitoring programmes in March 2025 to determine how to develop them further.

How we will do it

1. National Planning Policy Framework (Action 1)
2. Emissions Trading Scheme (Action 1)
3. Ecological Site Classification (Actions 1, 3 and 8)
4. Climate Matching tool (Actions 2 and 3)
5. UK Forestry Standard Adaptation Practice Guide (Actions 2, 3, 4 and 5)
6. Forest Development Types decision support tool (Actions 2, 4 and 7)
7. Forest Research Climate Change Hub (Actions 2 and 4)
8. Woodland Carbon Code (Actions 1 and 8)
9. England Trees Action Plan (Actions 4 and 9)
10. England Woodland Creation Offer (Actions 1, 3, 7 and 8)
11. Environmental Land Management schemes (Actions 1, 3, 4, 7 and 8)
12. UK Forestry Standard (Actions 1, 3, 4, 6 and 7)
13. Environmental Impact Assessment (Actions 1 and 3)
14. Woodland for Water Partnership and the Woodland Water Code (in development) (Actions 1 and 3)
15. Biodiversity Net Gain (Actions 1, 3, 4 and 8)
16. Tree Production Innovation Fund (Actions 3 and 4)
17. Tree Production Capital Grant (Actions 3 and 4)
18. Seed Sourcing Grant (Actions 3 and 4)
19. Big Nature Impact Fund and Green Finance (Actions 1 and 3)
20. Woodland Creation Planning Grant (Actions 1, 3 and 8)
21. Updated Tree Health Resilience Strategy (Actions 2, 3 and 4)
22. National Deer Management Strategy (Action 4)
23. Grey Squirrel Action Plan (Action 4)
24. Adaptation of land management to wildfire risk programme (Actions 4, 5 and 6)
25. Wildfire risk research and development, including: England wildfire risk map; wildfire risk reduction measures; cause and motives of wildfire ignitions; statistical analysis of wildfire incidents; economic, social and environmental impacts of wildfires; and vegetation fire observer and behaviour protocols and products by 2028 (Actions 4, 5 and 6)
26. Land use research and analysis (Action 8)
27. Nature for Climate Fund tree and woodland creation delivery mechanisms (Actions 1, 3 and 8)

28. Nature for Climate Fund Research and Development Strategy (Actions 1, 2, 3, 8 and 9)
29. Science and Innovation Strategy for Forestry in Britain (Actions 1, 2, 3, 4, 7, 8 and 9)
30. Natural Capital Ecosystem Assessment (Actions 8 and 9)

N5 Peatlands – Risks to natural carbon stores and sequestration from changing climatic conditions, including temperature change and water scarcity (Defra)

Risk reduction goal

Create and maintain healthy, functioning peatland, which will increase the resilience of these carbon stores for future climate conditions.

Actions

1. Defra will restore 35,000 hectares of peat by 2025 and 280,000 hectares by 2050, so that it stores carbon securely, reduces greenhouse gas emissions, increases biodiversity and reduces the risk of climate hazards such as drought and wildfire.
2. Defra will support the introduction and adoption of paludiculture to enable markets for products and convert farms to wetter farming, including exploring the possibilities of delivering this through Environmental Land Management schemes (ELMs). The implementation programme will be developed through the NAP3 implementation period.
3. Defra will enable the responsible management of lowland peatlands and explore the feasibility of better water management for the purposes of carbon abatement. The programme will be developed through the NAP3 implementation period.
4. Defra will ban the sale of peat for use in amateur gardening sector by 2024 when legislative time allows. Defra will also work closely with the professional horticulture sector on speeding up their transition to peat-free alternatives ahead of a ban for the professional sector by 2030. This will protect peatland from further damaging activities.
5. Defra will review the case for extending protections against burning on peat by 2024, and if appropriate bring forward new regulations by 2025, to protect peatland from unnecessary damaging activities.
6. The Home Office, supported by Defra, will scope out a Wildfire Strategy and Action Plan by mid-2024, reporting on the outcomes of the scoping exercise. Wildfire mitigation and risk management will be included in the heather and grass management code to be published in 2025. Defra will work with public and private sector land managers to develop wildfire management plans for 20,000 hectares of habitat by 2025. This will be supported by research programmes beginning from 2023. This action will reduce the risk of wildfires impacting on social, economic and environmental assets across the chapter themes of NAP3.

How we will do it

1. ELMs (Actions 1, 2 and 3)
2. Nature for Climate Fund (Actions 1 and 6)
3. England Peatland Action Plan Implementation Plan (Actions 1 and 6)
4. Peatland Code (Action 1)
5. Water Environment Improvement Grant in Aid (Action 1)
6. Peat Map and the Peatland Restoration Register (Action 1)
7. Paludiculture Exploration Fund (Action 2)
8. Lowland Agricultural Peat Task Force (Actions 1, 2 and 3)
9. Peatland Research and Development Programme 2022-2025 (Actions 2 and 3)
10. Plan for Water (Actions 2 and 3)
11. Heather and Grass Burning Regulations (England) 2021 (Action 5)
12. Adaptation of land management to wildfire risk programme (Action 6)
13. Wildfire risk research and development, including: England wildfire risk map; wildfire risk reduction measures; cause and motives of wildfire ignitions; statistical analysis of wildfire incidents; economic, social and environmental impacts of wildfires; and vegetation fire observer and behaviour protocols and products by 2028 (Action 6)

N6 – Risks to and opportunities for agricultural productivity from extreme events and changing climatic conditions (Defra)

Risk reduction goal

Maintain agricultural production, in the context of changing climatic conditions and extreme weather events, through enhancing the resilience of the agricultural sector and taking advantage of climate-related opportunities.

Actions

1. Defra will support farmers to adopt adaptive land management practices with an uptake target of 70% of farmers and farmland to be in their Environmental Land Management schemes (ELMs) by 2028. This will help improve soil health and water quality.
2. Defra will pay for the establishment and maintenance of silvoarable and silvopastoral agroforestry systems in 2024 to encourage and support increased agroforestry, which will provide important shade for livestock, increase flood resilience, improve water quality and enhance food production potential.
3. Defra will improve modelling of agricultural risk by designing and implementing an agriculture model by early 2025 which will allow us to quantify a range of possible outcomes of future changes, and design policy interventions that mitigate the risk of extreme outcomes.
4. Defra will work to fill evidence gaps, with the aim of improving our understanding of climate change impacts on projected land use change outcomes. For example, Defra will review the impact of flooding and coastal erosion on agricultural land and businesses in England and Wales, by the end of 2024.
5. By 2027, Defra will double the number of government-funded projects which include nature-based solutions to reduce flood and coastal erosion risk and will support farmers and land managers to deliver natural flood management.
6. Defra will begin offering capital grants in 2023 through the Animal Health and Welfare Pathway to fund health and welfare infrastructure projects and provide equipment to support good animal health and welfare in extreme weather events.
7. Defra's Genetic Technology (Precision Breeding) Act passed into law in March 2023 and will reduce the regulatory burden on research and marketing of plants and animals developed using precision breeding technologies such as gene editing. These technologies have the potential to deliver crop varieties and livestock breeds with greater resilience to disease or climate change and provide health benefits to consumers. The government will put forward secondary legislation to implement the measures within the Act, with regulatory changes for precision-bred plants expected by 2025, followed by animals by 2027.

8. Defra will continue to provide grant funding and review planning barriers until at least 2024 to support farmers to invest in on farm reservoirs and irrigation infrastructure, with the aim of increasing the percentage of water storage used by the agriculture and horticulture sectors by 66% by 2050 from a 2024 baseline.
9. Defra will provide £270 million of funding for the Farming Innovation Programme throughout the Agricultural Transition Period to 2028 to fund projects that focus on helping the sector adapt to climate change and will drive up productivity in the sector, enhancing environmental sustainability.
10. Defra will develop research outputs as part of their partnership with the Met Office Hadley Centre to explore the requirements for a climate-resilient agri-food system, provide insight into optimising adaptation options and define risk factors associated with climate change across the food system by 2025.
11. Defra will produce research reports by 2025 to help develop solutions for the agri-food system and identify options to improve crop productivity, sustainability and resilience.

How we will do it

1. ELMs (Actions 1 and 2)
2. Land use research and analysis (Action 4)
3. The terrestrial Natural Capital and Ecosystem Assessment Programme (Action 4)
4. Flooding and Coastal Erosion Risk Management Strategy (Action 5)
5. Animal Health and Welfare Pathway (Action 6)
6. Genetic Technology (Precision Breeding) Act (Action 7)
7. Farming Investment Fund (Action 8)
8. Farming Innovation Programme (Actions 1 and 9)
9. Agri-food evidence programme and the Met Office Hadley Centre partnership (Actions 10 and 11)
10. Evidence review of the impact of flooding and coastal erosion on agricultural land and businesses in England and Wales (Action 4)

N6 – Risks to and opportunities for forestry productivity from extreme events and changing climatic conditions (Defra)

Risk reduction goal

Maintain average forestry productivity (as a minimum) at current levels to 2080, to ensure that England has healthy and productive woodlands which are resilient to extreme events and have high levels of diversity.

Actions

1. Defra and the Forestry Commission will ensure new woodlands have current and future climate conditions considered in their design and species choice. Grant applications for new woodland will be evaluated by 2028 to assess progress against this action.
2. Defra will encourage landowners to incorporate climate-smart actions into woodland creation and management plans, making forestry productivity more resilient. By 2028, there will be an increase in the uptake of woodland management support through grant schemes.
3. The Home Office, supported by Defra, will scope out a Wildfire Strategy and Action Plan by mid-2024, reporting on the outcomes of the scoping exercise. Defra will develop 'adaptation of land management to wildfire risk' guidance by 2026. Defra will work with public and private sector land managers to develop wildfire management plans for 20,000 hectares of habitat by 2025. This will be supported by research programmes beginning from 2023. This action will reduce the risk of wildfires impacting upon social, economic and environmental assets across the chapter themes of NAP3.
4. Defra and the Forestry Commission will increase the number of woodlands within high-risk areas that have wildfire management plans within woodland management plans by 2030 to mitigate the risk of this increasing climatic hazard.
5. Defra and the FC will support the implementation of Continuous Forestry Cover more widely to support forestry productivity, allow for greater species diversity and maintain forestry habitats. There will be an increase in Continuous Forestry Cover management by 2050, as evidenced by a reduction in the proportion of clear-fell licences applied for.
6. Defra will use climate risk forecasts to develop post-England Trees Action Plan and post-Nature for Climate Fund policies from 2025, so that tree planting is spatially targeted to account for climate risk.
7. Defra, in collaboration with DESNZ, DBT, DLUHC, and DSIT will publish a Timber in Construction Roadmap in 2023. DLUHC will publish a consultation on Whole Life Carbon assessments in the construction sector in 2023. Defra will also complete a review of the government Timber Procurement Policy in 2023. This will create an environment for greater timber market activities under a changing climate.

How we will do it

1. Woodland Carbon Code (Action 1)
2. England Woodland Creation Offer (Actions 1, 2 and 5)
3. Felling Licence Regulations (Actions 2 and 5)
4. Environmental Land Management schemes (Actions 1, 2, 4 and 5)
5. UK Forestry Standard (Actions 1, 2, 4 and 5)
6. Environmental Impact Assessment (Action 1)
7. England Trees Action Plan (Actions 1, 2, 4, 5, 6 and 7)
8. Nature for Climate Fund Research and Development Strategy (Actions 1, 2 and 6)
9. ForestGALES and Climate Matching tools (Actions 1, 2, 5 and 6)
10. Updated Tree Health Resilience Strategy (Actions 1, 2 and 5)
11. Woodland Creation Planning Grant (Actions 1 and 6)
12. Ecological Site Classification and Forest Development Types decision support tools (Actions 1, 2, 5 and 6)
13. Adaptation of land management to wildfire risk programme (Actions 1, 2, 3, 4 and 6)
14. Wildfire risk research and development, including: England wildfire risk map; wildfire risk reduction measures; cause and motives of wildfire ignitions; statistical analysis of wildfire incidents; economic, social and environmental impacts of wildfires; and vegetation fire observer and behaviour protocols and products by 2028 (Actions 3 and 4)
15. Forest Research Climate Change Hub (Actions 1, 2, 5 and 6)
16. Land use research and analysis (Action 6)
17. Nature for Climate Fund tree and woodland delivery mechanisms (Action 7)

N7 – Risks to agriculture from pests, pathogens, and invasive non-native species (Defra)

Risk reduction goal

Minimise the risk of increased impacts on agriculture from pest, pathogens and invasive non-native species (INNS) in a changing climate.

Actions

1. Defra will revise the approach to the plant health and animal health border inspection regime to target it towards higher-risk commodities such as imported plants and plant products, feed, live animals and products of animal origin to detect new threats. Defra will establish a system for auditing plant health measures in third countries in 2023.
2. The Animal and Plant Health Agency will carry out annual surveys for priority plant pests and surveys for other quarantine pests at least once between 2024 and 2028. The FC will target post-border surveillance towards high-risk locations based on factors such as host composition, climate, detection method and entry pathways, with at least 150 forest plots surveyed annually.
3. Defra will establish a method for incorporating the impact of climate change into plant health pest risk analyses by 2025 and will identify new pest threats using the international sentinel plants network from 2023 to 2026.
4. Defra will publish pest-specific contingency plans for all high priority plant pests by 2025. It will review them by 2028, carry out a coordinated outbreak management training programme by the end of 2024, and introduce a plant health data system by 2028 to enhance readiness for future outbreaks.
5. Defra will continue to establish incident management teams and develop incident action plans, through the NAP3 implementation period to 2028 and beyond, to manage the eradication or containment of quarantine plant pests. When new outbreaks of significant plant pests are confirmed, and eradication or containment is considered feasible, this will be done within 4 weeks of confirming the presence of the pest.
6. Defra will develop new tools for assessing the impact of extreme weather events and projecting the influence of climate change on plant pests by 2026. It will conduct a study on the importance of microclimate by 2025 and invest in a research programme on climate change and vector-borne disease (VBD). The programme is valued at £6.5 million and will run from 2023 to 2026 to enhance understanding of the link between climate and pest or pathogen risks and inform future actions and planning.
7. Defra will develop and implement a plant health international action plan by 2025 to increase international engagement with others working on climate change and plant pests or animal pathogens and diseases.
8. Defra will work with stakeholders to encourage pest and disease reporting and biosecure behaviour among growers, farmers, animal keepers, vets, importers and the public (2024 to 2028). To prepare for this action, a biosecurity e-learning module will be launched for the public in 2023.

9. Defra will introduce the integrated pest management standard as part of the Sustainable Farming Incentive in 2023 to incorporate understanding of the dynamic status of pests and crop protection in agriculture into Environmental Land Management schemes (ELMs).
10. Defra will conduct an evidence review in 2023 to investigate the interaction between climate adaptation and integrated pest management strategies and inform policy decisions.

How we will do it

1. Plant Biosecurity Strategy for GB (2023 to 2028) (Actions 1, 3 and 7)
2. Animal health legislation (Actions 1, 3 and 6)
3. Plant health legislation (Action 1)
4. Trade in Animal and Related Products (Actions 1 and 2)
5. Animal Health and Welfare Pathway (Action 1)
6. Plant health risk group or UK Plant Health Risk Register (Actions 1 and 2)
7. Plant health research and development programme (Action 6)
8. Outbreak Readiness Board (Action 4)
9. Generic and pest-specific contingency plants (Action 5)
10. Pest risk assessment or Pathway Risk Register (Action 3)
11. Veterinary Risk Group (Action 3)
12. Human-animal infections risk and surveillance (Action 3)
13. Animal health research and development programme (Actions 2, 6 and 8)
14. Tree alert (Action 8)
15. ELMs (Action 9)
16. Biological Security Strategy (All actions)

N8 – Risks to forestry from pests, pathogens, and INNS (Invasive non-native species) (Defra)

Risk reduction goal

Minimise the risk of increased impacts on forestry from pests, pathogens and INNS in a changing climate.

Actions

1. Defra will develop a framework to regulate the planting of ‘emerging forestry species’ from 2023, which will improve regulation in woodland creation and restocking proposals.
2. Defra will publish management strategies for deer and grey squirrels in 2023, which will provide measures for reducing their impacts on forestry.
3. Defra will introduce a biosecure procurement requirement on all government-funded tree planting by 2025 to improve the biosecurity of supply chains.
4. Defra will fund initiatives to increase the quality, quantity and diversity of domestically produced tree seed and planting stock. This will ensure genetically diverse seed of known provenance can be planted for resilience to climate change. From 2025, there will be increased domestic production of tree planting stock and increased numbers of registered seed stands and orchards.
5. Defra will provide guidance on appropriate species choice for planting new woodland which considers the likely impacts of climate change, including a wider range of native species, by 2025. This will ensure the new woodland is resilient to climate change and stock has a wide genetic base.

How we will do it

1. Regulation of new planting proposals (Action 1)
2. Updated Grey Squirrel Action Plan (Action 2)
3. Deer Management Strategy (Action 2)
4. Environmental Land Management schemes (Action 3)
5. Generic Contingency for Plant Health in England (Action 3)
6. Plant Health Management Standard (Action 3)
7. England Trees Action Plan (Actions 3 and 4)
8. Updated Tree Health Resilience Strategy (Action 4)
9. Nature for Climate Fund (Actions 4 and 5)
10. Tree Production Innovation Fund (Actions 4 and 5)
11. Seed Sourcing Grant (Actions 4 and 5)
12. Climate Matching tool (Action 5)
13. Database for seed stands (Action 5)

N9 – Opportunities for agricultural productivity from new or alternative species becoming available (Defra)

Goal

Create a supportive environment within the UK for increased research and innovation into new or alternative species.

Actions to support these opportunities from an international lens will be covered in ID2: Opportunities for UK food availability and exports from climate change impacts overseas (Defra).

Actions

1. Defra will develop links between Met Office Hadley Centre's agri-food resilience service and Defra's crop Genetic Improvement Networks from 2023 to 2024 to use improved climate forecasting to better target crop breeding in response to climate pressures and to identify opportunities for enhancing the productivity, sustainability and resilience of UK agriculture through the growing of underused, underdeveloped or new crops.
2. Defra's Genetic Technology (Precision Breeding) Act will reduce the regulatory burden on developing precision-bred crops and animals that are more resilient to changes in the UK climate and develop new UK adapted varieties from plants that are typically grown abroad. The government will put forward secondary legislation to implement the measures within the Act, with regulatory changes for precision bred plants expected by 2025, followed by animals by 2027.

How we will do it

1. Crop Genetic Improvement Networks (Action 1)
2. Met Office Hadley Centre agri-food climate service research programme (Action 1)
3. Genetic Technology (Precision Breeding) Act (Action 2)

N9 – Opportunities for forestry productivity from new/alternative species becoming suitable (Defra)

Goal

Plant a wider range of species, including emerging forestry species, so that timber productivity is maintained or enhanced, relative to a 2023 baseline.

Actions

1. Defra, in collaboration with DESNZ, DBT, DLUHC and DSIT, will publish a Timber in Construction Roadmap in 2023. DLUHC will publish a consultation on Whole Life Carbon assessments in the construction sector in 2023. Defra will also complete a review of the government Timber Procurement Policy in 2023. This will create an environment for greater timber market activities under a changing climate.
2. Defra will support research on the use of appropriate native and non-native tree species and alternative tree growing systems by 2028, which are better suited to England's future climate. This action is subject to Defra's development of a regulatory framework for the planting of 'emerging forestry species' from 2023 that will improve regulation in woodland creation and restocking proposals.
3. Defra will support research on the propagation of alternative species, support nurseries to develop the market for alternative species, develop appropriate licensing, guidance or regulations, and invest in changing capital and infrastructure. This work will be developed through the NAP3 implementation period and beyond, and 5-yearly reviews of Forest Research's species categories will reflect improving knowledge.

How we will do it

1. England Trees Action Plan (Action 1)
2. Nature for Climate Fund tree and woodland delivery mechanisms (Action 2)
3. Forest Research's Science and Innovation Strategy (Actions 2 and 3)
4. Forestry Research and Forestry Commission species selection guides (Actions 2 and 3)
5. Ecological Site Classification and Forest Development Types decision support tools (Actions 2 and 3)
6. Invasive Non-Native Species screening (Action 2)
7. Forestry Regulations (Action 2)
8. Woods into Management Forestry Innovation Funds and Tree Production Innovation Fund (Action 3)
9. Updated Tree Health Resilience Strategy (Actions 2 and 3)
10. Nature for Climate Fund research programmes (Actions 2 and 3)
11. UK Research and Innovation treescape research programmes (Actions 2 and 3)
12. Forest Research's research programme (Actions 2 and 3)

N10 – Risks to aquifers and agricultural land from sea level rise, saltwater intrusion (Defra)

Risk reduction goal

Reduce the impact on coastal agricultural productivity from sea level rise and saltwater intrusion through well-managed, climate change-resilient coastal habitats and systems.

Actions

1. Defra will continue to assess evidence gaps and review water companies' current good practice for managing saline intrusion risk to aquifers to provide clarification on exposure and vulnerability. The next iteration of water resources management plans will be in 2029.
2. Defra will continue to review guidance to companies on what should be included in water company plans every 5 years, ensuring that water companies complete water resources management plans with zero water deficit to mitigate the risk to water supply in the event of sea level rise and saltwater intrusion.
3. Defra will continue to work with regional resource groups, at catchment level, to understand local environmental risks and develop sustainable solutions. These include new winter rainfall storage reservoirs and licence holders, with a new regional management plan produced every 5 years.
4. The Environment Agency will continue modifying abstraction licences where there are environmental concerns. The Environment Agency will be able to modify licences without compensation to strengthen sustainable abstraction policies from 2028.
5. Defra will continue to support farmers and land managers through Environmental Land Management schemes (ELMs), through the NAP3 implementation period to 2028 and beyond, to maintain, restore and create coastal habitats to support healthy functioning coastal systems.
6. Defra will work to fill evidence gaps, with the aim of improving our understanding of climate change impacts on projected land use change outcomes. For example, Defra will review the impact of flooding and coastal erosion on agricultural land and businesses in England and Wales by the end of 2024.

How we will do it

1. Water Framework Directive (Actions 1, 2, 3 and 4)
2. Evidence review of the impact of flooding and coastal erosion on agricultural land and businesses in England and Wales (Action 6)
3. Water resources management plans (Actions 1 and 2)
4. National Framework for Water Resources (Action 2)
5. ELMs (Action 5)
6. Land use research and analysis (Action 6)
7. The Natural Capital and Ecosystem Assessment Programme (Action 6)

N11 and N13 – Risks and opportunities to freshwater species and habitats from changing climatic conditions and extreme events, including higher water temperatures, flooding, water scarcity and phenological shifts (Defra)

Risk reduction goal

Achieve Good Ecological Status at 75% of water bodies by 2027 and restore 75% of Protected Sites to favourable condition by 2042 in a way that recognises and responds to climate change risks.

Actions

1. Defra will work with land managers and the water industry to improve water quality by 2038, reducing non-climate pressures from agriculture, industry and wastewater, and supporting habitats and species to adapt to climate change.
2. Defra will improve water efficiency to prevent over-abstraction impacts on freshwater habitats and species. This includes reducing household consumption to 110 litres per head per day and non-household water consumption by 15% by 2050.
3. Defra will restore natural function and iconic water landscapes, through updated River Basin Management Plans up to 2027, to allow natural processes to re-establish and to produce the highest-quality habitats naturally.
4. Defra will progressively improve the regulatory framework for managing the water system, by delivering the actions set out in the Plan for Water, published April 2023, to better enable joined-up management in all catchments.
5. Defra will continue to support stakeholders to use spatial prioritisation for habitat restoration and creation, informed by climate projections, such as projected hazard and land suitability mapping, throughout the NAP3 implementation period. This will support the creation of the right habitat types and the right management approaches in the right place.
6. Defra will continue to support stakeholders to target activity to support vulnerable species and habitats, including larger-scale multi-taxa projects to support their specific ecological requirements and increase their resilience and adaptive capacity to climate change risks throughout the NAP3 implementation period.
7. Defra and its arm’s length bodies will continue to implement an adaptive risk management approach. This includes data collection on the overall condition of freshwater habitats and species, through the NAP3 implementation period and beyond, to better understand the pressures that affect them, including the impacts of climate change.

How we will do it

1. River Basin Management Plans (Actions 1, 2 and 3)
2. Price Review 2024 Water Company Asset Management Plan (Actions 1 and 2)
3. Plan for Water (Actions 1, 2, 3, 4, 5 and 6)
4. Environmental Land Management schemes (Actions 1, 3, 5 and 6)
5. Local Nature Recovery Strategies (Actions 1 and 3)
6. Catchment Sensitive Farming Programme (Actions 1 and 2)
7. Water Management Grant (Action 2)
8. Water Resources National Framework (Action 2)
9. Water Restoration Fund (Action 3)
10. Land use research and analysis (Action 5)
11. Natural England's landscape-scale nature recovery projects (Actions 5 and 6)
12. Biodiversity Net Gain (Action 6)

N12 – Risks to freshwater species and habitats from pests, pathogens and invasive non-native species (Defra)

Risk reduction goal

Maintain Great Britain's (GB) high aquatic animal health status for listed diseases and prevent an increase in the number of newly introduced non-listed pathogens in the context of a changing climate.

(For the goal and actions relating to invasive non-native species, see N2)**.**

Actions

1. Defra will continue to identify and prioritise aquatic pathogens that are likely to i) establish, ii) increase in spread or iii) increase in impact as a result of climate change or iv) exacerbate climate-related pressures on aquatic biodiversity, fisheries or aquaculture, throughout the NAP3 implementation period. This will inform prevention, eradication and long-term management plans that take climate change into account.
   Over the next 5 years, Defra's actions will primarily focus on pathogens that impact the aquaculture industry.
2. Defra will commission research to improve understanding of the risk of introduction, emergence, establishment, dispersal or spread and impact of priority pathogens set out in Action 1, through the NAP3 implementation period from 2023 to 2028.
3. Defra will continue to improve monitoring and surveillance for priority pathogens through the NAP3 implementation period to 2028 and beyond, to support prevention and rapid responses – for example, by developing disease profiles and epidemiological models that consider climate change impacts. These will inform risk-based surveillance.
4. Defra will continue to develop biosecurity, contingency and rapid response plans through the NAP3 implementation period to 2028 and beyond, to support the prevention and control of priority pathogens, using data and epidemiological risk tools generated under Actions 2 and 3.
5. Where relevant, Defra will develop management plans, through the NAP3 implementation period from 2023 to 2028, to control priority pathogens.
6. Defra will increase development and capacity in core technical areas, including monitoring methodologies and risk modelling to inform the management of priority pathogens, through the NAP3 implementation period from 2023 to 2028.
7. Defra, in collaboration with the Centre for Environment, Fisheries and Aquaculture Science and other agencies, will deliver communication campaigns and other materials to stakeholders to reduce the risk of introduction and spread of priority pathogens by 2028.
8. Where eradication is not feasible, Defra will work with stakeholders, such as relevant aquaculture industry sectors, through the NAP3 implementation

period from 2023 to 2028, to minimise the worst impacts of established climate change-facilitated pathogens.

How we will do it

1. Aquatic Animal Health (England and Wales) Regulations (all actions)
2. England and Wales Contingency Plan for Aquatic Animal Diseases (Action 4)
3. Defra-funded research and development programmes (Actions 1, 2, 3 and 6)

N14 – Risks to marine species, habitats and fisheries from changing climatic conditions, including ocean acidification and higher water temperatures (Defra)

Risk reduction goal

Adaptively manage marine habitats and fisheries, enabling them to support strong, biodiverse communities and increasing their resilience to climate change.

Actions

1. Defra will maintain an adaptive management approach to reduce anthropogenic non-climate pressures on marine species and habitats, through the NAP3 implementation period to 2028 and beyond. Defra will publish an update in 2023 to the UK Marine Strategy programme, containing an updated list of measures and actions we, and the devolved administrations, are taking to move towards good environmental status, and the impacts we expect to see as a result. For Marine Protected Areas, our target is that 70% of designated features will be in favourable condition by 2042, with the remainder in recovering condition.
2. Defra will use the first 5 Fisheries Management Plans, published by the end of 2023, to increase the implementation of sustainable fisheries practices. Implementation of the plans will consider the context of climate change throughout the NAP3 implementation period.
3. Defra will develop an approach to support the restoration, recovery and creation of marine habitats, where relevant using effective spatial targeting, to improve the resilience of ecosystem services to support species.
4. Defra will continue to identify and monitor climate change impacts on the marine environment and fisheries, through the NAP3 implementation period to 2028 and beyond, to help the government fill evidence gaps and design strategic interventions to address climate risks. This includes through the Marine Climate Change Impacts Partnership's evidence reports that will be published by the end of 2023.

How we will do it

1. UK Marine Strategy (Actions 1, 2, 3 and 4)
2. Marine Protected Areas and Highly Protected Marine Areas (Action 1)
3. Marine Policy Statement and English Marine Plans (Action 1)
4. Marine Spatial Prioritisation Programme (Action 1)
5. Joint Fisheries Statement and Fisheries Management Plans (Actions 1, 2 and 4)
6. Stock Management Measures (Action 2)
7. UK Seafood Fund and Fisheries Industry Science Partnerships (Action 2)
8. Biodiversity Net Gain and Marine Net Gain (Action 3)

9. Restoration initiatives including Reducing and Mitigating Erosion and Disturbance Impacts Effecting the Seabed (ReMEDIES), Restoring Meadows, Marsh and Reef (ReMeMaRe) and Marine Restoration Potential mapping (MaRePo) partnership (Action 3)
10. English Seabird Conservation and Recovery Pathway (Actions 1 and 4)
11. Natural Capital and Ecosystem Assessment Programme (Actions 3 and 4)
12. Marine Climate Change Impacts Partnership (Action 4)
13. Offshore Wind Environmental Evidence Register and Offshore Wind Evidence and Change Programme (in partnership with the Crown Estate) (Action 4)

N15 – Opportunities to marine species, habitats and fisheries from changing climatic conditions (Defra)

Goal

Where appropriate, maximise opportunities for new species moving into UK waters by achieving good habitat condition and an adaptive fishing and seafood sector.

Actions

1. Defra will continue to support the fishing and aquaculture industries to sustainably take advantage of opportunities created by climate change. This includes by co-funding evidence in 2023 to assess new fishing and aquaculture opportunities in UK waters.
2. Defra will continue to improve its understanding of new species arriving, shifts in species ranges, and habitat changes caused by climate change, to support decision making. This includes through the Fisheries and Seafood Scheme, which supports partnerships between science and industry and the Fisheries Industry Science Partnerships scheme under the UK Seafood Fund. Funding for these schemes runs until March 2025.
3. Defra will maintain an adaptive management approach to reduce anthropogenic non-climate pressures on marine species and habitats. This includes through the Marine Spatial Prioritisation Programme that will deliver recommendations to ministers on the future approach to marine planning in 2024.

How we will do it

1. Fisheries Framework (Action 1)
2. Fisheries Act 2020 (Action 1)
3. Joint Fisheries Statement (Actions 1, 2 and 3)
4. Fisheries Management Plans (Actions 1 and 3)
5. UK Seafood Fund, Fisheries Industry Science Partnerships, and Fisheries and Seafood Scheme (Actions 1, 2 and 3)
6. The Data Collection Framework (Action 2)
7. Non-native species monitoring (Action 2)
8. Marine Natural Capital and Ecosystem Assessment (Action 2)
9. Marine Climate Change Impacts Partnership (Action 2)
10. UK Marine Strategy (Action 3)
11. Marine Protected Areas (Action 3)
12. Marine Plans and Marine Policy Statement (Action 3)
13. Marine Spatial Prioritisation Programme (Action 3)

N16 – Risks to marine species and habitats from pests, pathogens and invasive non-native species (INNS) (Defra)

Risk reduction goal

Reduce the number of new establishments of all INNS in Great Britain by at least 50% by 2030 (compared to 2000 levels) and reduce further impacts of INNS that are already established under a changing climate.

Maintain Great Britain's high aquatic animal health status for listed diseases and prevent an increase in the number of newly introduced non-listed pathogens in the context of a changing climate.

Actions

1. Defra will identify and prioritise INNS for prevention, eradication and long-term management, taking climate change into account. This includes INNS that are likely to i) establish, ii) spread or iii) increase in impact as a result of climate change; iv) damage carbon rich habitats; or v) exacerbate climate-related pressures.
2. Defra will continue to identify and prioritise aquatic pathogens that are likely to i) establish, ii) increase in spread or iii) increase in impact as a result of climate change or iv) exacerbate climate-related pressures on aquatic biodiversity, fisheries or aquaculture, throughout the NAP3 implementation period. This will inform prevention, eradication and long-term management plans that take climate change into account.
   Over the next 5 years, Defra's actions will primarily focus on pathogens that impact the aquaculture industry.
3. Defra will continue to improve and incorporate climate change scenarios in species risk assessments and other evidence bases up to 2030 to improve our understanding of the impacts of INNS under different climate change scenarios.
   Defra will commission research to improve understanding of the risk of introduction, emergence, establishment, dispersal/spread and impact of priority pathogens, through the NAP3 implementation period from 2023 to 2028.
4. Defra will continue to develop and maintain an effective INNS surveillance, early detection and monitoring mechanism through the NAP3 implementation period from 2023 to 2028 to prevent the introduction, establishment or minimise the impacts of INNS.
   Defra will continue to improve monitoring and surveillance for priority pathogens, to support prevention and rapid responses throughout the NAP3 implementation period – for example, by developing disease profiles and epidemiological models that consider climate change impacts. These will inform risk-based surveillance.

5. Defra will implement priority pathway action plans and contingency plans and keep them up to date with changes in evidence, governance and legislation by 2030 to prevent the introduction or spread of INNS.
   Defra will continue to develop biosecurity, contingency and rapid response plans to support the prevention and control of priority pathogens, through the NAP3 implementation period to 2028 and beyond, using data and epidemiological risk tools generated under Actions 3 and 4.
6. Defra will continue to regulate, where appropriate, the keeping, breeding, transportation, selling, use or exchange, reproduction, growth, cultivation, or release of INNS that pose the most significant risk through to 2030. The list of species of special concern will be reviewed every 6 years. This will minimise the risk of establishment and spread of INNS.
   Where relevant, Defra will develop management plans to control priority pathogens, through the NAP3 implementation period from 2023 to 2028.
7. Defra will increase development and capacity in core technical areas, including monitoring methodologies and risk modelling to inform the management of priority pathogens, through the NAP3 implementation period from 2023 to 2028.
8. Defra will carry out a communications strategy throughout 2023 to 2030 to raise awareness of INNS issues among key target audience and, where appropriate, the general public. This will inform people about the measures they can take to reduce the risks from INNS.
   Defra, in collaboration with the Centre for Environment, Fisheries and Aquaculture Science and other agencies, will deliver communication campaigns and other materials to stakeholders to reduce the risk of introduction and spread of priority pathogens by 2028.
9. Where eradication is not feasible, Defra will work with stakeholders through the NAP3 implementation period from 2023 to 2028, to minimise the worst impacts of established climate change-facilitated pathogens.

How we will do it

1. UK Marine Strategy (Actions 1, 2, 3, 4 and 5)
2. Aquatic Animal Health (England and Wales) Regulations (Actions 2, 3, 4, 5, 6, 7, 8 and 9)
3. World Organisation for Animal Health (Actions 1, 2, 3, 5 and 6)
4. Food Standards Agency Strategy (Actions 1, 2 and 3)
5. Great Britain Non-Native Species Strategy (Actions 1, 3, 4, 5, 6, 8 and 9)
6. The Alien and Locally Absent Species in Aquaculture (England and Wales) Regulations (Action 2)
7. Marine Natural Capital Ecosystem Assessment Programme (Action 3)
8. INNS inspectorates (Actions 5, 6 and 8)
9. Water Environment Regulations (Actions 3 and 4)
10. Great Britain Invasive Non-native Species Strategy (Actions 4 and 5)
11. Trade in Animals and Related Products Regulations (Action 5)
12. UK Marine Policy Statement (Action 5)
13. Ballast Water Regulations (Action 5)
14. English Aquaculture Strategy from Seafood 2040 – Seafish (Actions 5 and 6)
15. England and Wales Contingency Plan for Aquatic Animal Diseases (Action 5)
16. Non-Native Species Information Portal (Action 4)

17. Defra-funded research and development programmes (Actions 2, 3, 4 and 7)

N17 – Risks and opportunities to coastal species and habitats due to coastal flooding, erosion and climate factors (Defra)

Risk reduction goal

Improve the condition, extent and connectivity of coastal habitats so that they have greater capacity to cope with climate change impacts.

Actions

1. Defra will create, restore and enhance coastal habitats, including action to deliver the Environment Act target to restore or create over 500,000 hectares of wildlife-rich habitats outside of existing Protected Sites by 2042, to improve their connectivity and resilience to climate change impacts.
2. Defra will continue to ensure compensatory habitats contribute to the overall coherence of the national network of international Protected Sites, and underpin supporting geomorphological processes and ecological function, through the NAP3 implementation period to 2028 and beyond.
3. The Environment Agency will continue to deliver compensatory habitats through ongoing Flood and Coastal Erosion Risk Management (FCERM) projects, during the current capital programme (2021 to 2027), to reduce losses where flood risk management prevents the natural landward migration of intertidal habitats on Protected Sites.
4. Local councils and coastal protection authorities will continue to facilitate natural processes where possible – for example, through any necessary updates to Shoreline Management Plans – by the end of 2024.
5. Defra will continue to manage and reduce non-climate pressures on coastal habitats and species. This includes through the Environment Act Targets, interim targets in the Environmental Improvement Plan and our ambition to restore 75% of water bodies to Good Ecological Status to improve resilience to climate impacts, through the NAP3 implementation period to 2028 and beyond.
6. Defra will continue to monitor the impacts of climate change on site condition, which will help government to fill evidence gaps and design strategic interventions to address climate risks. Monitoring will be improved by the establishment of the UK wetland inventory in 2028.

How we will do it

1. Environmental Land Management schemes (Actions 1 and 5)
2. Local Nature Recovery Strategies (Actions 1 and 6)
3. Biodiversity Net Gain (Actions 1 and 6)
4. Restoration initiatives including Restoring Meadows, Marsh and Reef (ReMeMaRe) and Dynamic Dunescapes (Action 1)
5. Big Nature Impact Fund (Action 1)
6. Species Survival Fund (Action 1)

7. Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 81 (Actions 2, 3 and 5)
8. FCERM Habitat Compensation and Restoration Programme (Action 3)
9. National Flood and Coastal Erosion Management Strategy (Actions 3 and 4)
10. Coastal Change Management Areas and Shoreline Management Plans (Action 4)
11. Water Environment Regulations (Action 5)
12. River Basin Management Plans (Action 5)
13. Storm overflows discharge reduction plan (Action 5)
14. Water and Abandoned Metal Mines programme (Action 5)
15. Natural England's landscape-scale nature recovery projects (Actions 1 and 5)
16. Marine and Coastal Access Act 2009, Countryside and Rights of Way Act 2000, and Marine and Coastal Wildlife Code (Action 5)
17. Water Environment Surveillance programme (Action 6)
18. UK Marine Strategy (Action 6)
19. National Network of Coastal Monitoring Programmes (Action 6)
20. Marine Climate Change Impacts Partnership (Action 6)

N18 – Risks and opportunities from climate change to landscape character (Defra)

Risk reduction goals

1. Increase understanding of and address the change in landscape character due to climate change.
2. All National Parks Authorities (NPAs) and Areas of Outstanding Natural Beauty (AONBs) Partnership and Conservation Boards will have Climate Change Adaptation Management plans produced, embedded in or linked with their management plans by 2028, and in all future plans.

Actions

1. Natural England will update its existing (2014) guidance on the Landscape Character Assessment approach by 2025, enabling future local-scale Landscape Character Assessments to embed an assessment of existing and potential climate change impacts and associated guidance into their assessments. Enhanced information on climate change impacts will be included in all National Character Area (NCA) profiles by 2026. This will embed climate change adaptation measures locally and make them appropriate in the the context of an area's landscape character and distinctive qualities.
2. Natural England will complete a commission for evidence to further understand the impacts of climate change on landscape character by 2026. This will inform appropriate adaptation and mitigation responses, engaging with local communities and influencing positive land use or management changes to increase landscape resilience.
3. Natural England will commission evidence to further understand stakeholders' reactions to potential and actual climate-induced changes to landscape character by 2026. This will help to inform decision making, raise awareness and generate collective action to address climate change impacts to landscape character.
4. Defra will work with all NPAs and AONBs to facilitate the production of Climate Change Adaptation Management Plans. The plans will be embedded in or linked with their management plans by 2028 and in all future plans to support adaptive management of Protected Landscapes (PLs) in the face of a changing climate. This will include actions or objectives designed to adapt to climate change, integrating understanding of climate change risks, opportunities and responses into guidance, strengthening the PLs' special qualities and maximising wider public benefits.

How we will do it

1. NCAs (Action 1)
2. Landscape Character Assessment (Actions 1, 2 and 3)
3. European Landscape Convention (Action 1)
4. England Tree Action Plan (Actions 1 and 4)

5. England Peat Action Plan (Action 1)
6. PLs Statutory Management Plans (Action 4)
7. Natural England's landscape-scale nature recovery projects (Actions 1 and 2)
8. Local Nature Recovery Strategies (Actions 1 and 2)

Health, communities and the built environment

H1 – Risks to health and wellbeing from high temperatures (Department for Levelling Up, Housing and Communities - DLUHC)

Risk reduction goal

Reduce the risk of high temperatures to health and wellbeing, through regulation, planning policy, retrofit, research and guidance. Department for Energy Security and Net Zero (DESNZ) will ensure that measures to deliver net zero and retrofit existing buildings, as described in the Heat and Buildings Strategy, will seek to minimise overheating risks and maintain temperatures conducive to good health. This will result in an existing building stock that is appropriately retrofitted to deliver net zero by 2050 and is more resilient to climate hazards.

Actions

1. DLUHC implemented the new Approved Document O of the Building Regulations in June 2022. This aims to reduce the occurrence of high temperatures in new residential buildings including houses, flats and residential care homes. DLUHC and the Building Safety Regulator plan over the NAP3 period to increase our evidence of the health-related impacts of issues such as overheating in homes. DLUHC will also keep Approved Document O under review, as we do with all building regulations.
2. DLUHC will use recommendations from the Housing Health and Safety Rating System review to support the effective enforcement of quality and safety standards in all tenures of residential accommodation, including standards related to excess heat. The next steps will support delivery on our commitment to halve non-decent rented homes by 2030.
3. DESNZ requires that measures installed under current government schemes must be carried out by a Trustmark-registered and, where appropriate, Publicly Available Specification (PAS) 2030-certified installer. PAS 2035/2030:2023 will be published in 2023.
4. The research programme described in Action 6 will enable policy decisions to be taken to ensure this risk is appropriately managed and how progress will be measured. This will result in an existing building stock that is appropriately retrofitted to deliver Net Zero by 2050 and more resilient to climate hazards.
5. DLUHC will update the National Planning Policy Framework to support climate change mitigation and adaptation. A wider review will take place after royal assent of the Levelling-up and Regeneration Bill. This will consider feedback from the recent Levelling-up and Regeneration Bill: reforms to

national planning policy consultation. Nature based solutions, which offer multiple benefits, will also continue to be considered.

6. DLUHC, DESNZ, Department for Health and Social Care, and UK Health Security Agency (UKHSA) will, through the NAP3 implementation period from 2023 to 2028, conduct research to build knowledge on key evidence gaps which limit accurate identification of buildings that are most vulnerable to extreme heat. Evidence gathered will inform the design of suitable indicators to track progress on this risk. Evidence will be delivered throughout this period. For example the climate services for a Net-Zero resilient world programme will report by 2025 on modelled overheating scenarios in existing homes.
7. UKHSA will increase public awareness of the estimated health risks posed by high temperatures through the NAP3 implementation period from 2023 to 2028 to increase awareness of the importance of good ventilation for both overheating risk and indoor air quality, and the steps individuals and communities can take to protect themselves and vulnerable people.

How we will do it

1. Building Regulations (Action 1)
2. Housing Health and Safety Review System (Action 2)
3. Funding for fuel poor homes announced in the Spending Review 2021 (SR21) (Action 3)
    a. Green Homes Grant, local authority delivery 2 and 3 (Action 3)
    b. Home Upgrade Grant (2022-2025) (Action 3)
    c. Boiler Upgrade Scheme (2022-2025) (Action 3)
    d. Energy Company Obligation 4, (extended until 2026) (Action 3)
    e. The Great British Insulation Scheme (2023-2026) (Action 3)
    e. Social Housing Decarbonisation Fund 2021- 2025), (Action 3)
    f. Public Sector Decarbonisation Funding scheme (2020 - 2025) (Action 3)
    g. ECO+ (2023-2026) (Action 3)
4. Trustmark Scheme (Action 3)
5. Publicly Available Specification 2035 and 2030 (PAS2035/2030) (Action 3)
6. Energy Bill (2023) (Action 3)
7. Update of the Energy Performance of Buildings Regulations for energy performance certificates, (2023/24) (Action 3)
8. Future development of the Standard Assessment Procedure (SAP) methodology, (SAP 11) (2021–2025) (Action 3)
9. Review of practical planning barriers to energy efficiency measures in conservation areas and listed buildings (2023) (Action 3)
10. Strengthening the Energy Savings Opportunity Scheme (ESOS) (expected 2023) (Action 3)
11. Consider introducing Minimum Energy Efficiency Standards across building tenures (2025-2030) (Action 3)
12. The National Planning Policy Framework (Action 5)
13. DESNZ research (Action 6)
14. Adverse Weather and Health Plan (AWHP) (Action 7)
15. UKHSA and Met Office weather and health alerting systems (Action 7)
16. Health Effects of Climate Change (HECC) report (Action 7)
17. Local Authority Risk and Adaptation toolkit (LARA toolkit) (Action 7)

H2 – Opportunities for health and wellbeing from high temperatures (DHSC)

Goal

Investigate any opportunities for health and wellbeing (in terms of physical activity, access to nature, mental health, diet, and other aspects) presented by higher temperatures.

Actions

1. DLUHC is currently maximising the amount of green space available by supporting 85 local authorities in their efforts to create and refurbish parks in deprived areas as part of the Levelling-up Parks Fund.
2. DLUHC will update the National Planning Policy Framework (NPPF) as part of a wider review to support climate change mitigation and adaptation following royal assent of the Levelling-up and Regeneration Bill. The NPPF encourages healthy activity through the provision of high-quality open spaces, green infrastructure and the promotion of active travel.

How we will do it

1. Levelling-up Parks Fund (Action 1)
2. Parks refurbishment funding (Action 1)
3. NPPF (Action 2)
4. Planning practice guidance (PPG) (Action 2)
5. National Model Design Code (Action 2)

H3 – Risks to people, communities and buildings from flooding (Department for Environment, Food and Rural Affairs – DEFRA)

Risk reduction goal

Improve the nation's resilience to future flood and coastal erosion risks, thereby reducing the risk of harm to people, the environment and the economy.

Actions

1. Defra and the Environment Agency will invest £5.2 billion to build new flood and coastal defences to better protect communities across England by 2027.
2. Defra and the Environment Agency will invest £200 million in the Flood and Coastal Innovation Fund to test innovative practical resilience actions and develop new ways of planning for the long term by 2027.
3. The Environment Agency will develop updated investment scenarios by 2025 to inform future policy and investment choices on Flood and Coastal Erosion Risk Management (FCERM).
4. The Environment Agency and partners will deliver the National FCERM Strategy Roadmap for England by 2026, which will provide practical actions to improve resilience.
5. Defra will reform local flood risk management planning by 2026. This will enable every area in England to have a more strategic and comprehensive plan to manage flood risk.
6. Defra and the Environment Agency will double the number of government funded projects which include nature-based solutions (NBS) by 2027 to reduce flood and coastal erosion risk.
7. Defra and DLUHC will review national planning policy following the passage of the Levelling-up and Regeneration Bill to ensure it is sufficiently robust to keep future developments safe from flooding and not increase risk elsewhere.
8. Defra will make sustainable drainage systems mandatory in new developments by 2024, subject to final decisions on scope, threshold and process once a full regulatory impact assessment has been completed. This will support long term resilience from surface water flood risk by reducing the impact of rainfall on new developments, using features such as soakaways and ponds.
9. The Environment Agency will update the National Flood Risk Assessment by 2024 to provide better data and information to support flood risk mapping, improved ways of measuring changes in risk, as well as future investment choices. It will significantly improve understanding of surface water flood risk and will be available as open data.
10. Defra will continue to encourage uptake of property flood resilience measures. For example, in April 2022 we amended legislation to enable the Flood Re Scheme to pay claims from insurers, which include up to £10,000 towards resilient repair to help build resilience of households impacted by flooding.

11. Defra will continue to support affordable flood insurance through the Flood Re Scheme through the NAP3 implementation period to 2028 and beyond. More than 450,000 properties have benefitted since the scheme's launch in 2016.
12. Defra and the Environment Agency will invest in improving flood forecasting capabilities in higher-risk areas to improve surface water flood risk information and improve the speed of communication of forecasts to local responders. This will include identifying feasible and realistic improvements to the forecasting capability for surface water flooding through a 'testbed' approach using the Met Office systems by December 2023.

How we will do it

1. FCERM Policy Statement (Actions 1, 2, 4, 5, 6, 7, 10 and 11)
2. Flood and coastal defence investment programme (Actions 1 and 6)
3. Flood and Coastal Resilience Innovation Fund (Actions 1 and 2)
4. FCERM Strategy Roadmap (Action 4)
5. NPPF (Action 7)
6. Flood and Water Management Act 2010 (Action 8)
7. National Flood Risk Assessment (Action 9)
8. Flood Reinsurance (Amendment) Regulations 2022 (Action 11)

H4 – Risks to the viability of coastal communities from sea level rise (DEFRA and DLUHC)

Risk reduction goal

Improve the nation's resilience to future flood and coastal erosion risks, thereby reducing the risk of harm to people, the environment and the economy.

Actions

1. Defra and the Environment Agency will invest £5.2 billion to build new flood and coastal defences to better protect communities across England by 2027. This will include projects which focus on better protection for coastal communities.
2. Defra will support innovation in a small number of coastal communities at significant risk of erosion between 2022 and 2027 through the Coastal Transition Accelerator Programme to adapt to a changing climate. The programme will act as a catalyst for strategic, long-term planning and will help test innovative practical actions which will be shared across England.
3. The Environment Agency and partners will deliver the National FCERM Strategy Roadmap for England by 2026, which will provide practical actions to improve resilience.
4. The Environment Agency will update the National Coastal Erosion Risk Map and its assessment of properties and infrastructure at risk from erosion in a changing climate by the end of 2023. This will improve evidence and inform decision-making along the coast.
5. A Defra research project carried out by the British Geographical Survey, which concluded in May 2023, has reviewed and collated historical coastal change evidence and created a methodological framework to monitor, document and present historical coastal change. Data from this project will be used to inform future coastal management decisions.
6. The Environment Agency will support local authorities to update and strengthen Shoreline Management Plans by the end of 2024 to ensure they remain relevant for future shoreline planning, including taking into account up-to-date information on climate risk.
7. Defra will review national policy for Shoreline Management Plans by the end of 2026 to ensure they are transparent, continuously review outcomes and enable local authorities to make robust decisions on shoreline management.
8. Defra will review the tools that coastal erosion risk management authorities (RMAs) use to manage the coast and explore the availability of products or services which support coastal transition and manage coastal erosion risk by the end of 2024.
9. Defra and DLUHC will review national planning policy, following the passage of the Levelling-up and Regeneration Bill, to ensure it is sufficiently robust to keep future developments safe from flooding and not increase risk elsewhere. This includes reviewing the planning policy approach for areas at the coast in managing and adapting to coastal change and sea level rise.

10. DLUHC will provide regeneration funding which will be accessible to coastal communities for a variety of reasons, including to better protect them from climate risks including flooding and coastal erosion. For example, the UK Shared Prosperity Fund, which will ramp up to £1.5 billion per year by 2024-25, is allocated to lead local authorities and will provide funding to coastal communities of all sizes, often as part of wider programmes.

How we will do it

1. Flood and coastal defence investment programme (Action 1)
2. Flood and Coastal Innovation Fund, Coastal Transition Accelerator Programme (Action 2)
3. FCERM Strategy Roadmap (Actions 3 and 4)
4. The National Coastal Erosion Risk Map (Action 4)
5. Coastal monitoring and historical coastal change project (Action 5)
6. Shoreline Management Plans refresh (Action 6)
7. Policy review of Shoreline Management Plans (Action 7)
8. Policy review of coastal erosion risk management tools (Action 8)
9. National Planning Policy Framework (Action 9)
10. Regeneration Fund, Levelling-up Fund, UK Shared Prosperity Fund and Rural England Prosperity Fund (Action 10)

H5 – Risks to building fabric (DESNZ AND DLUHC)

Risk reduction goal

Understand the impact to the different building fabrics and approaches to mitigate impacts from climate change induced hazards including extreme weather events, winds, and wildfires in the UK under different warming scenarios considering vulnerabilities and equality duties. DESNZ will ensure that measures to deliver net zero and retrofit existing buildings, as described in the Heat and Buildings Strategy, will seek to minimise risks to building fabric due to the impacts of climate change. This will result in an existing building stock that is appropriately retrofitted to deliver net zero by 2050 and more resilient to climate hazards.

Actions

1. DESNZ plan to carry out a detailed risk assessment for the UK's existing building stock's exposure to damage from 2080 climate hazards by 2028 using a programme of research. Research will be carried out from 2023 to 2028, gathering evidence to enable this risk assessment, with outputs delivered throughout this period. For example, research modelling projected wind-driven rain risk in 2080 will report back by the end of 2023. The research in this action will support the development of tailored adaptation actions for local areas, it will consider unequal effects of climate change on at-risk groups, and feed into the development of the Heat & Buildings Strategy Policy Framework.
2. DESNZ require that measures installed under current Government schemes must be carried out by a Trustmark registered and, where appropriate, Publicly Available Specification (PAS) 2030 certified installer in accordance with PAS 2035. PAS 2035/2030:2023 is expected to be published in 2023.
3. The Building Safety Regulator will have a statutory role in overseeing the safety and standards of all buildings, including the resilience of buildings to climate risks. DLUHC and the Building Safety Regulator plan over the NAP3 period to increase our evidence of the health-related impacts of issues such as overheating in homes.
4. Department for Business and Trade (DBT) will ensure climate risk to building fabric is being considered in work to support sustainable construction standards and guidelines through the NAP3 implementation period from 2023 to 2028.

How we will do it

1. Research framework study (Action 1)
2. Mapping climate hazards using UKCP18 Climate Projections for 2°C and 4°C scenarios (Action 1)

3. Academic secondment to research and catalogue holistic adaptation strategies for different building archetypes (Actions 1, 2, 3 and 4)
4. Funding for fuel poor homes announced in the 2021 Spending Review (Action 2)
    a. Green Homes Grant (Local Authority Delivery scheme 2&3) (until 2023)
    b. Home Upgrade Grant (HUG) (2022-2025)
    c. Boiler Upgrade Scheme
    d. ECO4 (extended until 2026)
    e. The Great British Insulation Scheme (2023-2026)
    f. Social Housing Decarbonisation Fund (SHDF) (2020-2025)
    g. Public Sector Decarbonisation Funding Scheme (2021-2025)
5. TrustMark Scheme (Action 2)
6. PAS2035/2030 standards (Action 2)
7. Review of practical planning barriers to energy efficiency measures in conservation areas and listed buildings, (2022- 2023) (Action 2)
8. Energy Bill (2023) (Action 2)
9. Update of the Energy Performance of Building Regulations for EPCs (2023/24) (Action 2)
10. Future development of the SAP methodology (SAP11) (2021-2025) (Action 2)
11. Strengthening the Energy Savings Opportunity Scheme (ESOS) for Phase 4 (2023-2027)
12. Consider introducing Minimum Energy Efficiency Standards across building tenures (2025-2030) (Action 2)
13. Building Regulations (Action 3)
14. Outputs of the Green Construction Board (GCB), Infrastructure Working Group (IWG), and the Construction Leadership Council (Action 4)

H6 – Risks and opportunities from summer and winter household energy demand - DESNZ

Risk reduction goal

Take account of climate risks, especially overheating, when improving the energy performance of buildings to actively manage the risk of increased energy demand due to potential active cooling. This will be informed by research to fill gaps in our understanding of what measures and changes are likely for different buildings and their impacts for energy demand, including the role of cooling, looking at both 2°C and 4°C warming projections. DESNZ will ensure that measures to deliver net zero and retrofit existing buildings, as described in the Heat and Buildings Strategy, will minimise the risk of overheating and the increased energy demands associated with active cooling. This will result in the existing building stock being appropriately retrofitted to deliver net zero by 2050 and more resilient to climate hazards.

Actions

1. DESNZ requires that measures installed under current government schemes must be carried out by a TrustMark registered and, where appropriate, Publicly Available Specification (PAS) 2030 certified installer in accordance with PAS 2035. PAS 2035/2030:2023 is expected to be published in 2023.
2. DESNZ will conduct research to help assess projected energy demand and system impacts due to the risk of overheating and different potential cooling energy demand trajectories building on existing evidence. Research will be carried out through the NAP3 implementation period from 2023 to 2028, producing evidence to support analysis and decision making with outputs delivered throughout this period.
3. DLUHC implemented the new Approved document O of Building Regulations in 2022 to require new residential buildings to maintain a safe indoor temperature, preferably through passive cooling. DLUHC and the Building Safety Regulator plan over the NAP3 period to increase our evidence of the health-related impacts of issues such as overheating in homes. DLUHC will also keep Approved Document O under review, as we do with all building regulations.
4. DLUHC will update the National Planning Policy Framework to support climate change mitigation and adaptation. A wider review will take place after royal assent of the Levelling-up and Regeneration Bill. This will consider feedback from the recent Levelling-up and Regeneration Bill: reforms to national planning policy consultation. Nature based solutions, which offer multiple benefits, will also continue to be considered.

How we will do it

1. Funding for fuel poor homes announced in the 2021 Spending Review (Action 1)
   a. Green Homes Grant (Local Authority Delivery Scheme 2&3) (until 2023)

   b. Home Upgrade Grant (HUG) (2022-2025)
   c. Boiler Upgrade Scheme
   d. ECO4 (extended until 2026)
   e. The Great British Insulation Scheme (2023-2026)
   f. Social Housing Decarbonisation Fund (SHDF) (2020-2025)
   g. Public Sector decarbonisation funding scheme (2021-2025)
2. Trustmark Scheme (Action 1)
3. PAS 2035 and 2030 (Action 1)
4. Energy Bill (2023) (Action 1)
5. Update of the Energy Performance of Building regulations for EPCs (2023/24) (Action 1)
6. Future development of the SAP methodology (SAP 11) (2021-2025) (Action 1)
7. Review of practical planning barriers to energy efficiency measures in conservation areas and listed buildings (2023) (Action 1)
8. Strengthening the Energy Savings Opportunity Scheme (ESOS) for Phase 4 (2023 –2027) (Action 1)
9. Consider introducing minimum energy efficiency standards across building tenures, 2025 - 2030 (Action 1)
10. Cooling in the UK – DESNZ Research Report (Sep 2021) (Action 2)
11. English Housing Survey (Action 2)
12. English Housing Survey Energy Follow Up Survey (EFUS) results and subsequent research by DESNZ and others (Action 2)
13. Co-funding PhDs to research overheating risks and mitigation (Action 2)
14. The Building Regulations (Action 3)
15. Climate science for a Net Zero resilient world (CW-N0W) Overheating analysis, (Action 2)

H7 – Risks to health and wellbeing from changes in air quality (Defra)

Risk reduction goal

Maximise air quality benefits from delivering the Net Zero Strategy and adapting to climate change. Minimise unintended air pollution impacts by meeting air pollution emission and concentration targets, improving air quality in the indoor environment, and clearly identifying climate change interventions that impact air quality, recognising their associated air pollution co-benefits and tensions.

Actions

1. Defra will work to meet current and future legal air pollution targets (emissions and concentrations) and collaborate internationally to establish achievable targets beyond existing 2030 time horizons.
2. Defra will update air quality and health information by 2024 to ensure the public, especially vulnerable groups, have the information needed to reduce health harms from air pollution.
3. Defra will conduct research by 2025 to better understand the impact of changing atmospheric conditions on the emission and behaviour of air pollutants.
4. DESNZ will ensure that measures to deliver net zero and retrofit existing buildings, as described in the Heat and Buildings Strategy, will not exacerbate the risk of poor indoor air quality and seek to improve it where possible. This will result in an existing building stock that is appropriately retrofitted to deliver net zero by 2050 and is more resilient to climate hazards.

How we will do it

1. Environmental Improvement Plan, National Air Pollution Control Programme, Clean Air Strategy, National NO_2 plans (Action 1)
2. Air Quality Information System review (Action 2)
3. Air Quality Digital Project (Action 2)
4. Air Quality Evidence Programme (Action 3)
5. UK Research and Innovation research (Action 3)
6. Funding for fuel poor homes announced in the 2021 Spending Review (Action 4)
    a. Green Homes Grant (Local Authority Delivery Scheme 2&3) (until 2023)
    b. Home Upgrade Grant (HUG) (2022-2025)
    c. Boiler Upgrade Scheme
    d. ECO4 (extended until 2026)
    e. The Great British Insulation Scheme (Action 3) (2023-2026)
    f. Social Housing Decarbonisation Fund (SHDF) (2020 - 2025)
    g. Public Sector decarbonisation funding scheme (2021-2025)
7. TrustMark Scheme (Action 4)
8. PAS 2035/2030 standards (Action 4)

9. Review of practical planning barriers to energy efficiency measures in conservation areas and listed buildings (2022-2023) (Action 4)
10. Energy Bill (2023) (Action 4)
11. Update of the Energy Performance of Building Regulations for EPCs (2023/24) (Action 4)
12. Future development of the SAP methodology (SAP 11) (2021-2025) (Action 4)
13. Energy Saving Opportunities Scheme (Action 4)
14. Consider introducing minimum energy efficiency standards across building tenures (2025-2030) (Action 4)
15. Cross Whitehall Indoor Air Quality Working Group (Action 4)

H8 – Risk to health from vector borne diseases (VBD) (DHSC)

Risk reduction goal

Limit the health impact of VBDs on the UK public.

Actions

1. UKHSA will reduce future disease risks by maintaining and expanding the UK's surveillance system for ticks and mosquitoes to achieve rapid detection and control of non-native vectors and raise awareness of VBDs through the NAP3 implementation period from 2023 to 2028. UKHSA will undertake annual reviews to monitor this action.
2. UKHSA will raise awareness of the risk of VBDs among local authorities, health professionals and the public by 2025 to increase VBD awareness; increase the number of local authorities with successful adaptation actions for VBDs, raise awareness of health impacts from climate change and promote locally led adaptation action.
3. UKHSA will increase surveillance of human VBD cases by December 2024 to improve understanding of VBD prevalence in England. This will provide a benchmark for comparing future epidemiological data, to investigate the effect of climate change on VBD prevalence and distribution.
4. UKHSA will advocate for prioritising climate change modelling of VBD risks by research bodies by January 2024 to raise awareness of health impacts of climate change on vectors and VBDs in the UK.
5. DHSC and UKHSA will complete a suite of government contingency plans for specific VBDs from 2023 to 2028 through the NAP3 implementation period from 2023 to 2028 to ensure rapid and coordinated responses to detections of invasive mosquitoes or VBDs, such as West Nile virus.
6. UKHSA will seek to increase its laboratory capability to detect a wider range of endemic and emerging VBD threats to the UK public through the NAP3 implementation period from 2023 to 2028. This will be reviewed as required.
7. UKHSA will update the risk assessments of the Human Animal Infections Risk Surveillance group to provide a cross-government risk assessment defining the risk of VBDs in the UK. Risk assessments will be updated when required from 2023 to 2028 through the NAP3 implementation period from 2023 to 2028, for example the tick-borne encephalitis risk assessment was updated in April 2023 to show updated research and epidemiological data.

How we will do it

1. UKHSA guidance, official data on lab-confirmed cases and contingency plans on GOV.UK (Actions 1, 2, 3, 5 and 6)
2. UKHSA's Local Authority Risk and Adaptation toolkit (Action 2)
3. Serological surveillance, laboratory surveillance and enhanced surveillance of cases undertaken by UKHSA's Rare and Imported Pathogens Laboratory and

UKHSA's Emerging Infections and Zoonoses, and Travel Health & International Health Regulations team (Action 3)

4. Processes and protocols of research bodies, including National Institute for Health Research and Health Protection Research Units (Action 4)
5. UKHSA diagnostic testing for the NHS of imported VBDs through its Rare and Imported pathogens laboratory and Imported Fever Service (IFS) (Action 6)
6. Risk statements and assessments of the Human Animal Infections and Risk Surveillance group (Action 7)

H9 – Risks to food safety and food security (Defra)

Risk reduction goal

Ensure that food continues to be safe despite risks associated with climate change.

Actions

1. The Food Standards Agency (FSA) will identify and further understand the effects of climate change on UK food safety through the NAP3 period, including through horizon scanning activity and expert workshops. It will engage with experts in the second quarter of the financial year in 2023, 2025, and 2027. FSA will publish the resulting reports in the fourth quarter of the same financial year.
2. FSA will communicate evidence and data on the effects of climate change on food safety, including through working with Defra on the 2024 UK Food Security Report.
3. FSA will support businesses and consumers to adapt to climate-related changes to supply chains and distribution networks by producing or revising guidance and advice – for example, the forthcoming publication of power cut guidance in the 2023/24 financial year.

How we will do it

1. Advisory Committee on the Microbiological Safety of Food (Action 1)
2. UK Food Safety Network (Actions 1 and 2)
3. FSA Networks (Actions 1, 2 and 3)
4. Food Hygiene Local Authority Group (Action 2)
5. Human-Animal Infections Risk and Surveillance group (Action 2)
6. Epidemiology of Foodborne Infections Group (EFIG) (Action 2)
7. Local Authority Food Liaison Group (Actions 2 and 3)
8. Food Industry Liaison Group (Actions 2 and 3)

H10 – Risks to water quality and household water supplies (Defra)

Risk reduction goal

Mitigate the impacts from a changing climate on water quality and supplies to protect the health of the public.

Actions

1. Defra will continue to support the Drinking Water Inspectorate (DWI) in its oversight and enforcement role through the NAP3 implementation period to 2028 and beyond, utilising the Water Supply (Water Quality) Regulations 2016. The DWI will continue to support local authorities in their enforcement of the Private Water Supplies (England) Regulations 2016. This will ensure that our high drinking water quality standards continue to be met to avoid risks to public health. Defra publishes a triennial report on drinking water quality in England, and the next is due to be published by the end of 2024.
2. Defra will support the Environment Agency and Ofwat in ensuring water companies deliver the targets set out in the government's Storm Overflow Reduction Plan, which are to improve storm overflows in or near bathing waters by 2035, and in all locations by 2050. Defra asked water and sewerage companies to integrate their storm overflow commitments into their Drainage and Waste Water Management Plans and water resource management planning.
3. Defra will continue to enforce the Bathing Water Regulations 2013 through the NAP3 implementation period to 2028 and beyond to monitor designated bathing waters for faecal pollution during the bathing water season from 15 May to 31 September each year. Through this, the Environment Agency, local authorities and sewage undertakers will take necessary action if there are any health risks identified.
4. Defra will review water companies Drought Plans every five years. The next review will be in 2026. Drought Plans set out how water companies will monitor water availability, and triggers which indicates supply and demand actions for water.
5. Defra will implement the actions set out in the Plan for Water in order to achieve the statutory water demand target to mitigate the impacts of climate change on water supplies by 2037/38.

How we will do it

1. Water Supply (Water Quality) Regulations 2016 (Action 1)
2. Private Water Supplies (England) Regulations 2016 (Action 1)
3. Water company business planning process (Actions 1 and 2)
4. Water company business planning process (Actions 1 and 2)
5. Water Industry Act 1991 (Actions 1, 2 and 3)
6. Storm Overflows Discharge Reduction Plan (Action 2)

7. Bathing Water Regulations 2013 (Action 3)
8. Plan for Water and Part 5 of The Environmental Targets (Water) (England) Regulations 2022 (Action 5)

H11 – Risks to cultural heritage (Department for Culture, Media and Sport – DCMS)

Risk reduction goal

Minimise the impact of climate change on cultural heritage and maximise the opportunities that heritage presents to help society mitigate and adapt to a changing climate.

Actions

1. Historic England will develop its capacity and capability to model long-term impacts of climate change on cultural heritage caused by increased temperatures, increased rainfall, sea level rise and extreme weather, including in-combination effects by 2025.
2. DCMS, Historic England and Arts Council England will work with partners to develop methods to assess the vulnerability of intangible cultural heritage to climate hazards from 2024, using approaches developed for tangible heritage. The evidence base will be improved to inform CCRA4 development in 2026.
3. DCMS and Historic England will develop an action plan by 2024 with partners, such as the Environment Agency, to understand and communicate the threat to cultural heritage from flooding and coastal erosion. This will inform future adaptation and decision-making.
4. Historic England will work with partners to ensure technical guidance on adapting historic buildings to the impacts of climate change is available and fit for purpose to a range of audiences by 2025.
5. DCMS, working with arm's-length bodies where appropriate, will develop (2023/4) and implement (ongoing) an engagement plan to raise awareness across government and relevant public bodies of the critical role that cultural heritage can play in supporting climate change adaptation.
6. DCMS, in collaboration with their arm's-length bodies, will develop national climate change indicators for heritage by the end of 2025 to monitor and track progress against the goals set in NAP3.

How we will do it

1. Historic England Climate Strategy (Actions 1, 2, 3, 4, 5 and 6)
2. National and local adaptation policies, plans strategies and decisions (Actions 3 and 5)
3. Mechanisms to share knowledge, skills, advice, guidance or deliver training (Actions 1, 2, 3, 4 and 5)
4. Research and development of risk assessment methods and data standards (Actions 1 and 2)
5. DCMS Cultural and Heritage Capital Accounting (Actions 1 and 5)
6. Risk register showing climate hazards, threats, and risks to intangible cultural heritage (Action 2)

7. Ratifying of UNESCO Convention on Safeguarding of intangible cultural heritage (Action 2)
9. Action plan to identify and communicate the critical threat to cultural heritage from flooding and coastal erosion (Action 3)
10. Flood and shoreline management plan policies and mechanisms (Action 3)
11. Historic England loss toolkit (Action 3)
12. Historic England partnership research and development of guidance (Action 4)
13. DLUHC-DESNZ-DCMS joint review of adapting historic homes for energy efficiency (Action 4)
14. Engagement and advocacy with relevant stakeholders (existing and planned) (Action 5)

H12 – Risks to health and social care delivery (DHSC)

Risk reduction goal

Minimise the impact of climate change on the quality, effectiveness, and timeliness of health and social care delivery.

Actions

1. NHS England will develop an interactive climate change risk assessment tool by 2025 to support the identification of local climate change risks to NHS sites and key services to inform adaptation planning.
2. NHS England will strengthen adaptation provisions within the NHS Green Plan Guidance by 2025 to support all Trusts and Integrated Care Boards to include adaptation measures in individual Green Plans by 2027.
3. NHS England will include adaptation measures in the NHS Standard Contract for NHS buildings and services from 2023 and include adaptation measures within NHS building standards to increase the uptake of adaptation planning and activity.
4. UKHSA published the Adverse Weather and Health Plan on 27 April 2023, which came into effect on 1 June 2023. This will provide guidance to reduce the health risks associated with adverse weather events, supporting the uptake of prevention actions across the health and social care sector and in local communities.
5. The Care Quality Commission will launch an updated Single Assessment Framework, which includes adaptation, in 2023 with guidance and tools to support the implementation of the framework. The framework will apply to providers, local authorities and integrated care systems to make sure people receive safe, effective, and high-quality care; this will include extreme weather events. Providers and commissioners of NHS-funded services to continue to apply the adaptation provisions within the NHS' Emergency Preparedness, Resilience and Response Core Standards, published in 2022 and to be reviewed in 2025, to support business continuity during adverse weather events.
7. UKHSA will provide an update to the '*Health Effects of Climate Change in the UK Report'* in 2023 detailing estimates of the direct and indirect climate-related health impacts in the UK up to 2028 to support the case for further targeted action.
8. DHSC and UKHSA will establish and maintain engagement with bilateral and multilateral international partners between 2023 and 2028, and review progress in 2025, engaging and sharing best practice to inform domestic policy in the UK health and care system.
9. DHSC and UKHSA will work with the social care sector in 2023 to increase awareness of the health risks of high temperatures, and solutions to mitigate this risk amongst front line workers. DHSC will establish a working group with relevant stakeholders focused on climate adaptation in the social care sector to support future health system action.

How we will do it

1. Climate change risk assessment tool (Action 1)
2. NHS Green Plan Guidance (Action 2)
3. NHS Standard Contract (Action 3)
4. Health Building Note 00-07 (Action 3)
5. NHS Net Zero Building Standard (Action 3)
6. UKHSA Adverse Weather and Health Plan (Actions 4 and 9)
7. Care Quality Commission Single Assessment Framework (Action 5)
8. Emergency Preparedness, Resilience and Response Core Standards (Action 6)
9. 5th Health Effects of Climate Change in the UK Report (Action 7)
10. Alliance for Transformative Action on Climate Change and Health (Action 8)

H13 – Risks to prison services (Ministry of Justice - MoJ)

Risk reduction goal

Improve the resilience of prisons to climate risks and build adaptive capacity, to minimise the impact of climate change on the justice system.

Actions

1. MoJ will produce an updated Climate Change Risk Assessment using different degrees of warming, and research and pilot physical adaptation interventions by 2027 to increase understanding of appropriate adaptation measures with potential for upscaling across the estate.
2. MoJ will design and build new prisons by 2027 targeting Building Research Establishment Environmental Assessment Method Excellent standard as a minimum, with a requirement to conduct a Climate Change Risk Assessment to reduce risks from climate change such as overheating and flooding.
3. MoJ will address research gaps including the interdependencies between climate, staff and prisoner behaviour, nature, health, and wellbeing. MoJ will pilot operational interventions such as Flood Plans and Heatwave Guidance by 2027 to reduce the risk of prison service delivery failure.

How we will do it

1. MoJ Climate Change Adaptation Strategy 2023 (Actions 1, 2 and 3)
2. Flooding Framework and Water Strategy (emerging) (Actions 1, 2 and 3)
3. Net Zero Strategy (emerging) (Actions 1, 2 and 3)
4. Technical Standards including standards for major refurbishments (Actions 1 and 2)
5. MoJ Strategic Sustainability Risk Management processes and governance (Actions 1, 2 and 3)
6. MoJ Sustainable Construction: Building Research Establishment Environmental Assessment Method Policy (Actions 1, 2 and 3)

H13 – Risks to education services (Department for Education)

Risk reduction goal

Reduce the risks to education services posed by flooding, overheating and water scarcity.

Actions

1. DfE will produce an annual flood risk assessment from 2023 to enable planning for future flood risk across the education estate and support individual settings to manage their own flood risk, preventing disruption to education and cost of repairs.
2. DfE will produce an annual overheating risk assessment from 2023 to enable planning across the education estate and support individual settings to reduce the impacts of overheating on health and cognitive performance.
3. DfE will produce an annual water scarcity risk assessment of the education estate from 2023, to understand water scarcity risk and ensure building specifications and Climate Action Plans are designed to minimise the risk.
4. DfE will adapt the existing education estate by taking an evidence-based approach based on pilots and evaluations, updating design specifications (reviewed every 6 months, major update due 2025), and developing guidance for understanding climate risk and specifying effective adaptations.
5. DfE will continue to ensure that all new schools (not already under contract) are designed for 2°C and adaptable to 4°C global warming scenarios, by adopting a strategic approach to site selection, design, and delivery through the NAP3 implementation period to 2028.
6. DfE will use nature-based solutions wherever possible during the building and refurbishment of the education estate by 2025, to offer value for money while maximise co-benefits for mitigation, biodiversity, health, and well-being.
7. DfE will engage with education settings and stakeholders by 2025 to enable individual settings to nominate sustainability leads, who will own and implement Climate Action Plans. This will facilitate local action and behaviour change and build capacity to protect learners and staff from the effects of climate change.
8. DfE will develop digital models of the education estate, producing usable results by 2024, to help education settings assess their vulnerability to climate change and assist with their Climate Action Plans.

How we will do it

1. Climate risk assessments (All actions)
2. Output specifications (Actions 4, 5 and 6)
3. DfE funded programmes (Actions 4, 5, 6, 7 and 8)

4. National Education Nature Park (Actions 1, 2, 3, 6, 7 and 8)
5. Sustainability Leads and Climate Action Plans (Actions 1, 2, 3, 6, 7 and 8)
6. DfE funded pilots and research (All actions)

Business and industry

B1 – Risks to business sites from flooding (Department for Business and Trade – DBT)

Risk reduction goal

Establish a baseline understanding of business readiness and preparedness for flooding to minimise impacts for businesses of various sectors, sizes and locations.

Actions

1. DBT will carry out annual online surveys for UK businesses from 2023 onwards to understand awareness levels and business readiness for climate change incidents, including flooding.
2. DBT will develop and publish a flood advice factsheet with the Environment Agency, circulating the factsheet to businesses through trusted government stakeholder networks by the end of 2023 to increase business awareness of information sources on tackling flood risk, including access to insurance and accessible tools such as the Environment Agency's flood alerts. DBT will use platforms such as the SME Climate Hub to disseminate guidance.
3. DBT will work with the Met Office to review provision of accessible climate risk data to businesses by the end of 2023.
4. Defra and the Environment Agency will invest £5.2 billion to build new flood and coastal defences to better protect communities across England by 2027.
5. The Environment Agency and partners will deliver the National Flood and Coastal Erosion Management Strategy Roadmap for England by 2026, which will provide practical actions to improve resilience.
6. The Environment Agency will develop updated investment scenarios by 2025 to inform future policy and investment choices on FCERM.
7. Defra will reform local flood risk management planning by 2026. This will enable every area in England to have a more strategic and comprehensive plan to manage flood risk.
8. Defra and the Environment Agency will double the number of government-funded projects which include nature-based solutions (NBS) by 2027 to reduce flood and coastal erosion risk.
9. Defra and the Environment Agency will invest in improving flood forecasting capabilities in higher-risk areas, to improve surface water flood risk information and improve the speed of communication of forecasts to local responders. This will include identifying feasible and realistic improvements to the forecasting capability for surface water flooding through a 'testbed' approach using the Met Office systems by December 2023.
10. The Cabinet Office will make resilience training accessible to businesses, including through delivering a new UK Resilience Academy by 2025, built out of the Emergency Planning College.

How we will do it

1. Office for National Statistics (Action 1)
2. Business representative organisations, trade associations and professional bodies (Actions 1 and 2)
3. Local Enterprise Partnerships (Actions 1 and 2)
4. Business Improvement Districts (Actions 1 and 2)
5. Local authorities (Actions 1 and 2)
6. Government bulletins and newsletters (Action 2)
7. Environment Agency flood alerts (Action 2)
8. Environment Agency and government flood information resources (Action 2)
9. Mass mailouts (Action 2)
10. GOV.UK (Actions 1 and 2)
11. SME Climate Hub (Action 2)
12. Met Office UK Climate Projections (Action 3)
13. FCERM policy statement (Actions 2, 4, 7, 8 and 9)
14. FCERM Strategy Roadmap to 2026 (Action 5)

B2 – Risks to business locations and infrastructure from coastal change (DBT)

Risk reduction goal

Establish a baseline understanding of business readiness and preparedness for coastal change to minimise impacts for businesses of various sectors, sizes and locations.

Actions

1. DBT will carry out annual online surveys for UK businesses from 2023 onwards to understand awareness levels and business readiness for climate change incidents, including impact of coastal change.
2. DBT will develop and publish a coastal change advice factsheet with the Environment Agency, circulating the factsheet to businesses through trusted government stakeholder networks by the end of 2023 to increase business awareness of information sources on tackling coastal change risk, including access to insurance and accessible tools such as the Environment Agency's flood alerts. DBT will use platforms such as the SME Climate Hub to disseminate guidance.
3. DBT will work with the Met Office to review provision of accessible climate risk data to businesses by the end of 2023.
4. Defra and the Environment Agency will invest £5.2 billion to build new flood and coastal defences to better protect communities across England by 2027. This will include projects which focus on better protection for coastal communities.
5. The Environment Agency and partners will deliver the National Flood and Coastal Erosion Management Strategy Roadmap for England by 2026, which will provide practical actions to improve resilience.
6. The Environment Agency will update the National Coastal Erosion Risk Map and its assessment of properties and infrastructure at risk from erosion in a changing climate by the end of 2023. This will improve evidence and inform decision-making along the coast.
7. The Environment Agency will develop updated investment scenarios by 2025 to inform future policy and investment choices on FCERM.
8. Defra and the Environment Agency will double the number of government-funded projects which include nature-based solutions (NBS) by 2027 to reduce flood and coastal erosion risk.
9. The Environment Agency will support local authorities to update and strengthen shoreline management plans by the end of 2024 to ensure they remain relevant for future shoreline planning, including taking into account up-to-date information on climate risk.
10. The Cabinet Office will make resilience training accessible to businesses, including through delivering a new UK Resilience Academy by 2025, built out of the Emergency Planning College.

How we will do it

1. Office for National Statistics (Action 1)
2. Business representative organisations, trade associations and professional bodies (Actions 1 and 2)
3. Local Enterprise Partnerships (Actions 1 and 2)
4. Business Improvement Districts (Actions 1 and 2)
5. Local authorities (Actions 1 and 2)
6. Government bulletins and newsletters (Action 2)
7. Environment Agency flood alerts (Action 2)
8. Environment Agency and government flood information resources (Action 2)
9. Mass mailouts (Action 2)
10. GOV.UK (Actions 1 and 2)
11. SME Climate Hub (Action 2)
12. Met Office UK Climate Projections (Action 3)
13. FCERM policy statement (Actions 2, 4 and 8)
14. FCERM Strategy Roadmap to 2026 (Action 5)
15. National Coastal Erosion Risk Map (Action 6)
16. Shoreline management plans refresh (Action 9)

B3 – Risks to businesses from water scarcity (DBT)

Risk reduction goal

Establish a baseline understanding of business readiness and preparedness for water shortages to minimise impacts for businesses of various sectors, sizes and locations.

Actions

1. DBT will carry out annual online surveys for UK businesses from 2023 onwards to understand awareness levels and business readiness for climate change incidents, including water scarcity.
2. DBT will develop and publish a water efficiency and contingency planning advice factsheet with the Environment Agency, circulating the factsheet to businesses through trusted government stakeholder networks by the end of 2023 to increase business awareness of information sources on tackling water scarcity risk, including access to insurance and understanding of the changing insurance market. DBT will use platforms such as the SME Climate Hub to disseminate guidance.
3. DBT will work with the Met Office to review provision of accessible climate risk data to businesses by the end of 2023.
4. Defra will reduce non-household water use by 9% by 2038 through actions in the Plan for Water. This includes providing water audits for businesses to consider how best to maximise their water efficiency. The new performance commitment from the Water Services Regulation Authority (Ofwat) on non-household water efficiency will come in from 2025.
5. Defra will require water companies to produce water resources management plans setting out how they will secure a resilient and secure water supply for a minimum of 25 years. The next iteration of plans will be produced by 2025 and reviewed annually by regulators. They detail companies' commitments to build new infrastructure, reduce demand and highlight where they will invest in technology to mitigate the risk posed by climate change.
6. Water companies will work with other sectors to produce collaborative regional water resources management plans for the first time in 2023. These detail how companies in each regional zone will work together with other major water stakeholders to ensure security of water supply over a minimum 25-year timeframe.
7. Water companies will produce drought plans every 5 years setting out how they will monitor water availability, the triggers for drought measures, and supply and demand mitigation actions. These drought plans will inform other aspects of water industry planning, including the next round of water resources management plans in 2024.
8. Defra will require water companies to reduce leakage rates by 37% by 2038, with interim targets in 2027 and 2031.
9. Defra and Ofwat will work with companies to reduce water demand, with a target to reduce the use of public water supply by 20% by 2038.

10. The Cabinet Office will make resilience training accessible to businesses, including through delivering a new UK Resilience Academy by 2025, built out of the Emergency Planning College.

How we will do it

1. Office for National Statistics (Action 1)
2. Business representative organisations, trade associations and professional bodies (Actions 1 and 2)
3. Local Enterprise Partnerships (Actions 1 and 2)
4. Business Improvement Districts (Actions 1 and 2)
5. Local authorities (Actions 1 and 2)
6. Government bulletins and newsletters (Action 2)
7. National Framework for Water Resources (Action 2)
8. Water resources management plans (Actions 2, 4 and 5)
9. Government water labelling consultation (Action 2)
10. Environment Act 2021 (Actions 2, 5 and 8)
11. Mass mailouts (Action 2)
12. GOV.UK (Actions 1 and 2)
13. SME Climate Hub (Action 2)
14. Met Office UK Climate Projections (Action 3)
15. Plan for Water (Action 4)
16. Regional water resources plans (Action 6)
17. Drought plans (Action 7)

B4 – Risks to finance, investment and insurance including access to capital for businesses (HM Treasury – HMT)

Risk reduction goal

Minimise impact of climate risk on the UK financial system.

Actions

1. The government will shape policy and work with regulators, such as the Financial Conduct Authority (FCA), the Prudential Regulation Authority (PRA), the Pensions Regulator and the Financial Reporting Council (FRC) through the NAP3 implementation period to 2028 and beyond to ensure that financial sector participants have consistent, accurate information to help manage their exposure to climate risks and achieve greater transparency in the market. Work this year will include setting out further detail on the implementation of Sustainability Disclosure Requirements (SDRs), consulting on the UK Green Taxonomy and launching a formal assessment mechanism for the International Financial Reporting Standards (IFRS) Sustainability Disclosure Standards.
2. HMT will support transition plan disclosure requirements on financial market participants through the NAP3 implementation period to 2028 and beyond to address systemic climate-related financial risk across the financial system. HMT established the Transition Plan Taskforce (TPT) to develop a standard for transition plans, including how wider financial risks arising from adaptation should be reported within an overall risk management disclosure.
3. DBT will consult on the introduction of requirements for the UK's largest companies to disclose any transition plans they have once the TPT has released its final recommendations and guidance by the end of 2023, supporting companies and enabling the financial system to address climate-related financial risk across the economy.
4. HMT, working with the PRA and FCA, will monitor climate risks in insurance markets including Lloyd's of London through the NAP3 implementation period to 2028 and beyond to ensure continued government awareness of the impact of climate change on insurance markets.
5. HMT will monitor the availability and affordability of different lines of insurance through the NAP3 implementation period to 2028 and beyond to ensure continued government awareness of the impact of climate change on insurance lines.
6. HMT will continue to help create the conditions for sufficient access to private sector finance for projects and activities that can improve our resilience through the NAP3 implementation period to 2028 and beyond. This will include using the UK Infrastructure Bank's (UKIB) capacity to deploy up to £22 billion for investments over the next 5 to 8 years, and its scope to finance adaptation-related projects, so the UK can effectively adapt to climate change and transition to a low-carbon economy.

7. The Cabinet Office will make resilience training accessible to businesses, including through delivering a new UK Resilience Academy by 2025, built out of the Emergency Planning College.

How we will do it

1. Mandatory Taskforce on Climate-related Financial Disclosures (Actions 1 and 2)
2. SDRs (Actions 1 and 2)
3. TPT (Actions 1, 2 and 3)
4. UK Green Taxonomy (Actions 1 and 2)
5. Standards from the International Sustainability Standards Board – IFRS S2 (Actions 1 and 2)
6. Environmental, Social, and Governance data and ratings (Actions 1 and 2)
7. Greening Finance Roadmap (Actions 1 and 2)
8. Climate Financial Risk Forum (Actions 1 and 2)
9. Signatories to the UK Stewardship Code – FRC (Actions 1 and 2)
10. Basel Committee on Banking Supervision (Actions 1 and 2)
11. PRA 2019 supervisory statement (Actions 1 and 2)
12. Bank of England 2021 Climate Biennial Exploratory Scenario (Actions 1, 2, 4 and 5)
13. Ongoing engagement with insurance industry and regulators such as the FCA and PRA (Actions 4 and 5)
14. UKIB (Action 6)

B5 – Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments (DBT)

Risk reduction goal

Establish a baseline understanding of business readiness and preparedness for high temperatures to minimise impacts for businesses of various sectors, sizes and locations.

Actions

1. DBT will carry out annual online surveys for UK businesses from 2023 onwards to understand awareness levels and business readiness for climate change incidents, including higher temperatures.
2. DBT will develop and publish a high temperature and heatwave advice factsheet with the Health and Safety Executive, circulating the factsheet to businesses through trusted government stakeholder networks by the end of 2023 to increase business awareness of information sources on tackling risk from higher temperatures, including access to insurance and understanding of the changing insurance market. DBT will use platforms such as the SME Climate Hub to disseminate guidance.
3. DBT will work with the Met Office to review provision of accessible climate risk data to businesses by the end of 2023.
4. The Cabinet Office will make resilience training accessible to businesses, including through delivering a new UK Resilience Academy by 2025, built out of the Emergency Planning College.

How we will do it

1. Office for National Statistics (Action 1)
2. Business representative organisations, trade associations and professional bodies (Actions 1 and 2)
3. Local Enterprise Partnerships (Actions 1 and 2)
4. Business Improvement Districts (Actions 1 and 2)
5. Local authorities (Actions 1 and 2)
6. The UK Health Security Agency and Met Office weather and health alert systems (Action 2)
7. Government bulletins and newsletters (Action 2)
8. Mass mailouts (Action 2)
9. Heat-health alert service (Action 2)
10. GOV.UK (Actions 1 and 2)
11. SME Climate Hub (Action 2)
12. Met Office UK Climate Projections (Action 3)

B6 – Risks to businesses from disruption to supply chains and distribution networks (DBT)

Risk reduction goal

Establish a baseline understanding of business readiness and preparedness for impacts of climate change on supply chains and distribution networks.

Actions

1. DBT will carry out annual online surveys for UK businesses from 2023 onwards to understand awareness levels and business readiness for climate change incidents, including their impact on supply chains and distribution networks.
2. DBT will engage with other government departments and businesses throughout the NAP3 implementation period to 2028 and beyond to develop and share analysis and advice on identifying and managing supply chain vulnerability to climate change risk, including through the DBT supply chains resilience framework and Global Supply Chains Intelligence Programme. The effect of planned engagement will be monitored through quarterly internal reviews from 2023 onwards.
3. DBT will engage with businesses over the next few months in the development of a new strategy on supply chains and imports for publication in autumn 2023. This will provide a coherent overview of the UK's priorities and drive specific action by government and businesses in response to a range of risks to critical imports, including climate change.
4. DBT will ensure that resilience to extreme weather and climate change is part of the government's sectoral, economic and security plans and strategies through the NAP3 implementation period to 2028 and beyond. Climate change adaptation is integrated into the UK Government Resilience Framework, the Integrated Review Refresh 2023, the Climate Finance Strategy, the Green Finance Strategy and Powering Up Britain.
5. The Cabinet Office will make resilience training accessible to businesses, including through delivering a new UK Resilience Academy by 2025, built out of the Emergency Planning College.

How we will do it

1. Office for National Statistics (Action 1)
2. Business representative organisations, trade associations and professional bodies (Actions 1 and 2)
3. Local Enterprise Partnerships (Actions 1 and 2)
4. Business Improvement Districts (Actions 1 and 2)
5. Local authorities (Actions 1 and 2)
6. DBT sector teams (Actions 1 and 2)
7. DBT supply chains resilience framework (Action 2)
8. Global Supply Chains Intelligence Programme (Action 2)
9. Government Office for Science project on global supply chains (Action 2)

10. A new strategy on supply chains and imports (Actions 3 and 4)
11. DBT business toolkits (Action 3)
12. GOV.UK (Action 1)

B7 – Opportunities for business from changes in demand for goods and services (DBT)

Goal

Maximise opportunities for businesses to take advantage of changing demands and emerging markets in response to climate change.

Actions

1. DBT will undertake further research beginning in 2023 and continuing over the NAP3 period to 2028 and beyond, to identify future climate-related opportunities, including opportunities around climate-related services and how climate impacts supply of goods to the UK.
2. DBT will cascade climate-related emerging market data to business sectors, beginning in 2023 and continuing over the NAP3 period to 2028 and beyond, using existing stakeholder networks to improve business awareness around climate-related information sources.

How we will do it

1. Government Office for Science project on global supply chains (Action 1)
2. DBT sector leads and account managers (Action 2)
3. Business representative organisations (Action 2)
4. Local Enterprise Partnerships (Action 2)
5. Business Improvement Districts (Action 2)
6. Local authorities (Action 2)

International dimensions

ID1 – Risks to food availability, safety and quality from climate change overseas (Defra)

Risk reduction goal

Support more resilient domestic food supply chains that can cope better with future climate shocks and disruptions from overseas.

Actions

1. Defra will continue to improve our understanding of how climate change is impacting food supply in the UK Food Security Report, due for publication in 2024, to improve the measurement and monitoring of UK food security.
2. Defra will continue to fund and support research in this area, via the multi-annual Met Office Hadley Centre's Food, Farming and Natural Environment service and the Group on Earth Observations Global Agricultural Monitoring Initiative (GEOGLAM) until March 2025, subject to availability of funding.
3. The government will incorporate the risk of climate-related disruptions into food supply contingency planning and risk and assurance processes. This will increase the robustness of risk assessment processes and enhance the resilience of our agri-food system to maintain UK food security. Assurance documents are updated on a yearly basis.
4. Defra will support industry to adapt to climate change by:

    - partnering with the Food and Drink Sector Council to bring together leaders from across the agri-food chain. Through this forum we will consider the risks climate change poses to food supply and the appropriate responses – scoping work with industry will take place over summer 2023
    - providing funding for the Waste and Resources Action Programme's Courtauld 2030 Water Security Roadmap to achieve better water stewardship in key sourcing areas by 2030.

How we will do it

1. UK Food Security Report (Action 1)
2. Met Office Hadley Centre's Food, Farming and Natural Environment service (Action 2)
3. GEOGLAM (Action 2)
4. Food sector critical national infrastructure, government risk planning and assurance documents (Action 3)
5. Food and Drink Sector Council (Action 4)
6. Waste and Resources Action Programme's Water Security Roadmap (Action 4)

ID2 – Opportunities for UK food availability and exports from climate change impacts overseas (Defra)

Goal

Maximise opportunities for UK food producers arising from climate change.

Actions

1. Defra will support research into growing new or underutilised crops throughout 2023 to 2024 that can enhance the productivity, sustainability and resilience of UK agriculture.
2. Defra will incorporate climate scenarios into trade modelling by 2025 and continue to work with our research partners to develop evidence on climate scenarios.

How we will do it

1. Crop Genetic Improvement Networks (Action 1)
2. Met Office Hadley Centre research programme (Action 1)
3. Defra agri-food research and evidence programme (Action 2)
4. Defra trade models (Action 2)

ID3 – Risks and opportunities to the UK from climate-related international human mobility (Foreign, Commonwealth and Development Office – FCDO)

Risk reduction goal

Minimise risks to the UK from climate-related mobility and maximise opportunities for migrants affected by climate change.

Actions

1. FCDO will provide policy advice and Official Development Assistance support during the International Climate Finance (ICF) spending period from 2021 to 2026. This will help countries most affected by climate change to adapt to the impacts, which should reduce impact of climate change as a driver of migration.
2. FCDO and DESNZ will support the implementation of the Global Compact for Safe, Orderly and Regular Migration and influence multilateral organisations to develop policies for dealing with climate-related migration throughout 2023 and 2024 to ensure safe, orderly and regular movements of people where possible.
3. FCDO and the Home Office will support safe and legal routes along climate mobility corridors and build the capacity for countries receiving migrants between 2023 and 2025.
4. FCDO will provide disaster risk support and early warning systems during the current ICF spending period to reduce the impact of sudden onset events and the potential for major movements of people.
5. FCDO will continue to fund nature-based solutions programmes between 2021 and 2026 to support disaster risk reduction, security and conflict prevention by protecting, restoring and sustainably managing nature.

How we will do it

1. UK International Climate Finance, including a commitment to spend £11.6 billion between 2021 and 2026 with a balance between adaptation and mitigation (Action 1)
2. Funding to the United Nations (UN) Migration Multi-Partner Trust Fund between 2019 and 2023 (Action 2)
3. Better Regional Migration Management (Actions 2 and 3)
4. Risk-informed Early Action Partnership (Action 4)
5. ICF £3 billion commitment to nature (Action 5)

ID4 – Risks to UK from violent conflict overseas resulting from climate change (FCDO)

Risk reduction goal

Minimise the potential impacts of climate-related overseas violent conflict on the UK by better understanding the links between climate, conflict and instability, and acting to anticipate and mitigate developing threats.

Actions

1. FCDO will continue to work with the UN, throughout 2023 to 2024, to better understand the impact of climate security on peacebuilding and on integrating this into multilateral peacebuilding.
2. FCDO will explore, throughout 2023, how to integrate climate-related drivers into conflict and instability risk assessments at global and country level.
3. FCDO will strengthen methods for integration of a conflict lens into climate interventions during 2023 to 2024 to achieve increased capability to tackle conflict drivers early.
4. FCDO and the Ministry of Defence (MOD) will assess and strengthen the evidence base on links between climate, vulnerability and stability during 2023 to 2025 to achieve an informed approach to adaptation actions.
5. FCDO, DESNZ and Defra will ensure UK Official Development Official Development Assistance includes adaptation for climate-vulnerable countries between 2023 and 2026 to help build their resilience and reduce the chances of conflict.
6. FCDO will fund almost £1 billion in projects that tackle complex security challenges abroad to keep the UK safe from global sources of volatility and insecurity through the new UK Integrated Security Fund.

How we will do it

1. International peacebuilding forums, such as the UN's Group of Friends, Peacebuilding Commission, and the G7 working group on peacebuilding and peacekeeping (Action 1)
2. FCDO's Conflict Prevention and Peacebuilding Programme and UN peacebuilding work, combining programme and policy (Action 1)
3. FCDO policy, partners and programmes, including its regular assessment of global conflict, instability and atrocity risks undertaken in partnership with other government departments and external partners (Actions 2 and 3)
4. MOD's Climate Change and Sustainability Strategic Approach Epoch 2021 to 2025 sets the foundation of the evidence base and Epoch 2 2026 to 2035, will focus on adaptation and enhancing the response – FCDO research and evidence (Action 4)
5. UK International Climate Finance commitments, including specific adaptation funding sub goals (Action 5)

6. UK Integrated Security Fund (Action 6)

ID5 – Risks to international law and governance from climate change that will impact the UK (FCDO)

Risk reduction goal

Encourage countries to comply with and strengthen the frameworks of international law and governance, including those related to climate change.

Actions

1. FCDO and DESNZ will seek to reduce the risk of successful legal challenges to climate change policies and provide adaptation and resilience support to the most vulnerable between 2023 and 2025. They will engage early and often in multilateral fora such as the UN Framework Convention on Climate Change and the UN Security Council, to ensure policies are defensible to challenge and widely supported internationally.
2. FCDO and DESNZ will lead on climate diplomacy internationally between 2023 and 2025 to progress climate actions under the UN Framework Convention on Climate Change.
3. FCDO will contribute to multilateral fora – for example, the International Court of Justice and the UN General Assembly – to ensure the rights of people impacted by climate change are considered.
4. FCDO will continue to work with partners until at least 2026 to improve how developing countries access climate finance, so they can better respond to the impacts of climate change. This will help address the risk of sovereign defaults in emerging economies due to climate impacts.

How we will do it

1. Post COP presidency actions and initiatives, including engagement with UN climate negotiations, COP28, COP29 and COP30, and the building of networks among likeminded allies (Actions 1 and 2)
2. Climate Resilient Debt Clauses and the Taskforce on Access to Climate Finance (Action 4)
3. Engagement with international human rights processes (Action 3)

ID6 – Opportunities from climate change (including Arctic sea ice melt) for international trade routes (FCDO)

Risk reduction goal

Consider the CCRA3 advice on ID6.

Actions

1. DfT will continue to engage with the International Maritime Organization between 2023 and 2025 to ensure effective governance and environmental protections are in place to regulate ships operating in Arctic waters.
2. FCDO will continue to coordinate UK engagement with the Arctic Council's Working Groups during the current Norwegian Chairship (2023 to 2025) to promote safe, responsible and sustainable activity related to Arctic shipping.

How we will do it

1. International Maritime Organization (Action 1)
2. Arctic Council Working Groups (Action 2)

ID7 – Risks associated with international trade routes (DBT)

Risk reduction goal

Minimise the risk of climate-related disruption to the UK's critical international supply chains.

Actions

1. DBT will publish a new strategy on supply chains and imports in autumn 2023 to provide a coherent overview of the UK's priorities and drive specific action by government and business in response to any threats and hazards, including climate change, to the critical imports for the UK's national security and economic growth.
2. DBT will continue to develop and share analysis, including through mapping climate vulnerabilities and monitoring disruptive events, to drive evidence-based decision making throughout and beyond 2023. This will help government and businesses respond to climate change risks posed to critical supply chains in line with government priorities.
3. DBT will support and advise relevant teams within government and businesses to develop policies and interventions to guide both public and private sector organisations actions to mitigate climate change risks and vulnerabilities in supply chains. The success of this will be monitored through quarterly internal reviews from 2023.
4. DBT will engage with business, seeking industry views on a new supply chains and imports strategy in summer 2023, to enable information sharing on how climate-related disruption affects supply chains between government and industry.
5. DBT will incorporate climate considerations in relevant critical supply chain stress tests by the end of 2024, including with international partners, to understand the resilience of critical supply chains to climate-related disruptions.
6. DBT will support UK companies to target sustainable infrastructure solutions and systems in vulnerable countries throughout 2022 to 2024 to enhance industry awareness of financing and promote delivery of critical infrastructure projects.
7. DBT will encourage insurance solutions and improve climate forecasting and infrastructure investment from 2022 to 2024 to minimise the risk of uninsured losses to the UK finance sector from climate change and protect supply chains.

How we will do it

1. A new strategy on supply chains and imports (Actions 1 and 4)
2. DBT analysis (Action 2)
3. DBT Global Supply Chains and Economic Security Directorate (Actions 3 and 5)

4. Business of Resilience Taskforce (Actions 6 and 7)

ID8 – Risks to the UK finance sector from climate impacts overseas (HMT)

Risk reduction goal

Prevent climate risks originating from overseas causing a systemic failure of the UK financial system.

Actions

1. The government will use the UK's influence to continue to push for the global adoption of the International Sustainability Standards Board's standards following the release of the final standards (expected in summer 2023) to ensure the system discloses and responds to climate risks.
2. HMT, working with the PRA and FCA, will monitor climate risks in insurance markets including Lloyd's of London through the NAP3 implementation period to 2028 and beyond to ensure continued government awareness of the impact of climate change on insurance markets.
3. HMT will monitor the availability and affordability of different lines of insurance through the NAP3 implementation period to 2028 and beyond to ensure continued government awareness of the impact of climate change on insurance lines.
4. The government will shape policy and work with regulators, such as the FCA, PRA, the Pensions Regulator and the Financial Reporting Council (FRC) through the NAP3 implementation period to 2028 and beyond to ensure that financial sector participants have consistent, accurate information to help manage their exposure to climate risks and achieve greater transparency in the market. Work this year will include setting out further detail on the implementation of Sustainability Disclosure Requirements (SDRs), consulting on the UK Green Taxonomy and launching a formal assessment mechanism for the International Financial Reporting Standards (IFRS) Sustainability Disclosure Standards.
5. HMT will support transition plan disclosure requirements on financial market participants through the NAP3 implementation period to 2028 and beyond to address systemic climate-related financial risk across the financial system. HMT established the Transition Plan Taskforce (TPT) to develop a standard for transition plans, including how wider financial risks arising from adaptation should be reported within an overall risk management disclosure.
6. HMT will work with international partners to support the interoperability and standardisation of financial market participants' plans to adapt to climate risks and to a low-carbon economy throughout the NAP3 implementation period to 2028 and beyond. HMT will seek international agreements which enhance and expand transition planning across the global economy and international financial sector.
7. DBT will consult on the introduction of requirements for the UK's largest companies to disclose any transition plans they have once the TPT has released its final recommendations and guidance by the end of 2023,

supporting companies to address climate-related financial risk across the economy and enabling the financial system in doing the same.

8. HMT continue to support the work of the Taskforce for Nature-related Financial Disclosures (TNFD), which has been set up to create a risk management and disclosure framework due for publication in September 2023, for organisations to report and act on evolving nature-related risks and opportunities. The government will explore how best the final TNFD framework outcomes should be incorporated into UK policy and legislative architecture

How we will do it

1. International Sustainability Standards Board standards, particularly, S2: climate-related disclosures (Actions 1, 4 and 5)
2. SDRs (Actions 1, 4, 5 and 6)
3. G20 and Sustainable Finance Working Group (Actions 1, 4 and 6)
4. International Platform on Sustainable Finance (Actions 1, 4 and 6)
5. Transition Plan Taskforce (Actions 4, 5, 6 and 7)
6. Bank of England's 2021 Climate Biennial Exploratory Scenario (Actions 2, 3, 4 and 5)
7. Ongoing engagement with insurance industry and regulators such as the FCA and PRA (Actions 2, 3 and 5)
8. Financial Stability Board (Actions 4 and 5)
9. Network for Greening the Financial System (Actions 4, 5 and 6)
10. Basel Committee on Banking Supervision (Actions 4 and 5)
11. Taskforce for Nature-related Financial Disclosures (Action 8)

ID9 – Risks to UK public health from climate change overseas (DHSC)

Risk reduction goal

Minimise threats from imported VBDs, including limiting the potential transmission by native and non-native vectors in the UK.

Actions

1. UKHSA will conduct horizon scanning and epidemic intelligence to identify changes in the distribution of VBDs worldwide through the NAP3 implementation period from 2023 to 2028 to help build awareness of changes associated with climate change. This action will be reviewed annually.
2. DHSC and UKHSA will raise awareness of VBD risks and preventative steps to enable the public to make informed decisions about measures to protect themselves against VBDs through the NAP3 implementation period from 2023 to 2028. This action will be reviewed annually.
3. DHSC and UKHSA will complete a suite of government contingency plans for specific VBDs to ensure rapid, coordinated responses to detections of invasive mosquitoes or VBDs such as dengue or West Nile virus through the NAP3 implementation period from 2023 to 2028. This action will be reviewed annually.
4. UKHSA (funded by FCDO) will build capacity in British Overseas Territories for VBD resilience to achieve increased uptake of new and innovative vector surveillance methods to maximise control measure impacts through the NAP3 implementation period from 2023 to 2028. This action will be reviewed annually.
5. DHSC and UKHSA will continually raise awareness and train healthcare professionals to recognise potential cases of non-endemic VBDs to increase referrals for testing and the detection of more cases through the NAP3 implementation period from 2023 to 2028.
6. UKHSA will seek to enhance their laboratory testing capability to support early detection of a wider range of imported disease threats to the UK through the NAP3 implementation period from 2023 to 2028, with annual reviews of changes.
7. UKHSA will strengthen links with NHS tropical disease centres. It will pilot approaches to improve surveillance and detection of imported VBDs and diagnostics research and evaluation through the NAP3 implementation period from 2023 to 2028, with annual reviews on progress of the action.

How we will do it

1. UKHSA's epidemic intelligence reports (Action 1)
2. Monthly reports published on GOV.UK (Action 1)
3. National Travel Health Network and Centre news updates and outbreak surveillance (Action 2)
4. Country-specific travel advice on GOV.UK (Action 2)

5. UKHSA Vector Borne Disease Plans including the West Nile Virus Contingency Plan (Action 3)
6. Invasive Mosquito Contingency Plan (Action 3)
7. International Health Regulations National Focal Point (Action 4)
8. Establishment of the UKHSA Centre for Climate and Health Security (Action 5)
9. UKHSA partnership with tropical disease centres in London and Liverpool (Action 7) to deliver the imported fever service (Action 5)
10. Weekly UKHSA-led imported fever service teleconference for hospital-based medical professionals (Actions 5 and 7)
11. UKHSA diagnostic testing for the NHS of imported VBDs through its Rare and Imported Pathogens Laboratory and imported fever service (Action 6)

ID10 – Systemic risks from climate change to the UK that have the potential to cascade across sectors and borders (FCDO)

Risk reduction goal

Minimise the impacts of overseas climate-related risk cascades on the UK.

Actions

1. FCDO will use its network of international posts, the UK's position in various international bodies and the government's research capacity during 2023 to 2025 to identify and inform responses to developing climate risks across the world.
2. FCDO and the Cabinet Office (CO) will ensure that the UK's risk management processes account for systemic transnational risks that cascade across borders and sectors by 2025, to ensure risk management processes consider potential climate impacts.
3. CO and Defra will establish a new, senior officials Climate Resilience Steering Board to oversee strategic, cross-cutting climate adaptation and resilience issues and drive further government action to increase UK resilience to climate change.
4. With FCDO's support on international risks, CO will continue to lead on implementing the UK Government Resilience Framework by 2030. This will strengthen the government's ability to anticipate and respond to all threats and risks, including climate change.
5. The government will triple International Climate Finance funding for adaptation from 2019 levels to £1.5bn in 2025 for FCDO, Defra and DESNZ to help build the adaptive capacity of countries and reduce potential for the outbreak of cascading events that could impact on the UK.
6. Defra will engage the Climate Change Committee (CCC) to shift to a systems-based risk assessment approach in the fourth Climate Change Risk Assessment (CCRA4), which will be published in January 2027. This will seek to connect the National Security Risk Assessment and CCRA processes to better understand the cascading effects between national security and climate change drivers.
7. FCDO will continue to co-chair the Adaptation Research Alliance funded through to 2026. This is a coalition of researchers, funders, policymakers and community-based organisations that seek to increase investment and opportunities to develop better adaptation solutions.

How we will do it

1. National Security Risk Assessment (Action 1)
2. UK Government Resilience Framework (Actions 1 and 4)

3. UK network of overseas posts, including dedicated climate advisors (Action 1)
4. UK-led research and evidence into impacts of climate change such as the Adaptation Research Alliance (Actions 2, 5 and 7)
5. UK International Climate Finance (Action 5)