

SCOTTISH CLIMATE CHANGE ADAPTATION PROGRAMME: PROGRESS REPORT 2022

Third annual progress report on the “Climate Ready Scotland: Scotland’s Climate Change Adaptation Programme 2019 to 2024”

May 2022



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1. Introduction and context

As a result of the global climate emergency, Scotland is already experiencing warming, with more extreme weather events and rising sea levels. As a nation we must adapt to these changes and prepare for the impacts of global climate change which are already locked in. Action on adaptation and resilience, alongside reducing our emissions to net-zero, is at the heart of Scotland's just transition approach.

How has Scotland's climate changed?

Over the last few decades Scotland has experienced a warming trend, shifting rainfall patterns, and rising sea levels:

- Scotland's 10 warmest years on record have all occurred since 1997.
- There has been an increase in rainfall over Scotland in the past few decades (with an increasing proportion of rainfall coming from heavy rainfall events).
- Mean sea level around the UK has risen by approximately 1.4 mm/year from the start of the 20th century.

How will Scotland's climate change in the future?

The changes in climate that we are already experiencing are projected to continue and intensify:

- Average temperatures will increase across all seasons
- Typical summers will be warmer and drier
- Typical winters will be milder and wetter
- Intense, heavy rainfall events will increase in both winter and summer
- Sea levels will rise
- There will be reduced frost and snowfall
- Weather will remain variable and may become more variable

For further information, see Adaptation Scotland's [summary of the UK Climate Projections for Scotland](#) (published January 2021). This resource is intended to help build common understanding on the future climate that Scotland will experience.

This third annual report to the Scottish Parliament provides an assessment of progress under the Scottish Government's current statutory programme for building resilience to the impacts of climate change: [Scottish Climate Change Adaptation Programme 2019-2024](#).

1.1 Statutory framework for adaptation

The Climate Change (Scotland) Act 2009 sets the statutory framework for Scotland to adapt to climate change. The legislation requires a programme of policies and proposals for climate change adaptation to be set out every five years. These

programmes must address risks identified in the statutory UK Climate Change Risk Assessments (CCRA), which are also updated every five years, based on independent expert advice around the evidence on current and expected future climate impacts.

This is the third annual progress report on the second Scottish Climate Change Adaptation Programme since its publication in Autumn 2019. This report is published in line with Scottish Ministers duties under section 54 of the Climate Change (Scotland) Act 2009. Copies of previous progress reports can be found on the Scottish Government website¹.

1.2 Scotland's current adaptation programme (SCCAP2)

The second Scottish Climate Change Adaptation Programme (SCCAP2) sets out over 170 policies and proposals (and an associated research programme) to respond over the period 2019 to 2024 to the risks for Scotland identified in the 2017 UK Climate Change Risk Assessment (CCRA2).

SCCAP2 takes an outcomes-based approach, derived from both the UN Sustainable Development Goals and aligned to Scotland's National Performance Framework. This approach is designed to integrate action on adaptation into wider Scottish Government policy and service delivery. There are seven high-level outcomes within SCCAP2, covering Scotland's communities, businesses and natural environment as well as our engagement with international partners. Chapters 4 – 10 of this annual progress report provides examples of progress – since the time of the last report in May 2021 – in implementing policies and proposals that contribute towards each of the SCCAP2 outcomes. Chapter 11 sets out progress to the SCCAP2 research programme.

This progress report relates primarily to the ongoing delivery of the SCCAP2 programme. However, it is also published in the context of the early stages of a new policy cycle of risk assessment and adaptation planning, as summarised below.

1.3 Updated Climate Change Risk Assessment (CCRA3)

In June 2021, the Climate Change Committee (CCC) published its third [Independent Assessment of UK Climate Risk](#), including a [Summary for Scotland report](#). The CCC's assessment found that action to improve resilience across all UK nations is generally failing to keep pace with the increasing risks associated with the impacts of climate change.

The CCC's risk assessment identifies 61 risks and opportunities in total, and is underpinned by a [Technical Report](#). This updated independent evidence base and advice on climate risks has informed an updated formal, statutory [UK Climate Change Risk Assessment 2022](#) (CCRA3) laid before the UK Parliament in January

¹ [Adaptation to climate change - Climate change - gov.scot \(www.gov.scot\)](https://www.gov.scot/adaptation-to-climate-change)

2022. Through the CCRA3, the Scottish Government (as well as the administrations of the other UK nations) have formally accepted the CCC's risk assessment in full.

The publication of the statutory CCRA3 has now triggered the duty on Scottish Ministers under the Climate Change (Scotland) Act 2009 to begin the process of developing the *next* Scottish Climate Change Adaptation Programme, in response to the updated risk assessment. Further information on this process is set out in the "Next Steps" section below. In the meantime, we will continue to deliver the SCCAP2 programme alongside developing new measures to further strengthen the response.

1.4 CCC's first independent assessment of SCCAP2

Following publication of the CCC's updated risk assessment evidence in June 2021, the Cabinet Secretary for Net Zero, Energy and Transport wrote to the CCC to commission further advice on adaptation in Scotland, in particular through a detailed independent assessment of the SCCAP2 programme, and to seek further advice on the role of climate adaptation in economic recovery and a just transition to net zero.

The CCC subsequently published its independent assessment [Is Scotland climate ready? – 2022 Report to Scottish Parliament](#) and accompanying advice [The just transition and climate change adaptation](#) in March 2022. The CCC's high level conclusion in its independent assessment is that, whilst the vision for a well-adapted Scotland set out in SCCAP2 is welcome, more needs to be done to translate ambition into actions that are commensurate with the scale of the challenge. The Scottish Government has welcomed the CCC's independent assessment and an initial response to its recommendations are included later in the current report.

The Climate Change (Scotland) Act 2009 requires two phases of independent assessment be undertaken within each 5 year planning cycle on adaptation. A second phase of assessment of the SCCAP2 programme will be commissioned from the CCC during 2023.

1.6 The role of the Adaptation Scotland programme

The Adaptation Scotland programme is funded by the Scottish Government to support capacity building and action on adaptation by the public sector, businesses and communities across Scotland. This work includes developing Scotland's pioneering place-based approach to adaptation. The contribution of the programme's activities to delivering the high-level outcomes in SCCAP2 is summarised at the end of each chapter of this report.

2. Scottish Ministers' assessment of progress towards implementing the objectives, proposals and policies set out in SCCAP2

The overall assessment of Scottish Ministers is that whilst progress continues to be made in implementing SCCAP2, it is also clear that still more needs to be done to build resilience in Scotland as part of our just climate transition.

The scale and urgency of this challenge has been highlighted by several key reports and developments since the time of the last progress report in May 2021. In particular, the CCC's updated independent assessment of UK climate risks through the CCRA, which the Scottish Government has accepted in full. At an international scale, by the Intergovernmental Panel on Climate Change Working Group II's report on Impacts, Adaptation and Vulnerability.² And most recently, by the CCC's independent assessment of the SCCAP2 programme itself. All of these reports are pointing to the same conclusion, that action on adaptation is not yet keeping pace with the worsening impacts. This is a shared global challenge, which applies here in Scotland too.

It is also important to keep sight of the range of actions already happening across the economy and society to adapt and build resilience. Chapters 4 – 10 of this report provides examples of progress towards the SCCAP2 policies across the seven high-level outcomes since May 2021, which include:

- In addition to providing local authorities with £42 million annually for flood protection schemes, we have committed to invest an extra £150 million in flood risk management over this Parliament – representing a 70% increase in the flooding budget. The first tranches of enhanced spending on flood risk management has been allocated through the 2021-22 Scottish budget.
- The Scottish Environment Protection Agency (SEPA) published updated flood risk management plans in January 2022, which will be supplemented by local authorities' local flood risk management plans due to be published later this year. The local plans will include a description of how the measures to reduce flood risk, identified in the relevant plan, are to be implemented.
- The second phase of the Dynamic Coast project was launched in August 2021, providing powerful new insights to support local planning on coastal adaptation. Guidance for local authorities on preparation of coastal change adaptation plans is underway and a group to advise Scottish Government on the distribution of national funds to local authorities for coastal adaptation measures has been set up; allocations for 2022-23 and 2023-24 have been agreed with COSLA.
- To manage climate risks to Scotland's biodiversity, we are continuing to invest £250 million over 10 years on peatland restoration, which supports

² IPCC, 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change <https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii>

the co-benefits of carbon sequestration and improved natural flood management.

- In November 2021 we announced a new £55 million multi-year commitment to the Nature Restoration Fund bringing the total to £65 million over this Parliament. We have committed to introduce a new Natural Environment Bill which will include targets for nature recovery and halting further declines by 2030.

Another key development during 2021 was the COP26 international climate negotiations in Glasgow. This resulted in a package of global outcomes on mitigation, adaptation, finance and loss and damage, with progress in some key areas and the groundwork for further ambition in others.

The Scottish Government believes that Parties to the UNFCCC and non-state actors must now build on the progress made in Glasgow, including by doubling adaptation finance by 2025.³ At COP26 we announced the trebling of our own financial support for the world's poorest and more vulnerable communities in their efforts to tackle the impacts of climate change. The Climate Justice Fund will increase from 2022, providing £36 million across this Parliament. We are committed to ensuring that this fund not only supports communities in partner developing countries to become more resilient to climate change but does so in way that acknowledges and tackles embedded inequalities.

In advance of COP26, the Scottish Government hosted a [National Climate Resilience Summit](#) bringing together leadership from across the public, private and third sectors in Scotland to raise collective ambition on adaptation. On 1 October 2021, chief executives, directors and other senior leaders from 70 organisations participated, and more than 50 have endorsed (or committed to further considering) the Summit's climate resilience ambition statement in support of "collective action to transform Scotland into a climate resilient nation. As part of this journey, we:

1. support enhanced understanding and action on climate risk and look forward to collaborating across sectors;
2. will further embed climate adaptation in our culture, corporate governance and organisational priorities as an immediate priority and throughout 2022 and beyond; and
3. express our support for an ambitious global deal at COP26 which addresses adaptation and resilience needs in a fair and just way".

The Scottish Government now wants to build on the National Climate Resilience Summit, the Glasgow Climate Pact and existing efforts to adapt to climate change, including via Scotland's local and regional partnerships, in order to rise to the challenge set out by the updated CCRA, IPCC report and CCC independent assessment. Our approach to doing so is set out in the following section.

³ In the Glasgow Climate Pact, Parties agreed to at least double their collective provision of climate finance for adaptation to developing countries from 2019 levels by 2025.

3. Next steps

3.1 Response to the CCC's first independent assessment of SCCAP2 and advice on just transition

The Scottish Government welcomes independent scrutiny of our response to the global climate emergency and was pleased to receive the CCC's first independent assessment of the SCCAP2 programme and accompanying advice on the just transition and climate change adaptation in March 2022.

The Scottish Government agrees with the CCC's clearly expressed views on the need for a focus on the delivery of climate change adaptation actions, and for improved evidence. In particular, we accept the CCC's recommendations to:

Operationalise a Monitoring and Evaluation framework for adaptation

We will now progress further development work to set out a monitoring framework for our adaptation actions. This will include developing a clearer framework to link current activities to adaptation outcomes, with indicators, targets and milestones where appropriate. We expect to provide a substantive update in next year's annual progress report to Parliament.

Undertake analysis of public sector action on adaptation

We have undertaken an initial analysis of the information on climate risks across the public sector reported in November 2021 under the public bodies climate change reporting duty. This was published by the [Sustainable Scotland Network](#) in May 2022. Scottish Government is also undertaking internal work to take stock of the current position on public sector adaptation action and inform our response to the updated CCRA (see below).

Ensuring adaptation is fully integrated into Just Transition planning

The Scottish Government welcomes the CCC's six principles to support the development of just climate adaptation policies.

These principles highlight points in the policy design and implementation cycle where it is particularly important to consider distributional impacts for climate change adaptation. We will adopt the CCC's principles in the development of Scotland's Just Transition Plans, starting with the Energy Strategy Just Transition Plan later this year, as well as the next statutory climate adaptation programme. In particular, sectoral Just Transition Plans will include consideration – where appropriate – of the CCC's highest priority CCRA risk areas.

To support this, we will publish research mapping vulnerability to 3 key climate risks (heat, air quality, and flooding) against social vulnerability to ascertain which social and geographical factors make a person more susceptible to the adverse effects of

climate change. These findings will help shape our engagement work and inform our incorporation of adaptation into just transition planning.

We will also invite Scotland's independent Just Transition Commission to include adaptation within its work, and to specifically consider how the CCC's advice on developing just climate adaptation policies can be further integrated into its future work.

The Adaptation Scotland programme will continue to support expanded community engagement via its locally led adaptation action. Building on learning from recent locality projects, Adaptation Scotland will work closely with community development partners during 2022-23 to develop their capacity to support locally led adaptation in line with climate justice principles and to network initiatives together.

Finally, we will also look for wider opportunities to align approaches to adaptation and mitigation as we develop the next statutory Climate Change Plan (a draft version of which is expected in Autumn 2023) alongside the next Climate Change Adaptation Programme (expected by Autumn 2024). Examples of synergies include the vital role of nature-based solutions in supporting both aspects of climate action, as well as biodiversity and wider outcomes. The application of a just transition lens to both planning processes, supported by the CCC's principles, will assist in maximising alignment.

Other CCC recommendations

All other recommendations from the CCC's first independent assessment of SCCAP2, including on sector-specific policy matters, are under active review and will inform the Scottish Government's wider approach to responding to the updated CCRA as set out below.

3.2 Responding to CCRA3

Alongside continuing to deliver SCCAP2, the Scottish Government is now beginning the process of co-developing Scotland's next statutory climate change adaptation programme in response to the updated assessment of the climate risks facing Scotland set out in CCRA3.

The next statutory programme, which will respond to the 61 risk areas identified in the CCRA, is expected to be published in 2024. The recent Scotland-specific advice from the CCC, along with the findings of the National Climate Resilience Summit, Scotland's Just Transition Commission and Climate Assembly, will all help to shape the development of the programme.

We are also exploring options for an early response in the highest priority risk areas identified by the CCC.

The following chapters of this annual progress report provide examples of progress – since the time of the last report in May 2021 – in implementing policies and proposals that contribute towards each of the SCCAP2 outcomes.

4. Progress toward "our communities are inclusive, empowered, resilient and safe in response to the changing climate"

SCCAP2 Outcome 1: Our **communities** are inclusive, empowered, resilient and safe in response to the changing climate

This outcome has two sub-outcomes covering the social aspects of community (such as empowerment, engagement and adaptability) and the physical aspects of community (including the built and historic environment). Aspects related to vulnerable people within communities are addressed under Outcome 2.

Examples of progress on cross-cutting policies in support of this outcome

Capacity-building and support through the Adaptation Scotland programme – The Scottish Government-funded [Adaptation Scotland programme](#) is supporting adaptation across cities, regions, islands and localities. The programme works with local partners to integrate adaptation in to place based change processes and equip partners, helping to unlock resources and support for long term change. A diverse range of projects are supported. For example, work is under way with partners in the Outer Hebrides to support locally-led adaptation. This includes completing a pilot project in North Uist to identify local climate impacts and a project with the Lan Thide Outer Hebrides Climate Beacon and the Met Office to develop a storyline to communicate projected changes in winter storms. The programme also works at a strategic level across regions including bringing the Climate Ready Clyde and Highland Adapts initiatives together to share learning and support development of leadership and governance across both regions.

Fourth National Planning Framework - The draft of the [fourth National Planning Framework](#) (NPF4) was laid in Parliament in November 2021 for parliamentary scrutiny, alongside a public consultation. Consultation on the draft NPF4 closed 31 March. We are considering all responses to the consultation and will lay a finalised NPF4 for approval by the Scottish Parliament before it is adopted by Ministers. Draft NPF4 sets out how our approach to planning and development will help achieve a net zero, sustainable Scotland by 2045.

- The approach ensures we adapt to future climate impacts by addressing a range of factors including: flood risk, infrastructure resilience, temperature change, coastal vulnerability, access to drinking water, active and sustainable travel, and electric vehicle infrastructure.
- It also addresses nature recovery and expanding blue green infrastructure to build resilience and improve our health and quality of life.
- Its universal policies facilitate development proposals for new and existing buildings, infrastructure and spaces, to be designed to be adaptable to future climate change impacts and respond to the climate emergency and nature crises.
- It has clear emphasis on the Place Principle with a collaborative place based approach involving working with stakeholders and communities to create liveable, healthier and sustainable places that improve lives and contribute to environmental ambitions.

Once adopted NPF4 will form part of the statutory development plan and will be a material planning consideration, requiring the policies and priorities set out in NPF4 to be taken into account in planning decisions. As well as considering the current SCCAP, preparation of NPF4 has considered information from a range of sources including the Climate Change Committee, Climate Assembly, Land Use Strategy, Climate Change Plan update and responses to early engagement. There have also been two rounds of formal consultation plus the recommendations of the Scottish Parliament.

Examples of progress on policies in support of sub-outcome that: "People in Scotland's diverse communities are informed, empowered and adapting to climate change"

The Place Principle – The new [OurPlace.scot](https://ourplace.scot) website to support the Place Principle was launched in January 2022. Aimed at communities as well as statutory, business and third sector organisations, it includes content, case studies and guidance to support place-based approaches, including to adaptation. The website will also host the new version of the Place Standard tool, and once piloting is complete, the “Place Standard with a climate lens toolkit” and supporting materials (see below).

The Place Standard – The improved version of the Place Standard tool (PST2.0) incorporates enhanced content to strengthen the contribution towards engaging communities and stakeholders around climate change at a local level. Once finalised it will be hosted on the new [OurPlace.scot](https://ourplace.scot) website alongside guidance and resources to support its use. Following two rounds of piloting in real life situations, the project to create a “PST2.0 with a climate lens” toolkit to support projects with a specific climate-action focus to take a place-based, collaborative, and community-led approach nears completion. The final version of the new toolkit and supporting materials - created in partnership with Sniffer, Adaptation Scotland, Sustainable Scotland Network, and others – will be available in early summer 2022 on [OurPlace.scot](https://ourplace.scot).

Community Flood Volunteer Project - We continue to support citizen science through grant funding for The Conservation Volunteers Scotland. Through community led citizen science flood monitoring projects important long term data is gathered for the councils. We continue to work with councils to extend the projects to new communities. This helps raise awareness of flood risk and the wider climate change agenda at a local level.

RiverTrack - is a local flood alerting tool that can be used by communities without a formal SEPA flood warning scheme. Working with the Scottish Flood Forum and SEPA we are encouraging more communities to consider the [Rivertrack system](#) which can alert home and business owners to take action prior to a flood event. This includes deploying flood guards and moving possessions upstairs which helps to reduce flood damage.

Fire and Rescue Framework - The [Fire and Rescue Framework for Scotland 2022](#) was published in March 2022 and it sets out Scottish Ministers’ expectations of the Scottish Fire and Rescue Service (SFRS). The Framework builds upon the strength

of the 2016 Framework, recognising the impact that both Covid and the climate emergency are having upon the Service. Climate change is identified as one of the Frameworks seven strategic priorities, which asks SFRS to ensure they continue “working to ensure Scotland’s communities are resilient and safe in response to the changing climate”, especially in the context of increased flooding, wildfires and their associated risks.

Examples of progress on policies in support of sub-outcome that: "Scotland's buildings and places are adaptable to climate change"

Additional investment in flood risk management - In addition to providing local authorities with £42 million annually for flood protection schemes, the Scottish Government have committed to invest an extra £150 million in flood risk management over this Parliament – representing a 70% increase in the flooding budget. The first tranche of enhanced spending on flood risk management has been allocated through the 2021-22 Scottish budget.

Flood Risk Management Plan - SEPA published the second [Flood Risk Management Plans](#) (formally called Strategies) in December 2021. The plans set out flood risk management actions for priority areas across Scotland, taking into account future flood risk information. The plans were developed in partnership with local authorities and other responsible authorities. A public consultation was held on the plans with more than double the number of responses than received for the 2015 FRM Strategy consultation. A summary of the alterations made due to the consultation was included in the final publication.

SEPA Flood Maps - SEPA’s flood maps continue to undergo regular update and improvement. The public-focussed [flood risk management map viewer](#) launched in November 2020 continues to improve access to flood risk information. In June 2021, the multi-year contract to support the update of national surface water flood maps was awarded. This wholesale development will reflect updates in rainfall data, developments in mapping and the most up-to-date climate information (UKCP18).

Coastal Flood Maps - SEPA are also progressing with updating coastal flood maps. This includes taking account of wave action where appropriate / feasible. Contracts for Northeast Scotland (Scabster to Montrose) and Orkney finished in December 2021, and Outer Hebrides finished in March 2022. The outputs of which will inform SEPA’s national maps when they are updated in summer 2023. Scoping for the next regional coastal flood map improvement contracts (Montrose to Berwick) is underway along with developing an understanding of the underlying data needed to support further improvements nationally.

Water Resilient Places Policy Framework - The Scottish Government is working with Scottish Water, SEPA and local authorities to embed the principles of the [Water Resilient Places Policy Framework](#) published in February 2021. This focuses on how we can optimise the use of our greenspace in our towns and cities to bring multiple benefits to communities, including managing surface water flooding. The Planning (Scotland) Act 2019 also introduced a new duty on planning authorities to prepare an open space strategy that sets out a strategic framework of the planning authority’s policies and proposals as the development, maintenance and use of green

infrastructure in their district, including open spaces and green networks. A [public consultation on the draft Regulations](#), to support the implementation of the new duties, closed at the end of March 2022. We are working on finalising the Regulations and subject to the final adoption of NPF4, we are intending to lay the final Regulations for approval by Parliament this year.

Property Flood Resilience - We continue to work with a range of stakeholders on the Property Flood Resilience Delivery Group to deliver the Living with Flooding action plan. We also continue to raise awareness of the Construction Industry Research and Information Association (CIRIA) Code of Practice for property flood resilience – a revised Code and short guide for property owners to help them make flood resilient repairs after a flood was published in January 2021. Flood resilient repair can lessen flood damage, reducing the time spent in temporary accommodation and the health impacts of a flood.

Heat in Buildings Programme (previously Energy Efficient Scotland) – The Scottish Government published its [Heat in Buildings Strategy](#) in October 2021 which updates the 2018 Energy Efficient Scotland Route Map. The Strategy sets out that the Scottish Government is taking a fabric first approach, prioritising the installation of energy efficiency upgrades in Scottish buildings in order to make them warmer, greener and more energy efficient. Energy efficiency measures, such as external wall insulation, and passive measures, such as ventilation and shading, can improve the resilience of Scotland’s buildings to the increased adverse weather projected as a result of climate change which might cause increased demand for both heating and cooling, as well as reducing greenhouse gas emissions.

Advice and support under the Heat in Buildings Programme - The Scottish Government continues to provide support, including grants and low costs loans, to property owners to help them retrofit their properties to make them more energy efficient and convert to zero emission heating. Home Energy Scotland and the Energy Efficiency Business Advice Service (changing to Business Energy Scotland in 1 April 2022) continue to offer impartial advice on energy retrofit and energy saving measures. Additional funding is also available through the CARES programme to support some of Scotland’s most remote and rural off-grid communities to upgrade their energy systems making them more resilient and sustainable for the future.

Building regulations and standards - [Public consultation on improvement to energy and environmental standards](#) (as set through building regulations) took place between July and November 2021. The Scottish Government’s review programme sets out plans for the publication of revised standards for April 2022 and their application to new development from October 2022. Changes to be implemented include the proposal for the assessment and mitigation of overheating risk in new homes and other properties.

The Place Standard – A “Design Version” of the Place Standard, currently available for piloting via the [ourplace.scot](#) website, has been created specifically to support design & delivery processes – e.g. aimed at development commissioners, architects, spatial planners. As with the core tool (see above), this integrates prompts around climate adaptation and mitigation wherever appropriate.

Historic Environment Scotland (HES) Climate Change and Environmental Action Plan – While the Covid-19 pandemic has significantly impacted delivery of the Climate Action Plan during 2021-22, a major milestone was the publication of [Towards a Climate Ready HES: Adaptation Plan](#). This adaptation plan sets out our response to a series of climate risks that we have identified that each have the potential to negatively impact our organisation. Funding from the Royal Society of Edinburgh enabled the continued roll-out of the application of the Climate Vulnerability Index methodology across Scottish World Heritage Sites during the Covid-19 pandemic, with workshops for the Old and New Towns of Edinburgh and Frontiers of the Roman Empire: Antonine Wall.

How the Adaptation Scotland programme is supporting this outcome:

Alongside the place-based capability and support activity described above, Adaptation Scotland establishes collaborations that enable Scotland to benefit from leading edge science and research. This includes a collaboration with the Tyndall Centre for Climate Research to create climate risk assessment specifications for Edinburgh and South East Scotland and the Highlands. The work draws on the OpenCLIM project which is developing an open-source integrated assessment framework for climate impacts and adaptation. This has the potential to provide valuable risk assessment data for multiple scales across Scotland, enabling a consistent approach and avoiding duplication of effort.

Adaptation Scotland is supporting the inclusion of adaptation across a range of policy and guidance relevant to these outcomes. This includes contributing to the development of draft National Planning Framework 4 and work with Scottish Government, SEPA and local authorities to develop coastal change adaptation planning guidance and adaptation guidance for flood risk managers. The programme has also worked closely with Historic Environment Scotland to develop an organisation wide climate risk assessment and to create the Climate Ready HES Adaptation Plan discussed above. Learning from this work is being used by Adaptation Scotland to support other major organisations to adapt.

5. Progress towards “the people in Scotland who are most vulnerable to climate change being able to adapt and climate justice being embedded in climate adaptation policy”

SCCAP2 Outcome 2: The people in Scotland who are most **vulnerable** to climate change are able to adapt and **climate justice** is embedded in climate change adaptation policy

This outcome has two sub-outcomes divided along the themes of vulnerable people and health and social care.

Examples of progress towards policies in support of the sub-outcome that "the most vulnerable to climate change in Scotland are engaged, empowered and able to adapt to climate change"

Scottish Flood Forum – The Scottish Government continue to grant fund the [Scottish Flood Forum](#) to work with communities at flood risk. The Forum’s aim is to reduce the impacts of flooding on individuals and communities, through providing immediate support following a flood and by establishing a network of community resilience groups in flood risk areas to equip communities to cope with the impacts and threat of flooding. The grant was increased to £195,000 in 2021-22. This enables the Forum to support and build resilience in communities at flood risk and manage the work of the Property Flood Resilience Delivery Group.

Green Infrastructure Fund - The European Regional Development Fund (ERDF) Green Infrastructure Fund continued to support green network expansion in Scotland's most deprived urban areas. These multifunctional nature-based solutions promote adaptation for nature and people together. There are seven Phase 1 projects (around £22 million total investment). Five have completed, with the remainder due later in 2022. All projects in this very competitive fund provide a broad range of adaptation benefits as part of nature based solutions. These include urban cooling; reducing flood risk by using rainwater as a positive amenity; creating nature networks; enabling safe active travel; healthy recreation in high quality greenspace; and community food growing. The sites attract heavy use, with resounding positive feedback, further evidencing the need for this type of intervention. They have won multiple awards and attracted international interest in how Scotland is using multi-functional greenspace for adaptation, delivering for nature and people simultaneously and successfully.

Scottish Flood Forecasting and Warning Service – Despite a cyber-attack on 24 December 2020 which impacted SEPA’s IT systems, SEPA was able to maintain their [24/7/365 flood warning services](#) enabling people – in particular those in flood risk areas - to take action to protect and prepare in advance of flooding, reducing its damage and disruption. Local flood warning services were expanded to the River Ayr and Annick Water in South West Scotland. Preparations were made for the procurement of a new multi-hazard incident messaging system and future digital improvements to the Floodline service. A new 3 day Scottish Flood Forecast web based service is also being developed for public launch in summer 2022.

Examples of progress towards policies in support of the sub-outcome that "Scotland's health and social care is ready and responding to changing demands as a result of the changing climate"

NHS Scotland Climate Change and Sustainability Strategy - The draft [NHS Scotland Climate Emergency and Sustainability Strategy](#) was published for consultation in November 2021 and the final version will be published later this year. This strategy proposes a set of policy and actions that NHS Boards will take to adapt to climate change – for example, ensuring that Climate Change Risk Assessments and adaptation plans are integrated with other strategies, risk assessments and business continuity plans; establishing a programme of monitoring to capture data that will enable a robust assessment of the nature and severity of overheating at in-patient facilities; and considering opportunities to develop and manage greenspace and other green infrastructure such as green roofs and rain gardens to help mitigate flood risks.

NHS Board Climate Change Risk Assessments and Adaptation Plans – In 2021, Health Facilities Scotland (HFS) reviewed NHS sites identified as being at high risk of flooding and recommendations were made to the respective NHS Boards. This review built on a national study on the impacts of climate change on NHS assets undertaken by HFS in 2016. Flooding and overheating are identified as the climate risks most likely to have the biggest effect on the estate and operations of NHS Scotland as well as increasing patient demand. As at April 2022, there was a commitment for all Health Boards have completed Climate Change Risk Assessment and Adaptation Plans for their areas.

Air quality – Scotland's changing climate may affect air quality and the related health impacts. The [Cleaner Air for Scotland Strategy](#) (CAFS 2) was published in July 2021 and implementation of the actions set out in CAFS 2 has subsequently commenced. Initial meetings of the Ministerial and Delivery Groups took place in December 2021, with expert working groups for key policy areas beginning to meet in the first part of 2022. A progress report will be published in summer 2022.

Preparing for a warmer climate: Water Refills in Public Places, Top Up Taps - Increasing the availability of tap water can help support Scotland's population adapt to the changing climate by providing a free, accessible way to stay hydrated, particularly important during hot weather. Scottish Water has now installed 63 refill points across Scotland. The growing network has already saved the equivalent of 450,000 single use plastic bottles since the first tap went live outside Holyrood on 27 September 2018. By reducing the amount of plastic we use and throw away, we can help to reduce the pressure on marine ecosystems.

How the Adaptation Scotland Programme is supporting progress towards this outcome:

Adaptation Scotland works with local partners to support development of place-based adaptation initiatives that include and enable those who are most vulnerable to climate change to be involved in adaptation. For example, Adaptation Scotland supported local partners to incorporate climate and social justice as a guiding principle for the Highland Adapts initiative – which was formally established in 2021.

Adaptation Scotland has worked closely with Trade Union Movement over the past year to engage members and co-develop adaptation guidance and tools. These will be published in Spring 2022, in conjunction with resources from UNISON Scotland and the STUC. Together, these resources will be used by Trade Union representatives in workplaces across Scotland to identify the climate risks that are affecting them and advocate for adaptation action as an important part of achieving a just transition.

The Adaptation Capability Framework developed through the Adaptation Scotland programme continues to provide Health Boards with guidance on how to develop their work to adapt to climate change. The Framework is endorsed by NHS National Services Scotland and compliments their specialist climate change risk assessment resources.

6. Progress towards “our inclusive and sustainable economy being flexible, adaptable and responsive to the changing climate”

SCCAP2 Outcome 3: Our inclusive and sustainable **economy** is flexible, adaptable and responsive to the changing climate

This outcome has three sub-outcomes. The first two sub-outcomes reflect the different challenges faced by Scotland’s natural resource based businesses and the manufacturing, services, and other businesses. The final sub-outcome relates to the ability of businesses to harness the opportunities created as a result of climate change.

Examples of progress on policies in support of sub-outcome that "Scotland's businesses based on natural resources are informed and adaptable to climate change”

Farming For a Better Climate - The [Farming for a Better Climate](#) initiative continues to promote practical and cost effective climate change mitigation and adaptation measures to farmers and land managers, alongside findings from the Farming for a Better Climate Soil Regenerative Agriculture Group. The initiative's webpage now also holds links to the Integrating Tree Network and the Agriculture, Biodiversity and Climate Change Network. The farmer-led soil regenerative agriculture network continues to focus on positive actions that can be taken on Scottish farms to support, enhance and protect their soils, such as approaches to allow them to improve production whilst delivering wider benefits such as building soil resilience, improving water retention, storing carbon and enhancing biodiversity. While face to face events have been limited due to Covid-19, regular updates are added to the Farming for a Better Climate webpages and they have managed to host a number of farms visits during the last year. For COP26, the initiative ran a webpage which included farmer case studies and links to the farmer videos used in their #26days26ways campaign.

The Farm Advisory Service - A new contract, effective from April 2022, is providing continuity of the [Farm Advisory Service](#) that will connect the sector to expert consultants with the goal of keeping the industry up to date with current issues with nearly all the available support and advice entirely free to the consumer. We will be working with the relevant industry and organisations as we look to develop future agriculture policy to help shape the future longer term evolution of the service to ensure it keeps pace with key challenges to support farmers, land managers and crofters to deliver high quality food production, climate mitigation and adaptation, and nature restoration.

Soil and Nutrient Network – Soil health is at risk from changing climatic conditions, including seasonal aridity and wetness. Soil and Nutrient Network farms are taking a ‘before and after’ look at how to protect and improve farm soils and make the best use of both organic and inorganic fertilisers, saving money, benefitting yields and improving farm efficiency and resilience. Materials and events on this can be found through the [Farm Advisory Service](#).

Integrating Trees Network (ITN) - This jointly facilitated project between Scottish Forestry and the Scottish Government, is a farmer-led demonstrator network of farms, crofts and estates, hosting events and promoting the benefits to landowners of new woodland creation. Planting trees can help land-based businesses to adapt by providing shelter for livestock, habitat for wildlife, diversification opportunities for future income, and a contribution to reducing flood risk. Twelve free events have been held since March 2021. These have been developed based on feedback from farmers and crofters to meet their needs. Additional events are in development for the rest of 2022. The ITN also links to useful [resources for farmers interested in planting trees](#). Two host videos have been produced with four additional videos planned. It is hoped that on-site demonstration events will take place later in 2022.

Agroforestry in Action - Agroforestry combines trees with crops or livestock. The aim of the [Agroforestry in Action project](#) is to increase awareness and provide farmers, crofters and land managers with resources and information on the opportunities for agroforestry in Scotland, and its benefits for productive and sustainable farming – for example reducing soil erosion during heavy rainfall. It builds on the success of the 2021 ‘Agroforestry in Action’ (AIA) programme.

Forestry Strategy: Improving Efficiency and Productivity - Scottish Forestry have been working in conjunction with the construction industry through the Supply Chain Development Programme (SCDP) to explore options for increasing domestic timber usage in construction. A Careers toolkit ‘Working with Trees and Timber’ has also been published on the Scottish Forestry website as a resource for anyone in the industry who has been asked to speak to young people about careers in forestry. It signposts and provides easy access to a wide range of resources that have been created to promote the sector. This will help to attract new and more diverse talent to the sector, which in turn should help the sector have the skills and capabilities to help the sector improve resilience and adapt to climate change.

Examples of progress on policies in support of sub-outcome that "Scotland's economy is innovative and harnesses the opportunities created as a result of climate change"

Forestry and Land Scotland's adaptation actions - Forestry and Land Scotland (FLS) manages forests and land owned by Scottish Ministers. In July 2021, FLS adopted an Adaptation Action Plan with practical steps toward adapting Scotland's national forests and land to develop resilience to the impacts of climate change, and pests and diseases. Centred on the themes of Adapt, Reduce, Capture and published in December 2021, the FLS's [Climate Change Plan](#) includes reducing the pressures on forests from deer and invasive species; diversifying tree species and forest structure; and diversifying seed provenance to help make ecosystems more resilient and better able to cope with the stresses arising from a changing climate.

Circular Economy - Reducing consumption of natural materials can help to reduce pressure on the natural environment, leaving increased space and capacity for it to adapt. At the end of 2021, the Scottish Government announced the first £20m of investments from the £70m [Recycling Improvement Fund](#) to improve local authority recycling quantity and quality. At the same time, Regulations were laid before

Parliament that ban some of the most problematic single use plastic products and will come into force on 1 June 2022 (subject to the UK Internal Market Act 2020). An ambitious Deposit Return Scheme for single-use drinks containers (DRS), the first in the UK, will be implemented in full from August 2023. We are in the process of establishing a textiles innovation fund to support initiatives to help Scotland tackle textile pollution and throw-away culture. And, the Scottish Government is committed to progressing a transformational Circular Economy Bill in this parliamentary session.

Clyde Mission Adaptation Pathways - Clyde Mission is a Scottish Government-led initiative that brings together partners from across sectors to identify opportunities for communities and businesses along the River Clyde to thrive. One its five Missions is to adapt to climate change impacts, particularly tidal flooding. An independent study has been commissioned to help inform a credible framework for decision makers on climate adaptation within the tidal reach of the Clyde.

Hydro Nation: Scholars Programme - The Hydro Nation Scholars Programme continues to support post-graduate research into key topics of interest in the water sector including increasing catchment resilience to climate change and nature-based strategies to attenuate surplus water and floods.

How the Adaptation Scotland Programme is supporting progress towards this outcome:

Adaptation Scotland is working with the Edinburgh and South East Scotland (ESES) City Deal Directors Group to identify how a climate risk assessment can support the ESES Regional Prosperity Framework. A risk assessment scope will be developed later in 2022 with an emphasis on using this assessment to drive transformational change and support implementation of the Regional Prosperity Framework.

Forestry and Land Scotland (FLS) are continuing their approach to developing adaptation capabilities using the Adaptation Capability Framework developed by Adaptation Scotland. The FLS Climate Change Plan was published in December 2021 (see above) and provides a strong foundation for the future.

The Adaptation Scotland climate finance working group has developed a climate finance toolkit and a set of case studies to be published in summer 2022. These resources identify barriers to adaptation finance and provide advice and practical examples of how to develop public and blended finance options for adaptation projects. They provide an important starting point for developing knowledge, expertise, and capability to close the adaptation finance gap. The Climate Ready Business guidance also continues to be available on the Adaptation Scotland website.

7. Progress towards “our society’s supporting systems being resilient to climate change”

SCCAP2 Outcome 4: Our **society’s supporting systems** are resilient to climate change

This outcome has two sub-outcome considering devolved and reserved infrastructure and the interdependencies between these infrastructure systems.

Examples of progress on cross-cutting policies in support of this outcome

Climate change considerations in civil contingencies risk assessment – As part of our civil contingencies risk assessment work, the Scottish Government’s Resilience Division works closely with resilience partners, SEPA and the UK Met Office, to assess climate change risks. This work includes the development of the Scottish Risk Assessment (SRA), which is designed to supplement UK Government’s National Security Risk Assessment. Together these documents assist Scottish responders and policy makers in understanding the most significant civil contingencies emergencies which Scotland may face over the next two to five years. The current SRA includes six new risk assessments themed around major impacts from climate change, as well as a dedicated climate change overview chapter.

Examples of progress on policies in support of sub-outcome that: "Scotland's devolved supporting systems are resilient to climate change"

The National Transport Strategy 2 - The [NTS2](#), published in February 2020, set out the Scottish Government’s Vision for Scotland’s transport system. This vision is underpinned by four priorities: to reduce inequalities, to take climate action, to help deliver inclusive economic growth and to improve health and wellbeing. The Strategy set the context for future transport investment priorities over the next 20 years. Our second annual NTS2 Delivery Plan will be published in Spring 2022. This will outline the actions the Scottish Government is taking to deliver the NTS2 priorities, including the climate action outcome to “adapt to the effects of climate change”.

Infrastructure Investment Plan - The [Infrastructure Investment Plan for Scotland 2021-22 to 2025-26](#) outlines a coherent, and strategic approach to delivering Scotland’s National Infrastructure Mission. The Plan focuses on three core strategic themes for guiding investment decisions in Scotland: Enabling the transition to net zero emissions and environmental sustainability; Driving inclusive economic growth; and Building resilient and sustainable places. Key climate resilience investments featured in the Plan include the confirmation of £150 million additional funding for flood risk management, £12 million to help us adapt to the threat of sea level rises (see chapter 1) and £60 million to support climate adaptation and resilience in our trunk road network.

Transport Scotland Vulnerable Locations Groups - We have established two Vulnerable Locations Groups within Transport Scotland to oversee the development of the evidence for strategic actions required on wider weather related and climate change issues. In 2021, we have also established a Vulnerable Locations Operational Group which focuses on operational delivery of schemes through a Pilot

Adaptation Programme, within existing budgets, to ensure the Trunk Road Network is well adapted to climate change. Schemes delivered through this programme seek to go 'beyond maintenance' and adapt the network to the current and future impacts of climate change and aim to deliver a safe, reliable and resilient Trunk Road Network.

Landslide mitigation resilience measures on the Trunk Road Network – As part of the delivery of landslide mitigation resilience measures on the Trunk Road Network, Transport Scotland is working in partnership with Forestry and Land Scotland (FLS) to deliver a set of proposals aimed at mitigating the impacts of landslides affecting the A83 in Glen Croe, near the Rest and be Thankful. The focus of the works is the establishment of a native broadleaved woodland on the steep slopes of Beinn Luibhean, directly above the road. Programmed mitigation works have also continued at A83 Rest and Be Thankful throughout 2021 - for example, construction of a bund to enhance resilience of the Old Military Road. Other works are being delivered, for example, at the A86 Laggan rock slopes, A87 Clunie rock slopes and along the A82 at Loch Ness.

Tools for managing wider risks to the transport network - The Transport Scotland Manual for the Management of the Risk of Unplanned Network Disruption has been updated. The 2021 revision includes increased Flooding, Landslide and Wind Management Plan requirements, all of which have relevance to the changing risk landscape under climate change. The Manual provides direction to Operating Companies on managing and mitigating the effects of disruptive events, such as those caused by weather events. The four Trunk Road Operating Companies continue to develop and implement disruption risk processes which are informed by the formal recording of all previous events, as they occur. This includes severe weather related events such as high winds, flooding, snow and ice. The Operating Companies are required to produce and maintain a suite of disruption risk management plans for submission to and approval by Transport Scotland. This should be used to drive investment to address disruption events that already occur and also those which might emerge or increase in frequency and severity in the future.

Landscape management around trunk roads - As part of the recent re-letting of the SE and SW trunk road units and the current re-tendering of the NE and NW units Transport Scotland took the opportunity to review and revise many of the current contract requirements. One such area were the processes for tree management across the trunk road corridors. This was largely influenced by a recognition of the impact of climate change on native species and the related spread of non-native species, including the increasing occurrences and severity of pathogens and diseases – such as *Phytophthora ramorum*, *Dothistroma septosporum* and *Hymenoscyphus fraxineus* (Ash Dieback). New robust procedures have been introduced for the survey, recording, inspection and management of all trees (and other vegetation types) across the network to provide an accurate and up to date database and help better manage planned maintenance requirements, whilst being able to respond more efficiently to reactive issues.

Preparing the Scottish road network for severe weather events - Wind Management Variable Message Signs (VMS) Project, is a key component in the

strategy to manage the impacts of high winds, has progressed with the installation of a new weather station on the Tyne Bridge on the A1 now linked to VMS. Additional VMS have been installed on the approaches to Friarton and Erskine Bridges to support wind management with further sites in development.

ScotRail Climate Change Adaptation Plan - ScotRail published its [Climate Change Adaptation Plan in January 2021](#) and works collaboratively with Network Rail and Transport Scotland to ensure resilience of the network and identify adaptation interventions. Transport Scotland has provided policy direction for the new ScotRail Trains Ltd to continue and build upon this work through an environmental sustainability strategy when it effectively comes into public ownership from April 2022.

Private Water Supplies - The recast EU Drinking Water Directive came into force on 12 January 2021. The Scottish Government intends to align with this legislation. This creates obligations on access to water. Policy work is underway to assess how Scotland should align with the Directive to best protect public health. 2021 was another dry year, particularly in the South West, when numerous Private Water Supplies ran dry and had to be provided with alternative water supplies. Storm Arwen in November 2021 and further storms since have destroyed a number of Private Water Supplies either due to a lack of power or the infrastructure being broken. All of these events highlight the need for more resilient water supplies. Working groups have been commissioned to assess how the recast Directive should be incorporated into Scots law.

Examples of progress on policies in support of sub-outcome that "Scotland's reserved supporting systems are resilient to climate change"

Reporting on adaptation and climate preparedness in the reserved infrastructure sector - the UK Climate Change Act's Adaptation Reporting Power (ARP) gives the UK government the discretionary power to require relevant bodies to report on their climate preparedness. A [third round of ARP reporting](#) was completed at the end of 2021 with voluntary contributions from over 90 organisations. These include reports from Scottish and Southern Electricity Networks (SSE), SGN Gas, SP Energy Networks, Network Rail, Edinburgh Airport, Northern Lighthouse Board, UK-wide financial regulators, Seafish and from UK-wide industry associations for the UK's digital data centre sector, energy industry and energy networks.

Reaching 100% Programme - Through a combination of the £600 million Reaching 100% (R100) contracts, the R100 Scottish Broadband Voucher Scheme and continued commercial coverage we delivered our policy commitment to ensure that all homes and businesses could access superfast broadband. During 2022, 16 new subsea cables will be laid which will help to deliver future-proofed, resilient connectivity to 15 Scottish islands. We also continue to work closely with UK Government in order to understand what Project Gigabit might mean for Scotland.

Scottish 4G Infill Programme - The Scottish Government's £28.75m Scottish 4G infill programme is improving Scotland's 4G mobile connectivity by addressing up to 55 so-called 'notspots' (areas where no mobile coverage is available from any mobile operator) in remote and island communities, from the Scottish Borders to

Shetland and Orkney. As of February 2022, 27 sites are now live and delivering 4G services, with a pipeline of further site activations to follow through to March 2023.

How the Adaptation Scotland Programme is supporting this outcome:

Major infrastructure operators, owners and agencies including Transport Scotland, Scottish Water and local authorities are working with Adaptation Scotland to use the Adaptation Capability Framework and mature their approaches to climate change adaptation. Transport Scotland is using learning from the Framework to develop their upcoming adaptation work and will use the benchmarking tool to evaluate progress during 2022.

Adaptation Scotland continues to provide general capacity building support to the infrastructure sector, including running a training session for graduate engineers in partnership with the Society of Chief Officers of Transportation in Scotland.

8. Progress towards “our natural environment being valued, enjoyed, protected and enhanced and having increased resilience to climate change”

SCCAP2 Outcome 5: Our **natural environment** is valued, enjoyed, protected and enhanced and has increased resilience to climate change.

This outcome has two sub-outcomes. These sub-outcome split across the adaptability of terrestrial natural systems’ themselves and the social and cultural benefits that societies obtain from ecosystems. The products and economic value obtained from ecosystems (provisioning services) are considered under outcome 3.

Examples of progress on cross-cutting policies in support of this outcome

Environment Strategy – The Scottish Government’s Environment Strategy vision and outcomes, published in 2020, describe our long-term ambitions for restoring Scotland’s natural environment and playing our part in tackling the global climate and nature crises. The [Environment Strategy’s first progress report to Parliament](#) was published in March 2022.

Scottish Biodiversity Strategy - The Statement of Intent on Biodiversity published in 2020, announced our plans for publishing a new biodiversity strategy by autumn 2022. This will set out our approach to delivering Scotland’s contribution to the goals of the new Global Biodiversity Framework. We are currently working to develop the strategy, supported by extensive stakeholder engagement, and will shortly invite views through a public consultation. We will publish a delivery plan within six months of the new strategy.

Examples of progress on policies in support of sub-outcome that: "Scotland's biodiversity, ecosystems and landscapes are adaptable to the changing climate"

Nature Restoration Fund - In July 2021, the Scottish Government launched the [Nature Restoration Fund](#) – our biggest-ever grant scheme targeted at nature restoration. Following an expansion to the Fund announced during COP26, it will provide £65 million over the term of this Parliament. This will enable large-scale, multi-year projects to restore wildlife and habitats on land and sea. The new Fund promotes projects that enhance nature’s resilience on land and at sea. In 2021, funding was awarded to 54 projects alongside a direct allocation of £5m from Scottish Government to Local Authorities.

Peatland restoration - In 2020, ambitious plans were announced to invest more than £250 million over ten years to restore at least 250,000 hectares of degraded peatlands by 2030. In 2021-22, [NatureScot](#) invested over £8m in peatland restoration, including over £5.5m million of capital expenditure, to put almost 6,000 hectares of degraded peatland on the road to recovery. The multiple benefits – including in terms of resilience to further climate change - were monitored and promoted, and technical advice and capacity building provided, through Peatland

Action collaboration with Forestry & Land Scotland, Scottish Water, and the two National Parks.

Expanding the Area of Forests and Woodlands – Despite the impact of Covid-19, Scotland’s woodland creation continued at pace over the last year with around 89% of the 12,000 hectares target being achieved by 31st March 2021. Scottish Government has met the Scottish Biodiversity Strategy target for creating 3-5,000 hectares of new native woodland a year for the last 3 years. Over the last 16 years the average proportion of native woodland creation is 52%, although in some periods it has been as high as 82% (in 2012/13). Last year around 40% of new woodland was native. Increasing the biodiversity and health of our native woodland will increase its resilience to the changing climate.

Biodiversity Challenge Fund - In 2021, 13 new projects were awarded funding in the third round of this fund. As part of addressing biodiversity loss and the impact of climate change, these projects included (for example) the restoration of natural river and floodplain processes, and work to reduce climate risk to vulnerable species in both the marine and terrestrial environments. Overall, more than £6 million has now been offered to 50 projects in three rounds of the Fund. Most projects will be fully completed by March 2022 and the remainder, delayed by the Covid 19 impacts, will be completing soon after, at which point the current Fund will cease and be replaced by the Nature Restoration Fund (see above).

Building evidence around Protected Areas - During 2021, NatureScot began developing methods for holistic measurement of ecosystem function. This was identified in 2020 as a crucial step in understanding the effects of climate change on Scotland's nature, and it will represent a major adaptation of protected areas practice in the face of climate change. Work continued to develop the concept of protected areas as key nodes in nature networks.

National Nature Reserves (NNRs) - During 2021 work continued to further enhance NNRs as crucial nodes for the resilience of nature and of its many benefits. For example, peatland restoration continued at Flanders Moss, Blawhorn Moss and Moine Mhor NNRs, and woodland expansion was progressed at Beinn Eighe, Cairnsmore, Craigellachie, and Invereshie & Inshriach NNRs. NatureScot also began to implement the recommendations from an internal review of how its NNRs contribute to climate adaptation and mitigation. Various measures, ranging from installing renewable energy supply to new habitat enhancement work, address these climate change aspects in combination.

Enhancing Environmental Benefits of forestry - Alongside the UK Government and the other devolved administrations, Scottish Forestry has been working with Forest Research to produce a UKFS Practice Guide on designing and managing woodlands and forests to reduce flood risk. This Practice Guide describes how to comply with the UKFS requirement that those planning woodland creation or the management and redesign of existing forests and woodlands in areas prone to flooding, should consider how their activities could reduce flood risk.

Scotland’s Rainforests - During COP26 the Scottish Government affirmed its commitment to protect and enhance Scotland’s Atlantic Rainforests, including as a

nature based solution to the climate emergency. The Scottish Government is engaging with the Alliance for Scotland's Rainforests, comprising a diverse group of organisations and public sector bodies to determine how best to fulfil these commitments. The two main issues which need to be addressed are deer management and invasive species control, primarily rhododendron. We have commissioned Nature Scot and Scottish Forestry to provide an options paper, setting out delivery and funding options.

Adaptability and Resilience of Forests and Woodlands - Alongside the UK Government and the other devolved administrations, Scottish Forestry has been working with Forest Research to produce a UKFS Practice Guide on designing and managing woodlands and forests for adaptation and resilience. This Practice Guide provides forest planners and managers with information on how to better understand and assess the risks associated with climate change in order to plan for the future and adapt forest and woodland management accordingly. The Practice Guide will be published in Spring 2022 alongside a series of case studies looking at a range of forest and woodland types and exploring the different adaptation measures the forest managers have introduced.

Ensuring Sustainable Management of Forests and Woodlands - The four administrations of the UK are undertaking a review of the current UK Forestry Standard (UKFS) which defines the agreed approach to sustainable forest management across the UK. The UKFS includes good forestry practice requirements and specifically addresses soils, water, biodiversity, landscape and natural heritage, people, and climate change. Engaging stakeholders is an important aim of the review and there will be a two-stage stakeholder consultation process. The first consultation which closed in August 2021 was based on a range of cross-cutting themes. The consultation responses and findings are helping inform the drafting of the next edition of a Standard that is balanced and relevant and applicable in Scotland and across the UK. Updated detailed technical content will be shared with stakeholders during the second consultation stage planned for spring 2022. Final publication of the UKFS is due by the end of 2022.

River Basin Management Plans - The River Basin Management Plans (RBMPs) set out how Scottish Government, SEPA, other responsible authorities and partners work together to protect and improve the water environment in Scotland. The plans aim to prevent deterioration and improve the quality of the water environment to at least good condition. On behalf of the Scottish Government, SEPA published the [RBMPs for 2021 to 2027](#) in December 2021. The plans are structured around how RBMPs can help deliver Scotland's environment strategy, contributing to a net-zero circular economy. It has a focus on tackling overuse of natural resources, the climate emergency and biodiversity crisis. The plan takes a whole systems approach to dealing with these issues focussed on the themes of: healthier and more resilient communities; water supply and wastewater infrastructure; sustainable and resilient rural land-use; and removing man-made barriers to fish migration.

Wild Salmon Strategy - The [Wild Salmon Strategy](#), published by the Scottish Government in January 2022 includes an action to 'improve climate resilience of rivers, for example through supporting targeted riparian tree planting and natural

regeneration and peatland restoration'. Scottish Forestry will be working with Marine Scotland to develop this further over the coming year.

Biological Diversity Monitoring - NatureScot and Scottish Government partners contributed to the UK Government's submissions to the Convention on Biological Diversity. Our published indicators showing the impacts of climate change on biodiversity included a shifting of water birds' wintering grounds from Scotland to continental Europe, and an expansion of range by sun-loving butterfly species into southern Scotland. There was insufficient data to produce meaningful metrics on many other species, due to the Covid pandemic severely limiting field survey work. However, work began to produce new analysis of how nature restoration targeted primarily on carbon sequestration - such as the creation of farm wetlands and woodland - can positively affect Scotland's wildlife.

Pollinator Strategy for Scotland 2017-2027 - There was activity in the past year across all 5 Objectives of the Strategy, notably on the following:

- An increasing number of community groups improved greenspaces to benefit pollinators. The work of Yorkhill Green Spaces in Glasgow won first prize in the NatureScot/Keep Scotland Beautiful Pollinator Friendly award.
- To benefit pollinators on Islay, Islay Natural History Trust and Argyll & Bute council implemented a change in road-verge cutting, supported by verge surveys to determine their use by pollinators.
- Evidence-based monitoring continued through the established UK Pollinator Monitoring Scheme, which is financially supported by Scottish Government. 2021 saw the launch of a monitoring App to enable far greater and easier participation in the popular FIT-Counts.
- Pollinator-friendly management practices have been implemented by an increasing number of local authorities, for example Stirling and Perth. NatureScot hosted a 2021 conference at which local authorities shared good practice and experience in implementing and encouraging pollinator-friendly changes.

Piloting an Outcome Based Approach in Scotland (POBAS) - is an NatureScot-led project working with 40 farmers and crofters in four clusters across Scotland (Skye, Argyll, Strathspey and East Lothian). During 2020-21 this NatureScot-led farm pilot project tested new ways to improve the delivery of biodiversity outcomes (including the adaptation of nature to climate change) on farms and crofts through agri-environment funding.

Examples of progress on policies in support of sub-outcome that "Scotland's natural environment and its contribution to wider societal adaptation is enjoyed, valued and maintained"

Outdoor Learning in Nature - The [Learning in Local Greenspace](#) project (2015 - 2021) exceeded its target of 100 green spaces being regularly used for outdoor learning and play, improving the greenspaces where necessary to allow this to happen. It engaged 115 schools from 12 local authorities, providing project resources, advice and staff training on outdoor learning. The project amounted to a long-term investment in community adaptation. Evidence showed that it raised

awareness of the physical and mental health benefits of time spent in nature, and increased the capacity of the adults of the future to access those benefits.

Our Natural Health Service Programme - Under the [ONHS programme](#), led by NatureScot, the four Green Health Partnerships continued to help deliver physical, mental and social health outcomes by connecting people and nature, with wide-ranging benefits in community resilience including to climate change. Projects included access to e-bikes for GPs and community groups, and campaigns to encourage walking and cycling in greenspace. 2021 was the third year in which greater use of nature and quality greenspace for health outcomes was co-ordinated by the four pilot partnerships in North & South Lanarkshire, Dundee, North Ayrshire and Highland. The partnerships' contributions to physical and mental health boost the resilience of communities to multiple challenges, including effects of climate change.

Public engagement in Woodland Creation and Forest Management - The Public opinion of forestry survey 2021 found that 86% of respondents had visited forests or woodlands in the last 12 months with around one third (35%) reporting an increase in the number of visits they made in the last 12 months. Around two thirds of respondents (63%) would like to see more woodland in their part of Scotland. NatureScot led research, surveying a representative sample of the Scottish population (*Enjoying the Outdoors - Monitoring the impact of Coronavirus and social distancing - Wave 3 survey results* (September 2021)), reported that 37% of respondents reported taking more visits to the outdoors than pre-pandemic and when asked to reflect on the period since the pandemic began, almost 3 in 5 (58%) agreed that nature had become more important to their health and wellbeing.

Walking and Cycling Networks – Helping our natural environment adapt can support our health and wellbeing and enjoyment of the outdoors. Transport Scotland continued to fund development of the National Cycle Network (NCN) in 2021-22 to further develop routes on the 30 year Strategic Network Plan for Scotland including pipeline delivery projects. £23.9 million per annum capital funding goes direct to local authorities through the Cycling Walking and Safer Routes (CWSR) grant. Over £62 million of this year's active travel budget is being invested through the Sustrans Places for Everyone programme to enable local authorities and others to deliver active travel infrastructure projects. We fund national enabling bodies such as Sustrans who have the expertise and staff to appraise and work with local authorities and other community partners to deliver local projects. Channelling funding through a national partner ensures that there is a national quality standard for active travel infrastructure.

How the Adaptation Scotland Programme is supporting this outcome:

Adaptation Scotland works closely with Nature Scot to support and champion the importance of nature-based solutions to tackling climate change. The programme is collaborating with Nature Scot to develop place-based adaptation work in the Outer Hebrides and the Highlands. A Nature Scot led project was the focus of an adaptation finance case study for the Outer Hebrides.

9. Progress towards “our coastal and marine environment being valued, enjoyed, protected and enhanced and having increased resilience to climate change”

SCCAP2 Outcome 6: Our **coastal and marine environment** is valued, enjoyed, protected and enhanced and has increased resilience to climate change

This outcome has two sub-outcomes. These sub-outcome split across the adaptability of coastal and marine natural systems’ themselves and the social and cultural benefits that societies obtain from ecosystems. The products and economic value obtained from ecosystems (provisioning services) are considered under outcome 3.

Examples of progress on cross-cutting policies in support of this outcome

Scotland's National Marine Plan - Scottish Ministers will make an announcement regarding the update of the National Marine Plan shortly. Any update of the plan will be informed by the findings of Scotland's Marine Assessment 2020, and will include the consideration of climate mitigation and adaptation objectives.

Scottish Biodiversity Strategy - 2021 saw significant new future commitments that will help marine ecosystems and their use adapt to climate change - the designation of Highly Protected Marine Areas, management measures for fishing activity in Marine Protected Areas, and a cap on inshore fishing effort. The Scottish Blue Carbon Forum's International Conference explored how new science in this area can inform marine and coastal management policy.

Multilateral action to achieve seas resilient to the impacts of climate change and ocean acidification - The North-East Atlantic Environment Strategy is the key means by which OSPAR’s 16 Contracting Parties will implement the OSPAR Convention until 2030. Adopted in 2021, it sets out collective objectives to tackle the triple challenge facing the North-East Atlantic ocean: biodiversity loss, pollution, including marine litter, and climate change. We are working with the rest of the UK and the other Contracting Parties on the implementation of this new Strategy to improve the state of the marine environment.

Examples of progress on policies in support of sub-outcome that: "Scotland's coastal and marine biodiversity, ecosystems and landscapes are adaptable to the changing climate”

Marine Protected Areas (MPA) Network and Monitoring Strategy - The MPA network currently consists of 233 protected areas covering over 37% of our seas, well over the 10% target defined by the CBD’s Aichi Targets, and exceeding the new targets of 30% by 2030, which are still under negotiation. We are using the Scottish MPA Monitoring Strategy to measure the effectiveness of the MPA network. Fisheries measures, for sites which still require them, will be delivered by March 2024.

Farmed Fish Health Framework - Monitoring and responding to climate change has been one of the main areas of focus for the Farmed Fish Health Framework

(FFHF). The Sustainable Aquaculture Innovation Centre (SAIC) held a workshop with the sector and specialists in this area in the summer of 2021. The aim of the workshop was to identify key species that impact the health and welfare of farmed fish, and to identify future research and modelling requirements. Marine Scotland funded SAIC to carry out some of this preliminary work at the beginning of 2022. The FFHF will continue to work towards the development of an 'early warning system' in order to mitigate the effects of harmful algal blooms.

Examples of progress on policies in support of sub-outcome that: "Scotland's coastal and marine environment and its contribution to wider societal adaptation is enjoyed, valued and maintained"

Dynamic Coast 2 – [Dynamic Coast 2](#) (DC2) was launched in August 2021 and considers how coastal erosion rates could be affected by future sea level rises and identifies the assets at risk. The coastal change adaptation capital budget, announced in the Programme for Government 2020, starts in 2022-23. Over the next four years £11.7 million will be distributed to coastal local authorities to undertake coastal change adaptation planning and consider how nature based solutions can help coastal communities adapt to climate change.

Scotland's Future Fisheries Management Strategy 2020-2030 - Within the Future Fisheries Management Strategy we have outlined a range of actions relating to climate change and we committed to developing a programme of action in partnership with our stakeholders to address climate change in fisheries. The climate change work for fisheries is in its early stages however we are prioritising this work and a number of key pieces of research are already underway. We also published a fisheries survey during COP26 to help gauge the preparedness of the fishing sector to respond to climate change and which will inform the design and agenda for a stakeholder workshop in early 2022. The workshop will present the recent research and help us establish the programme of work/action to inform climate change mitigation and adaptation in Scottish fishing practices exploring options for next steps and a clear pathway for action.

Monitoring Climate Change Impacts in Scottish Seas - Marine Scotland monitor key parameters in the marine environment to quantify the impacts due to climate change on the marine ecosystem. These monitoring programmes have continued in 2021, although some data collections continue to be impacted by the Covid pandemic, as well as more recently due to loss of access to key laboratory spaces due to storm damage at the Aberdeen site. A key focus remains on quality assuring our data and making them publically available. An update to our Scottish Coastal Observatory data covering the period 1997-2020 was published in 2021. Time series of key water masses in the Atlantic Ocean overturning circulation have been collected and submitted to the ICES Report on Ocean Climate. Our monitoring programmes of fish stocks continue to provide data to stock assessments, as well as international research studies on changes to fish assemblages in the North Sea.

Marine Climate Change Impacts Partnership (MCCIP) - Marine Scotland continue to support the work of the Marine Climate Change Impacts Partnership. This partnership is a key method for providing evidence of climate change impacts in the marine environment. Work has now started on updating the scientific review papers

which provide the evidence base for the overall report card. Scientists from Marine Scotland will be involved on several topics, including fisheries, fish and aquaculture.

How the Adaptation Scotland Programme is supporting this outcome:

Adaptation Scotland is a partner in the Dynamic Coast project and is involved in promoting the outputs from its second phase.

10. Progress towards “our international networks being adaptable to climate change”

SCCAP2 Outcome 7: Our **international networks** are adaptable to climate change.

This outcome has three sub-outcomes. The first focuses on climate change adaptation and imported food quality and safety, the second on Scotland’s role in international adaptation governance and the third focuses on the adaptive capacity of Scotland’s international trade.

Updates in this year’s annual report focus on the Scottish Government’s climate justice work in the year of COP26 in Glasgow.

Examples of progress towards achieving the sub-outcome that "Scotland is active in international governance, helping to manage the potential international instability caused by climate change"

Climate Justice Fund - At COP26 we announced the trebling of our financial support for the world’s poorest and more vulnerable communities in their efforts to tackle the impacts of climate change. The [Climate Justice Fund](#) (CJF) will increase from 2022, providing £36 million across this Parliament. The CJF will continue to focus on communities most affected by climate change. In particular ensuring the views and needs of those typically marginalised in such communities are at the centre of future climate justice interventions in Malawi, Rwanda, and Zambia.

Loss and Damage - Some climate impacts are unavoidable and go beyond what can be adapted to - leading to both financial damage and incalculable non-economic costs which are already being suffered by communities around the world. During COP26, Scotland was one of the first Global North nations to pledge international Loss and Damage financing with a £2 million commitment from the Climate Justice Fund. Of the £2 million, £1 million has been awarded to the Climate Justice Resilience Fund to help some of the world’s most vulnerable communities prepare for and adapt to climate change, tackle structural inequalities and recover from climate induced loss and damage. As one of the first movers on loss and damage, we will endeavour to share our learning so that it is accessible to all who are, or hope to, address loss and damage –and equally to those experiencing it. In February 2022, The First Minister co-hosted a roundtable on Loss and Damage which brought together a range of interested parties with the aim of identifying commitment and specific areas for progress, opportunities ahead and the alliances required in order to further move Loss and Damage to delivery and action over the next 12-24 months.

COP26: Adaptation Lab - On Adaptation, Loss and Damage Day at COP26, the Scottish Government and California State Government, supported by Climate-KIC and Adaptation Scotland, hosted an [Adaptation Lab on resilient regions and good governance](#) for a broad set of stakeholders. The programme included key statements from Cabinet Secretary Net Zero, Energy and Transport, California Secretary for Natural Environment Wade Crowfoot and Eduardo Trani from the regional government of Sao Paulo. This Adaptation Lab was an opportunity to share learning and best practice on how national and state governments can support regions in their climate resilient goals, to learn more about regional approaches to

adaptation and to connect with regions across the world. Follow on digital adaptation labs are being developed for 2022, building towards engagement at COP27.

COP26: British-Irish Council event: In collaboration with partners in the British-Irish Council (BIC) and heritage partners, including Historic Environment Scotland (HES), the Scottish Government organised an event in the COP26 Resilience Hub on cultural heritage and coastal resilience. The event used [reflections from school children, spoken word, video, a specially commissioned poems and presentations](#) to highlight the importance of the coast across the BIC sphere and raise the profile of initiatives to adapt and protect our coastal assets. Dynamic Coast 2 (see chapter 9) was featured during this event and a roundup of other historic environment COP26 events is [available via the HES website](#).

COP26: RegionsAdapt – Through Regions4, the SG remains an active member of the RegionsAdapt network of state and regional governments committed to increasing global ambition for climate resilience. In September 2021, the governments of Lombardy and Scotland organised a key preparatory COP26 event with states, regions and devolved governments, calling for increased ambition and action at COP26. The event resulted in a [statement from states and regions calling for action at COP26](#), which was signed by 17 governments and networks and presented at the Regions4 High Level side event at COP26.

Independent evaluation of the Climate Justice Fund (2021) - Climate justice is a people-centred, human rights-based approach that aims to share the benefits of equitable global development and ensure that the impacts of climate change do not disproportionately impact those who have done the least to contribute to it. In March 2021, we announced an [independent evaluation of the Climate Justice Fund's work to date in delivering climate justice objectives](#) to inform how we best support initiatives beyond 2021. The evaluation drew on experiences of communities in Malawi, Zambia and Rwanda who have implemented or are supported by the Fund.

Updated approach to climate justice - Following our independent evaluation and stakeholder feedback on the Climate Justice Fund, the Scottish Government has set a future approach for action on climate justice. We will prioritise targeting our funding to the people most vulnerable to climate change in the communities in which we work – particularly women and youth – and ensuring their participation is at the centre of our work. In response to direct asks from our partner countries we will also share learning from the Climate Justice Fund to help build capacity on both the technical aspects and participatory approaches to achieve climate justice. This will be achieved through delivering against three distinct pillars of climate justice identified through the evaluation:

- Distributive Justice relates to equal access to, and sharing of resources and benefits. In Climate Justice definitions this includes both access to resources and benefits and equitable sharing of the costs of responding to climate change
- Procedural Justice relates to transparent, fair and equitable decision-making processes
- Transformative Justice relates to structural inequities and focuses on mainstreaming understanding of climate justice issues, as well as building capacity

This marks a departure from the previous approach, which largely focussed on distributive justice and will ensure that the Scottish Government takes a strategic, scalable and replicable approach. Initial projects under the revised programmatic approach will launch from 2022.

International Development Fund and Principles - The Climate Justice Fund programme is closely aligned with our International Development Fund work. There is a similar focus on our international development partner countries and it is similarly subject to our [International Development Principles](#) (March 2021), co-developed with partner countries and civil society in Scotland during our review of our approach to international development and solidarity in light of COVID-19. These principles apply to the International Development Fund programme in the first instance, but in line with the Scottish Government's commitment to policy coherence for sustainable development (PCSD), the principles were agreed by relevant Cabinet Secretaries with responsibility for areas such as Climate Change due to its key contribution to international development outcomes. Explicit reference to support for climate adaptation and increasing resilience to climate change in the principles reinforces our commitment to climate justice.

2050 Young Malawian Climate Leaders - Around the world young people have been instrumental in bringing the issue of climate change and ecological decline to the fore of public consciousness. In recognition of this The First Minister announced at the Austrian World Summit in 2021 a further £190,000 funding for the Malawi Climate Leaders Programme to amplify youth voices in Malawi in the run up to and during COP26. The programme supports young leaders' abilities to interpret and use climate information in decision-making and ensure that youth voices are heard in global discussions, including through the establishment of a COP Hub in Lilongwe, Malawi, allowing Malawian youth and community leaders to participate in events at COP26. During COP26 the hub made the summit accessible to 320 Malawian youth who attended 12 accessibility sessions and several events including virtual events with the Minister for Environment and Land Reform joining a session to discuss the importance of supporting collaborations between Scotland and Malawi young leaders.

The Climate Challenge Programme Malawi - the Climate Challenge Programme Malawi (CCPM) successfully concluded in September 2021. At COP26, the Minister for Environment and Land Reform announced Scottish Government would partner again with SCIAF and Trócaire to match fund a five-month consolidation programme to build on existing momentum and strong relationships between communities, implementing partners and local government. Totalling £250,000 the programme has since then scaled up and consolidated the successes from the CCPM to leave a sustainable legacy for communities with fairness and justice at its heart. Using the same successful community-led approach that puts the community at the heart of the programme, the consolidation work has advanced successful elements of the CCPM through the lens of distributive, procedural and transformative justice, with women and girls a key focus.

Women's Environment & Development Organisation - For the last four years the Scottish Government has supported WEDO to address gender equality in climate action in the Global South by directly supporting women delegates attend COPs and

represent their own respective interests. Funding also assists grassroots and indigenous women leaders invest in and scale up climate solutions in Global South countries. These locally-led solutions centre human rights and gender equality while achieving sustainable adaptation and mitigation outcomes. Scaling and replicating these activities within local contexts is at the heart of catalysing large-scale transformation

Traction Learning Exchange Project - Traction provides a framework for advancing adaptation action based on a systematic and shared understanding of enablers of change. Through application of the framework in institutional settings at the local and national level in Malawi, Mozambique and the Outer Hebrides in Scotland over 2021-22, the Framework has been revised and improved with a final report planned for publication in Spring 2022.

How the Adaptation Scotland Programme is supporting this outcome:

As well as supporting the Adaptation Lab event at COP26, Adaptation Scotland is connected to several international research and innovation initiatives including the International Platform for Adaptation Metrics and the Adaptation Research Alliance. These connections enable Scotland to benefit from and contribute to international good practice and learning on adaptation.

11. Progress towards SCCAP2 research outcomes

Expanding and improving the evidence base around climate change adaptation through research is vital to help support the implementation of adaptation policy and achieve the high-level outcomes set out in SCCAP2. Across the seven outcomes a number of commitments to undertake research projects were included, some of which build on already completed research. This chapter identifies key areas of progress on the SCCAP2 research programme since the annual report, May 2021. Noting that research needs are continually evolving and that new evidence is becoming available, this chapter also includes new pieces of research which contribute towards the programme's outcomes.

Over the past year there have been three key themes across SCCAP2 research developments: soil health, people, and flooding and drought. The recent CCRA3 and the CCC's first independent assessment of the SCCAP2 programme have also given an initial steer on research needs for the next programme which we continue to progress over 2022/23.

The following is a selection of research on adaptation which has been published since the previous progress report in May 2021:

In February 2021, ClimateXChange (CXC) published a [report on drought risk in Scottish forests](#) which summarises the current state of research and identifies key knowledge gaps. The main findings were that the effect of severe droughts are likely to be felt primarily in forest productivity and carbon sequestration and that trees differ in their vulnerability to drought impacts. This work helps to support both Outcome 3 and Outcome 5 of SCCAP2.

In March 2022, CXC published an [update to the Soil Governance in Scotland report](#), to reflect changes in policy and legislation for the conservation and management of soil in Scotland. Additionally to this research, as a follow up to the September 2020 [Measuring the vulnerability of Scottish soils to a changing climate](#) report, CXC published a scoping study in December 2021 which takes the [13 potential indicators identified in the first report and applies them to various land use contexts](#). Potential primary soil health indicators were identified for several land use categories. This work helps achieve Outcome 5.1 "Scotland's biodiversity, ecosystems and landscapes are adaptable to a changing climate".

Two pieces of initial research have been conducted which work towards achieving Outcome 2.1 "The most vulnerable to climate change in Scotland are engaged, empowered and able to adapt to climate change":

- A CXC report conducted by Ipsos Mori and published in May 2022 provides a baseline of awareness in the Scottish public of climate risk, the extent to which this is seen as a current or future problem and to gauge support for possible interventions to address this.
- The second piece of research will be published in summer 2022 and maps vulnerability to 3 key climate risks (heat, air quality, and flooding) against social vulnerability to ascertain which social and geographical factors make a person more susceptible to the adverse effects of climate change. These

findings will help shape our engagement work and inform our incorporation of adaptation into just transition planning.



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