

# CLIMATE READY SCOTLAND: Scottish Climate Change Adaptation Programme 2014

## Fifth Annual Progress Report

May 2019



“The scale of the global challenge of climate change is clear.

“Scotland’s climate has already changed.

“Ensuring our communities, society, economy and environment are resilient to the expected intensifying impacts of climate change is a crucial step to delivering a greener, fairer and more prosperous country.

“Adapting to the changing climate will both help to create a better society for everyone who lives here and to unlock Scotland’s immense potential as a nation.”

**Roseanna Cunningham**

**Cabinet Secretary for Environment, Climate Change and Land Reform**

Consultation draft of Scotland’s new Adaptation Programme, February 2019

**Laid before the Scottish Parliament by the Scottish Ministers under Section 54 of the Climate Change (Scotland) Act 2009, May 2019**

**Printed on 100% recycled paper**

**SG/2019/69**

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## PURPOSE OF THE REPORT

Under Section 54 of the Climate Change (Scotland) Act 2009, Scottish Ministers must make annual reports to the Scottish Parliament setting out their assessment of progress towards implementing the objectives, proposals and policies set out in Scotland's statutory Adaptation Programme.

This is the fifth Annual Progress Report on *Climate Ready Scotland: Scottish Climate Change Adaptation Programme*, our first statutory five-year Programme, published in May 2014.

This Annual Report provides an easily accessible account of progress under the 2014 Programme. The Scottish Government has also published a substantial amount of material on climate change adaptation in the past year in connection with the development of the new Programme to be launched in 2019. A second detailed Independent Assessment of the Programme by the Adaptation Committee of the Committee on Climate Change was published on 19 March 2019.

### Previous Annual Reports

The first annual progress report was published in 2015:

(<https://www.webarchive.org.uk/wayback/archive/20180514193809/http://www.gov.scot/Publications/2015/05/2336>)

the second annual progress report was published in 2016:

<http://www.gov.scot/Publications/2016/05/7046/0>

the third annual progress report was published in 2017:

<http://www.gov.scot/Publications/2017/05/3941>

the fourth annual progress report was published in 2018:

<https://www.gov.scot/publications/climate-ready-scotland-scottish-climate-change-adaptation-programme-fourth-annual/pages/1/>

## **THE SCOTTISH CLIMATE CHANGE ADAPTATION PROGRAMME 2014**

Climate Ready Scotland, Scotland's first statutory five-year Climate Change Adaptation Programme, was published in May 2014. The Programme aimed *"to increase the resilience of Scotland's people, environment and economy to the impacts of a changing climate"*.

The Programme sets out Scottish Ministers' objectives in addressing over 130 climate risks identified for Scotland in the UK Climate Change Risk Assessment 2012.

The Programme contains a broad package of measures that:

- help Scotland adapt to the effects of climate change;
- create a more resilient country for us to live and work in; and
- help to protect Scotland's much loved natural environment.

The Programme included more than 150 policies and proposals under three themes: (i) natural environment (ii) buildings and infrastructure (iii) society.

Key policy areas covered include: flood protection and flood warning, resilience, water supply, energy supply, transport, the National Coastal Change Assessment, planning, historic environment, natural environment and biodiversity.

## **SCOTTISH MINISTERS' ASSESSMENT OF PROGRESS TO DATE ON THE PROGRAMME**

The United Nations Intergovernmental Panel on Climate Change (IPCC) Special Report on the Paris Agreement last year found that humans have caused one degree Celsius of warming to the Earth's atmosphere compared to pre-industrial times. 1.5°C of warming could come as soon as 2030.

Many regions, such as the Arctic, are already suffering from even greater warming. Vulnerable and disadvantaged people around the world are being unfairly and disproportionately affected, including people living on small islands and in rural and coastal communities.

Scottish Ministers have listened to the children, scientists, and businesses who have voiced their concerns and we have recognised the global climate emergency. Scotland has already almost halved its emissions since 1990. The Scottish Government has acted immediately on expert advice by proposing that the Climate Change Bill should set even stronger emission reduction targets of 70% and 90% by 2030 and 2040 respectively, and reach net zero emissions by 2045. Scottish Ministers are determined that Scotland's contribution to climate change will end, definitively, within a generation.

Without strong international action, we can expect further serious negative climate impacts, world-wide and in Scotland, including threats to food and water supplies, health, biodiversity and ecosystems, transport, businesses, public services and Scotland's iconic historic heritage. Even if global emissions were to stop today, extreme weather and sea level rise will continue to worsen for decades to come.

The latest climate projections for Scotland, published in November 2018, show that our temperatures have increased in line with the global trends, annual rainfall has increased since the 1970s, and sea level around the UK has risen by around 16 cm since the start of the 20th century. The cold winter and hot summer of 2018 indicated some of the challenges that could lie ahead for Scotland, but also signalled the clear benefits of being prepared.

Scotland's wide-ranging preparations for climate change were set out in our sector-based 2009 Framework and our first statutory Programme in 2014 which has 150 actions to address 130 climate risks.

Key public bodies and publicly-owned companies have long track records of working on climate change, often on mitigation as well as adaptation: Scottish Environment Protection Agency (SEPA), Scottish Water, the NHS in Scotland, Scottish Natural Heritage (SNH), Scottish Forestry, Historic Environment Scotland, Marine Scotland and Transport Scotland. Adaptation is now widely incorporated into national strategies and guidance.

Day-to-day support for the 2014 Programme is provided by the Adaptation Scotland programme, funded by the Scottish Government, and delivered

by sustainability charity Sniffer. We have built on early support for awareness-raising and knowledge-sharing and now have a well-informed Scottish public, and a strong and enthusiastic community of climate adaptation experts and champions across the public sector. Adaptation Scotland has produced important resources, including Climate Ready Places visualisations, guidance for the business sector, and new public sector capability guidance published in May 2019.

Adaptation Scotland has also led the development of a distinctive Scottish place-based partnership approach. The Climate Ready Clyde partnership, initiated with £100,000 support from the Scottish Government, covers Glasgow City Region which has around a third of Scotland's population and economy and many of Scotland's most disadvantaged communities. Other significant place-based initiatives are Edinburgh Adapts, Aberdeen Adapts and the newly launched Levenmouth Adapts.

We have seen many excellent examples of comprehensive climate risk assessments in Scotland, including: SEPA's updated National Flood Risk Assessment in 2018, the ongoing National Coastal Change Assessment, Historic Environment Scotland's risk assessment of its Properties in Care, SNH's world-leading study of climate risks to Scotland's geology, and Climate Ready Clyde's 2018 Risk and Opportunity Assessment.

We are delivering strong progress across a wide range of policy areas, including £42 million annual funding to local authorities for new flood protection schemes, operating flood warning systems, and working on the resilience of our water supply, transport, health services, natural environment, forestry, peatlands and agriculture.

New approaches and actions to meet the urgent challenge are being brought forward regularly. Programme for Government 2018 and the Climate Change Plan 2018 contained new policies that will strengthen our response to climate impacts, including a new approach to managing surface water flooding in line with the international trend of blue-green cities. In May 2019, Scottish Fire and Rescue Service announced a new approach to preventing wildfires and SNH published *Looking ahead – planning for coastal change*.

In February 2018, Adaptation Scotland launched a new Climate Ready Business guide, which includes practical examples of steps that businesses can take to increase resilience and adapt to the impacts of climate change. The guide was developed in partnership with Scottish Enterprise, VisitScotland and the 2020 Climate Group and includes case studies from large and small companies. The guidance was sent to over 20,000 businesses, providing support for small and medium-sized enterprises, including those responding to climate risks and opportunities. This resource remains available.

In 2018, Adaptation Scotland sponsored the first VIBES (Scottish Environment Business) Award for business adaptation to raise awareness of the need to adapt and recognise businesses and organisations that are taking action.

# **KEY DEVELOPMENTS ON CLIMATE CHANGE ADAPTATION IN 2018-19**

## **Climate Change Plan**

The Climate Change Plan was published just before the start of this fifth year of the Adaptation Programme. The Plan sets out key actions on forestry, peatlands, agriculture, energy efficiency and transport which contribute to climate change adaptation as well as cutting emissions. The Scottish Government has committed to update the Plan within six months of Royal Assent of the current Climate Change Bill.

## **Programme for Government 2018**

In September, Scottish Ministers' Programme for Government committed to publish a new, five-year Climate Change Adaptation Programme in 2019 and connected a "thread" of policies and actions linked to adaptation: the Climate Change Bill; Hydro Nation; Blue-Green Cities approaches to surface water management; waste water management; investment in flood protection schemes; work on flood resilient properties; the work of Scottish Flood Forum; SEPA's updated National Flood Risk Assessment; the review of Scotland's National Planning Framework (NPF4); policies on energy efficiency in housing; transport policy; agricultural policy and support for farmers; the work of the Scottish Fire and Rescue Service; Historic Environment Scotland's leadership on climate change; and Climate Challenge Programme Malawi's support for communities in southern Malawi to adapt to the worst effects of climate change and improve access to food and water under the Climate Justice Fund.

## **Climate Ready Clyde: Climate Change Assessment**

In October 2018, in a link-up with the UN World Cities Day summit in Liverpool, over 70 of Glasgow City Region's leaders and decision-makers attended the launch of Climate Ready Clyde's comprehensive Risk and Opportunity Assessment.

Follow-up publication of supporting detailed analysis, an economic impact study in April 2019, and a toolkit for assessing climate change for major projects in May 2019, have made Glasgow City Region among the best informed regions in the world on its climate risks. Climate Ready Clyde has become an important centre of adaptation activity within Scotland.

Climate Ready Clyde is now developing an Adaptation Strategy and Action Plan due in 2020. The aim is to ensure that Glasgow City Region not just adapts, but prospers in the face of climate change.



## **IPCC Special Report**

In October, the UN Intergovernmental Panel on Climate Change (IPCC) Special Report on the Paris Agreement found that humans have caused one degree Celsius of warming to Earth's atmosphere compared to pre-industrial times. 1.5°C of warming could come as soon as 2030. Many regions, such as the Arctic, are already suffering from even greater warming.

## **UK Climate Projections 2018**

The latest Climate Change Projections for the UK (UKCP18), published by the Met Office in November, provide a detailed scientific assessment of climate changes to date and the most up-to-date assessment of how the climate of the UK may change over the 21st century. This showed that:

- temperatures in Scotland have increased in line with global trends. The average temperature over 2008-2017 was around 1 °C warmer than the pre-industrial period;
- Scotland's annual rainfall has increased since the 1970s;
- we can expect milder, wetter winters and hotter, drier summers along with an increase in the frequency and intensity of extremes;
- sea level around the UK has risen by around 16 cm since the start of the 20th century.

UKCP18 is a major upgrade of the previous UK Climate Projections (UKCP09) that uses the latest observations, climate models and information from the most recent IPCC assessment. It gives us the most up-to-date information on the future of our climate. UKCP18 updated projections over UK land areas and of sea-level rise, giving greater regional detail, further analysis of the risks we face nationally and globally, and more information on potential extremes of climate change.

Scotland was well represented on both the UKCP18 User Group for Government Departments and Other Government Organisations and the non-Government User Group.

UKCP18 will help decision-makers assess the full range of risks from the changing climate and help other UK organisations that have to manage climate risks to their assets and operations. It will inform the UK's third Climate Change Risk Assessment, due for completion in 2022.

Adaptation Scotland, funded by the Scottish Government, is currently working with SNH, SEPA, Historic Environment Scotland and the Met Office to develop a climate projections summary specifically for Scotland based on UKCP18.

## **National Flood Risk Assessment 2018**

In December, SEPA launched the updated National Flood Risk Assessment (NFRA) – a key step in protecting and preparing communities at flood risk by improving our understanding of river, coastal and surface water flooding. The NFRA produces a high-level view of flood risk, using SEPA's flood maps supplemented by information from local authorities and Scottish Water. Locations with the greatest flood risk are designated as Potentially Vulnerable Areas because of current or future flood risk to people, the environment, cultural heritage and economic activity.

We now understand that there are around 284,000 homes, businesses and services across Scotland at risk of flooding from rivers, surface water and the sea - currently 1 in 11 homes and 1 in 7 business and services. NFRA projections for a 2080s high emissions climate change scenario show an increase to 1 in 9 homes and 1 in 6 business and services - an additional 110,000 homes, businesses and services are projected to become at risk. These projections indicate the potential scale of the challenge ahead.

## **Independent Assessment of the 2014 Programme**

As required by the Climate Change (Scotland) Act 2009, Scottish Ministers must commission independent assessments from the Adaptation Committee of the Committee on Climate Change on how well Scotland is preparing for climate change under the 2014 Programme.

The first Assessment in 2016 found that the Programme had made a positive start. Many policies and plans already take account of climate change, commitments within the Programme are being fulfilled, and it provides a solid foundation for further progress.

The second and final Assessment was laid before the Scottish Parliament on 19 March 2019. The in-depth report focuses on what has changed since the Committee's first Assessment in 2016, in implementing policies and actions set out in the 2014 Programme and in managing Scotland's vulnerability to climate risks. The key findings are:

- The most notable progress since the first Assessment includes peatland restoration, increasing marine resilience and an improved understanding of flood risk in Scotland.
- The areas of greatest continued concern include increases in pests and diseases in Scottish forests, declines in seabird populations and soil health.
- Key data and evidence gaps remain that make it difficult to assess progress for a number of adaptation priorities, including the extent of housing and other infrastructure development in flood risk areas and health impacts from climate change.

# **NEW CLIMATE CHANGE ADAPTATION PROGRAMME IN 2019**

## **Timescale**

The second statutory five-year Adaptation Programme will be published later in 2019. We want to build on the good progress made on Scotland's first Adaptation Programme.

## **Statutory Requirements for the New Programme**

Under the 2009 Act, the Programme must set out progress on the previous Programme, Scottish Ministers' objectives on adaptation, proposals and policies and their timescales, and arrangements for wider engagement.

The new Programme must address the risks for Scotland set out in the [UK Climate Change Risk Assessment 2017](#) and its [Evidence Report Summary for Scotland](#) which identified six priority risk areas where action is needed in the next five years (Annex B).

The second Independent Assessment commissioned by Scottish Ministers from the Adaptation Committee will be a key component in the development of the second Adaptation Programme.

## **The Scottish Government's Proposal**

In line with the climate emergency, Scottish Ministers want the second statutory Adaptation Programme to deliver a step change in collaboration, and emphasise the wider co-benefits of climate action. We want to secure the benefits of a climate-ready and resilient nation for current and future generations.

Focusing on results, performance and measurement, we propose to build on the previous sector and risk-based approaches. We propose an outcomes-based approach, derived from both the UN Sustainable Development Goals and Scotland's National Performance Framework. For the first time, Scotland's Adaptation Programme will explore adaptation behaviour change – how individuals, communities and businesses make the most important choices in respect of our changing climate.

Our overarching vision is that we live in a Scotland where our built and natural places, supporting infrastructure, economy and society are climate ready, adaptable and resilient to climate change. We have developed a set of seven high level "outcomes" for the Programme, as set out in Diagrams A and B as follows:

**Diagram A: The new Adaptation Programme's relationship to the UN Sustainable Development Goals and Scotland's National Performance Framework.**



**Diagram B: The new Adaptation Programme's Vision and Outcomes**



## **Public and Stakeholder Engagement**

In developing the new Programme through engagement with stakeholders and the public during 2018 and 2019, the Scottish Government has completed:

- a statutory screening/scoping consultation on the Strategic Environmental Assessment (SEA) for the new Programme;
- a series of seven themed digital engagement sessions;
- seven stakeholder workshops attended by almost 120 experts from Scotland's adaptation community;
- a workshop on the Fairer Scotland duty with a particular focus on flooding;
- an Independent Assessment of the current Programme;
- 10 Climate Conversations across Scotland including Shetland and the Scottish Borders; and
- A full public consultation on the draft new Programme and its SEA Environmental Report which closed on 9 April 2019.

## **Consultation Responses**

The Scottish Government consult because we want better policy – and better outcomes as a result.

Our pre-consultation social media conversations and informal stakeholder workshops reported climate change impacts that are already being observed in Scotland, including changing growing seasons, increased coastal erosion, decreasing snow cover, tarmac and roofs melting in extreme heat, and increased ferry disruption due to strong storms.

The Scottish Government received 73 consultation responses from 58 organisations, including a primary school, and 15 individuals.

Respondents said they want to see the vision for the Programme convey a strong sense of urgency and ambition, in line with the global climate emergency, and link to urgent mitigation action.

The responses strongly supported proposed key features of the new Programme - linking to the UN Sustainable Development Goals and Scotland's National Performance Framework; an outcome-based approach; the establishment of a National Forum for adaptation; the inclusion of behaviour change; the integration of monitoring and evaluation from the outset; and the content of the Strategic Environmental Assessment Report.

Responses had many constructive suggestions on making the Programme as cross-cutting and effective as possible. Views on the seven high-level outcomes and the list of supporting policies were generally supportive with many suggestions for additional policies reflecting specific sectoral interests. We have published non-confidential responses to the consultation and an analysis of the consultation responses.

# SUMMARY OF SIGNIFICANT ACHIEVEMENTS OF THE 2014 PROGRAMME

Significant achievements and developments in climate change adaptation to date in Scotland, highlighted by previous Annual Progress Reports, include:

### NATURAL ENVIRONMENT

- Significantly improved data on coastal change with Scotland's National Coastal Change Assessment.
- Progress by the Peatland Action Fund and Climate Change Plan commitments to restoring large areas of peatland.
- Climate Change Plan commitments to increasing forestry.
- New Forestry Strategy and Fourth edition of UK Forestry Standard.
- SNH's Green Infrastructure Fund.
- Appointment of Chief Plant Health Officer for Scotland in 2017 and launch of the Centre of Expertise in Plant Health in 2018.
- In May 2019, Scottish Fire and Rescue Service announced a new approach to preventing wildfires.

### BUILDINGS AND INFRASTRUCTURE

- £42 million Scottish Government funding pledged annually to 2026 for local authority flood protection schemes.
- Scotland's Flood Risk Management Framework.
- SEPA's updated National Flood Risk Assessment.
- Comprehensive programme of engagement on flood risk, including RiverTrack flood alert projects.
- Mapping Flood Disadvantage report.
- National Centre for Resilience.
- Programme for Government commitment on Blue-Green Cities and investment in the Scottish Storm Water Management Strategy.
- The more resilient Queensferry Crossing, the biggest infrastructure project in Scotland in a generation.
- A82 Steep Ground Harvesting Project.
- Climate Change Plan commitments to improving the energy performance of our housing stock.
- Risk Assessment of Historic Environment Scotland's Estate with 336 properties in care.
- Historic Environment Scotland's Engine Shed building conservation centre.
- Climate risk assessments by every NHS Board.
- Estates review by the University of St Andrews.
- In May 2019, SNH published *Looking ahead – planning for coastal change*.

## SOCIETY

- Strong adaptation focus of key public bodies and publicly-owned companies: SEPA, Scottish Water, the NHS in Scotland, SNH, Scottish Forestry, Historic Environment Scotland, Marine Scotland and Transport Scotland.
- Collaborative regional and city partnerships: Climate Ready Clyde, Edinburgh Adapts, Aberdeen Adapts and Levenmouth Adapts.
- NHS Scotland climate change risk assessment process.
- ClimateXChange, Health Facilities Scotland and Health Protection Scotland scoping study on overheating risks in buildings housing vulnerable people.
- A move from voluntary to mandatory public bodies reporting duties.
- The many activities and resources of the Adaptation Scotland support programme delivered by sustainability charity Sniffer funded under contract to the Scottish Government.
- Adaptation Scotland's guidance for public sector and business sector, and adaptation VIBES (Scottish Environment Business) Award.
- Climate adaptation indicators.
- The appointment of Adaptation Research Fellowships to help address research priorities.
- Adaptation plan at Galloway and Southern Ayrshire Biosphere Reserve.
- British-Irish Council Environment Work Sector collaboration on adaptation.
- The Scottish Government's Climate Justice Fund support for adaptation in Sub-Saharan Africa's most climate-vulnerable communities.
- EU consultation on its Adaptation Strategy.



## UK CLIMATE CHANGE RISK ASSESSMENT 2017

The UK Government is required under the 2008 Climate Change Act to publish a UK wide Climate Change Risk Assessment (UKCCRA) every five years, assessing the 'risks for the UK from the current and predicted impacts of climate change'. The first UKCCRA was published in 2012.

In 2016, the Committee on Climate Change published the UK Climate Change Risk Assessment Evidence Report and Synthesis Report, and a National Summary for Scotland. In January 2017 the UK Government published the (second) UK Climate Change Risk Assessment 2017 including a contribution from Scotland.

The Evidence Report used the concept of urgency to summarise the findings of the analysis, variously identifying 'more action needed', 'research priority', 'sustain current action' and 'watching brief' categories. It highlighted:-

- The need for more action to address flood risks;
- The potential for water scarcity;
- Heat related impacts on health and wellbeing;
- Risks to the natural environment;
- Risks of food price volatility; and
- New and emerging pest and disease risks, especially for Scotland's forestry.

UKCCRA2 feeds into the development of national adaptation programmes of the devolved administrations. Some actions identified as priorities for other parts of the UK have been shown to have a different urgency category for Scotland.

Table: UK Climate Change Risk Assessment: risks summary

<b>Flooding and coastal change risks to communities, businesses and Infrastructure (Ch3, Ch4 Ch5, Ch6)</b>	<b>MORE ACTION NEEDED</b>
<b>Risks to health, well-being and productivity from high temperatures (Ch5, Ch6)</b>	
<b>Risk of shortages in the public water supply, and for agriculture, energy generation and industry (Ch3, Ch4, Ch5, Ch6)</b>	
<b>Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity (Ch3)</b>	
<b>Risks to domestic and international food production and trade (Ch3, Ch6, Ch7)</b>	
<b>New and emerging pests and diseases, and invasive non-native species, affecting people, plants and animals (Ch3, Ch5, Ch7)</b>	<b>RESEARCH PRIORITY</b>
<b>NOW</b> -----> <b>RISK MAGNITUDE</b> -----> <b>FUTURE</b> <b>LOW</b> <b>MEDIUM</b> <b>HIGH</b>	

Source - Adaptation Committee (of the Committee on Climate Change)



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Any enquiries regarding this publication should be sent to us at  
The Scottish Government  
St Andrew's House  
Edinburgh  
EH1 3DG

ISBN: 978-1-78781-880-4 (web only)

Published by The Scottish Government, May 2019

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA  
PPDAS590730 (05/19)

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