



EUROPEAN COMMISSION

Adaptation preparedness scoreboard:

Draft country fiche for United Kingdom

Note to the Reader

Under Action 1 of the EU's Strategy on adaptation to climate change (COM(2013)216), in collaboration with the Member States, the Commission developed an 'adaptation preparedness scoreboard'. Using the scoreboard, the Commission prepared country fiches on each Member State in an iterative consultation process.¹ The country fiches assess the Member States' adaptation policy as of June 2018, including the content of NASs and plans, for the following aspects:

- Institutional structure
- Quality of national vulnerability assessments
- Knowledge creation (national observation systems in relevant sectors² and climate modelling), transfer and use
- Action plans:
 - Quality (incl. the basis used for assessment of adaptation options)
 - Actual implementation mechanisms
- Funding mechanisms
- Mainstreaming into sectoral policies, in particular:
 - Disaster risk reduction
 - Spatial planning
 - Environmental impact assessment (EIA) (how the Directive is transposed)
 - Insurance policy
- Transboundary cooperation
- Monitoring mechanisms in different sectors and governance levels

¹ The first versions of the fiches, prepared in consultation with the Member States in 2014-15, were unpublished and used to fine-tune the scoreboard. The second drafts were published, after consulting the Member States, as background documents to the public consultation on this evaluation in December 2017.

https://ec.europa.eu/clima/consultations/evaluation-eus-strategy-adaptation-climate-change_en The final Member State consultation on the draft fiches took place in June 2018.

² These relate for example to meteorology, floods, drought, sea level, coastal erosion, biodiversity, human/animal/plant health etc.

The fiches are based on internal work by the Commission and on targeted assistance from an external contractor. They also served as input to the assessment of Action 1 of the Strategy during its evaluation. Annex IX of the Commission's SWD(2018)461 on the evaluation of the Strategy presents a horizontal assessment of the 28 country fiches, while Annex X presents the list of scoreboard indicators and the methodology used in applying them.

The assessments in the country fiches (yes/no/in progress) need to be read in conjunction with the narrative that accompanies them. They assess the state of play within each EU Member State. While all effort has been made to ensure the coherence across fiches in the assessment of the same indicator, it should not be directly compared across the Member States. Two countries with a "yes" on the same indicator could have a different national situation leading to that assessment. Not all indicators have the "in progress" status, some can only be "yes" or "no".

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List of abbreviations

ARCC	Adaptation research produced by the Adaptation and Resilience in the Context of Change
ARP	Adaptation Reporting Power
ASC	Adaptation Sub-Committee
BEIS	Department for Energy and Industrial Strategy (UK government)
CCA	Climate Change Act
CCC	Committee on Climate Change
CCRA	Climate Change Risk Assessments
CIC	Community Interest Company
COSLA	Convention of Scottish Local Authorities
CRSS	Climate Ready Support Service
DAB	Domestic Adaptation Board
DAERA	Department of Agriculture, Environment and Rural Affairs (Northern Ireland government)
Defra	Department for Environment, Food and Rural Affairs (UK government)
DRM	Disaster risk management
DRR	Disaster Risk Reduction
EA	Environment Agency
EIA	Environmental Impact Assessment
EOF	Environmental Observations Forum
EUCP	European Climate Prediction system
FFCUL	Fundação da Faculdade de Ciências da Universidade de Lisboa (Faculty of Sciences, University of Lisbon)
GCOS	Global Climate Observing System
HMG/ HM Government	Her Majesty's Government
IEMA	Institute of Environmental Management and Assessment

JHWSs	Joint Health and Wellbeing Strategies
JSNAs	Joint Strategic Needs Assessments
LAAP	Local Adaptation Advisory Panel
LAAP	Local Adaptation Advisory Panel
LEPS	Local Enterprise Partnerships
LGA	Local Government Association
LWEC	Living With Environmental Change
MCCIP	Marine Climate Change Impacts Partnership
MOHC	Met Office Hadley Centre
MSCC	Marine Science Coordination Committee
NAP	National Adaptation Programme
NCIC	Met Office National Climate Information Centre
NDF	National Development Framework
NERC	Natural Environment Research Council
NI	Northern Ireland
NICCAP	Northern Ireland Climate Change Adaptation Programme
NIEA	Northern Ireland Environment Agency
NPPF	National Planning Policy Framework
NRN – LCEE	National Research Network for Low Carbon Energy & Environment
NRW	Natural Resources Wales
PLACARD	PLAatform for Climate Adaptation and Risk reduction
PSBs	Public Service Boards
RDS	Regional Development Strategy
RIDE	Research & Innovation for the Dynamic Environment
SCCAP	Scottish Climate Change Adaptation Programme
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency

SPPS	Strategic Planning Policy Statement
UKCIP	UK Climate Impacts Programme
UKCP	UK Climate Projections

POLICY FRAMEWORK

Adaptation strategies

A1. National adaptation strategy

In the United Kingdom, there is a legal requirement to develop a national adaptation programme (NAP) under the Climate Change Act (CCA, 2008)³. The NAP must establish objectives relating to climate adaptation and time-scaled proposals and policies for meeting those objectives. Accordingly, in 2013 the first NAP was published. As the political and administrative structure is devolved in the UK, the NAP primarily concerns England, and separate programmes have been developed by the devolved administrations (for Scotland, Wales, and Northern Ireland). The NAP does, however, include some elements affecting the devolved administrations (i.e. non-devolved matters referred to as reserved or excepted matters)⁴, and provides a framework to share areas of common interest and facilitate consistency (Her Majesty's Government, 2013)⁵. A second NAP is under development and publication is planned for 2018.⁶

Under the CCA (2008)⁷, Northern Ireland is required to prepare an adaptation programme and has since published the Northern Ireland Climate Change Adaptation Programme (NICCAP, 2014)⁸. Wales is also obliged to do so under the CCA (2008) and has published an Adaptation Delivery Plan under the Climate Change Strategy for Wales (CCSW, 2010)⁹, which covers climate adaptation. The second Welsh Adaptation Delivery Plan is planned for publication in 2018. The Welsh Government has since strengthened these legislative requirements through the Wellbeing of Future Generations (Wales) Act (2015)¹⁰ and

³ Climate Change Act (CCA), 2008, Part 4 – Impact of and adaptation to climate change. Section 58 and 60. URL: http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf. Date accessed: 11/05/2018.

⁴ Reserved and excepted matters are decisions concerning government policy taken by the UK government even though they have an effect in Scotland, Wales, and Northern Ireland. In Scotland and Wales the list of matters is explicitly defined by legislation. Reserved matters include: the constitution, international relations and defence, national security, nationality and immigration, nuclear energy, broadcasting, the UK tax system, employment and social security (except Northern Ireland).

⁵ Her Majesty's Government, 2013, The National Adaptation Programme: Making the country resilient to a changing climate, paragraph 25. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/209866/pb13942-nap-20130701.pdf. Date accessed: 11/05/2018.

⁶ CCC: Introduction to the CCRA. URL: <https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/introduction-to-the-ccra/>. Date accessed: 11/05/2018.

⁷ Climate Change Act (CCA), 2008, Part 4 – Impact of and adaptation to climate change. Section 60 and 66. URL: http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf

⁸ Department of Agriculture, Environment and Rural Affairs (DAERA), 2014, Northern Ireland Climate Change Adaptation Programme (NICCAP). URL: <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Northern%20Ireland%20Climate%20Change%20Adaptation%20Programme.pdf>. Date accessed: 11/05/2018.

⁹ Welsh Assembly Government, 2010, Climate Change Strategy for Wales. URL: <http://gov.wales/docs/desh/publications/101006ccstratfinalen.pdf>. Date accessed: 11/05/2018.

¹⁰ Welsh Assembly Government, 2015, Well-being of Future Generations (Wales) Act 2015. URL: <https://futuregenerations.wales/wp-content/uploads/2017/01/WFGAct-English.pdf>

Environment (Wales) Act (2016)¹¹. Although these two acts do not require the development of a new climate change strategy or action plan, the Wellbeing of Future Generations (Wales) Act 2015 specifies ‘a Resilient Wales’ as a wellbeing goal to be fulfilled in pursuit of sustainable development¹². Requirements for Scotland are established by the Climate Change (Scotland) Act 2009¹³, which requires the Scottish Government to develop an Adaptation Programme. The Scottish Climate Change Adaptation Programme¹⁴ was published in 2014. The publication of the second SCCAP is planned for 2019, following the fourth progress report¹⁵ which was published in May 2018.

A2. Adaptation strategies adopted at subnational levels

The UK NAP and the adaptation programmes adopted by the devolved administration cover the complete territories of the UK. Beyond the devolved administrations, there is no further regional sub-division of UK governance before the level of cities or councils/local authorities. As such, there has been no UK-wide assessment of adaptation strategies that are below the level of the devolved administrations of Scotland, Wales and Northern Ireland.

At a local level, in England, the Secretary of State for Environment, Food, and Rural affairs has the discretionary power to direct reporting authorities (public bodies and public service organisations, i.e. private sector owners or operators of infrastructure, such as railways, energy distribution and communications networks) to develop adaptation reports, which include setting out adaptation actions at a local level. This power however is not currently used. A voluntary approach has been adopted in England since 2012. Adaptation reports identify current and projected climate change impacts, establish time-scaled proposals and policies for meeting those objectives, and report on the progress of implementation (CCA, 2008)¹⁶. This is referred to as the Adaptation Reporting Power (ARP)¹⁷. The reports should build on the issues identified in the NAP and are later used by the Government for the development of updates to the NAP. This reporting requirement only concerns devolved administrations in relation to non-devolved, reserved and excepted matters (Her Majesty’s

¹¹ Welsh Assembly Government, 2016, Environment (Wales) Act 2016. URL:

<http://www.legislation.gov.uk/anaw/2016/3/contents>. Date accessed: 11/05/2018.

¹² Welsh Assembly Government, 2015, Well-being of Future Generations (Wales) Act 2015. Section 4: The well-being goals. URL: <http://www.legislation.gov.uk/anaw/2015/2/section/4/enacted>. Date accessed: 11/05/2018.

¹³ Scottish Parliament, 2009, Climate Change (Scotland) Act 2009. URL:

<http://www.legislation.gov.uk/asp/2009/12/contents>. Date accessed: 11/05/2018.

¹⁴ Scottish Government, 2014, Climate Ready Scotland Scottish Climate Change Adaptation Programme. URL: <http://www.gov.scot/Publications/2014/05/4669>. Date accessed: 11/05/2018.

¹⁵ Scottish Government: Climate Change. URL: <http://www.gov.scot/Topics/Environment/climatechange>. Date accessed: 11/05/2018.

¹⁶ Climate Change Act (CCA), 2008, Part 4 – Impact of and adaptation to climate change. Section 62. URL: http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf. Date accessed: 11/05/2018.

¹⁷ The ARP aims to ensure that organisations of a public nature with climate-sensitive responsibilities are taking appropriate action to adapt to the impacts of climate change. It does this both directly, through engaging organisations in reporting, and indirectly, through raising awareness, building capacity in organisations, and making examples of good practice publicly available.

Government, 2013)¹⁸. Although the CCA (2008)¹⁹ stipulates that Welsh Ministers have the discretionary power to direct reporting authorities to prepare adaptation reports, the decision was made not to invoke the power but to encourage voluntary action in the first instance. Nevertheless, under the Wellbeing of Future Generations (Wales) Act (2015) Public Service Boards are required to develop wellbeing assessments and plans. The assessments must give due regard to the latest climate change risk assessments (CCRA), while assessing the state of the economic, social, environmental and cultural well-being in each Local Authority area. The resulting plans set objectives that are designed to maximise their contribution to the well-being goals. No equivalent reporting power is permitted to Ministers in Northern Ireland under the CCA (2008). In Scotland, a duty is placed on public bodies to carry out the functions of the adaptation programme under the Climate Change (Scotland) Act (2009); however, this does not include adaptation reporting by public bodies.

Adaptation action plans

B1. National adaptation plan

As previously indicated, the respective adaptation programmes also set out the proposals and policies that must be implemented to meet the objectives of the programme; for example, the UK NAP (2013) describes over 370 actions²⁰ (see detail in Section A1). The actions included in the programmes focus on the highest order risks identified, guided by the magnitude, confidence, and urgency scores assigned during the analysis which underpinned the respective CCRA.

B2. Adaptation plans adopted at sub-national level

As set out under A2, in England, the Secretary of State for Environment, Food, and Rural affairs has the discretionary power to direct reporting authorities (organisations with functions of a public nature and statutory undertakers) to develop adaptation reports, which include setting out adaptation actions at a local level. This power however is not currently used. Adaptation reporting relies on a voluntary approach at present, and involves engagement with key stakeholders to support them through the reporting process. Welsh Ministers have the same discretionary power but, as for England, the power is currently not used. The same does not apply to reporting authorities in Scotland and Northern Ireland (see A2 for more detail).

¹⁸ HM Government, 2013, Adapting to Climate Change: Ensuring Progress in Key Sectors. 2013 Strategy for exercising the Adaptation Reporting Power and list of priority reporting authorities. Section 8. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/209875/pb13945-arp-climate-change-20130701.pdf. Date accessed: 11/05/2018.

¹⁹ Climate Change Act (CCA), 2008, Part 4 – Impact of and adaptation to climate change. Section 67. URL: http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf. Date accessed: 11/05/2018.

²⁰ BEIS, 2017, 7th National Communication. Chapter 5 – Vulnerability assessment, climate change impact and adaptation measures. URL: [http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/19603845_united_kingdom-nc7-br3-1-gbr_nc7_and_br3_with_annexes_\(1\).pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/19603845_united_kingdom-nc7-br3-1-gbr_nc7_and_br3_with_annexes_(1).pdf). Date accessed: 11/05/2018.

B3. Sectoral adaptation plans

The NAP is split into the following thematic areas: the Built Environment; Infrastructure; Healthy and Resilient Communities; Agriculture and Forestry; the Natural Environment; and Business. There is a seventh cross-cutting theme concerning Local Government. Policies, initiatives and actions to support adaptation are set out for each theme (HM Government, 2013). Building on the approach taken for the NAP, the devolved administrations have also established adaptation plans according to thematic areas, as follows:

- **Scotland:** The SCCAP (2014)²¹ sets out actions according to three thematic areas: the Natural Environment; Buildings and Infrastructure Networks; and Society (relating to the resilience of communities).
- **Wales:** The Adaptation Delivery Plan (2011)²² describes the actions that will fulfil the objectives of the Welsh Adaptation Framework across five sectors: Natural Environment, Infrastructure, Communities, Business and Tourism and Health. While workshops and consultations began in 2015, by June 2017 a completed sector action plan was only available for Health²³. In the light of the new legislative context in Wales, and new evidence on risks to sectors in Wales identified by the UK Committee on Climate Change, the Welsh Government is developing a new adaptation plan for Wales.
- **Northern Ireland:** The NICCAP (2014)²⁴ sets out government action, policies and proposals for a five-year timeframe across four areas: flooding, water, natural environment, agriculture and forestry.

In addition, seven UK cities²⁵ are now signatories to the EU Covenant of Mayors for Climate and Energy in relation to adaptation. Of these cities, all except Greater Manchester have submitted adaptation action plans and are now in the monitoring phase.

SCOREBOARD

21 Scottish Government, 2014, Climate Ready Scotland Scottish Climate Change Adaptation Programme. URL: <http://www.gov.scot/Publications/2014/05/4669>. Date accessed: 11/05/2018.

22 Welsh Assembly Government, 2011, Climate Change Strategy for Wales: Adaptation Delivery Plan. URL: <http://gov.wales/docs/desh/publications/101006ccstratdeliveryadaptationen.pdf>. Date accessed: 11/05/2018.

23 Climate Change Commission for Wales: Adaptation. URL: <http://www.theccw.org.uk/adaption/>. Date accessed: 11/05/2018.

24 DAERA, 2014, Northern Ireland Climate Change Adaptation Programme (NICCAP). URL: <https://www.daera-ni.gov.uk/publications/northern-ireland-climate-change-adaptation-programme>. Date accessed: 11/05/2018.

25 Reporting at 08/05/2018: Aberdeen City, Birmingham, Edinburgh, Glasgow, Greater Manchester, Leicester, Newcastle upon Tyne, Stirling. Covenant of Mayors for Climate and Energy, Covenant community, URL: <http://www.covenantofmayors.eu/about/covenant-community/signatories.html>. Date accessed: 08/05/2018.

Step A: Preparing the ground for adaptation

1. Coordination structure

1a. A central administration body officially in charge of adaptation policy making

Yes / No

Responsibility for climate adaptation is split between the four countries of the UK, with national governments in Northern Ireland, Wales and Scotland responsible for adaptation in all devolved policy areas. Her Majesty's Government is responsible for adaptation in England and reserved matters for the UK.

The overarching responsibilities defined by the CCA (2008)²⁶ are: a climate change risk assessment (CCRA) to be carried out every five years, a national adaptation programme (NAP) to address the priority risks identified in the CCRA, and a reporting mandate. The CCA (2008) also defines the central administration body as an independent Adaptation Sub-Committee (ASC) of the Climate Change Committee (CCC) to provide advice and assistance in relation to implementation of the CCA.

England & reserved matters: Whilst adaptation is embedded within key policy areas across UK government, the Department for Environment, Food and Rural Affairs (Defra) coordinates the UK government's work on adaptation in England, and throughout the UK on a number of reserved matters, including cross-cutting action required under the CCA. Some reserved matters, such as defence, are primarily addressed independently of this coordination.

Scotland: Lead devolved responsibility for climate change policy in Scotland rests with the Minister for Environment, Climate Change and Land Reform²⁷. A Cabinet sub-committee on climate change²⁸ ensures that delivery is coordinated across portfolios and that climate change considerations are reflected at the very highest level of the Scottish Government.

Wales: Responsibility for ensuring adaptation and resilience across Wales in areas of devolved responsibility sits with Welsh Ministers. A cross-government response to climate adaptation is co-ordinated by the Department for Environment and Rural Affairs.

The Well-being of Future Generations Act²⁹ has established a Future Generations Commissioner³⁰ for Wales who has a specific remit to provide advice or assistance on climate change to public bodies, including the Welsh Government.

26 Climate Change Act (CCA), 2008, Part 4 – Impact of and adaptation to climate change. URL: http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf. Date accessed: 11/05/2018.

27 Scottish Government: Cabinet Secretary for the Environment, Climate Change and Land Reform. URL: <https://beta.gov.scot/about/who-runs-government/cabinet-and-ministers/cabinet-secretary-environment-climate-change-land-reform/>. Date accessed: 11/05/2018.

28 The Scottish Parliament: Environment, Climate Change and Land Reform Committee. URL: <http://www.parliament.scot/parliamentarybusiness/CurrentCommittees/environment-committee.aspx>. Date accessed: 11/05/2018.

29 Welsh Assembly Government, 2015, Well-being of Future Generations (Wales) Act 2015. URL: <https://futuregenerations.wales/wp-content/uploads/2017/01/WFGAct-English.pdf>.

Northern Ireland: The Climate Change Unit, in the Department of Agriculture, Environment and Rural Affairs (DAERA)³¹, is responsible for the co-ordination of cross-departmental response to requirements of the CCA on adaptation. The Unit leads on development, implementation and monitoring of the NICCAP³², though responsibility for action on Northern Ireland's climate change risks is shared with all government departments.

1b. Horizontal (i.e. sectoral) coordination mechanisms exist within the governance system, with division of responsibilities

Yes / In progress / No

Adaptation is embedded within key policy areas across the UK governments of England, Wales, Scotland and Northern Ireland. The respective adaptation programmes set out the roles of the different government departments, including their delivery bodies and partners (set out below).

England and reserved matters: The Domestic Adaptation Board (DAB), chaired by Defra, is the horizontal coordination body. It oversees cross-government action and has members from most government departments, the devolved administrations and the Environment Agency (EA). The role involves:

- Providing senior-level leadership in relation to the statutory CCRA and NAP, helping to develop and maintain a clear vision and direction
- Highlighting upcoming policies in their departments, which can support adaptation outcomes and capacity building in key sectors
- Promoting effective collaboration across government departments and key agencies and managing interdependencies with other issues, such as climate change mitigation and resilience agendas
- Monitoring overall progress with the CCRA and NAP; assisting in identifying risks and removing barriers, and doing horizon scanning
- Monitoring overall progress on adaptation delivery and identifying gaps or opportunities
- Considering key sources of challenge and insight, e.g. outputs from key research projects, such as the Economics of Climate Resilience and the latest reports and advice from the ASC.

Scotland: Within the Scottish Government policy sectors contribute updates on actions set out in the SCCAP, these are reported annually. The most recent progress report, Climate

30 Future Generations Commission for Wales, URL: <https://futuregenerations.wales/>. Date accessed: 11/05/2018.

31 DAERA: Climate Change Unit. URL: <https://www.daera-ni.gov.uk/contacts/climate-change-unit>. Date accessed: 11/05/2018.

32 DAERA, 2014, Northern Ireland Climate Change Adaptation Programme (NICCAP). URL: <https://www.daera-ni.gov.uk/publications/northern-ireland-climate-change-adaptation-programme>. Date accessed: 11/05/2018.

Ready Scotland: Scottish Climate Change Adaptation Programme - Fourth Annual Progress Report, was published in May 2018. A new Programme Board will oversee the development of the second SCCAP.

Wales: The Welsh Government has established a Core Internal Adaptation Group to support the development of its latest Adaptation Delivery Plan and its future delivery. This Group represents policy areas across the Welsh Government, and members use their stakeholder networks to engage the wider society on development of the plan.

Northern Ireland: The Cross-Departmental Working Group on Climate Change is charged with the preparation and delivery of a cross-departmental adaptation programme, including recommendations and/or decisions on adaptation issues.

1c. Vertical (i.e. across levels of administration) coordination mechanisms exist within the governance system, enabling lower levels of administration to influence policy making.

Yes / In progress / No

England & reserved matters: Local government responsibilities should be considered in the context of the Localism Act 2011 and the Cities and Local Government Devolution Act 2016, which gives local government functions, freedoms and flexibilities, as well as responsibilities and governance. UK government engages on adaptation with local government, including the availability of tools and guidance via different forums or groups, such as the Local Adaptation Advisory Panel (LAAP), the Core Cities group and the Local Government Association. Online tools and best practice for councils are available through the sites of delivery agents, such as Climate UK/London Climate Change Partnership, to enable councils to improve and develop their ability to adapt to climate change. For instance, there is a template business case available for councils.

Although the LAAP is not comprehensively representative of the views of all local government, it was instrumental in providing council views on the NAP prior to it being published. The NAP contains a cross-cutting chapter that focuses on local government and contains a ‘Cities Commitment’ from the nine largest cities across England.³³ The LAAP operates on an *ad hoc* basis.

In addition, the ARP establishes a legal framework for vertical coordination between reporting authorities in England (CCA, 2008)³⁴. The framework facilitates lower levels of

33 Defra, 2013, Letter request for information: Local adaptation advisory panel. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263042/DOC031213-03122013115022.pdf. Date accessed: 11/05/2018.

34 Climate Change Act (CCA), 2008, Part 4 – Impact of and adaptation to climate change. Section 62. URL: http://www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf. Date accessed: 11/05/2018.

administration to feedback into the policymaking process through regular reporting (Street et al., 2017)³⁵.

Scotland: The Climate Change (Scotland) Act (2009) requires public bodies and local authorities to carry out the functions of the adaptation programme. This includes the duty to contribute to climate adaptation and to report annually on compliance with their climate change duties. The SCCAP provides a framework for coordination between the delivery bodies. Adaptation Scotland, funded by Scottish Government and managed by Sniffer, a sustainability charity, provides advice and support to help Scotland be prepared and resilient to the effects of climate change. Key public service delivery bodies, such as Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage, Historic Environment Scotland, Forestry Commission Scotland and Marine Scotland, are important contributors to Scotland's national Adaptation Programme and its annual reports on progress. Examples of key city and city-region initiatives resulting from this coordination include: Edinburgh Adapts, Aberdeen Adapts and Climate Ready Clyde.

In addition, the Convention of Scottish Local Authorities (COSLA)³⁶ acts as the representative voice of Scottish local government at national and international level and has an environment and economy team responsible for a wide range of policy and council services, including climate change. COSLA contributed to the European Commission consultation on the preparation of the EU Adaptation Strategy³⁷.

Wales: The Well-being of Future Generations Act established Public Service Boards (PSBs)³⁸ in Wales to replace the voluntary Local Service Boards in each local authority area. Each board is required to assess the state of economic, social, environmental and cultural well-being in its area and set objectives that are designed to maximise the PSBs contribution to the well-being goals³⁹. The PSBs are required to consider climate change impacts in their well-being assessments. Additionally, PSBs must take account of future trends in climate change, alongside other trends set out in the annually updated Future Trends Report⁴⁰, in the preparation of local well-being plans.

The statutory members of each PSB are:

- The local authority

35 Street, R.B., Hayman, V. and Wilkins, T.M., 2017, Understanding the value of the Adaptation Reporting Power process to the reporting organisations involved. UKCIP, University of Oxford. URL: <https://arcc.ouce.ox.ac.uk/wp-content/pdfs/ARP-report-for-Defra-04-2017.pdf>. Date accessed: 11/05/2018.

36 COSLA: Environment and Economy. URL: <http://www.cosla.gov.uk/about/how-we-work/environment-and-economy>. Date accessed: 11/05/2018.

37 COSLA, n.d., Consultation on the preparation of the EU adaptation strategy. Response from the Convention of Scottish Local Authorities. URL: http://www.cosla.gov.uk/sites/default/files/documents/eu_adaptation_strategy_-_cosla_consultation_reponse.pdf. Date accessed: 11/05/2018.

38 Welsh Government: Public Services Boards. URL: <http://gov.wales/topics/improvingservices/public-services-boards/?lang=en>. Date accessed: 11/05/2018.

39 Welsh Government, 2015, Well-being of Future Generations (Wales) Act 2015: The Essentials. URL: <http://gov.wales/docs/dsjlg/publications/150623-guide-to-the-fg-act-en.pdf>. Date accessed: 11/05/2018.

40 Welsh Government, 2017, Future Trends Report 2017. URL: <http://gov.wales/docs/statistics/2017/170505-future-trends-report-2017-en.pdf>. Date accessed: 11/05/2018.

- The Local Health Board
- The Fire and Rescue Authority
- Natural Resources Wales (NRW)

In addition to the statutory members, each PSB will invite the following people to participate:

- Welsh Ministers
- Chief Constables
- The police and crime commissioner
- Certain Probation Services
- At least one body representing relevant voluntary organisations

PSBs will also be able to invite other public service organisations to participate.

The Adaptation Framework established support mechanisms to work with local businesses and communities. Local authorities, Local Service Boards, Spatial Plan Area Groups and the Climate Change Commission for Wales are central to helping their local stakeholders adapt to climate change.

Northern Ireland: The Climate Change Unit in DAERA is responsible for the co-ordination of the cross-departmental response to the CCA on adaptation and responsibility for climate change actions falls to each department under CCA. There is not a statutory vertical coordination mechanism within Northern Ireland as no such legal obligation is stipulated by the CCA.

DAERA are working with Climate NI⁴¹ to ensure engagement with Local Government and all other sectors on the impacts of climate change, sharing best practice and promoting adaptation action within these sectors to address the impacts of climate change, including managing climate change risks and responding to opportunities.

2. Stakeholders' involvement in policy development

2a. A dedicated process is in place to facilitate stakeholders' involvement in the preparation of adaptation policies

Yes / No

Stakeholders are involved in the preparation of the UK CCRA. The process is established at a UK level and additional detail is developed at national level⁴². The CCRA forms the basis of the respective adaptation programmes developed.

The first CCRA and NAP were drawn up by the Government, industry and other non-government organisations working together. Stakeholder engagement was coordinated through a series of workshops with around 700 organisations and there were two informal

41 Climate Northern Ireland. URL: <http://www.climateinireland.org.uk/>. Date accessed: 11/05/2018.

42 CCC: National summaries. URL: <https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/national-summaries/>. Date accessed: 11/05/2018.

consultations led by the UK government. Businesses, local councils and community groups were involved. These stakeholders helped to identify the most important areas for action and allowed other stakeholders from across the sectors concerned to comment on the draft objectives of the NAP report.

The first UK NAP identified the many stakeholders that need to be involved in developing the national adaptation response. It also identified actions and their owners. Key stakeholder engagement remains a crucial component of the policy approach in the ongoing development of the second NAP.

For the development of the second CCRA and NAP, stakeholder engagement has involved: a call for evidence (in 2014); two workshops with 100 stakeholders present each time; working groups (with between 10 and 20 stakeholders present each time); and a peer review process.⁴³

The preparation of the second NAP builds on the first and, as such, has been developed in a way that reflects the progress that has been made in integrating climate adaptation within policies and programmes across the UK Government. Engagement with stakeholders has been ongoing throughout the period of the NAP. This has often been through groups or implementing actions in the first NAP and developing and updating them as progress has been made, so that ongoing or new actions are already in place or planned across a broad range of policies and programmes. The second NAP will reflect that progress and integrate consideration of climate change risks. Examples of the ongoing engagement that will contribute to the preparation of the NAP include: ongoing engagement with local government and preparation of guidance through groups such as the Local Adaptation Advisory Panel (LAAP); extensive engagement with key stakeholders over a number of years in the preparation of the UK Government's 25 Year Environment Plan, which was published in 2018 and includes mitigating and adapting to climate change as one of its ten priority goals and targets; ongoing extensive consultation with a broad range of sectoral businesses and organisations on the implementation of the second round of adaptation reporting and the development of the strategy for the third round of reporting. Stakeholder engagement is repeated across government in many policy areas where climate risks are considered. This approach to ongoing stakeholder engagement and the integration of climate adaptation, as a consideration across all policies, programmes and actions, will continue as part of the implementation of the second NAP.

Where relevant, additional information concerning stakeholder engagement by the devolved administrations is set out below.

England & reserved matters: In addition to the process set out above, stakeholder involvement is facilitated through ongoing voluntary reporting by public authorities (in the context of the ARP, as described in Section A2).

43 CCC: Review and engagement. URL: <https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/review-and-engagement/>. Date accessed: 11/05/2018.

Scotland: Adaptation Scotland continues to support organisations, businesses and communities to adapt to the impacts of climate change through connecting science and practice and building strong partnerships for planning and action (Scottish Government, 2017).⁴⁴ Most recently, three workshops have been held with policy sectors, government agencies and other stakeholders to develop the structure of the second SCCAP.

Wales: A number of stakeholder groups were involved in the preparation of the Climate Change Strategy. An internal cross-government group has been established for the preparation of the new adaptation plan for Wales. The group members are individually responsible for external engagement across multiple sectors to ensure interested groups are represented during its development. The Welsh Government is committed to engaging externally on the development of policy due to the five ways of working under the Wellbeing of Future Generations (Wales) Act. A number of engagement events will be held during the development of the plan and post publication to stimulate effective delivery.⁴⁵

Northern Ireland: Climate NI⁴⁶ is a partnership of external and government stakeholders from a range of key sectors who provide advice and support to Government and other sectors with the aim of increasing the understanding of the impacts of climate change, sharing best practice and promoting action to address the impacts of climate change across all sectors.

2b. Transboundary cooperation is planned to address common challenges with relevant countries

Yes / No

The UK has only one land boundary with another country, which is with Ireland. The NAP and the CCA do not contain any elements supporting transboundary cooperation with other neighbouring countries. However, transboundary cooperation with Ireland is led by the British-Irish Council, which supports collaboration across the whole of the United Kingdom and Ireland on a range of social, economic and environmental topics. These include collaborative work on climate adaptation, as well as a range of other activities that take account of climate change risks and adaptation (e.g. British-Irish Council, 2018)⁴⁷.

Moreover, there is close collaboration between the UK Government and the devolved administrations on adaptation issues, e.g. on flood risk. Where there is a need to work across administrative boundaries, there are joint flood risk management plans, which in turn link to

44 Scottish Government, 2017, Climate Ready Scotland: Scottish Climate Change Adaptation Programme. Third annual report 2017. Annex – Background Information. URL: <http://www.gov.scot/Publications/2017/05/3941/6>. Date accessed: 11/05/2018.

45 Personal communication with MS contact.

46 Climate Northern Ireland. URL: <http://www.climateinorthernireland.org.uk/>. Date accessed: 11/05/2018.

47 British-Irish Council, 2018, Communique: 15th Ministerial meeting of the Environment work sector, 23 March 2018. URL: <https://www.britishirishcouncil.org/sites/default/files/Communique%2015th%20BIC%20Environment%20Ministerial.pdf>. Date accessed: 11/05/2018.

river basin management plans and to the UK's Marine Strategy (Environment Agency, 2016)⁴⁸.

More broadly the UK cooperates extensively through wider international arrangements and agreements to address climate risks. This includes work undertaken through OSPAR, which addresses climate change impacts affecting the marine environment that is part of the boundary between the UK and other neighbouring countries.

Step B: Assessing risks and vulnerabilities to climate change

3. Current and projected climate change

3a. Observation systems are in place to monitor climate change, extreme climate events and their impacts

Yes / In progress / No

The UK's National Meteorological Service (Met Office)⁴⁹ holds the nation's weather and climate records. Climate-related impacts are monitored at local level in relation to changes in: temperature and the frequency of heatwaves, seasonal rainfall patterns resulting in drought and water stress or flooding, storm frequency, sea level rise and coastal flooding. In addition, the Met Office National Climate Information Centre (NCIC) keeps track of all UK records and notes extremes and exceptional weather in each year, producing case studies⁵⁰.

The records and case studies are summarised at regional level in the annual State of the UK Climate report⁵¹, which provide an accessible, authoritative and up-to-date assessment of UK climate trends, variations and extremes. The NCIC has also analysed recent UK extreme weather events and concluded that there had been a marked increase in the number of heat-related and heavy rainfall-related extremes (Kendon, 2014)⁵².

A key output from monitoring by the NCIC is the identification of weather-related thresholds, geographic hotspots and other specific climate-related risks. The Met Office has worked with relevant government bodies and stakeholders to put this monitoring data into context and thereby enhance understanding of climate-related impacts. The range of impacts include those on: the rail and road sectors, the energy sector (including small-scale wind power), the water sector, social welfare, defence, animal disease, national infrastructure (including the

48 Environment Agency, 2016, Flood risk management plans (FRMPs: 2015 to 2021). URL: <https://www.gov.uk/government/collections/flood-risk-management-plans-frmps-2015-to-2021>. Date accessed: 11/05/2018.

49 UK Climate Projections. URL: <http://ukclimateprojections.metoffice.gov.uk/>. Date accessed: 11/05/2018.

50 Met Office: UK climate – Extremes. URL: <https://www.metoffice.gov.uk/public/weather/climate-extremes/#?tab=climateExtremes>. Date accessed: 11/05/2018.

51 Met Office: State of the UK Climate. URL: <http://www.metoffice.gov.uk/climate/uk/about/state-of-climate>. Date accessed: 11/05/2018.

52 Kendon, M., 2014, Has there been a recent increase in UK weather records? *Weather*, Volume 69, Issue 12. <https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/wea.2439>. Date accessed: 11/05/2018.

Thames Barrier). Information on these impacts is part of the forthcoming UK Climate Projections in 2018 (UKCP18)⁵³.

While the Met Office is the lead agency for making and collecting meteorological and atmospheric observations⁵⁴, observations are also made by others, including the Natural Environment Research Council (NERC) research centres and other delivery partners. Collection of oceanographic and marine observations is widely distributed throughout the UK, with many institutions involved. Terrestrial observations are made or coordinated by the Natural Environment Research Council (NERC), EA, NRW, SEPA, the Northern Ireland Environment Agency (NIEA), the Forestry Commission and others.

The Environmental Observations Forum (EOF)⁵⁵ is a Living With Environmental Change (LWEC) Partnership programme founded in 2008 to support better communication and sharing of information across the observations community. LWEC has since been reformed as the Research & Innovation for the Dynamic Environment (RIDE) Forum. The EOF has prepared the reports: ‘Coordinating Climate Science and Risk Assessment Observations’ and ‘Consultation Responses to the Global Climate Observing System (GCOS) Implementation Plan’, to assist in gaining a national overview of systematic observation activities.

Another important coordination mechanism is the Marine Science Coordination Committee (MSCC)⁵⁶, which was formed in 2008 to develop and implement a Marine Science Strategy for the UK, and to improve UK marine science co-ordination.

3b. Scenarios and projections are used to assess the economic, social and environmental impacts of climate change, taking into account geographical specificities and best available science (e.g. in response to revised IPCC assessments)

Yes / In progress / No

The Met Office Hadley Centre (MOHC) Climate Programme provides advanced climate science and led the production of the current UK Climate Projections (UKCP09)⁵⁷. UKCP09 projects future climate changes in the UK to the end of this century. Projections are provided on a 25km spatial scale for a range of climate variables, providing several indicators relevant for climate change evaluations (e.g. seasonal and daily averages, daily maxima). They also include an assessment of uncertainty, making them suitable for risk-based assessments. Other organisations, such as the English EA, supported the development of UKCP09 in technical review, by funding marine scenario work that provided projections of storm surge and sea-

53 Met Office: UK Climate Projections Impacts. URL: <https://www.metoffice.gov.uk/research/collaboration/ukcp/impacts>. Date accessed: 01/06/2018.

54 The Met Office Hadley Centre Climate Programme provides world-leading climate science and led the production of the latest UK Climate Projections (UKCP09). UKCP09 gives projections of future changes to the climate in the UK to the end of this century.

Met Office Hadley Centre Climate Programme. URL: <https://www.metoffice.gov.uk/services/public-sector/climate-programme>. Date accessed: 11/05/2018.

55 UK Environmental Observations Forum EOF: <http://www.ukeof.org.uk/>. Date accessed: 11/05/2018.

56 Marine Science Coordination Committee <https://www.gov.uk/government/groups/marine-science-coordination-committee>. Date accessed: 11/05/2018.

57 UK Climate Projections. URL: <http://ukclimateprojections.metoffice.gov.uk/>. Date accessed: 11/05/2018.

level rise for UK waters and in providing case studies to show how UKCP09 can be used in decision making.

One of the key outputs of the MOHC Climate Programme will be an updated set of UK Climate Projections in 2018 (UKCP18). These will update the UKCP09 projections of climate change over UK land areas and projections of sea-level rise. They will provide greater regional detail, further analysis of both national and global climate risks and more information on potential extremes and impacts of climate change. UKCP18 will support the preparation of the third CCRA. The new projections will also be an important source of information for UK organisations that need to ensure that their assets and operations are resilient to future climate and weather extremes. UKCP18 will be available in November 2018 (Met Office, 2017)⁵⁸.

There is some experience of using scenarios to test and direct the suitability of future actions and strategies. For example, in England, EA undertook a simplified screening assessment of organisational duties in relation to a climate impact scenario. This was used to advise and direct adaptation commitments in their statutory report to the Government under the ARP.

3c. Sound climate risks/vulnerability assessments for priority vulnerable sectors are undertaken to support adaptation decision making

Yes / In progress / No

Based on UKCP09, the first CCRA for the UK was published in January 2012. It identified over 700 risks and opportunities to the UK from a changing climate over the next century, under three different emissions scenarios, and focused on around 100 of the risks and opportunities in further detail.

The second CCRA was laid before Parliament in January 2017. It is underpinned by an evidence report prepared independently by the ASC and published in July 2016. The evidence report analyses around 60 key present-day climate risks and opportunities and current levels of adaptation. It assesses how climate and socio-economic change may alter those risks and opportunities in the 2020s, 2050s and 2080s. The evidence report has taken a policy-focused approach to presenting the results, using the concept of urgency to prioritise the risks and opportunities. It considers where additional action is needed in the next five years, considering current and planned policies, and identifies six priority risk areas (flooding, water scarcity, overheating, impacts on natural capital, food security, and pests and diseases). The evidence report considers impacts on a number of large sectors, including infrastructure, people and the built environment, and business and industry. Within these sectors, a range of sub-sectors is considered, for instance, the business sub-sectors for which impacts of climate change are more relevant are given as: engineering and consulting,

58 Met Office, 2017, UK climate projections: A project overview. URL: <https://www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/uk-climate/uk-cp/ukcp18-project-overview-final.pdf>. Date accessed: 11/05/2018.

tourism, insurance and other finance products, agriculture, and food and utilities.⁵⁹ Evidence summaries were also produced for England, Wales, Scotland and Northern Ireland to describe the risks and opportunities specific to each part of the UK.

3d. Climate risks/vulnerability assessments take transboundary risks into account, when relevant

Yes / **In progress** / No

The latest CCRA (2017) contains a chapter on the international dimensions of climate change, addressing both risks and opportunities (CCC, 2017)⁶⁰. The forthcoming adaptation programmes will be developed on the evidence presented in the CCRA and may reflect this international dimension. However, there is no evidence of transboundary risks in relation to Ireland.

4. Knowledge gaps

4a. Work is being carried out to identify, prioritise and address the knowledge gaps

Yes / In progress / No

The 2013 NAP highlights the importance of further research to shape UK adaptation activity. Research activity has been identified at the UK level in the 2013 NAP and includes:

- LWEC⁶¹ report cards: LWEC brought together 22 public sector organisations that fund, carry out and use environmental research and observations. Since its inception, LWEC has evolved into the RIDE Forum. Partners include the UK Research Councils, government departments with environmental responsibilities, devolved administrations and government agencies. Private sector input is sought on an issue-by-issue basis, rather than a formalised standing business board. The partnership has among its two core objectives the alignment of research agendas, i.e. work such as road mapping, co-ordination of funding partners, co-design of innovative cross-disciplinary programmes, developing and implementing national research strategies.
- The UK Marine Climate Change Impacts Partnership⁶² (MCCIP) report cards⁶³: MCCIP is a forum that involves the major marine science-funding government departments, the devolved administrations, the key marine-science providers and

59 UK Climate Change Risk Assessment 2017, July 2016, <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf>. Date accessed: 11/05/2018.

60 CCC, 2017, UK Climate Change Risk Assessment Evidence Report. Chapter 7: International dimensions. URL: <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Chapter-7-International-dimensions.pdf>. Date accessed: 11/05/2018.

61 NERC: Research & Innovation for our Dynamic Environment (RIDE) Forum. URL: <http://www.lwec.org.uk/>. Date accessed: 11/05/2018.

62 MCCIP. URL: <http://www.mccip.org.uk/>. Date accessed: 11/05/2018.

63 MCCIP, 2015, Marine climate change impacts: Implications for the implementation of marine biodiversity legislation. URL: http://www.mccip.org.uk/media/1611/mccip_special_topic_report_card_-2015.pdf. Date accessed: 11/05/2018.

independent members, and defines as a priority area 'responding to climate change and its interaction with the marine environment'. The report cards look at climate change and marine biodiversity legislation, with a focus on the legislation used to establish various types of marine protected areas.

- Adaptation research produced by the Adaptation and Resilience in the Context of Change⁶⁴ (ARCC) Network is managed by the UK Climate Impacts Programme (UKCIP), and hosted by the Environmental Change Institute, University of Oxford. The network supports the creation of robust built environment and infrastructure sectors within the UK. The project has ended but the website remains active.

The UK Met Office⁶⁵ undertakes core research into climate science, observations, projections and impacts in support of practical decision-making. This includes assessments of the potential global and regional impact of climate change.

Additionally, the National Flood Resilience Review (HM Government, 2016)⁶⁶, established to assess how the UK can be better protected from future flooding and extreme weather events, recommended a long-term action to improve modelling of flooding from all sources, which the EA and Met Office have picked up.

The devolved administrations have also dedicated additional resources to identify, prioritise and address the knowledge gaps, as follows:

- **Scotland:** The Scottish Government is embedding climate adaptation into the development of a robust evidence base, including £1m annual funding to the ClimateXChange⁶⁷ adaptation research programme.
- **Wales:** One of the key themes of the National Research Network for Low Carbon Energy & Environment (NRN – LCEE) addresses the impacts of climate change focusing specifically on coastline and agriculture ecosystem resilience. The Welsh Government is currently assessing suitable research routes to ensure it addresses the evidence gaps identified in the second CCRA evidence report.
- **Northern Ireland:** The latest UK CCRA identified a number of gaps in evidence for Northern Ireland climate change risks. Work is ongoing across all government departments to address the gaps in evidence. Climate NI⁶⁸ have recently commenced an exercise to provide information about non-government work (i.e. outside central government) and research that is completed, underway or scheduled which could help address the priority risks facing Northern Ireland, as identified by the UK CCRA.

64 Adaptation and Resilience in the Context of Change network (ARCC). URL: <http://www.arcc-network.org.uk/>. Date accessed: 11/05/2018.

65 Met Office: Climate services for the UK. URL: <http://www.metoffice.gov.uk/services/climate-services>. Date accessed: 11/05/2018.

66 HM Government, 2016, National Flood Resilience Review. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/551137/national-flood-resilience-review.pdf. Date accessed: 11/05/2018.

67 ClimateXChange. URL: <http://www.climateexchange.org.uk/>. Date accessed: 11/05/2018.

68 Climate NI <https://www.climatenorthernireland.org/>. Date accessed: 11/05/2018.

5. Knowledge transfer

5a. Adaptation relevant data and information is available to all stakeholders, including policy makers (e.g. through a dedicated website or other comparable means)

Yes / In progress / No

Until the end of March 2016, the UK Government funded the EA to provide a Climate Ready Support Service (CRSS) for England, which supported organisations in adapting to climate change. By 2016, the majority of NAP actions to which the CRSS Service was contributing were either complete or ongoing without the need for further support from the service. The CRSS produced or supported a range of tools and products to help organisations in preparing for climate change. Although these are no longer supported through a central web portal, they can be found on a number of organisation's websites, which are now embedded within the Climate-ADAPT UK page⁶⁹.

The Met Office offers comprehensive information about climate and climate change through its website⁷⁰. Climate projections for the UK are offered to all kinds of potential users through a specific and dedicated website⁷¹. It offers information on climate projections that can be tailored to different profiles, levels of expertise, etc. The website contains abundant guidance material and tools to help users find the information and use it. Updated and improved climate projections are due to be released in November 2018 via UKCP18 (Met Office, 2017)⁷². A Climate Guide section provides information about climate, climate change and climate science. The Met Office hosts the National Climate Information Centre, which holds national and regional climate information for the UK, summarised in tables, maps, figures and summaries. Information is available on averages, extremes, climate anomalies, etc. The Met Office website also contains 'Climate Services'⁷³ and 'Climate Service UK'⁷⁴ sections, where consultancy training services are offered to help national and international users accurately interpret the available climate information. It aims to provide business and society with a range of products and services that provide the vital information, tools and advice needed to help manage climate variability and change, and build capacity in developing countries.

69 See 'b. Adaptation capacity, dissemination, education, training': <http://climate-adapt.eea.europa.eu/countries-regions/countries/united-kingdom>. Date accessed: 11/05/2018.

70 Met Office: Climate guide. URL: <http://www.metoffice.gov.uk/climate-guide>. Date accessed: 11/05/2018.

71 UK Climate Projections. URL: <http://ukclimateprojections.metoffice.gov.uk/>. Date accessed: 11/05/2018.

72 Met Office, 2017, UK climate projections: A project overview. URL: <https://www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/uk-climate/uk-cp/ukcp18-project-overview-final.pdf>. Date accessed: 11/05/2018.

73 Met Office: International climate services. URL: <http://www.metoffice.gov.uk/services/climate-services>. Date accessed: 11/05/2018.

74 Met Office: Climate service UK. URL: <http://www.metoffice.gov.uk/services/climate-services/climate-service-uk>. Date accessed: 11/05/2018.

The UK Environment Agency provides a website with specific advice and support to key sectors to help them build resilience to climate change, particularly on water resources and environment, coastal erosion, and floods⁷⁵.

UKCIP's website⁷⁶ offers a wide set of tools, information, and other contents to support organisations, sectors and governments to adapt to the changing climate through practice-based research, and by providing direct support and advice.

Targeted information is available for Scotland via Adaptation Scotland⁷⁷, which offers free access to data on climate trends and their impacts in Scotland, as well as access to tools, guidance and advice on adapting to the impacts. Sniffer⁷⁸, a third sector organisation, delivers the Adaptation Scotland Programme offering free access to data on climate trends and access to tools, guidance and advice on adaptation.

5b. Capacity building activities take place; education and training materials on climate change adaptation concepts and practices are available and disseminated

Yes / In progress / No

Several initiatives in the UK contribute to build capacity across the UK amongst a range of audiences and actors.

Climate UK, until the end of 2016, operated for five years as a sub-national network of climate change partnerships to support local organisations to manage their climate risks and respond to opportunities. The network covered England, Wales, Scotland and Northern Ireland. It shared knowledge and lessons learned about tackling the consequences of climate change in the UK. Although Climate UK Community Interest Company (CIC) will cease operations, the informal Climate UK network, which existed for more than 10 years prior to the establishment of the CIC, will continue. Other local partnerships and networks have been brought into the fold, and opportunities for knowledge sharing and collaboration continue.

England & reserved matters: Until the end of March 2016, UK Government funded EA to provide a CRSS⁷⁹ for England which supported organisations in adapting to climate change. By 2016, the majority of NAP actions to which the CRSS was contributing were either complete or ongoing without the need for further support from the service. The CRSS produced or supported a range of tools and products to help organisations in preparing for climate change.

75 Environment Agency: Flood and coastal erosion risk management research development. URL: <http://evidence.environment-agency.gov.uk/FCERM/en/Default/FCRM.aspx>. Date accessed: 11/05/2018.

76 UKCIP: Supporting effective climate adaptation. URL: <http://www.ukcip.org.uk/>. Date accessed: 11/05/2018.

77 Adaptation Scotland, URL: <https://www.adaptationscotland.org.uk/>. Date accessed: 04/05/2018.

78 Sniffer, URL: www.sniffer.org.uk. Date accessed: 04/05/2018.

79 Environment Agency: Climate Ready. URL: <http://webarchive.nationalarchives.gov.uk/20140328084915/http://www.environment-agency.gov.uk/research/137557.aspx>. Date accessed: 11/05/2018 [website archived]

Natural England and the Royal Society for the Protection of Birds, in partnership with the CRSS and the Forestry Commission, published the 'Climate change adaptation manual: evidence to support nature conservation in a changing climate' to support conservation practitioners in adapting to climate change⁸⁰.

UK Government supported LWEC to develop Climate Change Impact Report Cards⁸¹. There are report cards on Biodiversity, Water, Agriculture & Forestry, Health and Infrastructure, with more in development. The cards provide a summary of the latest scientific research on the impacts of climate change on the UK. This work is now taken forward by LWEC's successor, the RIDE Forum.

The NAP recognises the concerns of long-term investors, such as pension and insurance providers, that there is insufficient understanding of the effects of climate change risk on future economic growth. The NAP plans to work with these investors to explore further research needs around how investments and insurance sectors may take into account climate risks and what opportunities exist to support the sectors in managing them, from 2015.

The NAP also recognises the Government's role in helping businesses to understand the potential risks and opportunities through capacity building, awareness raising, developing and disseminating tools and guidance, and encouraging businesses to review their strategic frameworks and models.

Scotland: Adaptation Scotland offers free access to the best available data on climate trends and their impacts in Scotland, as well as access to tools, guidance and advice on adapting to the impacts. Adaptation Scotland provides the latest information to support adaptation planning and action, including past climate trends and future climate projections.

Wales: The Welsh Government's Knowledge Transfer Programme⁸² was established as a key exchange process between the Welsh Government and its key stakeholders in Wales. Its aims were to build resilience against the impacts of climate change through the exchange of knowledge, skills and resources, whilst understanding stakeholder's needs and requirements to enable effective action against the impacts of climate change. The programme has focused on how to embed adaptation within organisations and developed tools and resources to help sectors and organisations adapt to the impacts of climate change. The new adaptation plan will include strategic action in this area, building on the lessons from this work.

Northern Ireland: DAERA funds and works with Climate NI to build adaptation capacity e.g. through information dissemination workshops and seminars. Climate NI is dedicated to increasing adaptation awareness and understanding across sectors and equipping these sectors

80 Natural England et al., 2015, Climate Change Adaptation Manual - Evidence to support nature conservation in a changing climate. URL: <http://publications.naturalengland.org.uk/publication/5629923804839936>. Date accessed: 11/05/2018.

81 RIDE Forum – Climate change impacts report cards, URL: <https://nerc.ukri.org/research/partnerships/ride/lwec/report-cards/>. Date accessed: 04/05/2018.

82 Welsh Government Knowledge Transfer Programme, URL: <https://gov.wales/topics/environmentcountryside/climatechange/knowledge-transfer-programme/?lang=en>. Date accessed: 04/05/2018.

with the information that they need for climate adaptation. It provides a primary point of contact and delivers a vital link to local government, the environmental Non-Government Organisations, businesses and other sectors acting as a conduit of information between these sectors and central government.

Step C: Identifying adaptation options

6. Adaptation options' identification

6a. Adaptation options address the sectoral risks identified in 3c, the geographical specificities identified in 3b and follow best practices in similar contexts

Yes / No

England & reserved matters: The NAP sets out actions that leading businesses, councils and communities, as well as the Government, are taking to tackle climate threats and take advantage of new opportunities. It aligns the risks identified in the CCRA to actions being undertaken or to be undertaken and the timescales according to each theme. This covers buildings and infrastructure, health and emergency services, the natural environment, businesses and the agriculture and forestry sectors. Geographical issues are considered, for instance, in relation to agriculture and fisheries.

Scotland: The first SCCAP (2014)⁸³ aims to increase the resilience of Scotland's people, environment and economy to the impacts of climate change. Over 130 impacts on Scotland have been identified. While the majority of these represent potential threats for Scotland, some present potential opportunities. The impacts vary in character and whilst some have been quantified, others rely on expert elicitation or a narrative based on literature. This information and other data, where available, has been used to inform those impacts that the Scottish Government considers require early adaptation action⁸⁴. The Scottish Government published a non-statutory Adaptation Framework in 2009, accompanied by 12 Adaptation Sector Summaries, followed by updated Sector Action Plans in 2011.

Wales: The Adaptation Delivery Plan⁸⁵ sets out the specific policies and programmes expected to be implemented in delivering the Adaptation Framework. There were 24 actions in the first edition of the Delivery Plan addressing the following categories:

- Strategic actions
- Natural environment
- Infrastructure
- Communities
- Health
- Business and tourism.

83 Scottish Government, 2014, Climate Ready Scotland Scottish Climate Change Adaptation Programme. URL: <http://www.gov.scot/Publications/2014/05/4669>. Date accessed: 11/05/2018.

84 Scottish Government, 2014, Climate Ready Scotland Scottish Climate Change Adaptation Programme. URL: <http://www.gov.scot/Publications/2014/05/4669>. Date accessed: 11/05/2018.

85 Welsh Assembly Government, 2011, Climate Change Strategy for Wales: Adaptation Delivery Plan. URL: <http://gov.wales/docs/desh/publications/101006ccstratdeliveryadaptationen.pdf>. Date accessed: 11/05/2018.

In light of the evidence on risk contained in the second CCRA, and the new legislative framework established by the Well-being of Future Generations Act, a new Adaptation Plan for Wales is being developed.

Northern Ireland: To take account of cross-cutting issues to the climate change risks and opportunities being brought forward in the Adaptation Programme, four primary areas for action were identified:

- Flooding
- Water
- Natural Environment; and
- Agriculture and Forestry.

DAERA is currently working on obtaining Northern Ireland adaptation information and data that could be used, along with the findings of the CCRA Northern Ireland Summary, in the development of the next Northern Ireland Adaptation Programme, which is due to be laid in the Northern Ireland Assembly in 2019.

6b. The selection of priority adaptation options is based on robust methods (e.g. multi-criteria analyses, stakeholders' consultation, etc.) and consistent with existing decision-making frameworks

Yes / No

England & reserved matters: The NAP addresses the risks identified as most urgent. The NAP document is supported by the economic annex 'Economics of the NAP' (HM Government, 2013)⁸⁶, which builds on the CCRA and the Project 'The Economics of Climate Resilience' (Frontier Economics Ltd, 2012)⁸⁷. This annex outlines the roles of society and the Government in adaptation efforts, the challenges of uncertainty, the costs and benefits of climate change, and the impacts of climate change on productivity and growth. It also provides recommendations on where future economic research work should focus attention.

An analytical framework for assessment was developed within the work on the Economics of Climate Resilience⁸⁸. The work was advised by an expert panel and benefited from input collected from around 200 semi-structured interviews with stakeholders across industry, the voluntary sector, the health service, local authorities, scientists, policy-makers, Non-

86 HM Government, 2013, The National Adaptation Programme: Making the country resilient to a changing climate. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/209866/pb13942-nap-20130701.pdf. Date accessed: 11/05/2018.

87 Frontier Economics Ltd, 2012, Economics of Climate Resilience (ECR) - CA0401. URL: <http://randd.defra.gov.uk/Default.aspx?Module=More&Location=None&ProjectID=18016>. Date accessed: 11/05/2018.

88 HM Government, 2013, The National Adaptation Programme Report: Analytical Annex. Economics of the National Adaptation Programme. URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/209867/pb13942a-nap-annex-economics.pdf. Date accessed: 11/05/2018.

Government Organisations, Non-Departmental Public Bodies, academia, researchers, trade associations and regulators, among others.

Scotland: Assessment of options included an economic assessment of adaptation options in relation to those risks highlighted by the CCRA.

Wales: The Adaptation Framework states that the guidance provided does not prescribe a specific methodology for assessing risk or for developing a programme of adaptation measures. It seeks to inform reporting authorities about climate adaptation and to support related planning processes. The guidance is intended to help reporting authorities develop a structured approach to adaptation.

Additional guidance was published to support investment decisions concerning flood and coastal risk management measures (Natural Resources Wales, 2018)⁸⁹.

Northern Ireland: Stakeholder consultations with all departments and engagement with external stakeholders has identified the priority adaptation options for Northern Ireland from the UK CCRA.

6c. Mechanisms are in place to coordinate disaster risk management and climate change adaptation and to ensure coherence between the two policies

Yes / In progress /No

The Natural Hazards Partnership is the public-sector body responsible for the development of the UK risk register and ensuring that adaptation actions are considered within the modelled data to inform it⁹⁰.

The NAP's Chapter 4 'Healthy and resilient communities' defines a series of objectives (11 to 14) to develop mechanisms to further link and coordinate disaster risk management with adaptation. An assembly of actions aims to enhance the preparation of communities and individuals to cope with severe weather events and other impacts of climate change, and the resilience of emergency services and local capability to be resilient to a changing climate. This chapter, explicitly links to other NAP elements (Chapter 2 on the built environment and Chapter 6 on the natural environment), aims at improving the prevention, preparedness and emergency management capacity in relation to weather and climate events, including consideration of a shift in their frequency and intensity. Health risks from changing weather patterns, extreme events (extreme temperatures, wildfires, drought, cold snaps, floods), and a focus on the most vulnerable communities, are the pillars of Chapter 4. Actions to achieve them involve the health sector, a Cabinet Office-chaired cross-government Communities Prepared National Group, the local resilience forums, the communities and civil society

89 Natural Resources Wales, 2018, Adapting to Climate Change: Guidance for Flood and Coastal Erosion Risk Management Authorities in Wales. URL: <https://gov.wales/topics/environmentcountryside/epq/flooding/nationalstrategy/guidance/climateguide/?lang=en>. Date accessed: 11/05/2018.

90 Natural Hazards Partnership: Who are we? URL: <http://www.naturalhazardpartnership.org.uk/about-us/who-are-we/>. Date accessed: 01/06/2018.

groups, the emergency planning and civil protection institutions and the emergency services (ambulance, fire and rescue services).

Flood insurance is recognised as a key tool to help households manage the potential consequences of extreme events linked to climate change. The Government is committed to ensuring the continued availability and affordability of flood insurance to high-risk households. There is a specific NAP action that aims to secure new arrangements for flood insurance beyond 2013, which was followed up by a number of recommendations in the first ASC progress report of the NAP in 2015. The ASC report included future strategies and recommendations on Flood Re, a recent public-private initiative that became operational. Flood Re could potentially become more relevant to incentivising climate adaptation in the future.

The Platform for Climate Adaptation and Risk reduction (HO2020 PLACARD) project 2015-20 aims to support the coordination of climate adaptation and disaster risk reduction communities by:

- 1) Providing a common ‘space’ where climate adaptation and disaster risk reduction communities can come together, share experiences and create opportunities for collaboration
- 2) Facilitating communication and knowledge exchange between both communities; and
- 3) Supporting the coordination and coherence of climate adaptation and disaster risk reduction research, policy and practice.

UKCIP is one of the original proponents of PLACARD, with a commitment to second the lead proponent (FFCUL) and play a leading or key role in a number of the work packages (WP):

- WP1: Setting up an interchange platform for multi-stakeholder dialogue involving researchers, policy-makers and practitioners in climate adaptation and disaster risk reduction – shaping the climate adaptation and disaster risk reduction research and innovation agenda (led by UKCIP); supporting climate adaptation and disaster risk reduction institutions and networks (led by UKCIP)
- WP5: Reflecting on, evaluation and learning from the PLACARD project – evaluation and learning (led by UKCIP)
- WP6: Includes developing and evaluating the PLACARD communication and dissemination plan (led by UKCIP).

7. Funding resources identified and allocated

7a. Funding is available to increase climate resilience in vulnerable sectors and for cross-cutting adaptation action

Yes / **In progress** /No

It is apparent that funding is available to increase climate resilience based on the progress reported of implemented actions (see Indicator 10a). However, there is no comprehensive

information source setting out funding accessed, and available funding at a UK level or at the level of the devolved administrations.

While a specific budget is not attached to the current NAP at a UK level, the Government provides funding for developing the UK Climate Projections, the national climate change risk assessment (including the national perspectives)⁹¹, the maintenance of the ASC, the climate services websites, and other research and cross-cutting actions needed to implement the respective NAPs and coordinate action nationally⁹². Funding is also available through a number of funding mechanisms for improved climate resilience, primarily where climate risks are taken into account as part of wider funding mechanisms. For example, the Industrial Strategy⁹³ and the Strength in Places Fund (£115 million) support research and innovation in local networks with a component examining climate change and resilience to extreme weather events; and the flood risk management strategy also disburses funds for reducing flood risk (£3 billion).

In addition, the Government Chief Scientific Advisor's Environmental Observations Committee was set up in 2013. Its aim is to ensure that appropriate funding mechanisms are in place for priority programmes and that a coherent and robust environmental monitoring infrastructure exists to meet national needs, including to secure sustained funding for long-term observation activities.

England & reserved matters: Limited information concerning resource allocation was reported in the 2017 progress report. Significant resources have been made available for flood protection infrastructure and capacity building with £2.6 billion allocated between 2017 and 2023 in flood and coastal erosion risk management (CCC, 2017)⁹⁴.

The 2017 progress report acknowledges that there will be implications for funding because of the UK leaving the EU, indicating that the European Structural Investment Funds are an important source of funding. However, no details concerning this source of funding are provided in the report.

Scotland: The Scottish Government currently funds adaptation through:

91 Almost £1.5 million was spent on CCRA2. CCRA2 was carried out by the Adaptation Sub-Committee of the UK Committee on Climate Change, an independent expert body advising the UK Government on adaptation. This, along with lessons learned from the first CCRA1, brought considerable efficiencies and savings compared to CCRA1 delivering much greater value for money. CCRA2 focused on a smaller number of prioritised key risks. The innovative urgency framework used in CCRA2 to prioritise risk and opportunities and translate into recommendations for government was found to be a more useful and effective way to communicate results than CCRA1. The research carried out was funded largely by an additional contribution from the Natural Environment Research Council of £400k.

92 CCC, 2016, UK Climate Change Risk Assessment Evidence Report 2016. Method document, Version 1.0. URL: <https://documents.theccc.org.uk/wp-content/uploads/2014/12/CCRA-METHOD-V1-0.pdf>. Date accessed: 11/05/2018.

93 HM Government, 2017, Industrial Strategy: Building a Britain fit for the future. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf. Date accessed: 11/05/2018.

94 CCC, 2017, Progress in preparing for climate change. 2017 Report to Parliament. URL: <https://www.theccc.org.uk/wp-content/uploads/2017/06/2017-Report-to-Parliament-Progress-in-preparing-for-climate-change.pdf>. Date accessed: 11/05/2018.

- The development of a robust evidence base, such as Government research programmes;
- Scottish Government funding of Adaptation Scotland to develop adaptive capacity; and
- Policy-specific actions, such as the development of River Basin Management Plans through SEPA.

Wales: The Welsh Government’s funding of climate adaptation is distributed across various portfolios. Flood and Coastal Risk Management is a priority investment area for the Welsh Government, announcing an investment of over £54 million across Wales over a four-year time period. The investment is planned to facilitate effective planning and provide certainty of funding from one year to the next. The Coastal Risk Management Programme provides the opportunity for local authorities to invest up to £150 million in coastal infrastructure protecting Welsh coastal communities, adapting to the challenge of climate change and sea-level rise and achieving wider benefits.

Northern Ireland: The Government funds adaptation through policy specific actions such as the development and delivery of Flood Risk Management Plans, River Basin Management Plans, conservation management plans etc. The Government (DAERA) funds and works with Climate NI to increase adaptation awareness and understanding across sectors and equipping these sectors with the information they need to adapt to climate change. Climate NI also promotes and supports adaptation engagement and climate resilience capacity building within NI across all sectors.

Step D: Implementing adaptation action

8. Mainstreaming adaptation in planning processes

8a. Consideration of climate change adaptation has been included in the national frameworks for environmental impact assessments

Yes / No

The transposition of SEA Directive 2001/42/EC and the Environmental Impact Assessment (EIA) Directive 2014/52/EU are devolved matters in the UK and each of the devolved administrations is responsible for preparing its own regulations. The requirements of these directives have been transposed to the following pieces of legislation and accordingly stipulate that an EIA shall identify, describe and assesses climate impacts, among other environmental impacts. Note that in the case of Scotland, one Act covers both directives and extends the legislation of the SEA Directive ‘to cover all qualifying public plans, programmes and strategies’.

- **England:** The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the ‘2017 Regulations’)⁹⁵
- **Scotland:** Environmental Assessment (Scotland) Act 2005⁹⁶
- **Wales:** The Town and Country Planning (Environmental Impact Assessment (Wales) Regulations 2016⁹⁷; The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004⁹⁸
- **Northern Ireland:** The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017⁹⁹; The Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004¹⁰⁰. 2004 No. 280

Guidance on the integration of climate adaptation within the process of developing an EIA is limited. Only guidance developed by the Scottish devolved administration refers to the integration of climate adaptation within the process of developing an EIA (Scottish Natural Heritage, 2018)¹⁰¹.

A UK practical guide to the SEA Directive was published in 2005, which reflects climate adaptation needs (Office of the Deputy Prime Minister, 2005)¹⁰². It identifies how climate adaptation should be factored into planning (and specifies appropriate timescales). The guide lists sources of information to inform the development of the baseline used in the assessment and sets out indicators that could be used to quantify the baseline and monitor project impacts.

Further guidance for England and Wales was published in 2011, building on the 2005 guidance (Environment Agency, 2011)¹⁰³. It provides more detail on the processes involved

95 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Statutory Instruments 2017, No. 571, Town and Country Planning. URL: <http://www.legislation.gov.uk/uksi/2017/571/introduction/made>. Date accessed: 11/05/2018.

96 Environmental Assessment (Scotland) Act 2005. 2005 asp 15. URL: <http://www.legislation.gov.uk/asp/2005/15/contents>. Date accessed: 11/05/2018.

97 Town and Country Planning (Environmental Impact Assessment (Wales) Regulations 2016. 2016 No.58 (W.28). URL: <http://www.legislation.gov.uk/wsi/2016/58/contents/made>. Date accessed: 11/05/2018.

98 The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004. 2004 No. 1656 (W. 170). URL: <http://www.legislation.gov.uk/wsi/2004/1656/contents/made>. Date accessed: 11/05/2018.

99 The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017. Statutory Rules of Northern Ireland. 2017 No. 83, Planning. URL: <http://www.legislation.gov.uk/nisr/2017/83/made>. Date accessed: 11/05/2018.

100 The Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004. 2004 No. 280. URL: <http://www.legislation.gov.uk/nisr/2004/280/contents/made>. Date accessed: 11/05/2018.

101 Scottish Natural Heritage, 2018, Environmental Impact Assessment Handbook. URL: <https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf>. Date accessed: 11/05/2018.

102 Office of the Deputy Prime Minister, 2005, A Practical Guide to the Strategic Environmental Assessment Directive. Practical guidance on applying European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. Scottish Executive; Welsh Assembly; Department of the Environment, Northern Ireland; and Office of the Deputy Prime Minister. URL: <https://gov.wales/docs/desh/policy/150616-a-practical-guide-to-the-sea-directive-en.pdf>. Date accessed: 11/05/2018.

103 Environment Agency, 2011, Strategic environmental assessment and climate change: guidance for practitioners. URL:

in SEA development and how climate adaptation could be considered in the various processes. Similarly, additional guidance for Scotland was published in 2010 (Scottish Government, 2010)¹⁰⁴. It provides step-by-step guidance for the complete process, from screening, scoping, assessment, adoption to monitoring. It also sets out how climate adaptation could be considered in the various processes of SEA development.

8b. Prevention/preparedness strategies in place under national disaster risk management plans take into account climate change impacts and projections

Yes / No

In accordance with the Civil Contingencies Act (2004), the UK Government publishes a National Risk Register of Civil Emergencies every five years to assess the risks of civil emergencies facing the country. Although the Civil Contingencies Act, from 2004, has not been modified to address the effects of climate change, risk assessments in the UK are required to respond quickly to changes in the risk environment, including climate change. In this context, climate change is recognised as a major concern that should be regularly reviewed in risk assessments (Cabinet Office, 2006)¹⁰⁵. The current risk register (Cabinet Office, 2015)¹⁰⁶ factors in climate change projections and climate-related impacts based on historic events to identify anticipated consequences affecting the UK's capacity to respond to identified risks.

Other disaster risk related frameworks have been revised to integrate the effects of climate change. The Health and Social Care Act (2012) focuses on local planning and decision-making for setting and delivering local health priorities. Some basic tools include the Joint Strategic Needs Assessments (JSNAs) and subsequent strategies produced by health and wellbeing boards. The Statutory guidance on JSNAs and Joint Health and Wellbeing Strategies (JHWSs), produced by the Department of Health, demands consideration of the impacts of climate change when preparing them.

Two key risks identified for the UK are specifically addressed through national frameworks. The Heatwave Plan for England (2004) was revised in 2014 to better address the risks of climate change, including preparedness, alert and readiness. It has continued to be reviewed every year since 2014. The Flood and Water Management Act 2010 requires the preparation of national and local strategies for flood risk management, which have to consider the risks of climate change. The National Flood and Coastal Erosion Risk Management Strategy includes long-term planning, avoidance of inappropriate development in high risk areas, improved

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/297039/geho0811buca-e-e.pdf. Date accessed: 11/05/2018.

104 Scottish Government, 2010, Consideration of Climatic Factors within Strategic Environmental Assessment (SEA). URL: <http://www.gov.scot/Publications/2010/03/18102927/0>. Date accessed: 11/05/2018.

105 Cabinet Office, 2006, Emergency preparedness. Guidance on part 1 of the Civil Contingencies Act 2004, its associated regulations and non-statutory arrangements (Chapter 19, paragraph 19.9). URL: <https://www.gov.uk/government/publications/emergency-preparedness>. Date accessed: 11/05/2018.

106 Cabinet Office, 2015, National Risk Register of Civil Emergencies. 2015 edition. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/419549/20150331_2015-NRR-WA_Final.pdf. Date accessed: 11/05/2018.

flood management infrastructure, increased public awareness and improved flood detection/warning.

The respective NAPs also comprehend several measures to reduce risks, complementary to the main disaster risk management regulations, to reduce climate risks, including spatial planning (see Indicator 8c), housing design, or the maintenance of performance of flood defences in the light of climate change impacts.

8c. Key land use, spatial planning, urban planning and maritime spatial planning policies take into account the impacts of climate change

Yes / No

England & reserved matters: Support for the transition to a low carbon future in a changing climate is one of the core land-use planning principles set out in the National Planning Policy Framework (NPPF) for England¹⁰⁷. The principles are expected to underpin both plan-making and decision-taking, covering both land-use and marine planning decisions. Local authorities are expected to adopt proactive strategies to adapt to climate change in their Local Plans in line with the provisions and objectives of the CCA. They should co-operate with neighbouring authorities and other bodies to deliver cross-boundary strategic priorities, including climate adaptation. The Local Plan will need to reflect these requirements and enable the delivery of sustainable development in accordance with the policies in the NPPF, if it is to be found ‘sound’ at examination and before it can be adopted by the local authority. Neighbourhood plans must be in general conformity with the strategic policies of the Local Plan and should help achieve the sustainable development needed in their local area.

In addition to the statutory requirement to take the NPPF into account in the preparation of Local Plans, there is a statutory duty on local planning authorities to include policies in their Local Plan designed to contribute to adaptation to climate change. This complements the sustainable development duty on plan-makers. The NPPF recognises that responding to climate change is part of the economic, social and environmental dimensions of sustainable development. Guidance to Local Enterprise Partnerships (LEPs) were also developed to ensure that adaptation is embedded in local strategies (Ministry of Housing, Communities and Local Government, 2014)¹⁰⁸ (Ministry of Housing, Communities and Local Government, 2014)¹⁰⁹.

Scotland: The Climate Change (Scotland) Act 2009 requires Scotland to establish a national land-use strategy for sustainable land use (mindful of climate adaptation needs). At a national level, Scotland’s Second Land Use Strategy sets out land-use policy for 2016-2021, covers

107 Ministry of Housing, Communities and Local Government, 2012, National Planning Policy Framework. URL: <https://www.gov.uk/guidance/national-planning-policy-framework/10-meeting-the-challenge-of-climate-change-flooding-and-coastal-change>. Date accessed: 11/05/2018.

108 Ministry of Housing, Communities and Local Government, 2014, Guidance: Climate Change. URL: <https://www.gov.uk/guidance/climate-change>. Date accessed: 11/05/2018.

109 Ministry of Housing, Communities and Local Government, 2014, Guidance: Climate Change. URL: <https://www.gov.uk/guidance/climate-change>. Date accessed: 11/05/2018.

objectives, principles and indicators for sustainable land use in business, the environment, and communities.¹¹⁰

Marine spatial planning is carried out at national and regional levels and closely linked to sectoral and terrestrial planning. Climate adaptation is inherent to all levels of planning¹¹¹. However, a recent review reported that a conflict in planning between oil and gas and climate change has led to strategic ineffectiveness at times between 2015 and 2018 (Scottish Government, 2018)¹¹².

Wales: Wales has adopted a plan-led system to land-use planning, which is carried out through up-to-date Local Development Plans. Detailed guidance is available to support land-use planning in Wales. Climate adaptation is one of the founding principles of the policy and features throughout the guidance along with a targeted section to explain the rationale and to signpost to the relevant chapters in the guidance (Welsh Government, 2016)¹¹³. The Welsh Government is also working on the production of a National Development Framework (NDF). The NDF will set out a 20-year land-use framework for Wales and will replace the current Wales Spatial Plan. The NDF includes consideration of climate impacts.

The first national marine plan for Wales is under development; the draft report was released in March 2018 and a public consultation was subsequently conducted. Climate adaptation is embedded in the plan in relation to improving resilience of marine ecosystems and species and to coastal change and flooding. (Welsh Government, 2018)¹¹⁴

Northern Ireland: Regional guidelines for climate adaptation in land-use planning are defined in the Regional Development Strategy 2035 (RDS) (Department for Infrastructure, 2012)¹¹⁵. The RDS includes a spatial framework, which is designed according to sectors and geography, guidance at regional and sectoral levels, the identification of regionally significant economic infrastructure and an implementation plan. Furthermore, the Strategic Planning Policy Statement (SPPS), which is in general conformity with the RDS and was published in September 2015, provides that the planning system can further sustainable development by mitigating and adapting to climate change, whilst improving air quality. The SPPS is a strategic planning policy framework for the reformed two-tier planning system, which became operational on 1 April 2015. The SPPS must be taken into account in the

110 Scottish Government, 2016, Getting the best from our land: A land use strategy for Scotland 2016-2021. URL: <http://www.gov.scot/Publications/2016/03/5773/0>. Date accessed: 11/05/2018.

111 Marine (Scotland) Act 2010 (asp 5). URL: http://www.legislation.gov.uk/asp/2010/5/pdfs/asp_20100005_en.pdf. Date accessed: 11/05/2018.

112 Scottish Government, 2018, National Marine Plan Review 2018: Three Year Report on the implementation of Scotland's National Marine Plan (encompassing inshore and offshore waters). URL: <http://www.gov.scot/Publications/2018/03/2751>. Date accessed: 11/05/2018.

113 Welsh Government, 2016, Planning Policy Wales. URL: <https://gov.wales/docs/desh/publications/161117planning-policy-wales-edition-9-en.pdf>. Date accessed: 11/05/2018.

114 Welsh Government, 2018, Draft Welsh National Marine Plan. URL: <https://beta.gov.wales/sites/default/files/consultations/2018-02/draft-plan-en.pdf>. Date accessed: 11/05/2018.

115 Department for Regional Development, 2012, Regional Development Strategy. URL: <https://www.infrastructure-ni.gov.uk/sites/default/files/publications/infrastructure/regional-development-strategy-2035.pdf>. Date accessed: 11/05/2018.

preparation of Local Development Plans and by individual planning applications and appeals. The development and publication of the SPPS fulfils a commitment to build the resilience of the built and natural environment and to develop and implement sustainable strategies to explore, address and manage significant flood risk. The SPPS applies to the whole of Northern Ireland.

At the local level, all of Northern Ireland's 11 local councils are, currently, developing and preparing new local development plans to embed the plan-led system introduced by the Planning Act (Northern Ireland) 2011. It is expected that these plans will assist with the delivery of the Northern Ireland Executive's priorities, including the RDS and SPPS.

The first national marine plan for Northern Ireland is under development; the draft report was released in April 2018 and a public consultation was launched at the same time (18 April – 15 June 2018). Climate adaptation is embedded in the plan in relation to improving resilience of marine ecosystems and species and to coastal change and flooding (DAERA, 2018)¹¹⁶.

8d. National policy instruments promote adaptation at sectoral level, in line with national priorities and in areas where adaptation is mainstreamed in EU policies

Yes / In progress / No

England & reserved matters: The NAP promotes sectoral adaptation. The Government's policy has been to embed adaptation consideration into all relevant policies, and the NAP sets out the roles of the key government departments and their respective delivery bodies and partners. The most relevant policy instruments are identified, and the ways that they already promote adaptation (or actions to ensure that they will in the near future) are described. Adaptation is embedded as a consideration across the UK Government with coordination from the Domestic Adaptation Board. The Defra Climate Ready programme chaired the Domestic Adaptation Board and co-ordinated the UK Government's work on adaptation in England, and throughout the UK on a range of reserved matters. Defra policy officials continue this role.

Scotland: A senior cross-government Climate Change Delivery Board and Sector Action Plans assist in mainstreaming adaptation across policy areas. By providing co-ordination across boundaries of organisations' responsibilities, this encourages both private and public action and can ensure a long-term approach to public goods, such as natural resource protection. Co-ordination is provided through:

- Development of key national strategies, such as the Land Use Strategy and the National Planning Framework
- Establishment of forums such as the Rural Land Use Study; and
- Support of consistent public-sector advice through Adaptation Scotland

116 DAERA, 2018: Consultation on the proposed Marine Plan. URL: <https://www.daera-ni.gov.uk/consultations/consultation-proposed-marine-plan>. Date accessed: 15/05/2018.

Wales: The Well-being of Future Generations (Wales) Act 2015 establishes the framework for integrating considerations of climate change into policy development and delivery across sectors. During policy development, there must be consideration of future climate trends, alongside other significant national and global trends identified in the Future Trends Report. Policies should be designed to maximise their contribution to the national well-being goals, thereby incorporating climate resilience into policy design.

At the time of reporting, work is also underway in Wales to develop a National Development Framework, which will establish a 20-year land-use planning system, nationally, regionally and locally, across sectors. Adaptation to climate change will be an underpinning consideration to the framework¹¹⁷.

Northern Ireland: A Cross-Departmental Working Group on Climate Change has been established to facilitate the development of the government's climate change adaptation programme (policies and actions). This has been further driven by "the Northern Ireland Civil Service Work Programme's Outcome 2": "We live and work sustainably - protecting the environment". This outcome is aligned with the Government's commitment to implementing Goal 13 of the UN 2030 Sustainable Development Goals, which requires urgent action to combat climate change and its impacts. As a contribution to the delivery of Outcome 2 beyond government, DAERA funds and works closely with Climate Northern Ireland to ensure promotion of climate adaptation actions across all sectors, including awareness raising, climate change risk management, and responding to opportunities.

8e. Adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention

Yes / **No**

Adaptation is not yet mainstreamed into insurance or other policy instruments incentivising investments in risk prevention, but the NAP contains significant elements that will facilitate integration in the short term. On incentives, one of the key declared drivers of the NAP is that, while it is important for the Government to help remove barriers to action, policy should be developed in such a way that it does not crowd out private investment in adaptation and keeps a clear focus on cost-effectiveness.

Flood insurance is recognised as a key tool to help households and private businesses manage the potential consequences of extreme events linked to climate change. Accordingly, the Government is committed to ensuring the continued availability and affordability of flood insurance to high-risk households. One of the NAP actions with this aim is securing new arrangements for flood insurance beyond 2013. It was followed up by a number of recommendations in review of the NAP progress by the ASC in 2015, including future

117 Welsh Government, 2017, National Development Framework for Wales. URL: <http://gov.wales/topics/planning/national-development-framework-for-wales/?lang=en>. Date accessed: 11/05/2018.

strategies and recommendations on Flood Re, a recent public-private initiative that became operational¹¹⁸.

Flood Re is an important instrument, but not considered to convincingly incentivise adaptation. As part of Flood Re's transition plan, there are proposals to encourage households to better protect their properties, so that the chance of needing to make a claim is reduced. The aim is to allow insurance to remain available and affordable without the need for ongoing subsidies¹¹⁹.

9. Implementing adaptation

9a. Adaptation policies and measures are implemented, e.g. as defined in action plans or sectoral policy documents

Yes / **In progress** / No

There are many sectoral policy instruments that have driven adaptation actions since integration of the consideration of climate change risks across all relevant instruments is part of the UK's approach to adapting to climate change. Examples of national plans at sector level include:

- The Government's strategic policy statements to sector regulators for water¹²⁰ that place long-term resilience at the centre of business planning, influencing over £40 billion of water company investment in water and wastewater services
- A Forestry Sector Climate Change Working Group, established in 2015, which is working towards publishing an Action Plan for Forestry and Climate Change Adaptation in the UK¹²¹.

Furthermore, the respective adaptation programmes for England, Wales, Scotland and Northern Ireland define policies and measures to be implemented at several levels and identifies the actors to implement each of them. Each adaptation programme has a time horizon of five years, and provides tables identifying the timing for every action. Annual progress reports for the respective adaptation programmes indicate that many of the actions have been or are being implemented already (some were in place before the adoption of the adaptation programmes). The second NAP will provide information at sector level

118 HM Government, 2015, Government response to the Committee on Climate Change. Progress on preparing for climate change (pp. 13, 14 and 18). URL: https://www.theccc.org.uk/wp-content/uploads/2015/10/DECC_CCC_Adaptation.pdf. Date accessed: 11/05/2018.

119 CCC, 2016, Scottish Climate Change Adaptation Programme: An independent assessment for the Scottish Parliament. Committee on Climate Change September 2016 (p.87). URL: <https://www.theccc.org.uk/wp-content/uploads/2016/09/Scottish-Climate-Change-Adaptation-Programme-An-independent-assessment-CCC-September-2016.pdf>. Date accessed: 11/05/2018.

120 Defra, 2017, The Government's strategic priorities and objectives for Ofwat. URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/661803/sps-ofwat-2017.pdf. Date accessed: 11/05/2018.

121 BEIS, 2017, 7th National Communication. Chapter 5 – Vulnerability assessment, climate change impact and adaptation measures. URL: [http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/19603845_united_kingdom-nc7-br3-1-gbr_nc7_and_br3_with_annexes_\(1\).pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/19603845_united_kingdom-nc7-br3-1-gbr_nc7_and_br3_with_annexes_(1).pdf). Date accessed: 11/05/2018.

concerning all major infrastructure sectors and annual progress reports will continue to monitor implementation progress of the adaptation programmes.

England & reserved matters: A total of 51% of the actions included in the NAP were assessed as complete in 2017 and 35% were on track for completion (CCC, 2017)¹²².

Scotland: According to the 2016 ASC review of the SCCAP “Across the three themes of the SCCAP, policies and plans are generally in place and, other than in a few isolated cases, actions are taking place. However, evidence of progress being made is mixed.”

Furthermore, the review noted that “Objectives in support of climate adaptation are established in each of the SCCAP’s three themes, and almost all of the 148 policies and proposals mentioned in the programme are reported to be completed or “on track”.”¹²³

Wales: To date there has not been an independent assessment of the country’s resilience to climate risks. However, the Welsh Government is reviewing implementation of actions in the 2010 Climate Change Adaptation Delivery Plan to ensure that they are taken forward, as appropriate, in the new plan.

Northern Ireland: An evaluation of the progress made to date is underway and the evaluation report will be included in Northern Ireland’s next Adaptation Programme due for publication in 2019.

9b. Cooperation mechanisms in place to foster and support adaptation at relevant scales (e.g. local, subnational)

Yes / No

The respective NAPs identify and describe actions and proposals that are the responsibility of the Government and of other institutions outside the Government, such as local government, industry, communities and civil society. The NAPs also identify actions where several institutions have to be involved.

Across the devolved administrations, specific organisations have been established to facilitate cooperation. In Scotland, there are Community Planning Partnerships¹²⁴ and the Scottish Climate Change Impacts Partnership, which help local stakeholders in local adaptation planning. In Wales, PSBs have been established to foster a collaborative approach to addressing local priorities¹²⁵. While in Northern Ireland, an Adaptation Programme has been

122 CCC, 2017, Progress in preparing for climate change. 2017 Report to Parliament. URL: <https://www.theccc.org.uk/wp-content/uploads/2017/06/2017-Report-to-Parliament-Progress-in-preparing-for-climate-change.pdf>. Date accessed: 11/05/2018.

123 See Key Messages and Executive Summary for overview: <https://www.theccc.org.uk/wp-content/uploads/2016/09/Scottish-Climate-Change-Adaptation-Programme-An-independent-assessment-CCC-September-2016.pdf>. Date accessed: 11/05/2018.

124 Community Planning Partnerships are operating in all 32 local authority areas and are responsible for developing and delivering a local development plan for its council area.

125 National Assembly for Wales, 2014, Well-being of Future Generations (Wales) Bill. URL: <http://www.senedd.assembly.wales/documents/s30083/WFG%2069%20Welsh%20Local%20Government%20Association%20WLGAs.pdf>. Date accessed: 11/05/2018.

established to encourage adaptation responsibilities throughout society, including district councils.

In addition, the UK facilitates regional coordination through several initiatives including Core Cities. This group represents the UK's 10 core cities, excluding London, and aims to unlock their full potential to create a stronger, fairer economy and society. Sub-nationally, Core Cities are active around adaptation. Core Cities collaborate at officer level (the Climate Resilience and Adaptation working group) and feed activity and learning up into the Core Cities Climate Low Carbon, Energy and Resilience Policy Hub and ultimately to the cabinet and chief executive levels. There have been some good examples of progress against NAP actions (and core cities principles) within Core Cities, and there are differences sub-nationally in areas where Core Cities operate more as city regions or as individual entities themselves.

As an example of city-level partnerships, the Leeds Climate Commission is a city-wide partnership with membership drawn from over 30 key public, private and third sector organisations. Led initially by the University of Leeds and Leeds City Council, its aim is to bring people and organisations together to shape the transition of Leeds to a low carbon, climate-resilient city and to mirror the strategic priorities of the Government's advisory CCC at a city scale.

9c. Procedures or guidelines are available to assess the potential impact of climate change on major projects or programmes, and facilitate the choice of alternative options, e.g. green infrastructure

Yes / No

Through its Climate Ready Support Service, EA worked with partners to provide targeted advice, helping key sectors increase their resilience to all major climate risks and impacts. The guidance and tools were developed and road-tested with leading companies before being rolled out as a wider scheme. EA worked with a range of businesses/sectors (including land use/management planning sectors, such as forestry, agriculture and the water sector) to provide tools and guidance ranging from a simple business-resilience health-check tool through to full risk assessment methods for more complex aspects, such as understanding supply chain impacts:

- Guidance on business continuity¹²⁶, making the case for adapting the built environment¹²⁷, adaptation for health and social care¹²⁸, the paper and pulp sector¹²⁹, the

126 BSI: Adapting to Climate Change using your Business Continuity Management System. URL: <http://www.bsigroup.com/en-GB/forms/Adapting-to-Climate-Change-using-your-Business-Continuity-Management-System/>. Date accessed: 15/05/2018.

127 Climate Change Adaptation: Official group of buildings performance. Articles. URL: <https://connect.innovateuk.org/web/climate-change-adaptation/article-view/-/blogs/guidance-for-making-the-case-for-climate-change-adaptation-in-the-built-environment>. Date accessed: 15/05/2018.

128 NHS, 2012, Adaptation to Climate Change for Health and Social Care organisations: "Co-ordinated, resilient, prepared.". URL: http://www.sduhealth.org.uk/documents/publications/adaptation_guidance_final.pdf. Date accessed: 11/05/2018.

food and drink sector¹³⁰, farm business resilience¹³¹, and climate-proofing health and wellbeing strategies¹³², adaptation in the natural environment¹³³, and a quick guide for small and medium-sized businesses¹³⁴

- Tools to better understand social vulnerability and climate change¹³⁵, business resilience¹³⁶ and farm business resilience¹³⁷, analyse the costs and benefits of adaptation¹³⁸, project climate change impacts on wetlands¹³⁹.

In addition, the UKCIP has produced a range of guidelines over the years¹⁴⁰.

The NAP details actions from the Institute of Environmental Management and Assessment (IEMA), which aim to ensure that climate change implications will be given consideration in all infrastructure works to be implemented from 2013 to 2016. This includes: reviews of IEMA's online hub on EIA and climate change, updating advice resources (information pages and advice notes) and other communication and awareness campaigns (e.g. webinars), and providing guidance on integrating climate change and biodiversity into the EIA and SEA process¹⁴¹.

The NPPF supports the use of green infrastructure. The Local Government Association (LGA) has recently issued reference guides and resources to help local authorities plan for

129 Climate Ready, 2013, Preparing a climate change action plan: Paper and pulp sector guidance. URL: <http://www.paper.org.uk/documents/EA/Climate%20Ready%20Adaptation%20Guidance%20paper%20and%20pulp%20final%20181113.pdf>. Date accessed: 11/05/2018.

130 Climate Ready, 2013, Preparing a climate change action plan: Food and drink sector guidance. URL: <http://www.fdf.org.uk/publicgeneral/Climate-Ready-FDF-Adaptation-Guide.pdf>. Date accessed: 11/05/2018.

131 Farming Advice Service: Managing business risks in a changing climate. URL: <https://vimeo.com/123620498?lite=1>. Date accessed: 15/05/2018.

132 Climate Ready, 2015, Under the weather: Improving health, wellbeing and resilience in a changing climate. URL: http://www.sduhealth.org.uk/documents/publications/2015/09032015_-_Under_the_weather_-_Climate_Ready_-_version_2_-_Final_Master.pdf. Date accessed: 11/05/2018.

133 Natural England, 2014, Climate Change Adaptation Manual – Evidence to support nature conservation in a changing climate (NE546). URL: <http://nepubprod.appspot.com/publication/5629923804839936>. Date accessed: 11/05/2018.

134 Defra and Environment Agency, 2013, Climate Week: Be Climate Ready. URL: <http://www.greensuffolk.org/assets/Greenest-County/Business/General-Files/Be-Climate-Ready-Guide.pdf>. Date accessed: 11/05/2018.

135 Climate Just. URL: <http://www.climatejust.org.uk/>. Date accessed: 15/05/2018.

136 Business Resilience Health Check. URL: <http://www.businessresiliencehealthcheck.co.uk/>. Date accessed: 15/05/2018.

137 Farm Business Resilience Healthcheck. URL: <http://www.farmbusinessresilience.co.uk/>. Date accessed: 15/05/2018.

138 Climate Ready, 2014, Business case for adaptation. URL: <http://www.fdf.org.uk/publicgeneral/cost-benefit-analysis-methodology.pdf>. Date accessed: 11/05/2018.

139 CEH, 2012, New tool helps project the impacts of climate change on wetlands. URL: <http://www.ceh.ac.uk/news-and-media/news/new-tool-helps-project-impacts-climate-change-wetlands>. Date accessed: 11/05/2018.

140 UKCIP: Decision-making for adaptation exchanging knowledge and ideas. Creative adaptation. URL: <http://www.ukcip.org.uk/publications/>. Date accessed: 15/05/2018.

141 IEMA, 2015, New EIA Guidance Will Speed Up Planning and Bring Down Costs. URL: <https://www.iema.net/news/news/2015/11/12/new-eia-guidance-will-speed-up-planning-and-bring-down-costs/>. Date accessed: 15/05/2018.

and provide green infrastructure in developing their local environment in order to reduce and manage climate change impacts in urban areas.

9d. There are processes for stakeholders' involvement in the implementation of adaptation policies and measures

Yes / No

The actors responsible for the implementation of the adaptation actions are prescribed by the respective adaptation programmes. Nearly 100 organisations are listed against actions in the first NAP, many of which cover sectors with many members that would contribute to delivering against those actions and would have been engaged in developing the NAP. Stakeholders include: universities; research bodies; government departments and agencies (at a UK level as well as those of the devolved administrations); NGOs; city councils and authorities; the Crown Estate; trade associations; regional partnership bodies (CCC, 2017)¹⁴².

Advice and support concerning the implementation of adaptation actions is provided at a UK level, through Climate UK, which covers England, Scotland, Wales and Northern Ireland (see Indicator 1c.). Although Climate UK Community Interest Company (CIC) will cease operations, the informal Climate UK network, which existed for more than 10 years prior to the establishment of the CIC, will continue.

Through the ARCC and EA, the Government has also worked to establish and support networks of organisations that may share common risks on an *ad hoc* basis. One such example is the Infrastructure Operators Adaptation Forum, which provides a platform for stakeholders in the infrastructure sector to share best practices to reduce vulnerability to climate adaptation and identify opportunities (stakeholders include: operators, regulators, government bodies, trade associations and researchers)¹⁴³.

Step E: Monitoring and evaluation of adaptation activities

10. Monitoring and reporting

10a. NAS/NAP implementation is monitored and the results of the monitoring are disseminated

Yes / No

England & reserved matters: According to the CCA, each report of the UK's CCC must contain an assessment of the progress made towards implementing the objectives, proposals and policies set out in the programmes laid before the UK Parliament under the section 'adaptation to climate change'. Reporting needs to address the array of actions carried out at

142 CCC, 2017, Progress in preparing for climate change. 2017 Report to Parliament. URL: <https://www.theccc.org.uk/wp-content/uploads/2017/06/2017-Report-to-Parliament-Progress-in-preparing-for-climate-change.pdf>. Date accessed: 11/05/2018.

143 ARCC: Infrastructure operators adaptation forum. URL: <https://www.arcc-network.org.uk/infrastructure/ioaf/>. Date accessed: 01/06/2018.

all levels and by different actors, and is supported by the ARP, which invites comprehensive reporting of actions from all relevant stakeholders.

Monitoring of adaptation action and sectoral integration is embedded in the NAP's monitoring scheme, as it contains priority sectoral activities and actors responsible for their implementation. The ASC developed an adaptation indicator framework, consisting of performance indicators for climate adaptation, which build on a series of annual progress reports.¹⁴⁴

Work is carried out across the Government to track implementation of the first NAP on a regular basis. Additionally, the ASC has a statutory duty to assess progress in implementing the NAP, reporting to Parliament in June 2015 and every two years thereafter. The ASC assesses all actions in the NAP, including those for councils and other local public bodies, business, and civil society, as well as central government.

The ASC's first report¹⁴⁵ to the UK Parliament on the implementation of the NAP was published in June 2015. The Government's response¹⁴⁶ to the assessment was published in October 2015. In June 2017, the ASC published their second and final progress report on the first NAP¹⁴⁷. An official government response was due for publication in October 2017.

The progress reports do not contain comprehensive information concerning financial information on allocated budgets and the costs of actions.

Scotland: The Climate Change (Scotland) Act 2009 requires Scottish Ministers to provide an annual report on progress towards achieving the objectives and implementing the proposals and policies set out in the SCCAP. The first annual report was published in May 2015¹⁴⁸, the second in May 2016¹⁴⁹, the third in May 2017¹⁵⁰ and the fourth in May 2018¹⁵¹. The Act establishes the requirement for the ASC to independently assess the Scottish Government's

144 CCC: Publications. URL: <http://www.theccc.org.uk/publications/>. Date accessed: 15/05/2018.

145 CCC, 2015, Reducing emissions and preparing for climate change: 2015 Progress Report to Parliament. URL: <https://www.theccc.org.uk/publication/reducing-emissions-and-preparing-for-climate-change-2015-progress-report-to-parliament/>. Date accessed: 11/05/2018.

146 HM Government, 2015, Committee on Climate Change's 2015 progress report: Government response. URL: <https://www.gov.uk/government/publications/committee-on-climate-changes-2015-progress-report-government-response>. Date accessed: 11/05/2018.

147 CCC, 2017, 2017 Report to Parliament – Progress in preparing for climate change. URL: <https://www.theccc.org.uk/publication/2017-report-to-parliament-progress-in-preparing-for-climate-change/>. Date accessed: 11/05/2018.

148 Scottish Government, 2015, Climate Ready Scotland: Scottish Climate Change Adaptation Programme, Annual Progress Report 2015. URL: <http://www.gov.scot/Publications/2015/05/2336>. Date accessed: 11/05/2018.

149 Scottish Government, 2016, Climate Ready Scotland: Scottish Climate Change Adaptation Programme. Second Annual Progress Report 2016. URL: <http://www.gov.scot/Publications/2016/05/7046>. Date accessed: 11/05/2018.

150 Scottish Government, 2017, Climate Ready Scotland: Scottish Climate Change Adaptation Programme. Third annual progress report 2017. URL: <http://www.gov.scot/Publications/2017/05/3941>. Date accessed: 11/05/2018.

151 Scottish Government, 2018, Climate Ready Scotland: Scottish Climate Change Adaptation Programme - Fourth Annual Progress Report. URL: <http://www.gov.scot/Publications/2018/05/8259>. Date accessed: 11/05/2018.

progress towards meeting the objectives in the SCCAP. The first independent report was published in September 2016¹⁵². The ClimateXChange centre has developed an indicator framework for Scotland, with funding from the Scottish Government. This is currently being updated to inform the second ASC Independent Assessment.

The progress reports do not contain comprehensive information concerning financial information on allocated budgets and the costs of actions.

Wales: Under the CCA there are provisions for the Welsh Government to report on progress in relation to climate change, which are set out in the Welsh Government's Annual Report, along with a summary of the actions taken. This reporting requirement has been strengthened through the Well-being of future Generations Act, where all public bodies will need to set out how they are working towards the well-being goals including the 'Resilient Wales Goal'. The Welsh Government intends to introduce adaptation indicators in a phased manner.

Northern Ireland: The CCA requires that the next Climate Change Adaptation Programme (and any subsequent ones) must contain an assessment of the progress made towards implementing the objectives, proposals and policies set out in earlier programmes. The identification of data and indicators to monitor adaptation is also considered as part of Northern Ireland's adaptation programme and will be part of the next adaptation programme due to be published in 2019.

The progress reports do not contain comprehensive information concerning financial information on allocated budgets and the costs of actions.

10b. The integration of climate change adaptation in sectoral policies is monitored and the results of the monitoring are disseminated

Yes / No

Monitoring of adaptation action and sectoral integration is embedded in the monitoring scheme of the respective adaptation programmes, as it contains priority sectoral activities and actors responsible for their implementation.

In addition, in England, the Secretary of State for Environment, Food and Rural Affairs has the discretionary power to direct reporting authorities to prepare reports on how they are adapting to climate change. Reports include an assessment of climate change risks faced by the reporting authority, and a programme of measures to address the risks and opportunities presented. In the first reporting round (2010-2011), over 100 organisations from the water, energy, transport and public sectors submitted reports. In 2013, the Government published a strategy for the second round of reporting, with just over 100 organisations invited to report on a voluntary basis for the second round between 2014 and 2016. The ASC provides advice

152 Adaptation Sub-Committee, 2016, Scottish Climate Change Adaptation Programme: An independent assessment. URL: <https://www.theccc.org.uk/publication/scottish-climate-change-adaptation-programme-an-independent-assessment-for-the-scottish-parliament/>. Date accessed: 11/05/2018.

to the Government on the ARP. New advice was published in March 2017¹⁵³. The Government will lay its third strategy for adaptation reporting in 2018 following discussions with reporting organisations and a public consultation.

10c. Regional-, sub-national or local action is monitored and the results of the monitoring are disseminated

Yes / No

Monitoring is carried out at a local level and disseminated at a national level. The details are provided under Indicator 10a.

11. Evaluation

11a. A periodic review of the national adaptation strategy and action plans is planned

Yes / No

A periodic review of adaptation action is planned at the UK level and by the devolved administrations.

The review involves an evaluation of the climate risks and the CCRA must be updated every five years, with the second CCRA published in 2017¹⁵⁴. The CCRA is updated at a national level, including targeted assessments at the level of the devolved administrations. The evidence gathered is used to inform the development of subsequent strategies and action plans.

During the lifetime of the adaptation programmes, there are additional review mechanisms, including an independent review by the ASC (carried out at national level and at the level of the devolved administrations). In the case of England, reports submitted by the ARP are also considered in the evaluation.

The CCA requires the UK's adaptation cycle to be renewed every five years and a new UK NAP is due in 2018-2019; updates by the devolved administrations are also expected according to same timeframe.

11b. Stakeholders are involved in the assessment, evaluation and review of national adaptation policy

Yes / No

For the development of the second CCRA (which forms the evidence base of the respective adaptation programmes), stakeholders have been: invited to submit evidence (in 2014); invited to attend two workshops with 100 stakeholders present each time; involved in a series

153 CCC, 2017, Adaptation Reporting Power: Second Round Review. URL: <https://www.theccc.org.uk/wp-content/uploads/2017/03/Adaptation-Reporting-Power-Second-round-review-Committee-on-Climate-Change-March-2017.pdf>. Date accessed: 11/05/2018.

154 CCC, 2017, UK Climate Change Risk Assessment 2017 Evidence Report. URL: <https://www.theccc.org.uk/uk-climate-change-risk-assessment-2017/>. Date accessed: 11/05/2018.

of targeted work groups (with between 10 and 20 stakeholders present each time); and involved in peer review of the CCRA¹⁵⁵.

In addition, for England stakeholders were invited to participate in a public consultation concerning the proposals for the third round of adaptation reporting (relating to the ARP).¹⁵⁶

155 CCC: Review and engagement. URL: <https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/review-and-engagement/>. Date accessed: 11/05/2018.

156 Defra: Climate change adaptation: proposals for the third round of adaptation reporting. URL: <https://consult.defra.gov.uk/environmental-quality/adaptation-reporting/>. Date accessed: 11/05/2018.

SUMMARY TABLE

Adaptation Preparedness Scoreboard		
No.	Indicator	Met?
Step A: Preparing the ground for adaptation		
1 <i>Coordination structure</i>		
1a	A central administration body officially in charge of adaptation policy making	<u>Yes</u> / No
1b	Horizontal (i.e. sectoral) coordination mechanisms exist within the governance system, with division of responsibilities	<u>Yes</u> / In progress / No
1c	Vertical (i.e. across levels of administration) coordination mechanisms exist within the governance system, enabling lower levels of administration to influence policy making.	<u>Yes</u> / In progress / No
2 <i>Stakeholders' involvement in policy development</i>		
2a	A dedicated process is in place to facilitate stakeholders' involvement in the preparation of adaptation policies	<u>Yes</u> / No
2b	Transboundary cooperation is planned to address common challenges with relevant countries	<u>Yes</u> / No
Step B: Assessing risks and vulnerabilities to climate change		
3 <i>Current and projected climate change</i>		
3a	Observation systems are in place to monitor climate change, extreme climate events and their impacts	<u>Yes</u> / In progress / No
3b	Scenarios and projections are used to assess the economic, social and environmental impacts of climate change, taking into account geographical specificities and best available science (e.g. in response to revised IPCC assessments)	<u>Yes</u> / In progress / No
3c	Sound climate risks/vulnerability assessments for priority vulnerable sectors are undertaken to support adaptation decision making.	<u>Yes</u> / In progress / No
3d	Climate risks/vulnerability assessments take transboundary risks into account, when relevant	Yes / <u>In progress</u> / No
4 <i>Knowledge gaps</i>		
4a	Work is being carried out to identify, prioritise and address the knowledge gaps	<u>Yes</u> / In progress / No

Adaptation Preparedness Scoreboard		
No.	Indicator	Met?
5 Knowledge transfer		
5a	Adaptation relevant data and information is available to all stakeholders, including policy makers (e.g. through a dedicated website or other comparable means).	<u>Yes</u> / In progress / No
5b	Capacity building activities take place; education and training materials on climate change adaptation concepts and practices are available and disseminated	<u>Yes</u> / In progress / No
Step C: Identifying adaptation options		
6 Identification of adaptation options		
6a	Adaptation options address the sectoral risks identified in 3c, the geographical specificities identified in 3b and follow best practices in similar contexts	<u>Yes</u> / No
6b	The selection of priority adaptation options is based on robust methods (e.g. multi-criteria analyses, stakeholders' consultation, etc.) and consistent with existing decision-making frameworks	<u>Yes</u> / No
6c	Mechanisms are in place to coordinate disaster risk management and climate change adaptation and to ensure coherence between the two policies	<u>Yes</u> / In progress / No
7 Funding resources identified and allocated		
7a	Funding is available to increase climate resilience in vulnerable sectors and for cross-cutting adaptation action	Yes / <u>In progress</u> / No
Step D: Implementing adaptation action		
8 Mainstreaming adaptation in planning processes		
8a	Consideration of climate change adaptation has been included in the national frameworks for environmental impact assessments	<u>Yes</u> / No
8b	Prevention/preparedness strategies in place under national disaster risk management plans take into account climate change impacts and projections	<u>Yes</u> / No
8c	Key land use, spatial planning, urban planning and maritime spatial planning policies take into account the impacts of climate change	<u>Yes</u> / No
8d	National policy instruments promote adaptation at sectoral level, in line with national priorities and in areas	<u>Yes</u> / In progress / No

Adaptation Preparedness Scoreboard		
No.	Indicator	Met?
	where adaptation is mainstreamed in EU policies	
8e	Adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention	Yes / No
9 <i>Implementing adaptation</i>		
9a	Adaptation policies and measures are implemented, e.g. as defined in action plans or sectoral policy documents	Yes / In progress / No
9b	Cooperation mechanisms in place to foster and support adaptation at relevant scales (e.g. local, subnational)	Yes / No
9c	Procedures or guidelines are available to assess the potential impact of climate change on major projects or programmes, and facilitate the choice of alternative options, e.g. green infrastructure	Yes / No
9d	There are processes for stakeholders' involvement in the implementation of adaptation policies and measures.	Yes / No
Step E: Monitoring and evaluation of adaptation activities		
10 <i>Monitoring and reporting</i>		
10a	NAS/NAP implementation is monitored and the results of the monitoring are disseminated	Yes / No
10b	The integration of climate change adaptation in sectoral policies is monitored and the results of the monitoring are disseminated	Yes / No
10c	Regional-, sub-national or local action is monitored and the results of the monitoring are disseminated	Yes / No
11 <i>Evaluation</i>		
11a	A periodic review of the national adaptation strategy and action plans is planned	Yes / No
11b	Stakeholders are involved in the assessment, evaluation and review of national adaptation policy	Yes / No