

Policy Position Statement

Climate Change Adaptation

Purpose

This Policy Position Statement (PPS) reviews and sets out the position of the Chartered Institution of Water and Environmental Management (CIWEM) in relation to climate change adaptation, both in the global and UK contexts. It sets out the priorities for adaptation and considers the frameworks needed to deliver meaningful progress.

CIWEM considers:

1. Greenhouse gas emissions to date necessitate that effective climate change adaptation strategies are needed to complement efforts at mitigation.
2. The frameworks put in place by the Climate Change Act to monitor and report on adaptation in the UK are world leading, however the component parts are not working coherently together. Greater strategic oversight from Defra and the Cabinet Office would ensure that there is progress at the national level.
3. The Government must establish quickly and clearly how the priorities set out by the Adaptation Sub Committee will be delivered locally, whilst establishing appropriate policies centrally. Surface water and residual flood risk are the greatest priority, followed by heat related health impacts, fertility of agricultural soils and the ecological condition of the farmed countryside.
4. It is morally and economically right that the UK supports adaptation to climate change overseas, particularly in least developed countries. Official Development Assistance spending should be specifically targeted at adaptation, and broader development programmes should be checked for climate resilience.
5. There is a need for a strong framework for and commitment to financing for climate adaptation delivered through the UN. This financing needs to dovetail with development and growth planning, for example infrastructure investment, protection of natural resources and disaster risk reduction.
6. The UK Government's second National Adaptation Programme needs to identify where little action is being taken and recommend SMART actions (policy, regulatory or operational) to address the priority gaps. The Adaptation Reporting Power should be made compulsory in the second cycle rather than voluntary and extended to local authorities who play a key integrating role at the local level.
7. All publically listed companies should assess their risks from climate change and report on the steps taken to reduce those risks as a part of business continuity planning. Small and medium sized businesses need to consider their exposure to current extreme weather.

8. Planning policy should not hinder future climate resilience. The Government should work with the insurance industry to ensure that incentives exist to build climate resilience.
9. Any funding for future climate impact research should consider the specific needs of those delivering adaptation *as well as* improving the scientific projections of climate change.

CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector.

Context

Climate change mitigation seeks to limit the extent of climate change, primarily by reducing global greenhouse gas emissions. Climate change adaptation aims to reduce vulnerability to the impacts of climate change that are already happening and those which are likely to occur in future at a local scale. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as:

*“adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderate harm or exploit beneficial opportunities”.*¹

Adaptation strategies are needed to complement efforts at mitigation, particularly as emissions to date mean that climate changes will be experienced in coming decades even if current emissions are reduced dramatically. Planned adaptation is cheaper, more effective and stimulates enterprise for adaptation goods and services. In developing countries adaptation and development should be tackled at the same time, ensuring that future resilience is built into development and growth plans.

Resilience and adaptation are related but distinct concepts. The IPCC defines “resilience” as:

“the ability of a system and its components to anticipate, absorb, accommodate, or recover from the effects of a potentially hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions.”

Global risks from a changing climate

Climate projections under a range of scenarios from the IPCC help identify areas where immediate adaptation is needed and the path of longer term changes. The consequences of climate change around the world include impacts on weather and the increased likelihood of more frequent extreme events such as hurricanes, wildfires, and landslides, as well as slower processes like desertification, erosion and ocean acidification. These will impact on human populations through the immediate danger of extreme events and the risks from increased water scarcity and food insecurity. Adaptation strategies aim to tackle these risks and build resilience into systems and infrastructure to prevent frequent damage and aid recovery.

1 Intergovernmental Panel on Climate Change [Glossary](#)

Adaptation is one of the major responses for addressing climate change under the United Nations Framework Convention on Climate Change (UNFCCC). All parties are to implement and regularly update national and, where appropriate, regional programmes to facilitate adequate adaptation to climate change. Established in 2010 under the Cancun Agreements, 194 countries set up the Adaptation Committee to promote enhanced global action on adaptation.

Under the Convention, countries that are more developed should also help countries that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation. Developing countries face significant barriers in adaptation, other than just financing, including access to relevant knowledge and technical resources.

Extreme water stress, and competition for productive land could become a source of conflict in some regions. Without responsible governance arrangements this can play a part in countries becoming failing states, which can then lead to increased geopolitical risk in other parts of the world. This could also impact migration which could take place on an historically unprecedented scale².

Developed countries also face a moral responsibility to help those vulnerable to climate change (such as small island states) as they have been responsible for the majority of the carbon emissions that have led to anthropogenic climate change. The global economic system also relies on other countries for goods and services so preventing harm in other countries benefits others. The diversity of risks to the UK from climate change impacts overseas (including diplomacy and foreign policy, security, resources and commodities, finance and trade, human health and social values) underlines the need for a broad approach³.

UK Context and legislation

The Climate Change Act⁴ is most widely associated with the establishment of legally binding carbon budgets to help drive down the UK's carbon emissions. However, the Act also sets the requirements for adaptation through the Climate Change Risk Assessment (CCRA), the National Adaptation Programme (NAP) and the Adaptation Reporting Power (ARP). It established the independent Committee on Climate Change (CCC) and the Adaptation Sub-Committee (ASC) to provide advice to the UK Government and Devolved Administrations on adaptation priorities (see figure 1).

The Climate Change (Scotland) Act 2009 provides for the Scottish Climate Change Adaptation Programme (SCCAP). Scottish Ministers have requested that the Adaptation Sub-Committee provide an independent assessment of the SCCAP's implementation for 2016. The Welsh Assembly Government has a Climate Change Strategy⁵ and published an Adaptation Framework, as well as an Adaptation Delivery Plan, setting out how the framework will be delivered. Under the provisions of the UK Climate Change Act, Northern Ireland Departments

2 King, D., Schrag, D., Dadi, Z., Ye, Q., Ghosh, A. 2015. [Climate Change A Risk Assessment](#). Centre for Science and Policy (CSaP)

3 Foresight International Dimensions of Climate Change. 2011. Final Project Report. The Government Office for Science, London.

4 HM Government. 2008. [Climate Change Act](#).

5 Welsh Government. 2011. [Climate Change Strategy for Wales](#).

laid the Northern Ireland Climate Change Adaptation Programme (NICCAP) before the Northern Ireland Assembly in 2014⁶.

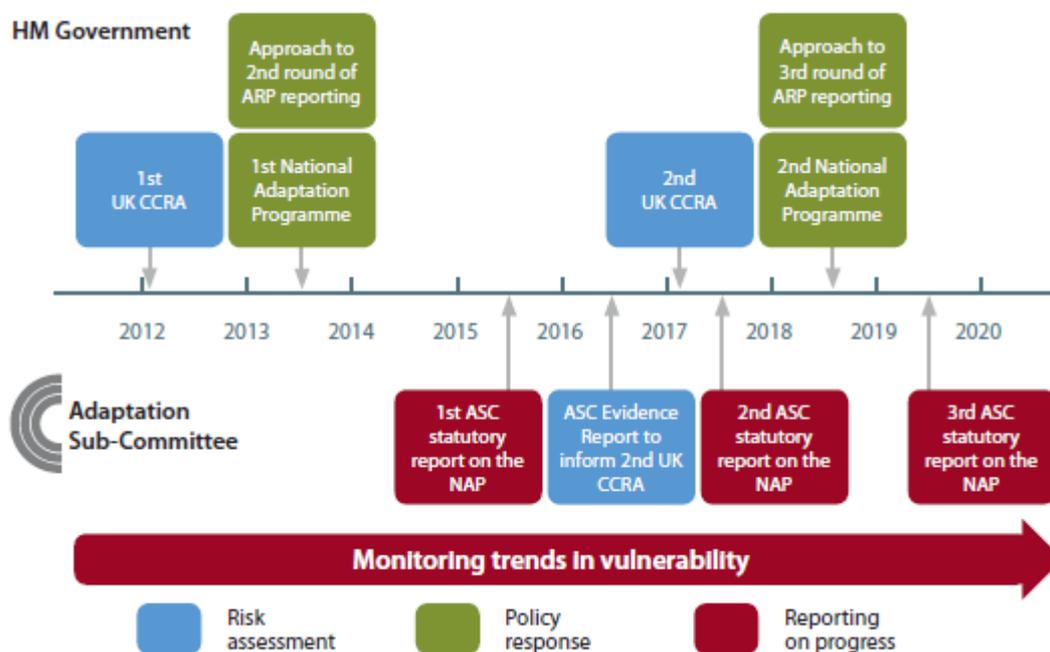


Figure 1. The UK Adaptation policy cycle, courtesy of the Committee on Climate Change⁷

Climate Change Risk Assessment (CCRA)

To better understand the risks of climate change the Government led by Defra published the UK Climate Change Risk Assessment⁸ in 2012, and will thereafter every five years. It reviewed the evidence for over 700 potential impacts of climate change in a UK context (for example flooding, rails buckling). Detailed analysis was undertaken for over 100 of these impacts across 11 key sectors, on the basis of their likelihood, the scale of their potential consequences and the urgency with which action may be needed to address them.

Adaptation reporting power (ARP)

The Act established the adaptation reporting power to report on the likely impact of climate change on the UK. It places a duty on the Secretary of State to require authorities with a public role and/or statutory undertakers to prepare reports on the impacts of climate change on their organisation and their proposals for adaptation. This operates on a five-yearly cycle, with the Government setting the framework for the next cycle of ARP reporting alongside the publication of each NAP report. However, the current (second) cycle is only voluntary.

6 NIDOE. 2014. [Northern Ireland Climate Change Adaptation Programme](#)

7 CCC ASC 2015. Progress in preparing for climate change, 2015 report to Parliament

8 Defra. 2012. [UK Climate Change Risk Assessment 2012](#)

National Adaptation Programme (NAP)

The NAP is required to put in place objectives, proposals and policies to address the risks and opportunities highlighted by the Climate Change Risk Assessment. The Government published the first NAP in July 2013, setting out what government, businesses and society are doing to adapt to the changing climate. The ASC is tasked under the Act to assess every two years the progress being made by the NAP. In 2015 it published its review of the NAP⁹ which showed that most of the actions are on track, however the lack of any specific targets and deadlines meant that much could not be assessed.

Priorities for adaptation in the UK

Flood risk

Increased flood risk is the greatest threat to the UK from climate change¹⁰. The Environment Agency published its long term investment scenarios (LTIS) in 2014 to establish the optimum expenditure on flood defence. It calculates that to reduce flood risk by five percent, investment of around £750 to £800 million a year in present day costs will be needed, this is then expected to rise to £850 to £900m a year from the 2020s to 2040s¹¹. There will also be a greater risk of surface water flooding which this analysis does not include.

Water supply

The economic impact of potential restrictions on water use for customers can be estimated. For example Severn Trent Water calculated that the economic impact on Birmingham of no piped water would be £35m per day. This analysis was used as part of the business planning cycle in the company's submission to Ofwat for 2015-2020. Defra has estimated that the reduction in turnover as a result of the 2012 drought was around £70 million in England¹².

Temperature extremes

The number of heat-related deaths is projected to increase, from 2,000 per year currently to 7,000 per year by the 2050s, due to increasing mean temperatures and changes in the population¹³. Action is needed to begin to adapt the built environment, so that homes and other buildings can be comfortable and safe in higher temperatures. Returning lost green space would assist in reducing the urban heat island effect. There may also be a counter to this from the reduction in cold winter deaths.

Habitats and species

Adapting habitats and biodiversity for climate change is another vital issue. Climate change will outpace many species' ability to adapt, leading to problems such as habitat fragmentation. Adopting an ecological network approach will help assist migration. The ecological network approach helps to link, not just protected sites, but also the wider countryside, much of which

9 CCC ASC. 2015. Progress in preparing for climate change, 2015 report to Parliament

10 CCC ASC. 2014. Managing climate risks to wellbeing and the economy. [Adaptation Sub-Committee Progress Report 2014](#).

11 See CIWEM. 2015. [Breaking the Bank](#) Funding for flood and coastal erosion risk management in England

12 Defra. 2013. The Impact of drought in England

13 CCC ASC. 2015. Progress in preparing for climate change, 2015 report to Parliament

is predominantly agricultural in the UK. This helps to reduce the ecological isolation of small fragmented populations, which may be particularly vulnerable to extreme climatic events such as droughts or flooding¹⁴. This may be the only way for species with limited mobility to reach potential new locations, although there could be risks from invasive species, pests and diseases.

Agriculture

Some of the most productive agricultural land in England is at risk of becoming unprofitable within a generation due to soil erosion and the loss of organic carbon. CIWEM supports the CCC recommendation of publishing an action plan to reverse the on-going loss of lowland peat soils to be developed in partnership with the farming sector.

Key issues

Leadership and joined up government

The framework put in place by the Climate Change Act to monitor and report on adaptation in the UK is world leading, however it will only be a success if the component parts work coherently together. The reporting power in the second cycle should have been compulsory rather than voluntary and extended to local authorities who play a key integrating role at the local level.

CIWEM considers the first National Adaptation Programme has been a missed opportunity and the second cycle needs to:

- ◆ show what actions are being taken to address priority risks
- ◆ take a strategic overview to identify any gaps (show where no action is being taken)
- ◆ recommend SMART actions (policy, regulatory or operational) to address priority gaps

During its production the number of staff working on climate change adaptation within Defra fell from 38 to just six. Although the NAP was produced by a large number of stakeholders, it is clear that a lack of strategic overview from the Department has affected the effectiveness of the NAP. Outcome based reporting and oversight would ensure that there is progress at the national level.

The Environment Agency's Climate Ready service supports delivery of the ARP and the NAP but this is currently only funded to March 2016 which will hamper progress if no alternative funds are put in place.

Investment decision-making

The Government must establish quickly and clearly how the priorities set out by the Adaptation Sub Committee in its first progress report¹⁵ will be delivered locally, whilst establishing appropriate policies centrally. Surface water and residual flood risk is the greatest priority, followed by heat related health impacts, fertility of agricultural soils and the ecological condition of the farmed countryside. Low cost and low risk adaptation measures should be

14 Natural England. 2015. Climate Change Adaptation Manual

15 CCC ASC. 2015. Progress in preparing for climate change, 2015 report to Parliament

sought first and many options may deliver multiple benefits, beyond climate change adaptation.

The Environment Agency's Long Term Investment Scenarios¹⁶ are a good example of calculating the economics of risk reduction. This approach should be taken forward by the Government for other types of infrastructure resilience where there are gaps in knowledge.

CIWEM considers that all future planning policy decisions should be assessed to ensure that they have considered future climate resilience. For example any new development should not add to the risk of flooding or urban heat island effect without adaptation measures in place.

The Government should work with the insurance industry to ensure that incentives exist to build climate resilience, including the potential for householders to achieve lower premiums. In the development of the flood reinsurance scheme Flood Re it would be helpful to include resilience conditions (betterment). For example if a property is flooded and then renovated, the payout should cover measures such as siting electrics higher up walls, rather than replacing them with what was there before.

Overseas financing

CIWEM believes there is a need for a strong commitment and framework for financing climate change adaptation delivered through the UNFCCC. In 2009, \$100bn per year was agreed from 2020 but much more is likely to be needed. This financing needs to dovetail with development and growth planning, for example infrastructure investment, protection of natural resources and disaster risk reduction.

The climate resilience market is worth £100bn per year and growing. A third of the investment needed globally to combat losses from climate impacts will offer strong returns on investment¹⁷ but there is a need for mechanisms to attract public and private investment towards adaptation measures, and an institutional framework to support it.

CIWEM welcomes the financial commitment of the UK Government departments (DfID, DECC and FCO) to spending on adaptation and resilience abroad. There is already enough knowledge of the potential impacts to begin to adapt to reduce risk and build future resilience into systems. Often the solutions have wider benefits which justify investment in them.

Business continuity planning

Adaptation will be mostly delivered by businesses in the UK but will require strong leadership from the government and a strategic framework to work within. Businesses import risks through their supply chains, and own risks affecting their overseas assets, particularly when they involve countries that are more vulnerable and less well placed to adapt.

All publically listed companies should assess their risks from climate change and report on the steps taken to reduce those risks as a part of business continuity planning. A report by the London Assembly noted that fewer than half of FTSE100 companies have built climate change

16 Environment Agency. 2014. Long term investment scenarios

17 Mott MacDonald. 2015. Climate change and business survival

adaptation into their business strategy or continuity planning¹⁸. Small and medium sized businesses, with less resources are also unlikely to have a plan and should consider their exposure to current extreme weather. This will help them improve their day-to-day operations and understand their potential exposure to climate change risks.

Climate data needs for adaptation

Many companies undertake adaptation investment on the basis of narrative and an understanding of a broad trajectory without the need for complex climate modelling. It is important that research councils and governments are fully aware of what the research needs are from a practitioner perspective. In many cases there is enough data on the potential impacts of climate change in the UK to warrant development of low regret¹⁹ adaptation strategies. The UK Climate Projections 2009 (UKCP09) is the main source of information on past trends and future projections. Any funding for future climate impact research should consider the specific needs of those delivering adaptation *as well as* improving the scientific projections of climate change.

However in many parts of the world there is a lack of high quality, usable, interpretable data available, for example hydrological modelling data to inform understandings of extreme rainfall events. In order for organisations to understand the consequences and probability of future climate change impacts, there is a need for improved climate and environmental data alongside improved guidelines for better adaptation planning.

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Note: CIWEM Policy Position Statements (PPS) represents the Institution's views on issues at a particular point in time. It is accepted that situations change as research provides new evidence. It should be understood, therefore, that CIWEM PPS's are under constant review and that previously held views may alter and lead to revised PPS's. PPSs are produced as a consensus report and do not represent the view of individual members of CIWEM.

18 London Assembly. 2015. Weathering the Storm: The Impact of Climate Change on London's Economy

19 Low-regret actions are relatively low cost and provide relatively large benefits under predicted future climates. For example, reducing leakage from water utility infrastructure can both improve water efficiency and help address drought risk