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Vulnerability to Climate Change and Climate Risk Management

“Climate change will affect the basic elements of life for people around the world – access to water, food production, health, and the environment. Hundreds of millions of people could suffer hunger, water shortages and coastal flooding as the world warms...there is still time to avoid the worst impacts of climate change, if we take strong action now.” **The Stern Review**

Will your policy proposal be vulnerable to increasing climate risk?

While it is always important to consider what impact your policy proposal may have on the environment, in the context of climate change, it is also important to consider what impact the changing climate could have on your policy.

Climate change in the UK will affect many areas of public and private sector life. Strategic decisions that are made now have long lifetimes. To reduce risks, minimise damages and take advantage of potential benefits, adaptation to the changing climate must be factored in at an early stage. Ministers are keen to see that all relevant policies take the effects of climate change into account.

It is particularly important to consider the risks and impacts of climate change if a policy, programme or project:

- Has elements affected by the weather and climate, including extreme events, and generally assumes a stable climate;
- Has a long-term lifetime, long-run implications or significant implementation period;
- Involves significant investment or has high value at stake;
- Provides or supports (critical) national infrastructure;
- Involves decisions with significant irreversible impacts;
- Has significant interdependencies with other Government activities or the wider economy, or
- Addresses contingency planning or business continuity needs.

The following information, including the latest climate projections, potential impacts on your policy objectives and details of how to incorporate adaptation into policy development, will help you decide whether your policy objectives are vulnerable to climate change and will guide you to concise further information for policy makers.

All central Government departments have published details of the policy areas that they consider to be vulnerable to climate change impacts. Departmental Adaptation Plans can be viewed at www.defra.gov.uk/environment/climate/programme/across-government.htm.

Further information on adaptation

More information on understanding climate change, its impacts and Government's response is available on the [Adapting to Climate Change Programme's website](#).

Recent and Future Climate Impacts

The extent to which your policy objective may be affected by climate impacts will depend on future climate conditions. Due to the existing stock of greenhouse gases in the atmosphere there will be at least 30-40 years of unavoidable climate change, regardless of efforts to reduce emissions. The UK climate is projected to experience the following overall impacts:

- higher temperatures all year round, with greater increases in summer than in winter;
- wetter winters and drier summers;
- increased frequency of extreme weather events, specifically very hot days, intense downpours of rain, and storm surges of a higher intensity;
- rising sea levels.

More detailed information, including maps (at both national and local levels) of the latest estimates of future climate impacts, is available on the [UK Climate Projections 09 website](#).

Extreme events in recent years have demonstrated the significant costs weather impacts can impose. For example:

- The heat wave across Europe in 2003 observed temperatures of 20-30% higher than seasonal averages (temperatures in South East England exceeded 35°C), resulting in an estimated 35,000 excess deaths across the continent;

- The UK floods in 2007 damaged around 48,000 homes and 7,000 business properties, while 7,000 people had to be rescued by the emergency services and 13 people died;
- Insurance claims relating to flooding have more than doubled in recent years, and could triple again by 2050.

Further information on vulnerability to climate change

If you think your policy could be affected by climate change, follow this up by finding out more.

The extent to which climate change could impact on your policy objective depends on how **vulnerable** your policy activity is to climate effects, and the activity's level of **adaptive capacity** (how able your activity is able to adjust to climate risks). Important factors to be aware of are:

- **Timing.** Climate change is more likely to affect activities with long-term time horizons, lifetimes or implications;
- **Thresholds.** There may be points beyond which risks become intolerable. These may depend on other activities or the wider economy;
- **International effects.** Climate change impacts elsewhere in the world may affect activities within the UK;
- **Flexibility.** Given the uncertainty around future climate change impacts, decisions made now that would be expensive or difficult to adjust in the future should be given particular attention.

You may want to go straight to the [UKCIP Adaptation Wizard](#) to find out how to quantify the risks from climate change and how to adapt your policy to reduce them. This is an excellent, simple, purpose built, web-tool to lead policy makers (and others) through a clear process to help identify and deal with climate change vulnerability.

Additional Sources of Information

There are some other tools and information to help you assess the extent to which climate change could impact on your policy, which you can use independently or together with the UKCIP Adaptation Wizard.

Geographic Information Systems (GIS) store detailed information based on maps. For instance, all areas which are at risk of flooding are mapped across the country. These GIS

systems can be very helpful to identify characteristics of parts of the UK which may be affected by climate change. Detailed information and interactive maps can be found via the [MAGIC \(Multi Agency Geographic Information for the Countryside\) website](#).

How to Incorporate Adaptation into Your Policy Development

The main issue for incorporating climate change considerations into policy development is the uncertainty around future climate impacts. Three approaches can help address this:

- Incorporate **flexibility** so that adjustments can be made easily in light of new information;
- Increase **resilience** of your activity so that it can tolerate a wider range of climate impacts;
- Identify measures that are **low-regrets** (relatively low costs now and potentially high benefits in the future) and generate **win-win** scenarios, where addressing future climate risks results in other benefits (particularly current benefits).

Uncertainty around the effects of climate change highlights the importance of flexibility and the ability to incorporate improved knowledge as it arises.

Detailed information on the issues listed on this page and an explanation of how to incorporate climate into Government appraisal and evaluation can be found in the Supplementary Green Book Guidance for Climate Resilience, available here: http://www.hm-treasury.gov.uk/green_book_guidance_environment.htm

Policy areas vulnerable to climate change for specific Government departments

All central Government departments have published details of the policy areas that they consider to be vulnerable to climate change impacts. Departmental Adaptation Plans can be viewed at www.defra.gov.uk/environment/climate/programme/across-government.htm. If you have questions relating to climate change vulnerability and how you can deal with it, visit the [Adapting to Climate Change website](#), or get in touch with the Adapting to Climate Change Programme Team (adaptation@defra.gsi.gov.uk).