

# Flooding is the United Kingdom's biggest climate threat

Government report prioritizes consequences of climate change.

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Floods such as those that caused chaos in Sheffield in 2007 look set to become increasingly common in the United Kingdom.

Severe flooding that could affect millions of people is the United Kingdom's most pressing climate-change risk, says a study released yesterday by the country's government.

The first Climate Change Risk Assessment (CCRA), published by the Department for Environment, Food and Rural Affairs (Defra), examines 100 potential consequences of climate change for the United Kingdom. The study draws on climate projection models from 2009, known as the UKCP09, and examines how different levels of greenhouse-gas emissions could affect sectors such as agriculture, health and infrastructure over the twenty-first century.

John Krebs, chairman of the Adaptation Sub-Committee of the Committee on Climate Change in London, an independent body that advises the government, said in a statement that the study demonstrates the need for urgent action to reduce risks. Without an effective plan, "the country may sleepwalk into disaster".

The study was mandated by the 2008 Climate Change Act, which legally requires the United Kingdom to reduce greenhouse-gas emissions by 80% from 1990 levels by 2050. The CCRA will be updated every five years.

## Hot, hot, hot

The report considers a number of climate scenarios. For instance, it projects that by the 2080s, the temperature will exceed 26 °C in London for between 27 and 121 days each year, up from the current average of 18 days. London also stands to experience aggravation of the urban heat island effect, in which its night-time temperatures are higher than those of the surrounding countryside. By 2050, rising temperatures could result in one-half to two days of work absence per employee per year in the city, owing to heat-related illness.

But the most pressing risks laid out by the study concern water, with droughts and shortages in the summer and winter flooding all expected to affect the country more.

Speaking at the launch of the study, Bob Watson, Defra's chief scientist, said: "Flooding will become increasingly more severe almost immediately."

Flooding currently costs the United Kingdom around £1.3 billion (US\$2.04 billion) per year, presents a serious threat to buildings and infrastructure and contributes to coastal erosion. By the 2080s, it could cause £2.1 billion to £12 billion of damages each year, says the report. In 2010, the UK government allocated £2.1 billion to flood defence throughout the country over a four-year period — 8% less than was allocated by the previous government.

### **Threats and promises**

Public health, business, agriculture and forestry, urban infrastructure and natural ecosystems are all identified as priority areas for early action. But the report also draws attention to potential opportunities arising from climate change, such as improved access to Arctic shipping routes owing to melting sea ice, increased wheat yields as a result of warmer conditions, and expanding prospects for a low-carbon market and tourism.

Although the study has been lauded for its innovative methodology, there are considerable gaps in the evidence, and confidence in many of the findings is deemed 'low' to 'medium'. Richard Betts, a meteorologist at the Met Office in Exeter, UK, who served as a scientific advisor to the study, says that part of the challenge in prioritizing risks was to quantify — or assign a number value to — the consequences of different future scenarios, such as a flood at a power plant or the loss of crops due to pests.

Jim Hall, director of the Environmental Change Institute at the University of Oxford, UK, and a member of the Adaptation Sub-Committee, says that the report is an improvement on previous impact studies. However, he notes, "the climate-model uncertainties produce a range of possibilities that are quite broad".

How the country will respond to the challenges laid out in the report depends in large part on a plan that will be developed over the coming year. The National Adaptation Programme (NAP) will draw on the CCRA's findings to formulate a climate-change policy agenda and a timeline for implementation. The final NAP will be published in 2013, and the government has launched a [website](#) to solicit public input.

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