ENGLISH HERITAGE

Climate Change and the Historic Environment

English Heritage is the Government's adviser on the historic environment. Our responsibilities include archaeology on land and underwater; historic buildings, sites and areas; designed landscapes and the historic aspects of the wider landscape. We also manage an estate of over 400 historic properties.

This statement sets out current thinking on the implications of climate change for the historic environment. It is aimed at all those involved in the scientific and technical aspects of climate change and those undertaking impact, risk and adaptation studies.

Alongside this statement, English Heritage has sponsored a scoping study on the implications of climate change for the historic environment and published guidance on flooding and historic buildings, and on coastal defence. We are also producing guidance on renewable energy technologies and the historic environment. These publications are available at the *Historic Environment – Local Management* website: **www.helm.org.uk**.

ENGLISH HERITAGE AND SUSTAINABLE DEVELOPMENT

Sustainable development is defined in the 1987 report by The World Commission on Environment and Development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Bruntland 1987). The historic environment – the evidence of people's interaction in the past with their physical surroundings – is a finite resource and, like other valuable environmental resources, deserves to be sustained for the benefit of people in the future.

English Heritage has a three-fold responsibility, set out in our Sustainable Development Strategy:

- To ensure that the historic environment is recognised as a finite and non-renewable environmental resource in its own right.
- To ensure that the value of the other environmental capital embodied in the historic environment is not wasted.
- To ensure that our own activities, actions and advice are fully sustainable.

Our climate change policy forms an important part of this wider Sustainable Development Strategy.

CLIMATE CHANGE: THE SCIENTIFIC BACKGROUND

The Earth's climate has changed in the past and is continuing to change. The geological and archaeological record provides evidence of past climate change and human adaptation that can help in understanding and assessing the possible impact of current changes.

The average global temperature has risen by 0.6°C since the beginning of the 20th century, taking the northern hemisphere outside the range of average temperatures it has experienced over the last thousand years. Globally, the ten warmest years in the past 200–300 years have all occurred since the beginning of the 1990s. There is a strong scientific consensus that the current increase in average temperatures results mainly from increasing atmospheric concentrations of carbon dioxide and other 'greenhouse gases', and that these increasing concentrations are at least partly the result of human influences. Climate change scenarios for the UK, published for Defra in April 2002 (Hulme *et al* 2002), suggest that:

- Average annual temperatures across the UK may rise by between 2°C and 3.5°C by the 2080s, depending on the future scale of global emissions of greenhouse gases; in general, there will be greater warming in the south-east, where temperatures may rise by up to 5°C in summer by the 2080s; high summer temperatures will become more frequent and cold winters increasingly rare.

Cover image: Flooding in the historic centre of York in 2000. © *English Heritage*

Increased likelihood of flooding will put historic settlements at risk and threaten heritage visitor attractions.

1 Flooding at Tewksbury, 2000. *NMR 21025-01 © English Heritage.NMR*

2 Flooding at Rievaulx Abbey, 2005. © *Durham Police Air Ambulance Support*

Increased likelihood of soil erosion may threaten the integrity of archaeological sites.

3 Severe gulley erosion, Flitwick, Bedfordshire, in the autumn of 2000, one of the wettest on record. © *Cranfield University*

- Winters will become wetter and summers may become drier across the UK, with the biggest relative changes in the south and east; summer precipitation may decrease by 50 per cent by the 2080s in the south-east, while heavy winter precipitation will become more frequent.
- Relative sea level will continue to rise around most of England, in line with global changes but with local variations due to land movement; in south-east England, sea level may rise between 26cm and 86cm by the 2080s.

THE POLICY BACKGROUND

Under the Kyoto Protocol, the UK is pledged to reduce greenhouse gas emissions by 12.5 per cent below 1990 levels by 2008–12, with a further undertaking to reduce carbon dioxide emissions by 20 per cent by 2010. The European Union has also endorsed the need to reduce carbon dioxide levels in order to limit future temperature rise to 2°C.

The need to respond effectively to climate change is expressed most strongly in the new UK Sustainable Development Strategy (HM Government 2005). The implications had previously been spelled out in *Climate Change: The UK Programme* (DETR 2000); the 2003 Energy White Paper, *Our Energy Future – Creating a Low Carbon Economy* (DTI 2003); *Planning Policy Statement 22: Renewable Energy* (ODPM 2004a) *and The Planning Response to Climate Change* (ODPM 2004b). *Planning Policy Statement 1: Delivering Sustainable Development* (ODPM 2005) includes the need to address, on the basis of sound science, the causes and impacts of climate change. *The Sustainable and Secure Buildings Act 2004* will enable building regulations designed to improve energy efficiency (Part L) to be applied more effectively to the existing building stock, while remaining sensitive to impacts on the historic environment.

One of the Government's main objectives is to reduce the demand for energy, or at least to moderate the rate of increase, while at the same time increasing the supply of energy from sources other than fossil fuel. This, while necessary to reduce greenhouse gas emissions, will also have the benefit of reducing the country's dependence