



Foresight Future Flooding

Key Messages for Environmentalists

The project

Sir David King, the Government's Chief Scientific Adviser and Head of the Office of Science and Technology, commissioned the Foresight Flood and Coastal Defence project to consider:

- How might the risks of flooding and coastal erosion change in the UK over the next 100 years?
- What are the best options for Government and the private sector for responding to the future challenges?

The work has been performed by a team of 60 leading experts, and constitutes the most wide-ranging analysis of the problem of increasing flood risk that has ever been made in the UK and possibly internationally.

The team developed four scenarios of the future, based on a scientific review of the key factors which will affect the risks of flooding. These scenarios embody different amounts of climate change and different socioeconomic futures for the UK.

There are two key messages. Firstly, continuing with existing policies is not an option – in virtually every scenario considered, the risks grow to unacceptable levels. Secondly, the risks need to be tackled across a broad front. Reductions in global greenhouse-gas emissions would reduce the risks substantially, however, this is unlikely to be sufficient in itself. Hard decisions need to be taken – we must either invest more in sustainable approaches to flood and coastal management or learn to live with increased flooding.

This summary draws out some of the key messages for environmentalists.

Some key findings

The current situation

Nearly 2 million properties in floodplains along rivers, estuaries and coasts in the UK are potentially at risk of flooding. 80,000 properties are at risk in towns and cities from flooding caused by heavy downpours that overwhelm urban drains – so-called ‘intra-urban’ flooding. In England and Wales alone, over 4 million people and properties valued at over £200 billion are at risk.

How flood risks might change

If flood-management policies and expenditure continue unchanged, annual flood losses would increase under every scenario by the 2080s. However, the amount of that increase varies, from less than £1 billion, to around £27 billion (catchment, coastal and intra-urban).

Coastal erosion could increase substantially. The annual expected damages are set to increase by 3-9 times by the 2080s, although the worst case (£126 million per year) is still much less than current flood losses (£1 billion per year).

Increased flooding could bring both opportunities and threats to the environment. Saltmarshes could benefit from managed realignment or abandonment of coastal defences, but habitats such as coastal grazing marsh are threatened under every scenario.

How we could respond

We considered around 80 different types of catchment-scale responses grouped into five broad themes:

Catchment-scale responses	
Theme	Examples
Managing the Rural Landscape	Catchment-Wide Storage
Managing the Urban Fabric	Urban Storage
Managing Flood Events	Forecasting and Warning Individual Damage Avoidance Actions
Managing Flood Losses	Land-Use Management Floodproofing
River and Coastal Engineering	Increasing River Conveyance River Defences Coastal Defences Coastal Defence Realignment and Abandonment

Ideally, we want to identify responses which are effective in reducing risk, and which are also sustainable. We therefore assessed the responses against economic, social and environmental sustainability criteria. We found that none scored highly in effectiveness and sustainability across all four scenarios. However, several performed well across three of the four, and are therefore reasonably robust to socioeconomic and climatic change. These included:

- Catchment-Wide Storage.
- Land-Use Planning.
- Realigning Coastal Defences.

All of these can produce environmental benefits, reduce flood risk and be made sustainable with careful implementation. The key message is that sensitive implementation of the responses is the key factor in reducing environmental costs.

Mitigating climate change could play an important part of our strategy for managing future risks – it could make the task we face substantially easier.

Key choices

The study highlighted and discussed a number of key choices that need to be considered in developing long-term policies of flood management. For example:

- How we use land, balancing the wider economic, environmental and social needs against creating a legacy of flood risk.
- How we manage the balance between state and market forces in decisions on land use.
- Whether to implement societal responses with a long lead time, or rely increasingly on bigger structural flood defences with potential economic, social and environmental costs.

Where to find more information

Some key sections of interest from the project reports are:
Executive Summary Questions 1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 15, 17

Volume 1 Chapter 2 Drivers of future flood risk – catchment and coastal
Chapter 7 Environmental impacts of flood risks

Volume 2 Chapter 7 Sustainability implications of flood management
Chapter 9 Strategic choices

Copies of the full reports can be downloaded or ordered from
www.foresight.gov.uk

Next steps

A wide range of stakeholders are now considering the findings. A copy of the project action plan which sets out the activities of a wider range of stakeholders in responding to the project findings can be downloaded from www.foresight.gov.uk

For example, English Nature is using the information to inform their: strategic approach to managed realignment at the coast and recreation of freshwater habitats; development of concepts of functional coasts and sustainable estuaries; and development of an integrated catchment trial being run with the Environment Agency and Defra.

The Foresight Programme

Foresight runs a rolling programme of up to four projects at a time. Each produces challenging visions of the future to ensure effective strategies now. The findings of the projects do not constitute Government policy. So far, four other projects have been started. Further information can be found on the Foresight website at www.foresight.gov.uk

Contact

Foresight Directorate DTI, 1, Victoria Street London SW1H 0ET
stuart.hobbs@dti.gsi.gov.uk