



Foresight Future Flooding

Key Messages for Professionals at Local and Regional Level

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 Local Authorities, Planners and Flood Defence Committees.

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 losses would increase under every scenario by the 2080s. However, the amount of that increase varies, from less than £1 billion under the Local Stewardship scenario with Medium-Low emissions of greenhouse gasses, to around £27 billion in the 2080s under World Markets and High emissions.

Besides flooding from rivers and coasts, towns and cities will be subject to localised flooding caused by the sewer and drainage systems being overwhelmed by sudden localised downpours. The potential damages could be huge, but more work needs to be done to quantify the potential problem of intra-urban flooding.

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).

The rate of increase in flood risk depends on the scenario. We looked at the World Markets/High emissions scenario in the 2050s and 2080s. Here the increase in economic damages was approximately linear, however, the number of people at high risk rose very rapidly – 90% of the increases had occurred by the 2050s.

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

An integrated portfolio of responses could reduce the risks of river and coastal flooding from the worst scenario of £20 billion national damages per year, down to around £2 billion in the 2080s. This is still double present-day damages but compares with growth in GDP of between 2 and 14 times for the scenarios considered.

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. For example:

- 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 it is how the responses are implemented, that is the critical factor.

Key choices

The reports include a discussion of strategic issues the UK will face, including:

- What standards of protection should we aim for in the future, and what standards will the public expect.
- Who should pay for that protection.
- How should we use land, balancing the wider economic and social needs against creating a legacy of flood risk?

While these issues are not new, the project has provided scientific-based estimates of the risks and costs of responses. These will help to inform the development of long-term policies. They will also allow decision-makers to gauge the importance of flood management relative to the many other issues faced.

Where to find more information

Some key sections of interest in the project reports:

Executive Summary Questions 1, 2, 3, 4, 7, 9, 10, 13 & 17

Volume 1 Chapter 9 Synthesis of results

Volume 2 Chapter 2 Effectiveness of individual responses;
Chapters 5 and 6 Portfolios of responses, Chapter 7
Sustainability implications of flood management,
Chapter 8 Governance issues and Chapter 9 Strategic
choices

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

Next steps

The Local Government Association (LGA) is considering the report and implications for local authorities and will disseminate the findings to local government.

The Environmental Agency will present and review the findings at a local and regional level. (Contact: Phil Rothwell, EA)

The Environment Agency will also review the findings for:

- Guidance on catchment management.

- Planned investment levels in flood management.

- Its own flood-management operations.

(Contact: Phil Rothwell, EA).

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

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

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