

EXECUTIVE SUMMARY

CC02: Business Risks of Climate Change to the Public Sector in Scotland (October, 2005)

Project funder: Scottish Executive

Background to research

The IPCC Third Assessment Report presents an increasing body of observations that show a warming world and changes in global and regional climate systems. It also predicts potentially significant changes in the climate in future years.

Much of the policy response to this evidence has focused on mitigation, to reduce the threat of future warming and climate change. However, given historic and current emissions we are already committed to some level of future climate change. Adaptation moves beyond the analysis of climate change effects, and focuses on risks and opportunities where action needs to be taken to adapt to climate change in the short, medium and longer-term.

The purpose of this research project has been:

- To consider the extent of risk of climate change to five public sector bodies in Scotland:
 - Scottish Environment Protection Agency (SEPA).
 - Scottish Natural Heritage (SNH).
 - Forestry Commission Scotland (FCS).
 - Scottish Water (SW).
 - VisitScotland (VS).
- To make recommendations for adaptation strategies for each organisation.
- To assist the organisations to put in place appropriate management responses.

The main focus has been to consider what the public sector must do to adapt to future change.

Objectives of research

The project objectives were:

- To identify key climate change impacts for each organisation, using the UKCIP02 scenarios and a review of the organisation's policy and operational responsibilities.
- To undertake a risk assessment for identified impacts (including threats and adaptation opportunities arising from climate change), and to quantify these risks as appropriate.
- To devise, using a participative approach, adaptation management strategies for each of the risks identified above.
- To help each organisation to put in place the capacity to further develop and implement adaptation strategies beyond the life of this project.

- To recommend further research on climate change adaptation.

Methodology

The study was undertaken by a multi-disciplinary team led by AEA Technology Environment in collaboration with Metroeconomica, HR Wallingford, Risk Solutions, and the Environmental Change Unit (Oxford University). The approach was:

- The climate change scenarios and the impacts literature were reviewed to identify the cross-sectoral risks and adaptation opportunities of future climate change in Scotland. These were then considered for each of the five organisations.
- Using interviews, the risks and adaptation opportunities were assessed in detail for each organisation, and prioritised using a simple risk analysis to assess the probability and the consequences of effects. In parallel, the study team investigated the activities and responsibilities of each of the individual organisations and assessed the current risk management approach in place, to help design appropriate responses.
- Using participative workshops, a set of potential adaptation responses was identified for the priority effects for each organisation, and recommendations made on how these could be progressed.
- Finally, the study looked at the synergies and conflicts between the risks and plans for the five different public sector organisations, and made a number of recommendations.

Climate Change Scenarios

The UKCIP02 Scenarios show important climatic changes for Scotland in future years. There is a growing trend of warmer, wetter, and cloudier winters, and warmer, drier summers, combined with more extreme weather (such as heavy rainfall events). For example, under the high scenario, Scotland could be (on average) 2.5°C to 4°C warmer than present by 2080, with winter precipitation increasing by up to 35% in the south, east and north east, and summer precipitation decreasing by up to 50% in the south, central and east of Scotland.

Findings

The changes predicted in the scenarios present significant risks for all five organisations, for example:

- For SEPA, there are important risks over its responsibility to issue flood warnings, and its remit to improve water quality.
- For SNH, there are concerns regarding loss of species and habitats where there is low adaptation potential and high vulnerability.
- For the Forestry Commission, the long rotation lengths of most forest plantations (typically 50 to over 100 years), and the impact of climate on operations will clearly be important.
- For Scottish Water, there will be significant implications from the changes in average rainfall and heavy rainfall events – these are especially important given the large infrastructure and long lifetimes in the water supply industry.

- For VisitScotland, there will be potential downsides, for example through the decline in Scottish skiing, but there will also be potential adaptation opportunities for tourism growth in Scotland.

Risks and adaptation opportunities have been prioritised for each organisation, and adaptation options have been drawn up – separating out those that concern strategic, operational and functional activities. The analysis has identified those options that require early action (or at least early consideration of potential options).

The consideration of risks, adaptation opportunities and adaptation plans across the five organisations has led to some interesting cross-sectoral issues, where there are both synergies or conflicts. The most important issues identified relate to:

- The potential opportunities for collaborative actions to raise awareness, train staff and build capacity in adaptation (all).
- The need for consideration of integrated flood warning, planning, management and defence (SEPA, SW, and FCS).
- The issues around the Water Framework Directive and water quality (SEPA and SW).
- The need to discuss the potential role of forestry in mitigation (all, but led by FCS).
- The targets for tourism growth in Scotland and the development of sustainable tourism (VS and all).
- The opportunity to build adaptation thinking into Strategic Environmental Assessment (SEPA and all).
- The high vulnerability of ecosystems and the need to consider a precautionary approach (SNH and all).
- The need to co-ordinate the approach for defining the appropriate level of adaptation in Scotland and the assessment framework for detailed adaptation plans (Scottish Executive and all).
- The costs of adapting to reduce climate risks (all).

Implications

The tables in the report provide indicative adaptation options that would begin to address the priority risks and adaptation opportunities identified. In most cases these options represent additions or alterations to existing programmes, operations or research agendas, rather than entirely new initiatives. In a number of important areas, these suggestions could be started immediately and at low cost. Many of the adaptation options may also carry ancillary benefits, from strengthening resilience to current weather variability, to increasing awareness of environmental matters in general, to improving monitoring and decision-making procedures, and enhancing staff morale.

A number of areas/options have links between the organisations. The five organisations already have existing partnerships across a number of areas. However, the consideration of risks, adaptation opportunities and adaptation plans has highlighted a number of areas where potential synergies or conflicts exist, and partnerships could be strengthened. These are summarised below and discussed in more detail in section 4.6.

- Collaborative Actions to Raise Awareness and Build Capacity.
- Defining Successful Adaptation.
- Issues Resulting from the Water Framework Directive.
- Issues Arising from Flood defence.
- The growth of tourism and the role of sustainable tourism.
- Strategic Environmental Assessment.
- The role of forestry in mitigation.
- Mainstreaming Adaptation policy.

Recommendations

The study has made a number of suggestions and recommendations:

- All five organisations should ensure that climate change is added to the corporate risk register (at the start of the study, only one organisation had done this – one other has also done so during the time frame of the project). Further to this, all organisations should consider incorporating climate change in planning new facilities and in all corporate plans/ risk management strategies.
- All five organisations should initially focus on raising awareness of climate change and adaptation as the first stage in building adaptive capacity, both within its organisation and with external stakeholders. There is the potential for collaborative action between organisations to achieve this.
- Following this, each organisation should progress the analysis of the adaptation options identified for the key impacts. This should focus on *no regrets options* (justified by current climate conditions), followed by *low-regrets options* (made because of climate change but at minimal cost). They could also begin a more in-depth analysis in relation to other possible adaptation actions, to investigate the costs and benefits of action taking into account the uncertainties. This is particularly important when longer time frames are involved, or higher costs implied. This should be developed following guidance by the Scottish Executive on adaptation policy for Scotland.
- There is a need to for the five organisations to work together to realise the mutual benefits, to reduce conflicts and to enhance synergies. This may also involve Scottish organisations in other sectors. We strongly recommend a joint workshop to discuss the issues, synergies and conflicts to progress this.
- In parallel to this, there is a need for the Scottish Executive to:
 - Provide a policy framework for adaptation, defining what successful adaptation is (and to avoid mal-adaptation).
 - Promote and coordinate research on impacts, adaptation opportunities and adaptation.
 - Raise the priority given to adaptation.
 - Support knowledge-sharing networks.
 - Provide methods and tools for adaptation planning.
 - Mainstream the integration of climate change into existing planning/policy systems.

Partnership and communication are critical to this process.

Key words: climate change, impacts, adaptation

