



**Environment and Rural Development Committee**

**6th Meeting, 2005**

**Tuesday 22 February 2005**

The Committee will meet at 2.00 pm in Committee Room 5

1. **Inquiry into climate change:** The Committee will take evidence from—  
Gerry Metcalf, Project Manager, UK Climate Impacts Programme;  
Professor David Crichton, Benfield Hazard Research Centre;  
Dr Bernie Bulkin, Chair of the Energy and Transport Steering Group, UK Sustainable Development Commission.

*Not before 3.00pm*

2. **Inquiry into climate change:** The Committee will take evidence from—  
Ross Finnie MSP, Minister for Environment and Rural Development.
3. **Inquiry into climate change:** The Committee will consider whether to discuss a draft report in private at future meetings.

**Mark Brough**  
Clerk to the Committee  
Direct Tel: 0131-348-5240

The following papers are attached:

<u>Agenda Item 1</u>	
Briefing paper from SPICe ( <i>for members only</i> )	ERD/S2/05/6/1a
Submission from UK Climate Impacts Programme	<a href="#">ERD/S2/05/6/1b</a>
Submission from Benfield Hazard Research Centre	<a href="#">ERD/S2/05/6/1c</a>
Submission from UK Sustainable Development Commission	<a href="#">ERD/S2/05/6/1d</a>

## **Agenda Item 1**

### **Environment and Rural Development Committee**

22 February 2005  
ERD/S2/05/6/1b



**Scottish Parliament:  
Environment and Rural Development Committee  
Inquiry into Climate Change (February 2005)  
Evidence submitted by: UK Climate Impacts Programme (UKCIP)**

## **1. Summary**

- The climate is changing in Scotland and potential impacts have been identified.
- Adaptation to a changing climate needs a higher priority alongside mitigation measures.
- The Scottish Executive (SE) is undertaking useful work in seeking a well-adapted Scotland.
- Further opportunities for SE to pursue include: greater focus on adaptation; making full use of the developing Scottish Climate Change Impacts Partnership (SCCIP); building adaptive capacity for others; working with local authority networks and other public sector organizations; working with business and business support organisations; close engagement with impacts and adaptation issues within and between all SE departments.

## **2. Introduction**

- 2.1 The UK Climate Impacts Programme (UKCIP) was established by Government in 1997 and is fully funded by Defra and the devolved administrations. Its purpose is to help organisations assess how they might be affected by climate change, so that they can prepare for its impacts. It co-ordinates stakeholder led assessments of climate change at regional and national level and provides tools (such as the UKCIP02 climate change scenarios) and guidance for stakeholders and researchers. Within the UKCIP framework, regional scoping studies on climate change impacts have been undertaken for all parts of the UK (including Scotland) and regional climate change partnerships established in most English regions. Sectoral studies have focused on the natural environment and the built environment. Capacity building programmes are now underway for local authorities and business. Further information on UKCIP, its tools and studies, can be found on the UKCIP website at [www.ukcip.org.uk](http://www.ukcip.org.uk).
- 2.2 These notes cover three main areas: a) a summary of the climate scenarios for Scotland in the 21<sup>st</sup> century and a discussion of their main impacts.<sup>1</sup> b) a review of activity undertaken by the Scottish Executive with regard to climate change impacts and adaptation.<sup>2</sup> and c) suggested further opportunities for the SE to pursue in seeking a well-adapted Scotland.<sup>3</sup>

## **3. Climate Change Scenarios for Scotland in 21<sup>st</sup> Century**

<sup>1</sup> Evidence is drawn from two main publications: Kerr, A., Shackley, S., Milne, R., Allen, S., (1999), 'Climate Change: Scottish Implications Scoping Study', Scottish Executive Central Research Unit, and Kerr, A. and McLeod, A., (2001), 'Potential Adaptation Strategies for Climate Change in Scotland', Scottish Executive Central Research Unit

<sup>2</sup> Evidence is drawn mainly from the partnership work of UKCIP and SE particularly over the last two years (2003 and 2004).

<sup>3</sup> Evidence is drawn mainly from the partnership work of UKCIP and SE particularly over the last two years (2003 and 2004)

The latest climate scenarios for Scotland in the 21<sup>st</sup> century are presented in the UKCIP02 Scientific Report.<sup>4</sup> Table 1 (*below*) summarises the changes in climate expected in Scotland during the 21<sup>st</sup> century, relative to the baseline climate of 1961 – 1990. (*See also Figures 1,2,3,4*)

Warmer Winters: (heating degree days down)	Increased cloud cover
Warmer Summers: (cooling degree days up)	Snowfall down
Rainfall increase in Autumn and Winter	Foggy days down
Rainfall less in Summer	Increased risk of severe storms (but uncertain)
Rainfall less in Spring	Less very cold days
Intensity of rainfall events will increase	More very hot days

Table 1: Summary of changes in climate in Scotland during 21<sup>st</sup> Century, relative to the baseline climate of 1961 - 1990

The UKCIP02 data are presented in a 50km grid square across the whole of the UK. They offer changes in three time zones throughout the 21<sup>st</sup> century (around the 2020s, 2050s, and 2080s) and in response to four different sets of greenhouse gas emissions (Low, Medium-Low, Medium-High, High) which cover a range of specified socio-economic scenarios. There are large differences between the changes expected in Scotland and those expected in the South of England. This is true for most climate scenarios and for most climate variables. This difference occurs because climate change is greater over land than over sea, so the South of England is influenced by continental Europe whilst the North West of Scotland is influenced by the Atlantic. This is important as global or UK averages reported in both the scientific and the lay press, mask the likely changes in Scotland. Not only are the changes greater in the South than the North but the baselines upon which these changes occur are also different. This is reflected in the impacts. (*see 4 below*)

#### 4. Climate Change Impacts for Scotland in 21<sup>st</sup> Century

The changing climate is usually reported as presenting threats and risks to a particular society or locale. In practice there are both risks and opportunities. Kerr and McLeod<sup>5</sup> identified impacts under six headings. Table 2 (*below*) uses these headings with some additions.

Sector	Key issues for Scotland	Specific risks
Energy, Utilities	High dependency of all other sectors on security of supply of eg water, electricity	Involves major capital assets & investment with long lifetimes Vulnerable to flooding/storm damage

<sup>4</sup> Hulme, M. *et al*, (2002) Climate Change Scenarios for the United Kingdom: The UKCIP Scientific Report (2002)

<sup>5</sup> Kerr, A. and McLeod, A., (2001), 'Potential Adaptation Strategies for Climate Change in Scotland', Scottish Executive Central Research Unit

Business Sector	Issues relate to most business areas, and not just the obvious ones of product or service.	Changing markets for products or services; logistics and supply chain, premises, people, production process or service delivery; insurance/ investment.
Transport	High dependency of all other sectors on all transport systems including sea and air as well as the more obvious road and rail.	Sector involves major capital assets & investment with long lifetimes Vulnerable to flooding, storm, landslips etc
Built Environment	Another cross-cutting issue where climate change affects all sectors	Less winter heating and some over-heating issues. Wind, storm, flood damage to structure/fabric serious.
Agriculture, Forestry, Fishing	Natural resources very sensitive to climate change.	Sensitive to most climate variables singly and in combination
Tourism	Significant and growing part of Scottish economy	Very specific impacts eg on golf, ski-ing, city breaks, hill walking, etc

Table 2. Some of the key impacts of a changing climate for Scotland

## 5. Strategic Responses to Climate Change: Adaptation and Mitigation

- 5.1 The evidence is now compelling that the climate is changing more quickly than in geological time and that this is due to human society's activities emitting greenhouse gases. There are two strategic responses to these changes: mitigation and adaptation. Most strategies have concentrated upon mitigation (the reduction of greenhouse gas emissions). Nevertheless, it is also essential to consider **adaptation** to the expected impacts that will arise as a result of greenhouse gas emissions.
- 5.2 Policies and strategies such as the Scottish Climate Change Programme do make reference to adaptation as well as mitigation but generally as a minor part of a larger policy set. UKCIP is keen to see a greater emphasis upon adaptation strategies, as there is evidence to suggest that anticipatory responses can be much more cost effective than *post-hoc* responses.

## 6. Building Adaptive Capacity in Scotland

- 6.1 UKCIP has recognised that, in order to allow/encourage relevant organisations to deliver actual adaptation to climate change, it is essential to create the appropriate context and conditions through regulation, policy, codes, standards, funding etc. We call this 'building adaptive capacity'. The SE is the agency best placed to build adaptive capacity in Scotland.
- 6.2 The SE has recognised that understanding climate impacts and developing effective adaptation responses is a part of its overall climate change responsibilities. Since its inception UKCIP has been able to work constructively with the SE and through this relationship a range of outcomes has been achieved. Some of the significant initiatives undertaken by the SE of which UKCIP is aware include:

- commissioned and supervised two substantial research studies<sup>6</sup> and others
- agreed to support the creation of a stakeholder-led Scottish Climate Change Impacts Partnership, similar to partnerships already in place in England
- committed appropriate funds (£50k) to the development phase of this partnership and pro-active in support of development phase.
- recognised the important role of local authorities in Scotland in responding to a changing climate and jointly supported local authority climate change impacts workshops with Sustainable Scotland Network (SSN), the Convention of Scottish Local Authorities (CoSLA) and UKCIP.
- maintained constructive dialogue with UKCIP

## 7. Further opportunities for the SE to pursue in seeking a well-adapted Scotland.

7.1 **SE to increase consideration of adaptation.** Policy and resource measures on adaptation and mitigation are often seen to be in conflict with each other. In fact they are mutually dependent – two sides of the same coin. But most policy documents on climate change, not just those for Scotland (!) devote a tiny proportion of text to adaptation. This can only be interpreted as an indication of the priority that is attached to adaptation. The climate through to the 2040s is already determined by greenhouse gas emissions during last century. So some climate change is inevitable, whatever mitigation successes are achieved. Even modest adaptation (for example in flood defences or building specifications) can create more time for mitigation initiatives to take effect.

7.2 **SE to support new partnership, and continue to be pro-active.** UKCIP looks forward to the creation of a robust and vigorous Scottish Climate Change Impacts Partnership (SCCIP). The partnership should not be seen as a reason for the SE to reduce its efforts, rather as a most useful vehicle through which it can further address impacts and adaptation. The partnership can achieve much in raising awareness, research and co-ordinating the thinking and actions of many agencies. But SCCIP is not funded or constituted to take executive action. This responsibility rests with the SE which must be pro-active in its own areas of responsibility as well as responding to the lobbying that it will properly receive from SCCIP.

7.3 **SE to build adaptive capacity for others.** Adaptation responses across Scotland will be encouraged by a combination of ‘carrot’ and ‘stick’. Unfortunately we have not come across too many effective ‘carrots’ but the SE is well placed to provide such incentives through policy, advice notes, technical guidance, etc. Many of our stakeholders, for example in local authorities, have suggested that ‘sticks’ are the only effective way of changing perceptions, policies, budgets, etc. in most organisations, whether in public or private sector. Examples include: working with Audit Scotland to agree ‘Best Value’ criteria; ensuring that Building Regulations and other similar technical standards make explicit reference to the impacts of a changing climate.

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<sup>6</sup> Kerr, A., Shackley, S., Milne, R., Allen, S., (1999), ‘Climate Change: Scottish Implications Scoping Study’, Scottish Executive Central Research Unit, and Kerr, A. and McLeod, A., (2001), ‘Potential Adaptation Strategies for Climate Change in Scotland’, Scottish Executive Central Research Unit

- 7.4 **SE to maximise and support the role of local authorities and other public sector bodies.** The local authority structure is well established in Scotland with all councils having responsibility for broadly the same functions. They represent a critical route through which awareness of impacts and the development of adaptation strategies can be developed, taking into account their own local circumstances. The development of Community Plans through Local Strategic Partnerships has been identified as one effective route through which this work could be orchestrated. SE support of SSN, and the local authority network proposed as part of SCCIP, are important here. SE could also ensure that other public bodies continue to be pro-active. An explicit follow-up by the SE to the outcomes of ongoing research on business risks for public bodies would be effective.
- 7.5 **SE to try to develop a business focus.** It is widely recognised that the business community represents a significant challenge in awareness raising on climate change. Nevertheless the business threats and opportunities presented by a changing climate are important to the overall Scottish economy. The SE should be encouraged to explore a variety of different outreach methods: eg some government agencies (such as Scottish Enterprise) have responsibility for business support which includes a regional/local as well as a national presence; Business in the Community (BITC) has a Scottish presence and is building a productive working relationship with UKCIP; UKCIP's own 'Changing Climate for Business' (CCFB) programme has trade associations and professional bodies which can provide the beginnings of a useful business network.
- 7.6 **SE to engage with climate change impacts and adaptation across all its Departments.** Adapting to climate change is not (just) an environmental issue, certainly in terms of governance. Whilst it is convenient to locate responsibility in a single unit, it is essential to gain commitment from other departments, all of whom are responsible for activities which are subject to climate risks in some form. A systematic approach in all Departments is required, which perhaps in the first instance establishes priority Departments, and identifies 'adaptation champions' for each. UKCIP can offer assistance in this area if required. The engagement of other SE Departments will also identify adaptation actions which can be implemented by the SE itself. For example a study has been started by the SE to explore the implications of landslips etc on Scottish trunk roads. Publicity and information on such actions can be widely shared as examples of good practice. The Adaptation Policy Framework (which Defra is now developing) may well provide the context within which Scottish strategies can be positioned, and the important adaptation work of the SE further developed.

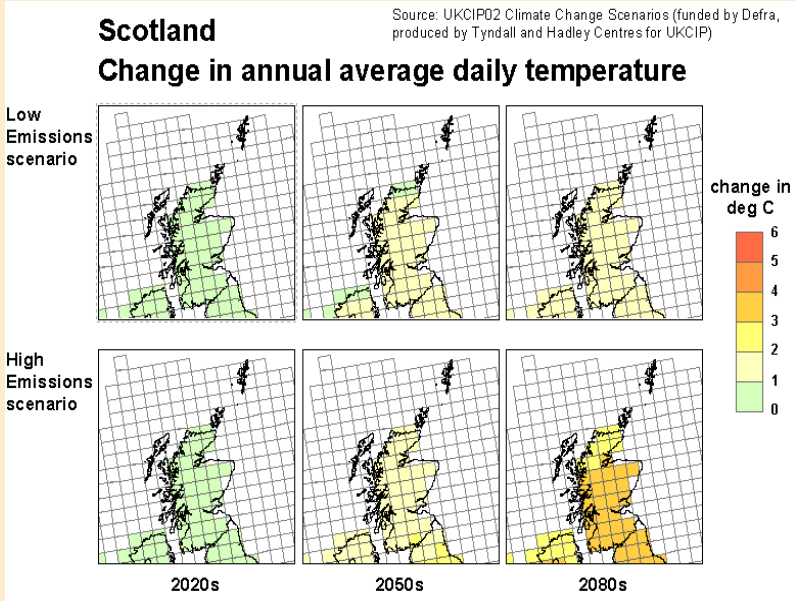


Figure 1. Scotland: Change in Average Daily Temperature for Low and High Emissions in 2020s, 2050s, and 2080s In degrees Centigrade relative to a baseline of 1961 - 1990

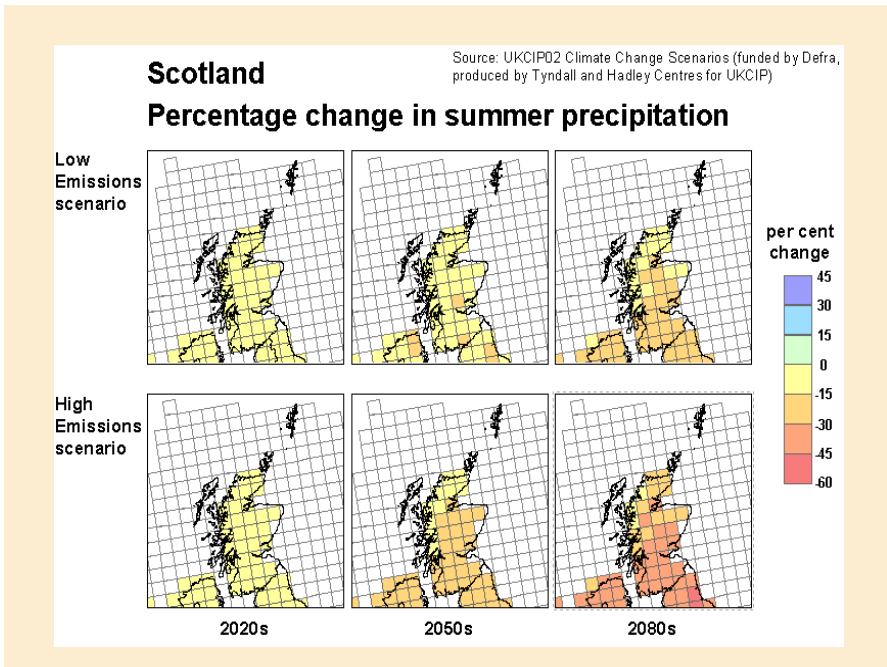


Figure 2. Scotland: Percentage change in summer precipitation for Low and High Emissions in 2020s, 2050s, and 2080s relative to a baseline of 1961 – 1990  
Note that this represents a decrease in summer rainfall.



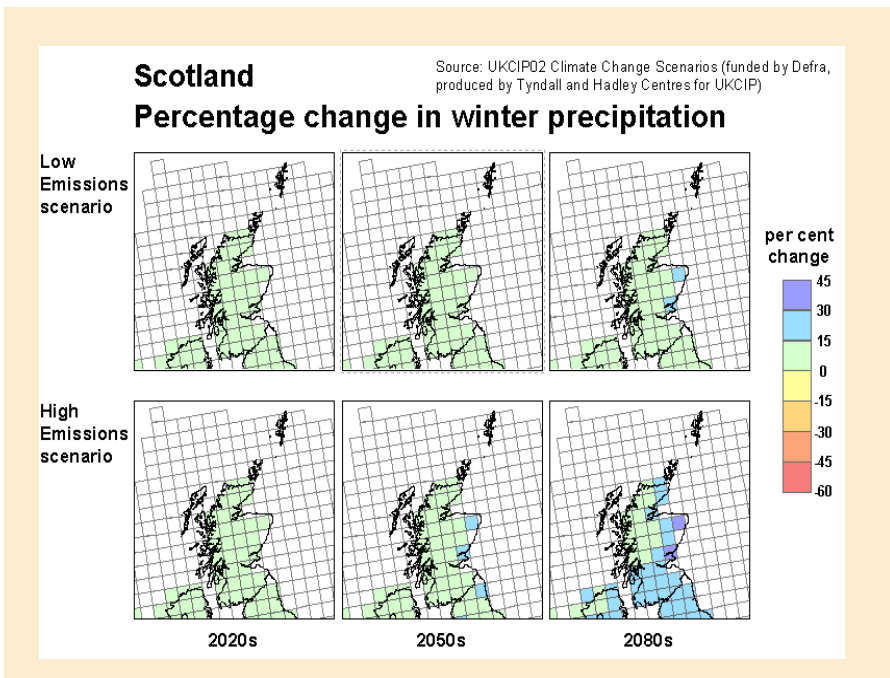


Figure 3. Scotland: Percentage change in winter precipitation for Low and High Emissions in 2020s, 2050s, and 2080s relative to a baseline of 1961 – 1990. Note that this represents an increase in winter rainfall.

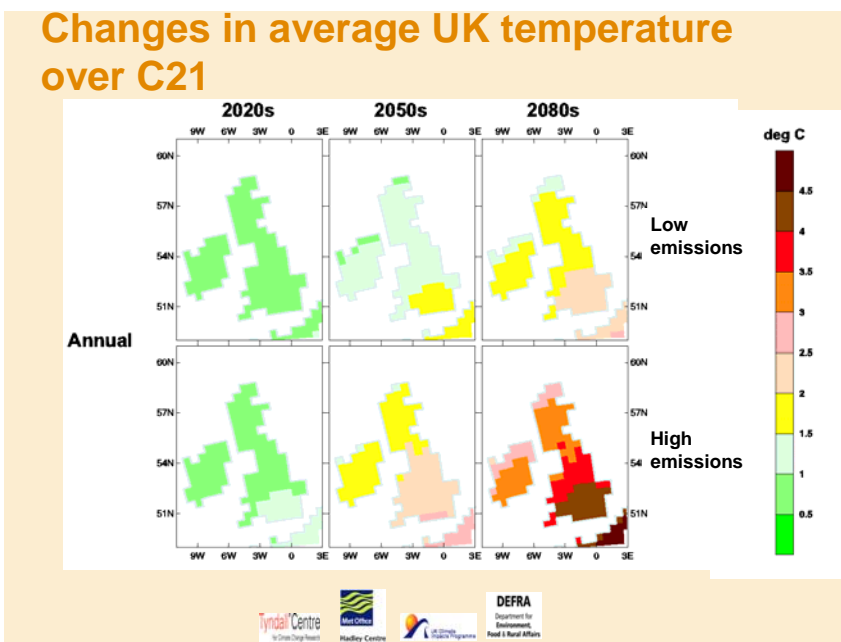
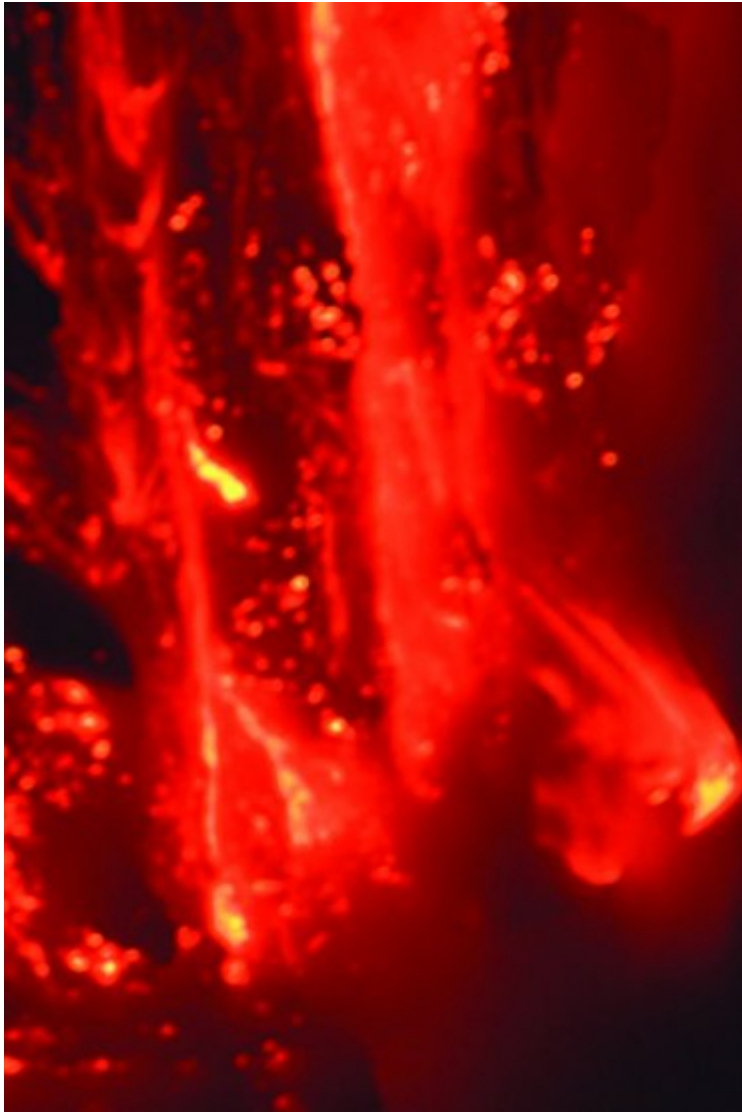


Figure 4. UK: Change in Average Annual Daily Temperature for Low and High Emissions in 2020s, 2050s, and 2080s in degrees Centigrade relative to a baseline of 1961 - 1990

Scottish Parliament, February 2005

BENFIELD  
**Hazard**  
Research  
Centre



## **Perspectives from the Insurance Industry**

**David Crichton**

Visiting Professor, University College London

Visiting Professor, Middlesex University

Hon Research Fellow, University of Dundee

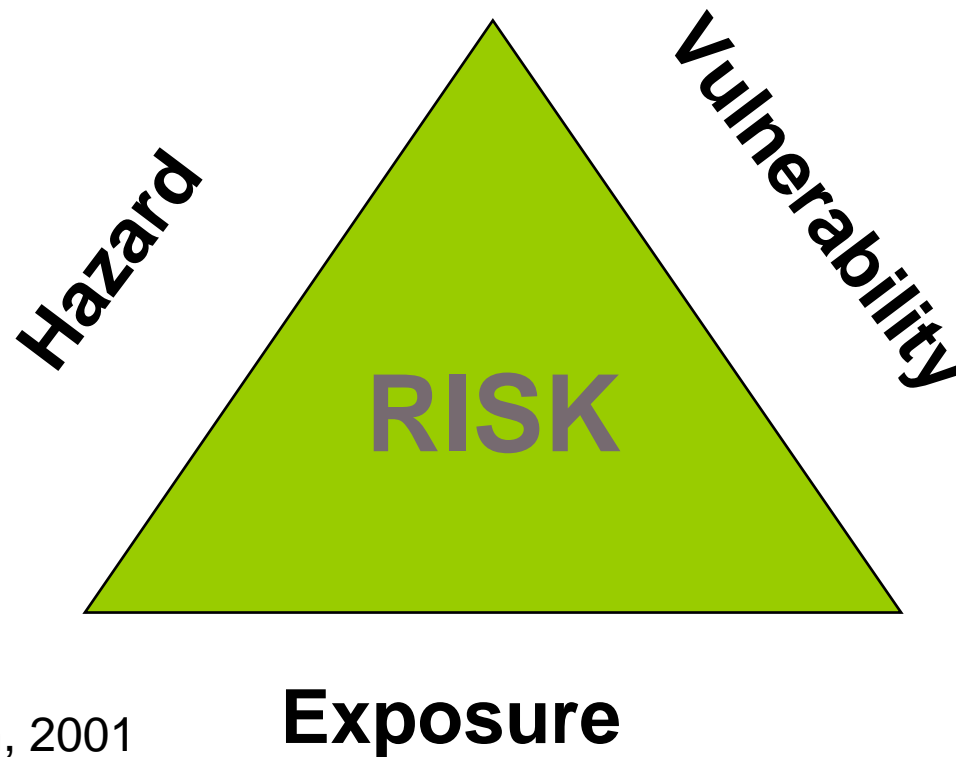
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# The Risk Triangle

*A Framework for Adaptation?*



Source: Crichton, 2001

# Financial Sector and Mitigation

- Over 200 major banks and insurers work together with the UN to lobby governments in global conferences.
- 95 institutional investment companies with assets of \$10 trillion have signed up to the Carbon Disclosure Project. 300 of the top 500 companies in the world now disclose their carbon emissions records.
- The Investor Network on Climate Risk is a group of institutional investors which is putting direct pressure on individual oil companies.

# Windstorm is the biggest risk:

- October 1987
  - 1 million claims
  - € 2,000m claims costs
- Jan. + Feb. 1990 (“Vivian” & “Daria”)
  - 3 million claims
  - € 3,528 m claims costs
- Jan. 1993 (“Braer”) was even more severe
- December 1999 (“Lothar”).
  - € 4,500m claims costs

# Vulnerability

- After the October 1987 storm, a study found that between 60% and 80% (depending on area) of houses damaged had roofing damage, and "an unusually high proportion of gables had both leaves of masonry sucked out" (Buller, 1988).
- An analysis of insurance storm claims showed most damage was to houses built after 1971 (Mootoosamy and Baker, 1998)
- In the last 50 years, the number of winter storms crossing the UK has doubled. (UK Met Office)

# Buildings need to be more resilient

- New buildings should be built to higher standards of resilience and energy saving.
- Existing buildings should be repaired to more resilient levels.
- Powers already exist in the Building (Scotland) Act 2003 to force insurers to apply resilient reinstatement. Why have they not been implemented?

# Big European Flooding events...

- 1993, Rhine, Tay
- 1994, Strathclyde
- 1995, Rhine
- 1997, Oder (Germany/Poland)
- 1998, England/Wales, Central Europe
- 1999, Danube, Denmark 5m storm surge
- 2000, UK, Switzerland, Italy
- 2001, Wisla (Poland)
- 2002, UK, Central Europe
- 2003, Rhone, France
- 2004, Conwy, North Wales. Boscastle, Cornwall.
- 2005, Conwy, North Wales.



# The Insurance Template

Maximum exposure for insurers to write flood risk at normal terms.

- Sheltered Housing 1,000 year
- Hotels, hostels etc 750 year
- Basements 750 year
- Bungalows without skylights 500 year
- Near “Flashy” rivers 500 year
- All other residential 200 year

Where the risk is higher than 1 in 200 years the Statement of Principles applies

Source: Crichton

# ABI Statement of Principles

where the risk is higher than 1 in 200 years

- Conditional guarantee of cover until 2007
  - Provided risk is less than 1 in 75 years
  - Depends on action taken in England
- May require resilient building materials and temporary defences
- No more price cap – premiums rising fast
- “Realistic” solutions to sewer flooding are needed.

## Foresight – Flooding in the 2080s

- River and coastal flood risk could increase between two and 20 times;
- Risk of flooding from rainfall could increase between three and six times;
- Annual economic damage could increase from £1bn to between £1.5bn and £21bn by the 2080s, depending on the scenario. This compares with growth of GDP of between two and 14 times over the same period; and
- The number of people at high risk of river and coastal flooding could increase from 1.6 million today, to between 2.3 and 3.6 million by the 2080s.

Source: Foresight Press Release, April 2004

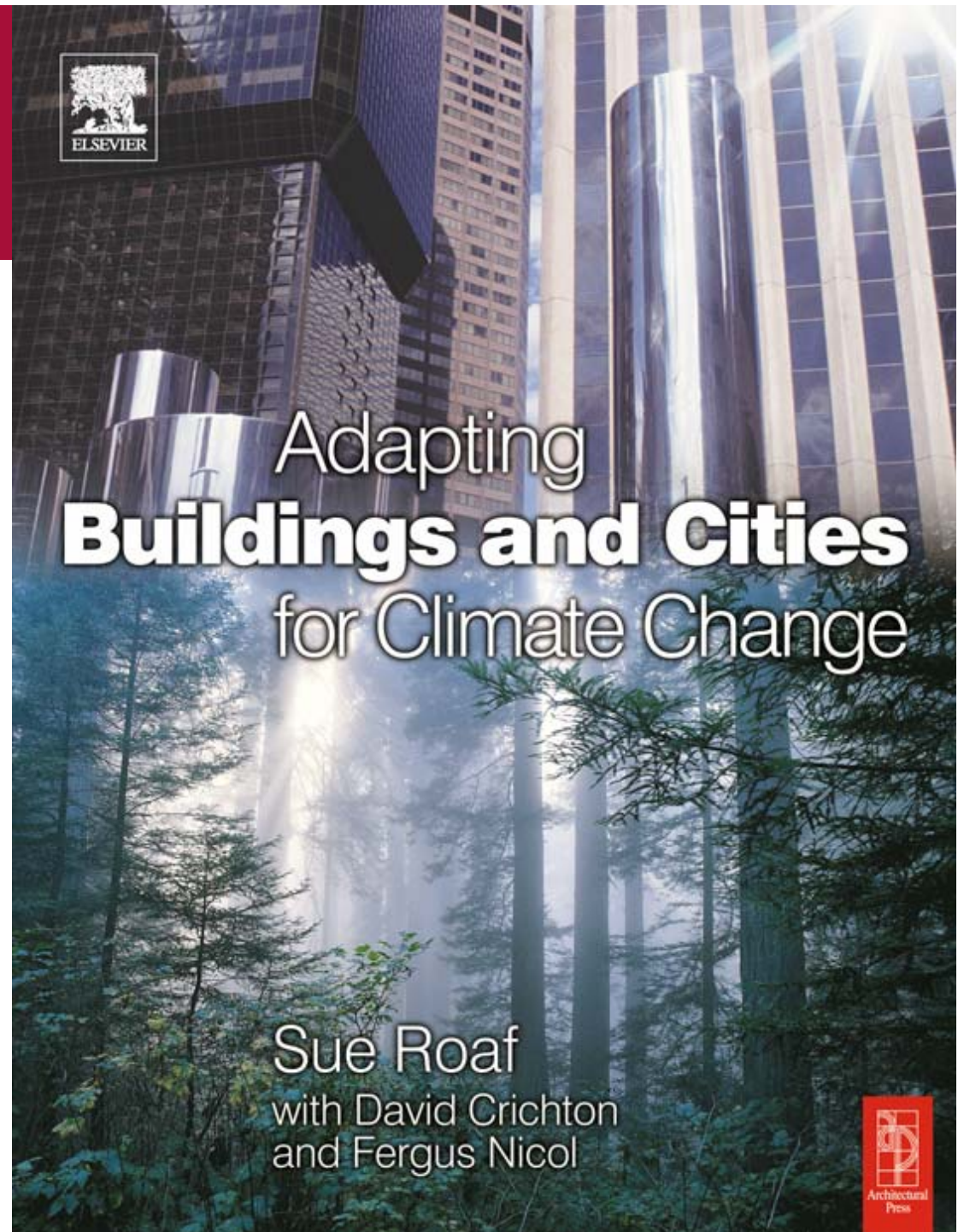
# Recent dam failures

- In May, 2004, a coffer dam collapsed in China, killing 14. It had been built by the same company which is building the Three Gorges Dams.
- In June 2004, after heavy rain, the Camara Dam in Brazil burst. It killed five people and left 3,200 homeless. It had only been completed in 2002.
- In July, 2004, heavy rainfall destroyed 13 small dams in New Jersey in the USA. 19 dams have burst in New Jersey alone since 1999. (According to the US Association of State Dam Safety Officials, the US needs to spend \$10billion on the most dangerous dams.)
- Climate change will certainly increase the chances of dam failure.

# Adaptation

One message:  
Government,  
Architects,  
Planners and  
Insurers should  
work together to  
help society to adapt  
to climate change

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## **SUBMISSION (2) FROM PROF DAVID CRICHTON, BENFIELD HAZARD RESEARCH INSTITUTE**

### Affiliations

(Please note that any comments expressed by the author are not necessarily shared by the following.)

Visiting Professor, Benfield Hazard Research Centre, University College London,  
Visiting Professor, Middlesex University Flood Hazard Research Centre, London,  
Honorary Research Fellow, University of Dundee, Scotland,  
Fellow of the Chartered Insurance Institute.

### Background

David lives in Scotland and has advised insurers and governments in four continents on climate change mitigation and adaptation. He has also worked with UN FCCC, UNEP, UNESCO and NATO on such issues. Recent books include:

- Crichton, D., February 2005. *"Flood risk and insurance in England and Wales: are there lessons to be learnt from Scotland?"* Technical Paper Number 1, Benfield Hazard Research Centre, University College London. Available for free downloading from [www.benfieldhrc.org/SiteRoot/activities/tech\\_papers/flood\\_report.pdf](http://www.benfieldhrc.org/SiteRoot/activities/tech_papers/flood_report.pdf)
- Crichton, D. January 2005. *"The role of private insurance companies in managing flood risks in the UK and Europe."* In *Urban Flood Management*, eds. A. Szöllösi-Nagy & C. Zevenbergen. ISBN 04 1535 998 8, 2004, 160 pp. Balkema, Leiden, Holland.
- Roaf, S. Crichton, D., and Nicol, F., January 2005. *"Adapting Buildings and Cities for Climate Change."* 361pp. Architectural Press, Oxford, England. ISBN 0 75065 9114

In February 2005, he was sent by the UK Foreign Office to Houston, Texas, to give a presentation of the insurance aspects of climate change to an audience of US academics, businessmen and politicians, in the run up to the forthcoming G8 talks. A copy of his Houston paper is available if required.

## **Evidence from an insurance industry perspective**

### **General**

There is an urgent need for more public education about climate change, its likely impacts and what contribution architects, regulators, and individuals can make. There is mounting evidence for changes in the circulation and composition of North Atlantic waters, and the Scottish Parliament needs to consider how it might handle a colder climate as well as a warmer one. Gulf Stream slowdown or shutdown is no longer a far-fetched scenario but one that requires serious consideration. The burst pipes disaster in Scotland in winter 1995/6 should not be forgotten<sup>1</sup>.

Four widely accepted principles should be considered in efforts to meet the threat of climate change. These are:

1. the precautionary principle

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<sup>1</sup> Scottish Affairs Committee Inquiry "Big Freeze:Lessons to be learned", published by HMSO, Edinburgh, 1996.

### Comments

This followed the "big freeze" of December 1995 and January 1996. The evidence submitted by the Scottish and Northern Ireland Plumbing Employer's Federation to the subsequent Scottish Affairs Committee Inquiry highlighted the concern that many householders did not know how to or be able to shut off the cold water supply. Many flats and tenements had no isolation valve for individual properties. The scale of burst water pipe damage was reflected by the estimate from the Association of British Insurers (ABI) that the claims in Scotland would amount to some £350 million.

2. the principle of sustainable development (development which meets today's needs without compromising the ability of future generations to meet their own needs);
3. the 'polluter pays' principle (the country, organisation or person that causes pollution should pay to put right the damage that it causes);
4. the principle of equity - both intergenerational and international

The only solution to reducing greenhouse gas emissions which satisfies all of these principles is Contraction and Convergence<sup>2</sup>, as recommended by the Royal Commission on Environmental Pollution<sup>3</sup>. Scotland with its long tradition of equity, should seriously consider supporting this initiative, which allocates emissions to nations on an equal per capita basis while also allowing for emissions trading.

### **Mitigation and the Financial Sector**

The financial sector is making progress in raising awareness amongst companies they invest in. For example, 95 institutional investment companies with assets of \$10 trillion, have so far signed up to the UK led Carbon Disclosure Project. They ask businesses to disclose investment-relevant information concerning their greenhouse gas emissions. Their website<sup>4</sup> provides the largest global registry of Greenhouse Gas Emissions from public corporations. Over 300 of the 500 largest companies in the world now report their emissions on this website, recognizing that institutional investors regard this information as important for shareholders.

### **Resilient Buildings**

Buildings are the biggest source of carbon emissions, especially the embodied energy in building materials manufacture, transport and waste. Architects and the construction industry receive little education on the effects of climate change or how to adapt buildings and cities. So far there is only one architectural text book on the subject<sup>5</sup>.

Floods, droughts, and storms will increase, leading to more building damage, more waste of embodied energy and more landfill. More resilient buildings are needed to make our buildings more sustainable, reduce waste and insurance costs. Building standards need to be upgraded urgently to make buildings more resilient<sup>6</sup>. The biggest problem is with existing stock. The Scottish Parliament has already given the Executive the power to introduce "resilient reinstatement" under the Building (Scotland) Act 2003. Such powers would force insurance companies to repair flood and storm damage to a more resilient standard, which would reduce the amount of damage next time. I would like to see a strong steer being given to the Scottish Building Standards Agency to implement such powers as soon as possible with a lead in time of no more than five years to produce more resilient standards and to allow insurers to adjust their policy wordings. At the same time resilience standards should be raised for new buildings. Otherwise as insurance losses increase with climate change, the matter may be taken out of the government's hands. This has already happened in Australia, with the "Blue Book" approach where the mortgage and insurance industry have established their own set of building standards, because government standards are no longer sufficiently resilient. Builders now ignore the

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<sup>2</sup> For details see [www.gci.org.uk](http://www.gci.org.uk)

<sup>3</sup> Royal Commission Report on Environmental Pollution, 2000. "Energy – The Changing Climate" June 2000 (Cm 4749)

<sup>4</sup> <http://www.cdproject.net/>

<sup>5</sup> Roaf, S. Crichton, D., and Nicol, F., 2005 "Adapting Buildings and Cities for Climate Change" Architectural Press and Elsevier Press, London.. ISBN 0 75065 9114. (I have arranged for a copy to be given to the Scottish Parliament library.)

<sup>6</sup> Spence, 2004. "Risk and Regulation: can improved government action reduce the impacts of natural disasters?" Building Research and Information, v32, No 5, pp391-402. Guest eds Spence, R., and Kelman, I. Spon Press, Oxford, UK. ISSN 0961-3218

government standards because properties cannot be mortgaged or insured unless the Blue Book is used.

Given that as many as 700,000 Scottish households live in fuel poverty; some mechanism is needed to raise energy as well as resilience standards. This can in itself reduce insurance costs<sup>7</sup>. 90% of Scottish homes fail to meet even the inadequate 1996 Building Standards<sup>8</sup>. One solution working well in Aberdeenshire is the "Index 21" initiative<sup>9</sup>. Lessons could also be learned from the "Energy Star" programme operated by the US Environmental Protection Agency<sup>10</sup>. I have taken the liberty of bringing some USA leaflets and videos which give details.

It is a voluntary partnership between various local governments and builders and sets standards for energy saving which are 30% higher than Federal standards. But they also set standards for build quality, backed up by independent inspection. A similar system in Scotland could be funded by the building industry and provided it included higher resilience levels, should attract cheaper insurance, and better resale value. It might even encourage mortgage lenders to provide longer term mortgages, which would help first time buyers. These are unlikely at a time when new houses are no longer built to last for much more than 50 years. At present, building standards do not take climate change fully into account as far as resilience is concerned. Indeed, research in Scotland shows that houses built after 1971 changes to building standards are much more likely to fail in a storm event<sup>11</sup>.

## Research

The insurance industry has large amounts of data on the components of flood and storm claims which could easily be collected and analysed to provide guidance for more resilient building standards. All that is needed is government endorsement and modest funding. Scotland already hosts the British Flood Insurance Claims Database, the largest of its kind in the world, but government support would help it to continue.

## Social Justice

Climate change impacts will particularly affect socially deprived communities, many of which are located in floodplains. The majority of these people cannot afford insurance, even under the "pay with rent" schemes promoted by the insurance industry. Housing Benefit can be extended to pay for pet food, why not for some basic insurance as well?

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<sup>7</sup> Edward Vine, Evan Mills and Allan Chen, Environmental Energy Technologies Division, Ernest Orlando Lawrence Berkeley National Laboratory, California, USA. *"Energy - efficiency and renewable energy options for risk management and insurance loss reduction: an inventory of technologies, research capabilities, and research facilities at the US Department of Energy's National Laboratories"* US Department of Commerce, August 1998.

<sup>8</sup> Scottish House Condition Survey

<sup>9</sup> *Testing Environment Friendly Housing Layouts in Exposed Peripheral Locations around the North Sea Fringes of Europe*, which is assisted by the Commission of the European Communities LIFE funding programme. The product of the research is '[Index 21](#)', a tool that will assist in improving the environment friendliness of housing layouts across the North Sea fringes of Europe.

<http://www.asrt.org.uk/results/layman.PDF>

For Index 21, see <http://www.index21.org.uk/>

<sup>10</sup> [www.energystar.gov](http://www.energystar.gov)

<sup>11</sup> Mootoosamy, V.K.S, and Baker, M.J., 1998 *"Wind Damage to Buildings in the United Kingdom"* University of Aberdeen, Department of Engineering. Published by the Loss Prevention Council, Paper LPR 8: 1998 Watford. (ISBN 0 902167 49-9).



## Land Use Planning

Scotland should be proud of the progress it has made in land use planning<sup>12</sup> especially compared with England, France and Italy. A major contributor to this is stakeholder involvement in planning decisions through a network of 17 local "Flood Liaison and Advice Groups". (The writer is the only person to be a member of all of them.) Such groups now represent more than 90% of the population.

Unfortunately a few local authorities still do not comply with Scottish Executive Policy on this. Many small businesses and householders in such areas are now having problems in getting insurance following the cancellation of the insurance industry guarantee in 2002. This could become much worse if the insurance interim guarantee is not renewed when it expires in 2007. This is quite likely because renewal is entirely dependent on action by English government departments.

There is still room for improvement in Scottish planning policy however, with valuable lessons to be learned from the Swedish approach, particularly on social vulnerability issues.

## Conclusion

Britain is in line with Israel and Argentina as one of the three governments in the developed world which do not provide government assistance to citizens who are the victims of natural disasters. In the absence of government compensation, the British insurance industry has grown strong and the public have become dependent on it. But it should be remembered that there is no social, legal or moral duty on insurers to provide cover. There has to be a partnership with government to keep insurance viable, and as climate change produces the inevitable and severe growth in natural disasters, so there will be an increasing need for government to listen and respond to the views of the insurance industry. The alternative is to find a way to respond to those who can no longer afford to buy cover.

It is to be hoped that the committee will take into account the latest research<sup>13</sup> which is showing that climate change is happening more rapidly than anyone realised and which suggests that within ten years we could reach the "point of no return" when feedback effects cause runaway changes in our climate with disastrous results. Reducing greenhouse gases is urgent, certainly, but it is unlikely the world will move quickly enough. China for example, is projected to have 100million cars on the road by 2010, and is already buying up the oil fields in Indonesia and Australia. According to a recent analysis based just on coal power plant current construction programmes, by 2012, China, India, and the United States alone are expected to emit as much as an extra 2.7 billion tons of carbon dioxide per year. In contrast, Kyoto countries by that year have undertaken to cut their CO<sub>2</sub> emissions by only 483 million tons. No matter how much we reduce carbon emissions in Scotland, we have to accept that there could be a continuing increase in the number and severity of climate related disasters.

Adapting our buildings and cities to be more resilient is the one thing that we can control. Scotland has made good progress on land use planning; similar progress is now urgently needed on building resilience issues and educating architects.

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<sup>12</sup> Crichton, D., (2005) "*Flood risk and insurance in England and Wales: are there lessons to be learnt from Scotland?*" Technical Paper Number 1, Benfield Hazard Research Centre, University College London. Available from [www.benfieldhrc.org/SiteRoot/activities/tech\\_papers/flood\\_report.pdf](http://www.benfieldhrc.org/SiteRoot/activities/tech_papers/flood_report.pdf)

<sup>13</sup> For example, The International Climate Change Taskforce, 2005. "*Meeting the Climate Challenge*". Institute for Public Policy Research, the Centre for American Progress, and the Australia Institute. ISBN: 1860302645 . For details see [www.ippr.org.uk](http://www.ippr.org.uk) .  
Also: See [www.Climateprediction.net](http://www.Climateprediction.net)

## **Agenda Item 1**

### **Environment and Rural Development Committee**

22 February 2005  
ERD/S2/05/6/1d



**Sustainable  
Development Commission**  
**Scotland**

## **Environment and Rural Development Committee - Climate Change Inquiry**

### **Introduction**

The Sustainable Development Commission is the independent advisor to all the governments of the United Kingdom. The Commission welcomes the Committee's inquiry on climate change and in particular its efforts to examine Scottish Executive policies on climate change. This submission focuses on aspects of the Scottish Climate Change Programme, policy development in Scotland across portfolios with regard to climate change, and identifies priorities to further reduce carbon emissions.

The SDC welcomes the Committee's aim to identify a number of clear and distinct priorities which should be pursued to improve the Scottish Executive's response to the challenge of climate change. As Jonathon Porritt, Chair of the Sustainable Development Commission, stated earlier this year "as the news about climate change goes on getting worse, political inertia all around the world remains the biggest barrier to finalising an appropriate response".

### **Goals and Mechanisms**

The Sustainable Development Commission goals for all governments within the UK are:

- 1. A strong commitment to the UK target for greenhouse gas and CO<sup>2</sup> emissions;**
- 2. A commitment to the role of renewables;**
- 3. Strong support for programmes promoting and driving energy efficiency;**
- 4. Tough targets for the transport sector and for the future of buildings;**
- 5. The ambition of a carbon-neutral public sector.**

### **UK target for greenhouse gas emissions**

The SDC urges a strong recommitment to the overall United Kingdom target of 20% reduction in Greenhouse Gas emissions in the medium term, and a 60% reduction in the longer term. In this regard, we expect the UK to be a role model for the world.

In Scotland, SDC recognises the difficulties for the Scottish Executive in working towards a separate emissions target given the extreme sensitivity of Scottish emissions to factors outside the control of the Scottish Executive e.g. a small number of large power stations in Scotland and their relative utilisation; EUETS; and the Kyoto target applying to UK as a whole. Whilst SDC acknowledges the support for separate targets in Scotland, we consider it more appropriate for the Scottish Executive to set targets for the policy areas in which it has competence to deliver. These policy areas should be used as a means to deliver carbon reductions in Scotland.

### **Renewable Energy**

A commitment to the role that renewables, especially wind, must play a role in meeting these goals in the power generation sector. The SDC recognises and supports the Scottish Executive commitment to renewable energy sources, and we commend the target for 40% from renewable sources by 2020. Scotland is in an excellent position to exploit a mix of renewable electricity sources, including wind and tidal energy.

The Scottish Executive compares well with English counterparts regarding National Planning Policy Guidance for Renewable Energy. However the planning system must be made more transparent and engage communities more successfully to ensure appropriate renewable energy developments in Scotland. SDC endorses a modernised planning system that ensures public

engagement throughout the process – sustainable development depends upon participation and trust, by all parties, on a level playing field. In order to deliver this, the Commission supports that the introduction of a widened right of appeal as part of the overall programme of modernising the planning system.

We would also encourage the Scottish Executive to give much greater consideration to the role of that renewable heat could play in reducing emissions. In Scotland, the over- production of wood co-product from forestry industries means that there is a plentiful supply of biomass fuel, often in rural areas that are not on the mains gas network. The SDC in Scotland has recently commissioned research into the viability of biomass heating in Scotland. We hope and expect that the report to will conclude that there are significant potential economic and social benefits that could come from a much-expanded renewable heat industry.

### **Energy efficiency**

Following publication by the UK Government Energy Efficiency Action Plan in April 2004, development of a similar strategy for Scotland was announced in the Scottish Climate Change Programme Review (SCCPR). The SDC welcomes these announcements, but also recognises that there is still much work to do in improving the energy efficiency of both homes and businesses. Whilst Scotland seems to be ahead of the rest of the UK on the provision of interest-free loans to SMEs through its Scottish Energy Efficiency Office, there is no mention of white certificates or the use of Council Tax discounts in the Scottish consultation document. These could be effective tools at encouraging a market for energy efficiency in the domestic sector.

The SDC is also very concerned about the potential for large increases in energy demand in the commercial sector, with increased use of air conditioning being just one example. Both the Scottish and UK Climate Change Programmes should give need to have a much greater emphasis to pre-emptive actions by government to anticipate and constrain new areas of energy demand before they become a problem. The SDC believes that governments can play a leading role in demonstrating energy efficiency improvements, and we welcome the Public Sector Energy Efficiency Scheme.

### **Buildings and Transport**

The SDC urges tougher targets for the transport sector, and for the future of buildings. We have in mind a medium term goal of a 50% reduction in carbon emissions from these two sectors. For housing the Scottish Fuel Poverty Statement is highlighted as an indirect route to carbon savings, through programmes such as the Warm Deal and the Central Heating Programme, in addition to the Home Energy Conservation Act (1995) with its requirements for local authorities to improve energy efficiency.

For transport the Scottish Executive's commitment to spending 70% of the transport budget on public transport over the 10 year period of the plan is also welcome. However, the Scottish Executive is inconsistent with it's messages on for transport that undermine that commitment, with large-scale investment targeted to trunk road improvements and the Air Route Development Fund both of which increase emissions.

### **Carbon neutral public sector**

The SDC urges Government to work towards a carbon neutral public sector through its procurement policies for buildings, travel and energy supply. The SDC is sceptical of the Scottish Executive's claim to have 100% of its electricity supplied from renewable sources. Under the current Renewable Obligation (Scotland) scheme, the ROCs associated with most 'green' electricity customers are usually sold to other consumers rather than being 'retired'. The SDC suggests that a more effective measure would be to set a target for on-site renewable generation for Scottish Executive buildings and sites – for example, 50% from small-scale renewables by 2010 and 100% by 2020. There is a considerable need in the view of the SDC to have a better understanding and labelling of green electricity products. The SCCPR also explicitly mentions that value for money should be 'at the heart' of public procurement - this makes truly sustainable procurement difficult so long as whilst many environmental costs are still not internalised.

## **Achieving the Goals**

Other key objectives of the Executive's approach should be:

1. Overall direction of the entire energy sector within the UK Government, so that it is not split among so many departments as it is now. Strong, knowledgeable leadership for the sector that is maintained.
2. An approach that uses integrated appraisal cost-benefit analysis for measures to reduce greenhouse gas emissions, going across the various sectors, providing a basis for targets and policies and using the best methodologies to incorporate environmental and social costs of alternatives.
3. Willingness to seek and implement fiscal measures where necessary to drive policy forward, including in the domestic sector. This to be a complement to whatever is done via emissions trading. As with fiscal measures, a system-wide look is required. The SDC is keen to explore the concept of Domestic Tradable Quotas (DTQs) and will be highlighting this as an area for further research in the UK Climate Change Programme Review.
4. A strategy and near term targets to deal with areas of increasing demand – such as aviation and air conditioning – that could easily stop us from achieving the targets. For example the Building Standards regulations could be amended to curb excessive use of air conditioning in new build office blocks.
5. A clear timetable for getting to a policy on the future role that nuclear power will play in the UK, particularly dealing with the issue of waste. SDC endorses the current Scottish Executive policy for the coalition parties as stated in the Partnership Agreement, which is “we will not support the further development of nuclear power stations while waste management issues remain unresolved”. Commissioners are clear that any decision to grant consent to construct or operate a nuclear power station in Scotland lies with the Scottish Ministers and that the management of radioactive waste is devolved. SDC believes that through a combination of renewable energy sources and greater energy efficiency measures can all reduce the need to rely on power generated from nuclear power stations. The SDC also recognises that we now have a liberalised energy market and that even if the waste issue is resolved, nuclear should only be supported if it is commercially viable.
6. A plan for accelerating new technologies into the marketplace, including capacity building for implementation. SDC in its submission on the consultation of the Green Jobs Strategy agreed that renewable energy offers very significant opportunities for the creation of new jobs. In particular, biomass offers particular opportunities in Scotland the rural economy. The industry provides very clear examples of where sustainability and green jobs can be achieved by a broad combination of resource efficiency, waste minimisation and improved products and designs - leading to wide ranging economic, environmental and social benefits across Scotland. As the industry develops and as new markets are created for more sustainable materials (including recycled materials) new job opportunities will be created.

## **Points to Note**

- The SDC feels it is important to address carbon management in soils. Scotland has the majority of the UK's soil-borne carbon, and it is vital to recognise the importance of managing Scotland's soils to ensure that the carbon stays locked in the ground rather than emitted into the air.
- The SDC feels that the future of non-fuel crops should be examined in Scotland to assess the scope there is for local production for supply to community energy companies.

- The current SCCPR inexplicably omits a target for Combined Heat and Power as part of the Scottish Executive or wider public estate. The SDC considers that this is a serious omission.
- There is also no explicit Scottish strategy for micro-generation despite the existence of similar promotion measure to the rest of the UK.

**SDC Scotland**  
**16 February 2005**