Climate Change– Scotland's Role in Delivering Climate Justice

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The scientists of the Intergovernmental Panel on Climate Change (IPCC) agree that humans are causing the climate to change. Global levels of the main climate change gas carbon dioxide (CO_2) have increased since pre-industrial times and may be double these levels by the 2050s. The world is now at least 0.5ºC warmer than it was 100 years ago. If we carry on as we are global temperatures could be warmer by as much as 6ºC by 2100. These are big changes - more rapid than anything experienced during the last 10,000 years.

International evidence of climate change:

Temperature: [1]

- The 1990s was the hottest ever decade in the Northern Hemisphere. Globally, 6 of the 10 warmest years ever recorded were in the 1990s; the other four were in the late 1980s. The first three months of 2002 were the warmest globally since records began in 1860.
- The growing season in Europe is now 11 days longer that it was 35 years ago.
- The average global temperature has risen by between 0.4 and 0.8°C since the late 19th century.

Ice and snow cover: [1]

- Arctic ice cover is shrinking by an area the size of the Netherlands every year.
- Snow cover has fallen by 10 per cent since the 1960s.

Sea level: [1]

- In the last hundred years global sea level has risen by 10-25 cm, a rate of 1 to 2.5 mm a year.

Evidence of climate change in the UK: [2]

- The average temperature increased by 0.5 ° C during the 20th century.
- Winters have become wetter and summers drier.
- There has been an increase in violent winter storms matched by less rain in the summer.
- Sea levels are also rising, with a maximum relative rise of 2 mm a year on the East coast of England.

What will happen in Scotland?

Temperature and sea levels: [3]

- Scotland is expected to get warmer with increased rainfall in the west and more frequent droughts in the east. Temperatures are expected to increase by between 1 and 3ºC by 2080. Winter precipitation is expected to increase by an average of between 10 and 35%, with winter rainfall increasing in some parts of Scotland by up to 40%.
- Although Scotland is still rising after the last ice age there will be a real rise in sea levels of up to 0.8 metre by 2100.

Flooding:

- By 2050 sea levels are predicted to rise by an additional 8 – 30cm. Combined with future storm surges, this could make most of Scotland's coasts below the 5 metre contour more vulnerable to flood risk. Approximately 170,000 (one in 12.5) residential properties are at risk from flooding in Scotland. [4] [5]

Wildlife:

- Species like the Scottish Primrose, the snow bunting, ptarmigan and the dotterel may disappear where the climate of Scotland is their most southerly limit.

Impacts worldwide: [6]

- 2-3 ºC warming could result in up to 300 million more people being at risk from malaria and 3 billion people will face water shortages with many more suffering heat stress mortality.
- The World Health Organisation (WHO) estimate that 150,000 deaths were caused in the year 2000 due to climate change. [7]
- Crop yield reductions in most regions in mid-latitudes.
- Water availability problems, particularly in the sub-tropics.
- Widespread increase in the risk of flooding for many human settlements (tens of millions of inhabitants) as a result of increased heavy precipitation events and sea-level rise.

Climate Justice:

- The developed countries contain only a quarter of the world's population but are responsible for 60 % of the greenhouse gas emissions. However the catastrophic results of climate change are expected to fall disproportionately upon developing countries and their inhabitants. [8]

- Worse still, developed countries, with greater resources to deal with the effects of climate change, have attempted to reduce their obligation to cut emissions of greenhouse gases at home and negotiated instead to pay for emissions reductions in developing countries.

Climate Justice and Scotland:

- The Scottish Executive has made positive commitments to environmental justice. In an international capacity this requires Scotland to massively cut greenhouse gas emissions. Without this the effects of climate change threaten the welfare and livelihoods of many citizens.
- Carbon dioxide emissions in Scotland equate to 12 tonnes per person, compared to a UK average of 9.3 tonnes [(9)] (India emits only 1 tonnes per person and Kenya 0.2 tonnes per person).
- Friends of the Earth have calculated that Scotland needs to reduce carbon dioxide emissions by 6.6 tonnes per person by 2010 and to only 1.1tonnes by 2050 to contribute to climate justice.

What Action has been Agreed?

- At the Kyoto conference, Europe agreed to reduce the emissions of the six main climate change gases by 8% on 1990 figures by 2008-2012.The protocol will only at best result in small reductions in the greenhouse gas emissions of these countries ratifying the protocol.
- The UK subsequently agreed to a 12.5% cut for these gases and the Labour Party made a commitment to a 20% cut in CO_2 in the 1997 manifesto.
- At present Scotland is only committed to achieving an 'equitable share' of the UK's Kyoto target. What Scotland's 'equitable share' is has not been defined.
- The Royal Commission on Environmental Pollution recommends a cut of 60% in emissions by 2050. [(10)]

Progress

- **Neither the UK nor Scottish Governments are on track to deliver the 20% reduction target and Scotland is falling behind the rest of the UK in tackling climate change emissions.**
- Between 1990 and 2002, Scotland's greenhouse gas emissions fell by 5.6% with carbon dioxide, the main greenhouse gas falling by only 3.2%. This compares to a UK average greenhouse gas reduction of 14.9% and carbon dioxide emissions reduction of 8.7% in the same period. [(11)]
- Research for the Scottish Executive looks at carbon dioxide emissions for Scotland between 1990 and 2020. It shows that, even if the current UK and Scottish Climate Change Programmes are effective, Scotland cannot reach the Labour Party commitment of a 20% cut in CO2 from 1990 levels by 2010. In the best case Scotland's emissions might be 16.6% below 1990 levels, in the worst case they would be only 4.7% below. [(12)]

Greenhouse gas emissions sources in Scotland (Equivalent Mass of CO_2) [(13)]

Source	**% of total emissions (2002)**	**% Change 1990 – 2002**
Energy Supply	32%	+ 6.8%
Land use change	17%	- 1.4%
Transport	14%	+ 8.4%
Agriculture	11%	- 12.9
Residential	10%	+ 1.6%
Business	10%	- 35%
Industrial process	3%	+ 11.2%
Public	2%	- 42.0%
Waste Management	1%	-49.3
TOTAL	**100%**	**-5.6%**

What Needs to Happen?

Overview:

- **It is essential that Scotland makes an full and equitable contribution to the UK government's commitment under Kyoto to reduce greenhouse gas emissions by 12.5% against 1990 levels by 2008-2012.**

- **The urgency with which we take action to reduce climate change emissions should not be underestimated; for every year that we fail to address the challenge, the scale of the resulting threat increases.**

i) Climate Change Emission Reduction Targets:

Issue:

- At present Scotland is only committed to achieving an 'equitable share' of the UK's Kyoto target. What Scotland's 'equitable share' is has not been defined. However to date Scotland has achieved a reduction in greenhouse gas emissions of less than half the UK average.

Action:
- **The Scottish Executive should set a climate change target for Scotland with sectoral guidelines.**
- **These targets should equate to a year-on-year emission reduction in the order of 3% per annum.**

ii) Power Generation:
Issue:
- Emissions from the energy sector in Scotland comprise 32% of Scotland's total emissions and have risen by 7% between 1990 and 2002. [13]
- Nearly 90% of the UK's electricity is produced from burning fossil fuels. Scotland is home to two of the least efficient coal-fired power stations.
- In order to meet climate change targets, securing a significant proportion of electricity from clean renewable energy is essential. The Government's target to secure 40% of electricity from renewable sources is welcome, however a number of issues must be resolved to secure this target:

Action:
- **Further strategic planning guidance would assist in delivering renewable electricity projects and targets by reducing the risks of conflicts and lengthy delays, steering proposals away from the most sensitive sites, avoiding excessive cumulative impact.**
- **Additional resources for planning authorities and SNH would also assist in rigorous application of the current SNH and NPPG guidance and help ensure that it is the best schemes that progress.**
- **The target of producing 18% of Scotland's electricity from renewable sources by 2010 should be revised to 25% to maintain momentum and confidence in the renewables industry.**

Issue:
- Given the 13% increase in energy consumed in Scotland between 1990/1991 and 2002 (29,851 GWh to 33,680 GWh) [14] a target based solely on the percentage of electricity to come from renewables, without being accompanied by a target for total electricity use or total fossil fuel resource use could potentially have less impact on reducing emissions and dependency on fossil or nuclear sources than necessary if overall energy use continues to increase.
- Energy used in the form of electricity in Scotland constitutes just 20% of energy used, greater support including targets for renewable energy from other sectors is required.
- Nuclear is not an appropriate alternative, it is too expensive and the waste issue is yet to be resolved.

Action:
- **Targets for overall consumption or for other forms of energy use are needed (alongside renewable electricity) and renewable development must be used to replace the generation capacity currently provided by non-sustainable fossil and nuclear sources.**
- **Incentives should be continued and extended to support renewable energy including renewable heat.**

iii) Energy Efficiency/Conservation:
Issue:
- Energy efficiency measures are expected to deliver about half of the Energy White Paper target of a 60% reduction in carbon emissions by 2050. This corresponds with the UK Government Performance and Innovation Unit (PIU) calculation that the current, cost effective potential for energy conservation is approximately 30% of final demand in the UK. [15]
- Domestic energy use is a significant sector, responsible for 28% of UK carbon emissions. [16]
- Commercial sector energy use is growing fast, having risen by almost 70% since 1973, and is projected to grow faster than any other sector apart from transport. [17]

Action:
- **The Scottish Energy Efficiency Strategy currently being developed must establish and enable ambitious new action and not simply restate what is currently going on in this sector.**
- **Energy efficiency targets should be set to provide greater impetus for energy conservation, to complement those set for renewable energy development, and to provide the certainty necessary for future investment and innovation by the energy efficiency industry. As a first step a target should be set for domestic energy efficiency (as has recently been done in England): we propose the PIU's recommended target of a 20% improvement in efficiency by 2010 and further 20% by 2020. [15]**
- **Targets should also be set generally for Scottish energy demand. The Northern Irish office has recently set a target for an annual 1% reduction in energy demand between 2007 and 2012. [18]**
- **The Home Energy Conservation Act (HECA) in Scotland should be reviewed at its current half way stage since most local authorities are failing to meet both the original and renegotiated (reduced) targets which the Act set. This review must assess the resources and powers available to meet these targets.**

- **The Executive should be ambitious rather than minimalist in the implementation of outside initiatives (such as the current EU Energy Performance in Buildings Directive).**
- **Building Standards in Scotland must be brought up to the highest levels in Europe, both for new build and existing houses. Building regulations should be better enforced. The next review of Building Regulations, due in 2007, should take the opportunity specifically to extend building regulations to refurbishments in a more meaningful way, and to incorporate renewable generation technologies.**

iv) Transport:

Issue:

- The transport sector accounts for 14% of Scotland's greenhouse gas emissions and 23% of climate changing carbon dioxide emissions. Emissions from the transport sector have increased by 8% in Scotland since 1990. (13)
- Road traffic is the second fastest growing sources of greenhouse gas emissions and the Scottish Executive's Transport Delivery Report produced in March 2002 acknowledges that "action is required now to prevent rising carbon dioxide emissions from road transport." Indeed the UK Climate Change Strategy requires that the transport sector delivers 40% of the UK's proposed reduction of CO_2 levels by 2010.
- Despite a commitment from the Scottish Executives to stabilise road traffic levels by 2021 at 2001 (19) levels there is no strategy to do this and no interim targets and without action traffic levels are forecast to grow by 27% over the 20 years to 2021.
- Aviation is the fastest growing source of greenhouse gasses and is set to account for 15% of emissions by 2050 yet the Scottish Executive subsides the industry through the Route Development Fund.

Action:

- **All major policies and projects should be assessed against their climate change impact.**
- **There should be a major shift in transport resources to public transport, cycling and walking with clear guarantees on public transport investment. The Scottish Executive has stated that, by 2005-06, 70% of transport expenditure will be on public transport. Yet the Scottish Executive needs to provide much greater clarity on the timescales for delivering its promised new public transport schemes.**
- **Plans for the proposed M74 and Aberdeen Western Bypass will exacerbate emissions from the transport sector in Scotland and should be abandoned**
- **Interim traffic stabilisation targets should be established with a clear framework for delivery.**
- **Transport charging regimes, such as cordon charging and trunk road user charging, should be introduced.**
- **Plans for future airport expansion in Scotland should be halted and aviation subsidies for non-lifeline routes through the Route Development Fund ceased.**

References:

(1) IPCC (2001). Climate Change 2001: Synthesis Report, Summary for Policy Makers.
(2) Hadley Centre, (2003). Climate Change Observations and Predictions, Recent Research on Climate Change Science from the Hadley Centre, December 2003.
(3) The UK Climate Impacts Programme (UKCIP) 2002. Climate change scenarios.
(4) Werritty, A., Black, A. Duck, R., Finlinson, B., Thurston, N., Shackley, S. and Crichton, D. (2001). Scottish Executive. Environment Group Research Programme. Research Findings No.19 - Climate Change: Flood Occurrences Review.
(5) Kerr, A., Shackley, S., Milne, R. and Allen, S. (1999) Climate Change: Scottish Implications Scoping Study. Scottish Executive Central Research Unit.
(6) Parry, M., et al. 2001. Millions At Risk, Global Environment Change 11:3(2001): 1-3;
(7) World Health Organisation (2003). Climate Change and Human Health – Risks and Responses.
(8) World Resources Institute, http://climate.wri.org/project_content_text.cfm?ContentID=1284
(9) Scottish Executive, 2004. Measuring Scotland's Progress Towards a Smart Successful Scotland. http://www.scotland.gov.uk/library5/enterprise/MP%20Report%202004.pdf
(10) Royal Commission on Environmental Pollution (RCEP). 2000 Energy - The Changing Climate.
(11) NETCEN, 2004. Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2002.
(12) Scottish Executive, 2002. Scottish Economic Report – Chapter Four: Section A – Energy and Carbon Dioxide Emission Projections for Scotland, 1990-2020: Summary and Discussion of AEA Technology Research.
(13) Scottish Executive, 2004. Review of the Scottish Climate Change Programme, A Consultation.
(14) Scottish Executive, 2004. Scottish Environment Statistics.
(15) Performance and Innovation Unit (PIU), 2002. The Energy Review.
(16) Energy Saving Trust 2004. Annual Report.
(17) Association for Conservation of Energy, 2004. Invisible Property Investment.
(18) Department of Environment, Trade and Investment Northern Ireland, 2004. Energy: A Strategic Framework for Northern Ireland.
(19) Scottish Executive, 2002. Scotland's Transport: Delivering Improvements.

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