

Climate change: threat and promise

► **Paul Rogers**

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The scale of the global-warming challenge far exceeds the political will to tackle it. But there are signs of hope.

The Stern report on climate change is welcome for its detail, its original analysis and its **focus** on economics. It brings a new dimension to the debate, and its **acceptance** by politicians in Britain - to an extent that would have been inconceivable even two years ago - itself reflects how far things have moved.

So far, so good: but the political commitments now being made are wholly inadequate to the scale of the problem. Even in the wake of Stern, and although scientific opinion is more united than ever on the realities of climate change, there is scarcely any real sense of urgency (see Tom Burke, "Climate change: time to get real", **26 September 2006**).

The British government **proposes** a target of 50% reduction in carbon emissions by 2050. This is not nearly enough. For Organisation of Economic Cooperation and Development (**OECD**) member-states and economically similar countries, a more realistic set of targets would be a 20% reduction by 2013, 60% by 2025 and 80% by 2030; there also need to be major curbs in emissions from newly industrialising states, and no net increase in emissions from least-developed countries over that period.

Feedback's known unknowns

One of the main reasons for the urgency is the suspicion that the processes of climate change that are already underway are accelerating due to various forms of **positive feedback**. These are particularly prominent in polar and near-polar regions, especially in the Arctic, one of the regions that are experiencing climate change more rapidly than other latitudes.

Two forms of feedback are straightforward. The first and most obvious is the **melting of sea-ice**, which means that ever-larger areas of the Arctic Ocean become open water and therefore reflect far less solar radiation. The second is the thawing of huge areas of permafrost, leading to the decomposition of vegetation resulting in extensive releases of methane (the "marsh gas" of **old**). Methane is a far more effective greenhouse gas than carbon dioxide, and the **impact** of its release from many millions of tons of rotting vegetation could be on a scale comparable to that produced by the burning of fossil fuels.

Melting sea-ice and methane release both constitute known feedback loops that will speed up the process. The key point here is that this is *already* happening with existing levels of carbon emissions. Moreover, there are other potential such

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loops that could cause an even greater **acceleration** of climate change. One is the possible release of far larger concentrations of methane from what are termed methane clathrates or gas hydrates: complex molecular structures that trap methane and form huge reservoirs, both in regions of permafrost and in deep oceans.

The science of methane clathrates is still far from certain, and the conditions under which such reservoirs might release methane are not fully understood and open to debate. The point is that this is yet one more example of a potential effect of human-induced climate change that might greatly speed up the process.

The tropics' stormy future

Until about a decade ago, most of the work on climate change seemed to suggest that the main effects would be on temperate latitudes, with the tropics not greatly affected. The fact that the tropical landmasses had the majority of the world's people and that the temperate regions might be wealthy enough to cope led to some optimism that slow progress in controlling carbon emissions would suffice.

This is simply not the case - the impact on the **tropics** will be a progressive "drying out" as rainfall distribution moves from land to sea and from the tropics to the polar regions (see two earlier columns in this series: "Climate change and global security", **2 January 2003** and "The challenge of global climate change" **18 August 2003**).

The global impact of ensuing mass migration will be far more destabilising than any other effect of climate change. Among the countries likely to be most **profoundly affected** are China, India and Brazil, resulting in great impairment of their economic prospects. These countries, however, will be deeply reluctant to embrace sustainable development as long as the industrialised world is so cursory in its attitude.

A turn in the weather

Amid these epic dangers, three different but potentially reinforcing factors offer some cause for optimism.

The first is that there are clear signs of a paradigm shift as the consequences of climate change at last go mainstream. This is now close to the point of a fundamental political breakthrough. We are not yet there and the forces arraigned against effective action are immensely strong, yet the reluctance of politicians to take unpopular short-term action might just be aided by effective public action (see Simon Zadek, "Accountability: the other climate change" (**31 October 2006**)).

There is little evidence of the political wisdom that were evident in (for example) the political moves towards European cooperation fifty years ago - moves intended to help avoid a third European civil war. European politicians such as Willy Brandt and **Gro Harlem Brundtland** had an unusually global vision in their time, and former Soviet leader

Also in openDemocracy on the [Stern review on the economics of climate change](#):

Simon Zadek, "Accountability: the other climate change" ([31 October 2006](#))

Andrew Simms, "The climate-change choice" ([1 November 2006](#))

Paul Rogers writes on climate change:

"Climate change and global security" ([2 January 2003](#))

Mikhail Gorbachev and his advisers were sharp enough to recognise the Soviet predicament in 1985 (but too late in other respects). These figures, though, continue to be exceptions, which is why non-government public action will be so crucial.

**"The challenge of global climate change"
(18 August 2003)**

The second factor is the predicament facing **China**, India and other countries of the global south. Because the problems they face are potentially so catastrophic, early and substantial signs of radically changed emission-control policies in north Atlantic states are likely to have a real effect in encouraging the new "middle kingdoms" to make their own necessary policy **changes**

The third factor relates to a largely unrecognised form of positive feedback. The **science** of climate change is becoming rapidly more compelling in its impact month by month. Within a very few years it will be impossible to ignore, however strong the political and commercial forces of reaction. In such circumstances, any major industrialised state that embraces the required **reforms** at a very early stage will be well ahead of what must become a global transformation.

Britain, for example, has all the resources it needs to transform household energy use, transport and industrial conservation. But it also has remarkable **potential** for wind and wave power, probably more so than any other country in the world. If it were to embrace - and even exceed - the radical emission-reduction targets cited earlier, the very process of doing so would have two benign effects. It would set a formidable political example, and it would make domestic economic sense in giving the country a competitive advantage in the **technologies** and wider expertise that will be so in demand in coming decades.

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