

## News focus

# Worries grow over carbon emission goals

Key decisions loom on negotiating future carbon emission cuts as worries grow that even the most ambitious current targets may not be enough to prevent dramatic changes. **Nigel Williams** reports.

Rich countries are coming under the spotlight from developing nations as new negotiations loom to curb global greenhouse gas emissions, and they are found wanting. Although many believe the next US administration will be more active in curbing emissions, many other nations are seen as having achieved too little and some scientists are increasingly worried that even the current most stringent targets may be insufficient to stabilise greenhouse gas levels within manageable limits.

According to the UN's chief climate official, developing countries, including China and India, are unwilling to sign up to a new global climate change agreement to replace the Kyoto protocol in 2012 because the rich world has failed to set a clear example on cutting carbon emissions. Rajendra Pachauri, head of the Intergovernmental Panel on Climate Change (IPCC), said too many rich countries, including the US, had failed to take the action needed to convince the developing nations to sign up to a deal in Copenhagen next year that could help to stabilise global emissions.

"You may not be able to get an agreement in one shot, let's say by Copenhagen, that sets you on the path of stabilisation in keeping with some kind of long-term target," he said. "I doubt whether any of the developing countries will make any commitments before they have seen the developed countries take a specific stand."

He said there were "reasons for dismay" at the rich countries' failure to cut carbon emissions. Pachauri said Germany had set a good example, with significant investment in renewable energy.

Analysts say a new global deal needs to be agreed at the Copenhagen meeting for it to come into force by 2012, because it will take several years to be ratified by countries.

If a new deal is not in place when Kyoto expires, then confidence

in the emerging carbon-trading markets — seen as a key way to reduce greenhouse gas pollution — could collapse. Schemes such as the European emissions trading scheme, set up under Kyoto, force polluting companies to invest in carbon credits or cleaner technology, but rely on carbon caps continuing past 2012.

Any reluctance by China to participate in a new agreement would spell problems for the new US president, who could sign a deal in Copenhagen next year and then find it rejected by the US Senate. Several leading figures in the US have said the Senate would be unlikely to pass a new treaty that did not require China to act on its soaring carbon emissions. All three presidential candidates have promised stronger domestic action on global warming and are expected to play a more constructive role in the



**Rich picking:** Developing nations want wealthy countries to do more to reduce greenhouse gas emissions as some researchers warn that even the toughest current targets may not be enough. (Photo: David Noton Photography/Alamy.)

search for a new international treaty than the Bush administration.

Pachauri said there was still time for the developed countries to convince India and China to sign a new deal next year, but that it would require a series of “measures and actions” in the next few months.

He urged other rich countries to follow Europe’s lead and set ambitious carbon reduction targets for the next ten years. But some researchers now believe that these tough targets may not be enough to achieve the stable, manageable greenhouse gas sought by policymakers.

James Hansen, head of the Nasa Goddard Institute for Space Science in New York, believes the European goal of stabilising carbon dioxide levels at 550 parts per million in the atmospheres, may be still too high to avoid catastrophic climate change. Hansen has based his latest comments not on models, which have always attracted criticism from climate change detractors, but from historical evidence of previous atmospheric carbon dioxide concentrations measured from samples taken from the ocean floor.

Lord Stern, the economist whose report on climate change helped to galvanise world leaders behind the green energy movement when it was published 18 months ago, has admitted that the situation is far worse than the assumptions that formed the basis of his report.

“We badly underestimated the degree of damages and the risks of climate change,” he said in a speech in London last month. “All of the links in the chain are on average worse than we thought a couple of years ago.”

When it was first published, the Stern Review and its recommendations — zero emission cars around the world by 2050, for example — brought plaudits and brickbats from the different sides of the climate change debate. A year and a half on from its publication, Lord Stern dismissed the doubters and renewed his call for urgent global action. “People who said this was scaremongering are profoundly wrong. If anything, I was too reticent. What we are playing for is the transformation of the planet,” he said.

Greenhouse gas emissions are growing much faster than previously

thought because of several factors that were not fully appreciated before, including the release of methane from thawing permafrost, the acidification of the oceans, and the decay of carbon sinks. The worsening situation increases the need, he argues, for a global pollution-cutting agreement to be reached by next year’s Copenhagen climate conference.

He also highlights the soaring use of coal for electricity generation, particularly in China where it is estimated a new coal-fired power station becomes operational each week at present. He believes such developments mean that the need to create effective carbon-capture

technologies is urgent. “We need to get better at carbon capture and sequestration very quickly,” he said.

Coal is the most polluting fossil fuel, but it is also the major fuel for consumer nations that still have large reserves within their borders, and it is relatively cheap.

He also reiterated his previous estimates that governments and businesses must invest the equivalent of between one and two per cent of global GDP annually up to 2050 in new technologies and efficiency measures or face climate change of catastrophic proportions. A global carbon-trading system would be the “glue” for a worldwide climate deal, he said.

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## UK ramps up embryo research debate

Public backing and new funds are helping to bolster Britain’s human embryo and stem cell research ahead of a key bill later this month.

**Nigel Williams** reports.

A major international meeting on stem cell research was held in Edinburgh last month, flagging up Britain’s key role in this research because of a regulatory framework that makes some experiments on human embryos possible that are not allowed in many other countries. But the expansion of such research is beginning to grow elsewhere, and new techniques for creating useful stem cells without the use of embryos are emerging, so the announcement of new UK funds and public backing for the field has provided a welcome boost for researchers.

British researchers have already received the go-ahead to create animal–human embryos — where human genetic material is injected into an animal egg from which the nucleus has been removed — under current regulatory procedures determined by the Human Fertilisation and Embryology Authority (HFEA) but long-term approval is dependent on a current bill about to go through the British parliament. Researchers in two British groups have been pleased to be given the recent

go-ahead by the HFEA and are keen that the forthcoming bill will make future research possible. Stephen Minger, who leads one of the teams of embryonic stem researchers at King’s College London, said early this year that he was happy that the regulatory authority has finally realised the importance of “the work that we and the group from Newcastle have been licensed for”.

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Lyle Armstrong, who leads the Newcastle group said: “Finding better ways to make human embryonic stem cells is the long-term objective of our work and understanding reprogramming is central to this.”

Unsurprisingly, the topic has been the subject of considerable public debate but researchers will have been encouraged by a recent newspaper poll conducted by the Times.

The battle for public support over the creation of human–animal embryos has been won by scientists who want to use the controversial experiments to tackle diseases such as Alzheimer’s and Parkinson’s