

NEW SCIENTIST EDITORIAL - 8TH MARCH 2001

Give us a plan:

We know we can beat climate change. Just one thing is missing.

SHI PENGFEI is bemused. His country, China, leads the world in installing wind turbines - a technology UN scientists said this week is vital for fighting global warming. More than 100,000 farmers run their own wind generators in Inner Mongolia. And Shi, who works for China's State Power Corporation, wants to harness Mongolia's winds to power Beijing. There is World Bank cash, Inner Mongolia wants to sell, but Beijing, a city choking on coal fumes, won't buy.

Why has the wind gone out of the industry's sails? Local political wrangling has stopped China meeting its national targets for installing turbines. Shi's problem is mirrored in the latest report this week from the Intergovernmental Panel on Climate Change (see p 12).

The report looks at fixes for global warming and says that "known technological options" could help the world to prosper while preventing greenhouse gas concentrations rising higher than twice pre-industrial levels. The IPCC argues that progress in fuel cells and wind turbines has been far faster than anyone imagined. Great news, except that the panel also argues that politicians don't yet know how to implement the technologies.

Those Chinese wind turbines typify the problem. China is not the main generator of greenhouse gases. But any plan for saving the world's climate must let countries like China-which has the world's largest coal reserves-get rich on other energy sources. How do we make it happen?

Here is one blueprint. First world governments agree on a ceiling for greenhouse gas levels in the atmosphere-say, twice pre-industrial emissions. Then emissions entitlements are calculated for every country to ensure we keep below the ceiling. Setting these targets will depend on governments "converging" on a formula based on national populations. To minimise disruption, over polluters could buy spare permits from "under polluters".

Such a system, called "contraction and convergence", would be fair and economically efficient, and create incentives for clean energy technologies. Its backers include France's Jacques Chirac and Britain's Royal Commission on Environmental Pollution. But not the IPCC's policy wonks. Their summary for policy makers ignores this eminently sensible blueprint. The authors, fighting shy of saying anything "political", do not even clearly back a ceiling on greenhouse gas concentrations.

This is madness. Clearly, the IPCC can't endorse one blueprint. But it should lay out the options. And contraction and convergence is only one. This report is the third in recent weeks from the IPCC's various working groups. The first two, on the science and impacts of climate change, courageously explain the risks the world runs. This third one fails to take up the challenge.

All is not lost. In September, the three IPCC groups will complete a "synthesis" report on their work. They must take this chance to put things right, and spell out clearly how the world should head off climate catastrophe. Once politicians can see the method and the benefits, Shi can get back to work.

New Scientist (page 12) 8th March 2001

POLITICIANS may have lost the plot on how to halt climate change. But technologists are forging ahead with a host of innovations that could halt the rise in greenhouse gas levels, says a UN panel of climate change experts in a report published this week.

The Intergovernmental Panel on Climate Change says that technical innovation has been faster than anticipated five years ago, when it made its last assessment. Wind turbines, hydrogen fuel cells, efficient car engines and the technology to bury carbon dioxide underground could become practical ways to cut greenhouse gas emissions.

But critics believe that the IPCC has failed to give governments firm advice on how to make the new technologies work. They fear that the report, called *Climate Change 2001: Mitigation* will contribute to the political inaction that has followed last November's failed Kyoto Protocol talks on curbing climate change.

This is the third major report from the IPCC in the past few weeks. Meeting in Accra, Ghana, the panel of experts from over 100 countries assessed technical and policy options for halting the droughts, floods -and extreme weather predicted by the two previous reports.

In an upbeat assessment, they said that "known technological options" could, if widely adopted, stabilise CO₂ concentrations in the atmosphere in the range of 450 to 550 parts per million. This is between 60 and 100 per cent higher than pre-industrial levels. In the past, IPCC members have often suggested 750 ppmv as a more achievable target.

'The potential for technology innovation leading to clean energy and other climate-change solutions is extraordinary,' said Klaus Topfer, director of the UN Environment Programme, a sponsor of the IPCC. 'Governments need to unleash this potential.'

However, critics of the report, including senior scientists within the IPCC, say that its authors have been 'vague and evasive' in their recommendations. They believe that the world should adopt a firm 'ceiling' for CO₂ levels in the air-say, 450 or 550 ppmv. This would allow governments to cut their emissions to stay below the ceiling.

'It is increasingly obvious that a stable atmospheric concentration target must be set. This needs to be conveyed urgently to policy makers,' they said last week in a letter to Bert Metz, who co-chaired the report's working group. The letter's chief author, Aubrey Meyer of the London-based Global Commons Institute, said the report noted that the cost of meeting a target of 450 or 550 ppmv would be substantially greater than for a 750-ppmv target. But it failed to assess the likely benefits of a tougher target, such as fewer floods and droughts.

Meyer also attacked the report for suggesting that more scientific information was needed about 'climate change processes and impacts' before governments set long-term targets. This cautious language contrasts with the much tougher tone of the panel's two other previous reports, which both stress growing certainty about the causes, pace and impacts of climate change.

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