

Lessons from Antarctica

Twenty years on, the success of the Montreal Protocol can help inform plans to mitigate climate change.

The revelation in 1985 that chemical emissions had ripped a vast hole in Earth's protective ozone layer sparked an international effort that has become one of the great environmental success stories. The Montreal Protocol, which came into force 20 years ago this year, halted the production of chlorofluorocarbons (CFCs) — the main culprits causing the hole above Antarctica — and set the schedule for phasing out most other ozone-destroying substances.

Today, stratospheric ozone levels are no longer in decline. And, although plenty of ozone-depleting chemicals remain in the atmosphere, there are signs of recovery in ozone levels at the mid-latitudes. The rapid and committed response of the world's nations has probably averted a future in which unfiltered sunlight would have scorched humans, animals and plants alike (see page 792).

Yet the Montreal Protocol is often written off as a model for curbing greenhouse-gas emissions. The international response to the ozone hole was fast — the protocol was ready for signing just two years after the hole was discovered — in part because the threat was immediate, and because chemical alternatives to CFCs had already been developed.

The situation is less clear cut for global warming — it is a slow-moving,

long-term problem for which there is no single alternative to fossil-fuel use. Nonetheless, the Montreal model has much it can offer the fight against climate change. Governments are increasingly waking up to the urgency of the threat of global warming. And there is already an arsenal of alternative-energy technologies, ranging from wind turbines to energy-conserving building design, that could be delivered quite quickly around the world — if there was a political will to make it happen.

The Montreal Protocol's Multilateral Fund offers a particularly good model for such action. Industrialized nations, which have produced the majority of the world's CFCs, have contributed more than US\$2 billion to the fund since it began operation in 1991 to help poorer nations meet their obligations under the treaty. Over time, this system has inspired a level of trust that is sorely lacking in today's global climate negotiations.

Above all, the Montreal Protocol serves as proof that the countries of the world can work together. And if nations, particularly those in the developed world, continue to take inspiration from its success, it could help divided governments find a common path towards tackling climate change. ■

A change of tone

There is every reason to be optimistic about the Obama administration's attitude towards science.

The feel-good glow that pervaded much of Washington DC after the January inauguration of President Barack Obama has faded fast this summer, as the US capital has descended into partisan gridlock over issues such as health-care reform and financial regulation.

Nevertheless, positive steps are quietly being taken. Last week, for example, White House science adviser John Holdren convened the first meeting of the 21-member President's Council of Advisors on Science and Technology (PCAST, see page 785) — a star-studded assembly of academics and industry researchers.

As with any such meeting in the early days of a new administration, the PCAST gathering was high on enthusiasm and necessarily low on evidence of effectiveness. But Holdren, who brings an extensive background in nonproliferation and energy issues to his post, noted that the council's first report, on the government's response to the H1N1 flu pandemic, is already in the pipeline for public release within a few weeks. And the meeting's lively discussions on topics such as electronic health records and research comparing the effectiveness of medical treatments suggested that members fully expect their advice to be heeded by the White House.

Also last week, Holdren and Peter Orszag, director of the White

House Office of Management and Budget, signed a memorandum to top federal officials outlining the administration's priorities as the agencies begin to prepare their budget requests for fiscal year 2011. The memo emphasized the key part played by science and technology in those priorities — including economic recovery, health care, energy and climate. And it featured the telling phrase, "sound science should inform policy decisions".

That was something not seen too often during the administration of George W. Bush, which regularly sidelined science. Last week, a report from the Bipartisan Policy Center, a think tank in Washington DC established in 2007 by four former Republican and Democratic senators, served as a reminder of how much work remains to be done to integrate science properly into political decision-making. The report makes recommendations that seem like common sense: proposed regulations should set out what science questions need to be answered, for instance, and there should be clearer conflict-of-interest rules for anyone appointed to a scientific advisory committee. Common sense on scientific matters was all too often lacking in Bush's Washington.

Many challenges await Holdren in the coming months and years, including helping to convince Congress whether major investments in science and technology are warranted, and then delivering progress reports that clearly delineate the success or failure of such investments. His White House team is far from complete; two of his office's four associate director positions — for science and for national security — remain empty and should be filled as quickly as possible with qualified nominees. But overall, science advice in the Obama era is off to a good start. ■