

# A scientific agenda for climate policy?

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**The complementary interests of climate scientists, national and international bureaucracies and politicians have so far determined the political dynamics of the global warming debate. But cracks are now beginning to appear.**

CONTROVERSY continues to surround the Framework Convention on Climate Change, signed at the Earth Summit in Rio in 1992. While preparations are under way for the first meeting of the signatories to the convention, due to be held in Berlin next year, the scientific community, represented by the Intergovernmental Panel on Climate Change (IPCC), is already under fire for its delay in coming up with satisfactory advice.

Greater scientific certainty over climate change is unlikely until early in the next century. Indeed, there are doubts over whether we shall ever know enough about climate change in advance of the policy decisions needed to head off potential dangers. But policymakers continue to hope that, with sufficient funding, the appropriate scientific knowledge can be produced according to a timetable.

The climate treaty requires industrial countries to try to stabilize their national greenhouse gas emissions at 1990 levels by the year 2000. No binding targets beyond 2000 have been agreed; indeed, hopes are fading that this can be achieved globally. At Rio, the treaty was left deliberately imprecise to ensure both that the United States signed, and that the entire issue remain open to future research results.

Reductions in emissions have already been achieved, though primarily as a result of the recession and (for example in the former East Germany) deindustrialization. In some countries, the rapid replacement of coal and oil by less carbon-intensive fuels may be sufficient to achieve stabilization of emissions. But energy systems are difficult to turn around, and both development goals and sociopolitical expectations are slow to change.

The problem lies not with nature but with society. Given this fact, why have governments, despite their alleged concern over climate change, concentrated on funding research in the physical sciences to investigate the subject? Are these sciences driving policy — or vice versa?

Taking global warming seriously requires giving attention to issues such as the choice of fuels and technologies, energy pricing and investments<sup>1</sup>. High economic stakes are involved. As a result, both the climate treaty and its underlying scientific debate have become swept up in global energy politics. The responsibility given to science is great — perhaps too much so for institutions increasingly

dependent on 'soft' contract research income.

Scientists naturally prefer to experiment with mathematical models of the Earth's various systems free of responsibility for policy<sup>2</sup>. Uncertainty is their security. Indeed, some can already be seen withdrawing from policy involvement. For



**Demonstration against the UK tax on heating bills—changing social attitudes make more difference than defining energy problems.**

others, including the chairman of the IPCC, global warming has become the justification for a crusade against materialism and for a 'new organizing principle' — the preservation of the Earth. Yet global warming could not have entered international politics without the support of influential voices from the scientific community.

How and why did scientists create public concern in the first place? And why was this taken up — far too rapidly for many scientists — not only by environmentalists, but also by governments? The political energy needed to turn a research topic into a treaty with major implications was generated surprisingly quickly, even though it can still be argued that the treaty does little more than codify the research, data collection and monitoring needed to

underpin future national policies.

Much of the answer lies in shifts in the energy market in the 1980s. During this decade, both the Chernobyl accident and cheap fossil energy challenged forecasts of energy demand, and invited the involvement of energy interests in global politics. Energy prices generally collapsed in the middle of the decade and have remained low. This reversed the situation of the 1970s, when both the expansion of nuclear power and major research and development efforts on renewable energy technologies created major institutional interests. By the 1980s, these institutions found themselves under threat, and therefore began lobbying via well-established channels inside governments, leaving green rhetoric to the media, environmental groups and UN agencies.

Global warming can therefore be said to have gained its political relevance less from scientific evidence and speculation than from the unexpected collapse of fuel prices, which recreated an earlier world of cheap energy. A 60 per cent drop in oil prices occurred only months after scientists had made a sweeping statement on the possible dangers arising from growing fossil fuel consumption. The 'green' energy losers consequently tried to 'capture' the expected regulatory process, while coal (and to a lesser extent oil, for which substitution was harder) became the main villains.

So far, the oil industry, rather than nuclear power, has been the major winner. With expensive European coal likely to disappear altogether, and the former Soviet Union opening up its resources to the West, natural gas is replacing both coal and nuclear power in unregulated markets. Gas has become the 'rational' choice for generating electricity, with lower fuel and labour costs, reduced emissions, and the added bonus of avoiding further investments in costly acid rain abatement technologies, such as flue gas desulphurization.

Where this strategy aroused protests, the greenhouse effect was cited in justification. When the collapse of oil prices reduced tax revenue, the privatization of electricity became even more desirable. Individuals and firms were urged to invest in energy-saving measures, if only to reduce cost increases. 'No regret policies', rather than precaution, became the response to scientific uncertainty. As a result, policies could be rationalized as

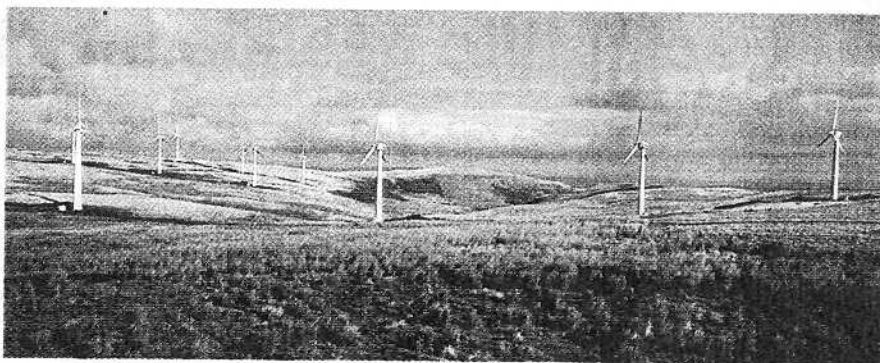
environmental, even though adopted for other reasons. The nuclear lobby had expected to reap a greater reward from its early investment in research; it now joined the chorus calling for energy prices to 'internalize' the external costs of fossil fuels, inviting subsidies for itself, or taxation for competitors — preferably both.

The British government, for one, discovered that, by changing the fuel mix, air-pollution control was feasible with the support of industry, leading to lower generating costs. Environmentalists could be accommodated, as well as vocal lobbies supporting energy efficiency and renewables. Still other groups again wanted to sell cleaner technologies to industrializing countries — and then promote privatization in order to make profitable investments — or demanded constraints on private mobility. Supporters of the idea of ecological modernization saw climate-change policies as steps towards sustainable development. Vast amounts of data on 'global change' would not only serve research, but also make the Earth's surface more visible for all who could afford to use the new Earth observation maps.

Global warming was also attractive to politicians because of its value to both critics and supporters of deregulation policies. In Britain, for example, separate groups pursuing commercial interests, foreign policy goals and domestic politics each discovered their own uses for the warming hypothesis. For some, the opportunities included the pursuit of global scientific research agendas, for others, the enhancement of bureaucratic power at home<sup>3</sup>. Some saw the possibility of thwarting the ambitions of the European Commission (EC) in Brussels by making sure that decision-making powers remain outside EC forums in the hands of less efficient — and poorly financed — UN bodies.

Calls for environmental regulation were generally attractive to environmental bureaucracies. Having been created in the early 1970s, these had remained relatively weak, and often closely tied to research in the natural sciences. Global warming allowed national bodies to expand their influence — both domestically and internationally — while organizations such as the UN Environment Programme (UNEP) and the World Meteorological Organization (WMO) have been able to attract considerably more attention and funding. Furthermore, beleaguered national politicians gained a world stage on which to indulge in global green rhetoric without, as yet, having to face issues of domestic implementation. A climate treaty became desirable to many groups — but not major measures to reduce emissions.

We can now ask how, and why, scientific institutions initiated the debate, and how they subsequently responded to its



Wind energy — beneficiary of the energy crisis and of the global warming debate. These are Mitsubishi turbines under construction at Llandinam in mid-Wales.

politicization. In 1985, a group of research scientists, ecologists, climate and energy demand modellers mainly from Sweden, Canada, the United States and the United Kingdom met in 1985 in Villach, Austria. UNEP, WMO and the International Council of Scientific Union (ICSU) sponsored the conference, which also attracted support from major environment/energy research bodies such as the International Institute for Applied Systems Analysis, Harvard University and the Stockholm Environment Institute.

Only two government scientists attended this 1985 symposium, one from the UK Meteorological Office, the other from the US Department of Energy<sup>4</sup>. The gauntlet thrown to the world was therefore largely European, the main challengers being contract research institutions with interests in the carbon cycle and climatic variability.

The Villach conference drew the attention of policymakers to the dangers of global warming, and the need for more climate related research. ICSU had just finalized its International Geosphere-Biosphere Programme (IGBP). Developed in the United States during the early 1980s, and adopted by the ICSU in 1986, it would address the problem jointly with the World Climate Research Programme (WCRP), which had been set up in 1979, and was also seeking new tasks<sup>5</sup>.

Warming was a high but uncertain risk. It was also expected to happen soon if — as energy demand forecasters predicted — CO<sub>2</sub> concentrations were to double within decades. This assumption has been incorporated into all existing models and adopted by IPCC, with the United States and the Netherlands providing emission scenarios for the first report in which the dates for such doubling were fixed.

In this context, stringent regulations would be needed to prevent warming, opening up energy markets to 'green' technologies (including fast breeders). Past CO<sub>2</sub> increases made warming intuitively more credible, although cynics pointed out that model predictions can always be manipulated. Several policy measures were recommended, including a

global legal instrument requiring countries to reduce the emission of greenhouse gases, particularly CO<sub>2</sub>.

The Villach conference had been organized by individuals who formed the core of the Advisory Group on Greenhouse Gases (AGGG), a small panel agreed at the conference and meant to advise sponsors, as well as governments. Consisting only of independent (non-government) scientists, it remained a major influence on UN-related activity until 1990.

The message of the Villach meeting spread rapidly, backed up by the Brundtland Report and its message of sustainable development. Diplomatic circles had already been alerted by individuals such as the former British diplomat Sir Crispin Tickell, who studied climate change at Harvard while on secondment in the late 1970s, and has since maintained close links with scientists in Europe and the United States. In the mid-1980s, Tickell helped to persuade the British Prime Minister Margaret Thatcher that global warming was an issue that deserved both her attention and generous funding. He appears to have been equally persuasive with the EC, the United Nations, the British Foreign Office, and ICSU.

With the support of environmentalist networks pursuing their own goals, the new global threat soon flourished. The public became alarmed. Many governments, especially those (such as the United States) who depend on fossil fuel, did not like AGGG, but preferred the WMO, which they are able to influence directly through national representatives.

The WMO decided to 'capture' the AGGG. In 1987, its executive proposed to set up a small body of experts from countries strong in climate-change research, including a small number of people representing other nations and international scientific bodies such as ICSU. The IPCC evolved from this idea during the subsequent politicization of the issue. Formally set up in autumn 1988 by the WMO and UNEP, its activities are controlled by government appointees who, in practice, tend to be influential government scientists with connections to the WMO and other international bodies.

Effective IPCC leadership fell to a small group of committee members, most of whom had strong links to NASA, as well as large national laboratories and meteorological offices. The research networks supporting two of the three working groups which were set up in 1988 already existed as parts of World Climate Research Programme. The first of these, for example, the science assessment group, is managed through the UK Meteorological Office, and funded by the Department of the Environment. The second working group, which is looking at the impact of climate change, was in the hands of the Russians, strongly supported by Australia, but has recently found a home within NASA, with a chairman who advises the US president.

Initially, government officials and representatives of various pressure groups formed the third, less permanent group. This was asked to produce realistic 'response strategies' on the basis of the 'scientific' inputs from the other two groups — even though these were not yet available. Impacts and responses were combined in 1993, while a new group was set up to look at 'cross-cutting' aspects, with contributions from a wider range of social sciences.

In 1990, the WMO informed policymakers that they should consider the consensus views of the scientific community as 'timely assessments' of the climate threat. The IPCC was made available to them as a 'single established source' for information on this subject, and while the committee's task would not be to define or set up research programmes, its recommendations would be of value to the agencies responsible for research — ICSU, WMO and UNEP.

The IPCC 1990 science assessment was produced by Britain, with major assistance from a small group researching ozone science inside NASA. It provided political legitimacy to a national research agenda coordinated globally by ICSU, WMO and UNEP, and already defined — in the context of the warming threat by the ICSU's Committee on Problems of the Environment, SCOPE — for the 1985 Villach meeting<sup>7</sup>.

IPCC reports summarize the findings of its research networks, with drafting and editing carried out by small groups of lead authors. These tend to be selected by the science managers, who also draft IPCC 'policymakers' summaries — themselves important political documents and skilful exercises in scientific ambiguity<sup>8</sup>. A widely praised 'scientific consensus' of 1990, for example, which assessed the prospects of climate change, used language which simultaneously allowed Greenpeace to call for a target of reducing emissions by 60 per cent, and the UK Treasury to conclude that no action was needed until more scientific certainty was available —

each citing the same source.

A second assessment exercise is in preparation. But the credible regional predictions and emission models so urgently desired by policymakers are not yet available. Global experimentation continues.

So far, there has been little redirection of global energy policy to take account of the potential threat of global warming. This failure could be blamed on the scientific community, on falling energy prices or on politicians. Only if it could be shown that scientists intentionally created a more powerful threat than the evidence suggested, could this lack of response be considered wise. There is some evidence for this<sup>9</sup>, although a responsiveness of 'science' to both internal need and external pressure is surely not surprising.

But, given both the energy politics of the mid-1980s, and the large number of non-scientific actors involved, the rapid politicization of the climate debate occurred in a context of scientific ambivalence, influenced by forces beyond the control of science. Global policy on global warming is emerging from untidy political processes — not through technocratic design. Given the scientific uncertainties that still exist, this may well be for the best.

IPCC has undoubtedly boosted research activities in countries with strong atmospheric, oceanographic and space research capacities. It has also stimulated mathematical modelling of some global macro-economic factors, as well as of carbon emissions related to fuels, demand and technologies. Most of the OECD countries, as well as those in the EU, now possess major global environmental change research programmes which also consider institutions and broader social questions.

There have been rewards to those institutions in advanced countries who, with the help of environmentalists, have been able to link science policy to at least symbolic commitments to the global environment. Furthermore, uncertainties in scientific advice have served the interests of research by reinforcing calls for extra research funds.

But political battles over the knowledge base gave also grown. This may explain the withdrawal of science into adopting a more neutral position on appropriate policy responses than appears to be the case between 1985 and 1992, incidentally the preparatory phase for the Rio conference and for beginning the implementation of the IGBP. Now that the authority of science has been weakened, claims to both policy relevance and truth — as well as the capacity of the natural sciences to deliver policy advice that can be quickly implemented — can legitimately be questioned. The creation of knowledge at increasing rates by a few individuals

engaged in a political game, one of whose primary goals is to obtain funding for their own work, must influence the way that environmental problems are defined and prioritized.

Resistance to universalist and political-ly 'neutral' claims made by Western politicians in the name of science appears to be growing, while appeals to ethics and issues such as fairness, equity and 'social exclusion' are growing stronger.

In 1971 the American climatologist R. A. Bryson voiced 'a sneaking suspicion' that calls for more data and monitoring prior to the Stockholm Conference were "mostly for the care and feeding of big computers"<sup>10</sup>. He speculated that it would be more appropriate to monitor parameters with a more direct impact on human welfare. In Rio in 1992 it was agreed that the world should be concerned that over 12 million children a year die from preventable diseases. But the types of science and technology that promise commercial competitiveness and political power do not address such issues.

Under pressure, even scientists will deliver what their paymasters prefer to hear. Honest science may be less useful, in the short term, than relevant science, a lesson that has to be continuously relearned. Policy-related advisory networks need to become more sophisticated and less self-serving — and policymakers to develop broader decision-making structures — to prevent this from happening. This cannot mean listening to green or energy lobbies to the exclusion of all others. Advisers and decision-makers need each other, but knowledge funded by soft money and created under conditions of dictated relevance and competitive bidding is surely unlikely to inspire the degree of trust upon which wise policy must be based. □

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ACKNOWLEDGEMENTS. The author was partially funded by the ESRC.