

UNWARRANTED TRUST: A CRITIQUE OF THE IPCC PROCESS

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1. INTRODUCTION

I am not a climate scientist. I am an economist, and I became involved with climate change issues, more by accident than design, some five years ago. To start with, I was chiefly involved with some economic and statistical aspects. Over time my interests and concerns have broadened, though I do not at all claim to have become an all-round expert on this vast array of topics. Increasingly, I have become critical of the way in which issues relating to climate change are viewed and treated by governments across the world. In particular, I have come to question the established official process of inquiry and review which is conducted through the mechanism of the IPCC and results in the Panel's Assessment Reports.

I begin by noting some points about the IPCC process which form part of the background to any assessment of it, and then set out the reasons why I believe that the Panel's member governments should place less reliance on that process, at any rate in its present form. Finally, I suggest ways in which the process could be both strengthened and supplemented, so that governments and people are better informed about the issues.

2. THE IPCC'S ACHIEVEMENT

Since its establishment, the IPCC has come a long way. It has successfully completed and published three massive and agreed Assessment Reports, with a fourth now on the verge of completion and final publication. These reports have covered the whole range of issues relating to climate change. In producing them, the Panel has brought together teams comprising over 2,000 specialists across the world, and put in place ordered procedures for directing and reviewing their work and arriving at agreed final texts. It has secured for the reports and their conclusions the acceptance of its many and diverse member governments; and in consequence, it has informed the thinking of those governments and prompted decisions by them. Its many participants and outside supporters argue that it has created a world-wide scientific consensus, based on an informed and objective professional assessment, which provides a sound basis for policy.

Last, and especially to be noted, the IPCC has established itself, in the eyes of most if not all its member governments, as *their sole authoritative source* of information,

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evidence, analysis, interpretation and advice on the whole range of issues relating to climate change. It has acquired a dominant position.

3. THE IPCC AND ECONOMICS

Contrary to what is sometimes presumed, the IPCC's concerns extend well beyond climate science. Its terms of reference specifically include the assessment of 'socio-economic', as well as scientific and technical, 'information', and in fact the Assessment Reports and related work go further than this wording would suggest. Economic aspects are present, one might even say dominant, at the beginning and the end of the IPCC assessment process.

At the beginning, IPCC projections of global warming are largely based on projected atmospheric concentrations of 'greenhouse gases', which in turn are based on projected emissions of these gases; and the emissions figures themselves are linked in particular to projections of world output, world energy use, and the carbon-intensity of different energy sources. In these latter projections economic factors are central. For the IPCC's Third Assessment Report (TAR), the emissions projections which formed the starting-point for the exercise were set out in a separate document, the *Special Report on Emissions Scenarios* (SRES), which was commissioned by the Panel's Working Group III and published in 2000. This same set of SRES projections was likewise used as the point of departure for the Fourth Assessment Report (AR4).

Once climate change projections have been made, and their possible biophysical impacts assessed, two further stages of inquiry remain. Stage One is to assess the consequences for human welfare of the projected impacts, while Stage Two is to define and appraise the policies that might be adopted to deal with such impacts ('adaptation') or to limit emissions ('mitigation'). In the work that enters into both stages, economic considerations, evidence and criteria are central. In a word, one might say that after the projections of climate change and its biophysical consequences have been arrived at some form of cost-benefit analysis takes over.

4. INTERPRETING THE ASSESSMENT REPORTS

The principles that governments have laid down to govern the Panel's work prescribe that 'IPCC reports should be neutral with respect to policy' However, ever since the first in the series appeared in 1990, the Assessment Reports have been taken as the basis for conclusions and decisions relating to policy. Up-to-date top-level official confirmation that this remains the case is contained in the Declaration issued after the G8 Heiligendam Summit meeting of June 2007 (para 49):

'Taking into account the scientific knowledge as represented in the recent IPCC reports, global greenhouse emissions must stop rising, followed by substantial global emission reductions'.

Also from the first report onwards, and increasingly in recent years, high-level policy conclusions have been expressed in stronger language than this. A leading recent instance is the Stern Review on the economics of climate change. The Review concluded that:

- ‘The scientific evidence is now overwhelming: climate change presents very serious global risks and it demands an urgent global response’; and
- There are ‘risks of major disruption to economic and social activity, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century ... the estimates of damage could rise to 20% of GDP or more’.

Still more recently, similar and characteristic statements on policy implications were provided, in the context of the report of AR4’s Working Group I, by official persons who are leading members of what I call the *environmental policy milieu*.

- Dr Pachauri, the Chairman of the IPCC: ‘I hope this report will shock people [and] governments into taking more serious action’.
- Achim Steiner, the Director-General of the United Nations Environment Programme (UNEP, one of the two parent agencies of the IPCC): ‘in the light of the report’s findings, it would be “irresponsible” to resist or seek to delay actions on mandatory emissions cuts’.²
- Yvo de Boer, Executive Secretary of the UNFCCC: ‘the findings ... leave no doubt as to the dangers that mankind is facing and must be acted on without delay’.
- Stavros Dimas, the European Union’s Commissioner for the environment: ‘a grim report’.

While these were strong assertions, in none of them was the wording taken directly either from either the WGI Report or its Summary for Policymakers (SPM): these eminent persons were drawing from the Report their own confident and unqualified personal conclusions as to the lessons for policy. While they were fully entitled to form and air these opinions, such statements as those just quoted, though arising out of the Assessment Reports, are not just summaries of ‘the science’.

In relation to these and many similar pronouncements down the years, one can speak of an established *high-level milieu consensus*. This goes beyond the agreed reference to the dangers of anthropogenic global warming that is contained in the Framework Convention. It takes the threats to the climate system to be dire and imminent, and the need for far-reaching action as correspondingly urgent. It is a *heightened* consensus.

Stark warnings of this same kind have increasingly been put out by political leaders at the highest level. Here are some recent examples from OECD member countries:

- Tony Blair, then still Prime Minister of the UK, commenting on the Stern Review at the time of its appearance, said that ‘what is not in doubt is that the scientific evidence of global warming caused by greenhouse gas emissions is now overwhelming... [and] ... that if the science is right, the consequences for our planet are literally disastrous’.
- Blair and the Dutch prime minister, in a joint letter of October 2006 to other EU leaders, wrote that ‘We have a window of only 10–15 years to take the steps we need to avoid crossing a catastrophic tipping point’.

²This and the following quotation are taken from a report (3 February 2007) in the *Financial Times*.

- Stephen Harper, Prime Minister of Canada, in a recent speech, described ‘climate change’ as ‘perhaps the biggest threat to confront the future of humanity today’.
- President Sarkozy of France, in the remarks of May 2007 already quoted, declared that ‘what is at stake is the fate of humanity as a whole’.

Such assertions are bold extrapolations from the Assessment Reports, with a clear presumptive element. However, they are fully sanctioned by the environmental policy milieu and in tune with much public thinking—including that of many scientists and scientific bodies unconnected with the IPCC process, and, increasingly, of large business enterprises across the world.

I do not accept this plausible-sounding line of argument, largely because of the doubts that I have come to hold about the IPCC process and the official policy environment of which it forms an integral part.

5. UNWARRANTED TRUST

The IPCC process, and the massive Assessment Reports which are its main single product, are widely seen, by governments and public opinion alike, as thorough, balanced and authoritative. There is a common belief that the Panel has created a world-wide scientific consensus, based on an informed and objective professional review, which provides a sound basis for policy; and this belief has found support from eminent independent scientists and from scientific academies. Since its inception in 1988, the IPCC process has established itself, in the eyes of the great majority of its member governments, as *their sole collective and continuing source* of information, evidence, analysis, interpretation and advice on the whole range of issues relating to climate change.

In my view, there are good reasons to query the claims to authority and representative status that are made by and on behalf of the IPCC, and hence to question the unique status, one of virtual monopoly, that it now holds. The trust so widely placed, in Panel and process alike, is unwarranted; and this fact puts in doubt the accepted basis of official climate policies.

6. PROCESS AND ACTORS

The main grounds for trust in the IPCC process were summarised a few years ago by Dr Pachauri, in a press statement responding to critics (of whom I was one). He said that the IPCC:

‘...mobilises the best experts from all over the world, who work diligently in bringing out the various reports of this body on a regular basis. The Third Assessment Report (TAR) of the IPCC was released in 2001 through the collective efforts of around 2000 experts from a diverse range of countries and disciplines. All of IPCC’s reports go through a careful two stage review process by governments and experts and acceptance by the member governments composing the Panel.’³

This is substantially correct (though one might want to say ‘some of the best’), and Pachauri could also have made the point that in preparing its reports the IPCC relies,

in principle and all but exclusively, on peer-reviewed publications. The Panel has indeed put in place ordered procedures for directing the work of a large number of expert groups and ensuring that the results are formally reviewed.

It is chiefly from this wide and structured expert participation, through and within the IPCC network, that the Panel derives its credibility in the eyes of outsiders. It is in the *network*, and the *reporting process* which brings its members together, that trust is placed: people visualise an array of technically competent persons whose knowledge and wisdom are effectively brought to bear through an independent, objective and thoroughly professional scientific inquiry. Indeed, many observers make no distinction between the network and the Panel itself, as though well qualified and disinterested experts were the only people involved.⁴ The reality is both more complex and less reassuring.

To begin with, the IPCC process as a whole involves much more than the network: there are several further elements that have to be taken into account.

First among these is the *Panel* itself, which controls the process of preparing the Assessment Reports. It effectively comprises those individuals—chiefly officials—whom governments (and the two parent international agencies) choose to send to Panel meetings. These include scientists as well as lay persons. Working directly for the Panel is the IPCC *Secretariat*, though this is a small group whose functions are mainly of a routine administrative kind. A more influential body is the IPCC *Bureau*, comprising high-level experts in various disciplines from across the world, chosen by the Panel: it acts in a managing and coordinating role under the Panel's broad direction.⁵ Last but far from least, there are the government departments and agencies which the Panel reports to: it is here, and not in the Panel itself, that the ultimate 'policymakers' are to be found. The relevant political leaders and senior officials within these departments and agencies largely make up what I call the *policy milieu*. In addition, leading members of the IPCC Bureau, past as well as current, can also be classed as members of the policy milieu; and together with the most influential members of the Panel, these persons make up what may be termed the informal *directing circle* of the IPCC. In turn, the directing circle, together with a substantial number of prominent and like-minded expert participants in the reporting process, can be seen as making up an informal *IPCC milieu*.

7. POLICY COMMITMENT

Now while the IPCC as such has been instructed that (to repeat) its reports 'should be neutral with respect to policy', it seems clear that this instruction is intended to refer specifically and exclusively to the contribution made by the network through the

⁴Among leading scientists, one example is Robert Ehrlich, a professor at Yale. He describes the IPCC as 'a respected international group of hundreds of scientists' and as 'comprised of scientists from 99 countries' (Ehrlich, 2005, pp. 138 and 169). But the network, which he is referring to, is quite distinct from the Panel, and there is little or no overlap between the two.

⁵Membership of both the Secretariat and the Bureau is public knowledge. Reports of the sessions of the Bureau between 2002 and 2004 were placed on the IPCC website and remain available, but reports on the meetings that have been held from April 2005 on have not been published.

reporting process. The official Panel members, together with the governmental policy milieu which they report to, are almost without exception far from neutral: they are committed, *inevitably and rightly*, to the objective of curbing emissions, as a means to combating climate change, which their governments agreed on when they ratified the Framework Convention; and in many cases they are likewise committed to the kinds of policies that their governments have adopted in pursuit of that objective. As officials, they are bound by what their governments have decided. This is the context within which the three successive IPCC Assessment Reports prepared since 1992 have been put together and reviewed by member governments. The clients and patrons of the expert network, with few exceptions, take it as given that anthropogenic global warming is a serious problem which demands, and has rightly been accorded, both national and international action.

It is against this background, of a policy milieu that is not at all neutral, that some basic features of the reporting process have to be borne in mind. The choice of lead authors for the Assessment Reports largely rests with the already-committed member governments, since lists that they provide form the starting point for the selection process; complete draft texts of the Working Group reports go to these governments for review; and it is governments, as represented in the Panel, that sign off on the final versions of the Assessment Reports and amend the draft SPMs before they approve these also for publication. The fact is that departments and agencies which are not—and cannot be—uncommitted in relation to climate change issues are deeply involved, from start to finish, in the reporting process.

How far does this close involvement of committed IPCC member governments put in doubt the objectivity and integrity of the expert network and its reporting process, and hence the widespread public trust that is placed in both? This is not an easy question to answer, especially without inside knowledge of the history and institutions. My own outsider's view is as follows.

- It is not necessarily a fatal flaw in the IPCC process that governments and scientists are so closely linked within it, and the reporting aspect of that process is not to be held in question merely because of these links. A clear separation between Panel and network, such as has been suggested by some observers, would serve no purpose: more on this below.
- Nonetheless, the existing and long-established forms of official involvement need to be reconsidered: the process and its constituent actors should no longer be taken as given. There are deep-seated problems of bias and lack of objectivity.
- The present widespread trust in the IPCC process, including the reporting process within it, is not well founded. Despite the numbers of experts taking part, and the lengthy formal procedures involved, the preparation of the IPCC Assessment Reports is not a model of rigour, inclusiveness and impartiality.

8. ERRORS, OMISSIONS AND BIAS

In this latter connection, there are several related aspects to be noted.

To begin with, the treatment of economic issues within the network and by the Panel has not been up to the mark. Writings that featured in the Third Assessment Report, and

in particular the SRES, contained what many economists and economic statisticians would regard as basic errors, showing a lack of awareness of relevant published sources; the same has been true of more recent IPCC-related writings, as also of material published by the UNEP; and similar weaknesses are to be found in AR4. In this area, the IPCC and its sponsors appear as neither representative nor fully competent.⁶

A conspicuous error, in the SRES and elsewhere, has been the use of invalid cross-country comparative figures for real GDP, derived from exchange rates rather than purchasing power parity (PPP) estimates: this has been linked to a failure to grasp the rationale of PPP comparisons. Not only has the SRES, despite its flaws⁷, been used as the point of departure for AR4, but from the SPM of the WGIII Report, as also in the Report itself, it is apparent that the same basic confusions still persist. For example, it is stated in Chapter 11 of the Report, on the authority of a study published by the International Energy Agency (IEA) in 2004, that “On average, oil importing developing countries use more than twice as much oil to produce a unit of output as do OECD countries.” This assertion is incorrect. In the article referred to in the previous footnote, Castles and I showed that the IEA had wrongly used exchange rate-based estimates of GDP in its comparisons, thereby inflating the energy intensities of developing countries.⁸

More broadly, the built-in process of peer review, which the IPCC and member governments view and refer to as a guarantee of quality and reliability, does not adequately serve that purpose, for two reasons.

- First, peer review is no safeguard against dubious assumptions, arguments and conclusions if the peers are largely drawn from the same restricted professional milieu.
- Second, the peer review process *as such*, here as elsewhere, may be insufficiently rigorous. Its main purpose is to elicit expert advice on whether a paper is worth publishing in a particular journal. Because it does not normally go beyond this, peer review does not typically guarantee that data and methods are open to scrutiny or that results are reproducible. It does not guarantee *due disclosure*.

⁶From late 2002 on, Ian Castles and I jointly put forward a critique of some leading aspects of the IPCC's economic work, while authors involved in that work contested our criticisms. Following these exchanges, we published in 2005 a joint paper on international comparisons of GDP, and I reviewed and carried further the whole debate in a later article (Henderson, 2005). Neither of these latter pieces features either in the array of some 1100 references listed in the Stern Review or in the 400 or so references appended to the relevant chapter of the AR4 report of WG III. However, the latter list includes the press statement of Dr Pachauri already quoted above, where Castles and I are said to have spread ‘disinformation’ and are described as ‘so-called “two independent commentators.”’

⁷The SRES had four contributing editors, 53 authors, and 89 expert reviewers. Between them, and drawing on the work of six modelling groups, they produced a document in which, among other things, the concept of GNP is misdefined; invalid cross-country comparisons of GDP are derived, one result being that energy intensities and emissions intensities are wrongly estimated; the rationale of PPP comparisons is misstated; series are described as PPP-based which do not have that character; and the 1993 inter-agency System of National Accounts, the officially-recognised guide to its subject matter, does not figure in the extensive list of references.

⁸The same confusions in relation to cross-country GDP comparisons are also to be found in the Stern Review.

The issue of disclosure, and of the IPCC's handling of it, is symptomatic. In a critique of the treatment of scientific issues in the Stern Review (Carter *et al.*, 2006), the authors referred, in my opinion with good reason, to 'the scandal of non-disclosure and poor archiving' (p. 189). A leading instance is the celebrated 'hockey-stick' study, which was prominently displayed and drawn on in the Panel's Third Assessment Report and afterwards. The study formed the basis for a memorable and widely-accepted claim that in the Northern Hemisphere the 1990s had been the warmest decade of the millennium, and 1998 the warmest single year. Probably no single piece of alleged evidence relating to climate change has been so frequently cited and influential. The authors concerned failed (and later declined, until strong pressures were eventually brought to bear) to make due disclosure, and neither the publishing journals nor the IPCC required them to do so.

Comprehensive exposure of the flaws of the hockey-stick study came from two Canadian authors, Stephen McIntyre and Ross McKittrick, in a notable series of papers and presentations.⁹ Their work eventually prompted parallel initiatives by two committees of the US House of Representatives. Both committees set up high-level inquiries into the subject—one from an expert group appointed by the National Research Council, and the other from a committee chaired by a leading statistician, Edward Wegman. Both inquiries reported in July 2006.¹⁰ The outcome fully bears out the McIntyre-McKittrick critique, and the Wegman report in particular is devastating.

In a recent defence of the Stern Review and the IPCC (Mitchell *et al.*, 2007, p. 221) the authors argue that 'the peer review process is fundamental to all academic endeavours and is no different for climate science than for any other branch of science'. This both misses the point and shows a lack of awareness. In economics, where similar issues of disclosure have arisen, leading journals now insist on more rigorous procedures than standard peer review provides. By way of illustration:

- The *American Economic Review* has now adopted an editorial policy which requires of articles submitted, as a precondition for publication, that data and computer code, in sufficient detail to permit replication by others, should be archived on the journal's website.
- 'It is the policy of the *Journal of Political Economy* to publish papers only if the data used in the analysis are clearly and precisely documented and are readily available to any researcher for purposes of replication. Authors of accepted papers that contain empirical work, simulations, or experimental work must provide to the Journal, prior to publication, the data, programs, and other details of the computations sufficient to permit replication. These will be posted on the JPE Web site...'

Disclosure issues in the IPCC reporting process go beyond the 'hockey-stick' study and related published work. Similar doubts and questions have arisen in relation to other temperature series which the process has drawn on, including results derived

⁹A detailed account of the whole episode, up to two years ago, is contained in a paper by McKittrick which forms Chapter 2 of Michaels (2005).

¹⁰National Research Council (2006) and Wegman, Scott and Said (2006) A summary of the two reports is given in Henderson (2006b).

from instrument-based data. In this connection, and as noted in Carter *et al.* (2007), several requests are currently under way in Britain under the Freedom of Information Act. There is here a continuing saga, in which again exposure of the problem, and the pressures for due disclosure, have come exclusively from private individuals.

It is not just the failures of disclosure on the part of cited authors that betray a lack of professionalism in the IPCC process, but also, and still more, the failure of the IPCC directing circle to admit the existence of the problem, recognise it as serious, and take remedial action. So far as I know, no public statement from any of these persons, or for that matter from any of the IPCC's sponsoring departments and agencies, has referred to the issue, admitted that too much credence and prominence may have given to questionable findings, or acknowledged the limitations of standard peer reviewing procedures. A similar evasive reticence is shown in AR4. The responsible persons and organisations have pursued here a strategy of evasion and disregard.

This whole story, of lapses in archiving and disclosure and the IPCC's failure to acknowledge and deal with them, is comprehensively told in the article by David Holland in this issue.

It is not only in the context of peer-reviewed work that a lack of milieu candour and objectivity is apparent, but also in relation to the everyday conduct of public debate. Across the world, the treatment of climate change issues by environmental and scientific journalists and commentators is overwhelmingly one-sided and sensationalist: studies and results that are unalarming are typically played down or disregarded, while the gaps in knowledge and the huge uncertainties which still loom large in climate science are passed over. A conspicuous recent case in point, both in itself and in its reception by the media, is the Al Gore film and book, *An Inconvenient Truth*. This pervasive bias on the part of so many commentators and media outlets is in itself worrying; but even more so, to my mind, is the fact that leading figures and organisations connected with the IPCC process, including government departments and international agencies, do little to ensure that a more balanced picture is presented. It is characteristic of the environmental policy milieu that proposals are in train to distribute *An Inconvenient Truth* to schools as an officially recommended and reliable source: the British government has already taken such action.¹¹

How are these various professional lapses to be explained? I believe that a number of mutually reinforcing influences are at work.

¹¹A detailed commentary on *An Inconvenient Truth* is given in Lewis (2007). The author finds (p. 1) that 'most of Gore's claims regarding climate science and climate policy are either one-sided, misleading, exaggerated, speculative, or wrong'. In announcing the British government's decision to circulate it to schools, the then Secretary of State for Education and Skills, Alan Johnson, said that the film 'is a powerful message about the fragility of our planet'. The bias exemplified here is not new. A 10-year old study (Aldrich-Moodie and Kwong, 1997) argued, with supporting evidence, that in both the US and Britain, 'children are being presented with biased information about the environment', focusing on 'doomsday scenarios and indoctrination'.

- In the case of some flawed studies referred to above, in both economics and climate science, the technical aspects may not have been fully grasped, since the relevant expertise has not been well represented within the network: this applies in particular to statistical expertise.
- More broadly, there has been a tendency to close ranks, so as to shield professional colleagues and associates, and to safeguard what is seen and described as ‘scientific consensus’ doctrine, from outside criticism.
- An influential factor is the increasingly widespread conviction that these so-called ‘consensus’ views are now virtually beyond question, so that critics and dissenters, even if admitted to be disinterested (and this is often questioned), do not deserve to be taken seriously: where they cannot just be ignored, they can be dealt with simply by a restatement of the official party line. This latter procedure is exemplified in the British government’s dismissive official response to the House of Lords Select Committee report, which does no credit to the department that produced it.¹²
- Finally, there are concerns that nothing should be said or written, and no acknowledgement or concession should be made, which would put in doubt the fundamental proposition that anthropogenic global warming represents a serious potential threat. A belief that the future of the planet is at stake is apt to crowd out considerations of objectivity and balance.

9. PANEL AND NETWORK

From all this, the IPCC process *as a whole* emerges as flawed. Some commentators have argued that the role of the Panel in particular is problematic, and have questioned the close relationship between the Panel and the expert network. The issue arose in the context of the Panel’s Third Assessment Report, where critics took the view that the SPM of the report from Working Group I was more tilted towards alarm than the report itself. This episode was taken as illustrative of what a recent unofficial report has referred to as ‘a compelling problem’, namely that a SPM.

*‘is produced, not by the scientific writers and reviewers, but by a process of negotiation among unnamed bureaucratic delegates from sponsoring governments. Their selection of material need not and may not reflect the priorities and intentions of the scientific community itself’.*¹³

The implication of this and of some other criticisms of the process is that there should be a clear separation of the respective functions of the Panel and the expert network, with the reports of the latter no longer subject to official summary by the former.

I find this line of argument unconvincing, for three reasons. First, I suspect that the significance of the SPMs is overrated. It is hard to believe that many policymakers struggle through them, and it is not from their carefully weighed and reader-unfriendly prose that the stirring language of the heightened milieu consensus is drawn. Second, it is

¹²I commented on this official response in Henderson (2006a).

¹³McKittrick et al., 2007, p. 5.

not to be taken for granted that an SPM will be more tilted towards alarm than the original report: recent experience with AR4 shows that the reverse may happen. Publication of the latest report from WGII was seriously held up for some time, apparently because of objections on the part of lead authors to the way in which the (already published) SPM had effectively toned down some of what was said in the final draft report. Third and more generally, it is wrong to cast the Panel members as the arch-villains of the piece, with the experts and the reporting process as victims of their guile and built-in official bias. As has been seen above, the expert reporting process is itself flawed. It is true that the IPCC directing circle and milieu, as also the environmental policy milieu which they report to, are deeply biased; but their bias not only influences, but also characterises, the conduct and outcome of the reporting process: the idea that this particular 'scientific community' is both objective and representative does not stand up. In my view, therefore, ensuring a clear separation between Panel and network, even if it were practicable, is neither a necessary nor a sufficient condition for improving the IPCC process.

10. THE INFLUENCE OF GLOBAL SALVATIONISM

Some history is relevant here. Within the policy milieu, there is a generic bias which goes a long way back and extends well beyond issues relating to climate change. Over a period of 40 years or more, and increasingly over time, departments and agencies concerned both with the environment and with the economic problems of poor countries have typically adhered to the set of beliefs and presumptions which I have termed *global salvationism*.¹⁴ Here two elements are combined. One is an unrelentingly sombre picture of recent trends, the present state of the world (or 'the planet'), and prospects for the future unless governments involve themselves more closely, and with immediate effect, in the management and control of economic events. Within this picture, environmental issues are treated almost exclusively in terms of problems, dangers, and potential or even imminent disasters, with the presumed harmful effects of economic growth as one reason for concern. The second element is a conviction that known effective remedies exist for the various ills and threats thus identified: 'solutions' are at hand, given wise collective resolves and prompt action by governments and 'the international community'. Global salvationism thus combines dark visions and alarming diagnoses with confidently radical collectivist prescriptions for the world.¹⁵

During the 1980s, what had by then become a broad salvationist milieu consensus, firmly entrenched in a range of UN agencies as well as in national capitals, found expression in two widely read and influential reports, each produced by a specially convened international group of eminent persons. The first of these was the Brandt Report of 1980, and the second the Brundtland Report of 1987.¹⁶ Included in the latter

¹⁴The content, history and implications of global salvationism form the main theme of Chapter 4 of Henderson (2004).

¹⁵A prominent feature of the dark salvationist picture of reality has been much-overstated measures of the gap between rich and poor countries, derived from invalid exchange-rate-based, rather than PPP-based, comparisons of GDP per head.

¹⁶At the time I published a review article on the Brandt Report (Henderson, 1980), where my final assessment of the document a whole was that 'the view of the world on which it rests is false'.

was a section on the possible dangers from anthropogenic global warming, which was described (p. 34) as ‘a threat to life-support systems’; and from that time on a belief in the reality of such a threat came to be an integral part of global salvationist doctrine. The Brundtland Report led on to the December 1989 resolution of the UN General Assembly, which authorised what became the 1992 UN Conference on Environment and Development (the Rio ‘Earth Summit’). Meanwhile the IPCC was established by governments in 1988, and its First Assessment Report, published in 1990, provided the basis for the agreement, formalised in Rio, to create the UNFCCC.

Right at the start, therefore, the dangers from anthropogenic global warming entered as a new and important element into the already existing body of global salvationist thinking. The client environmental departments and agencies of the IPCC had long been committed to such beliefs, as they still are today.¹⁷

Of course, this historical link can be seen as no more than coincidental: in itself, it does not put in doubt the findings of climate scientists or the competence and objectivity of the IPCC network and reporting process. Indeed, it is not difficult to find strong critics of global salvationist pessimism who nonetheless accept that anthropogenic global warming is a worrying phenomenon: two prominent examples are Bjorn Lomborg (2001 and 2004) and Dick (Lord) Taverne (2006). But the close relationship between the IPCC milieu and its sponsoring departments and agencies, together with the ingrained salvationist tendencies of the latter, have I think given rise to two related features of the IPCC process which put in question its objectivity and claims to authority.

First and foremost, members of the IPCC Bureau, and more broadly of its directing circle, have from the outset shared the conviction that anthropogenic global warming presents a threat which demands prompt and far-reaching action by governments; and had this not been evident, and known to be the case, *they would not have attained their leading positions within the process*. To take only the examples of today, already mentioned and quoted above: Pachauri (as Chair of the IPCC), Steiner (as Director-General of UNEP), and de Boer (as Executive Secretary of the UNFCCC) would not have sought their respective posts, nor would they have been seen by UN agencies and member governments as eligible to hold them, had they not been identified as fully committed to ‘consensus’ views. The same has been true throughout of the Bureau and directing circle. The IPCC process is run today, as it has been from the start, by true believers. This accounts for the readiness of those concerned to make strong public pronouncements of the kind quoted above, which go beyond the more nuanced language of the Assessment Reports; to turn an unseeing eye to the disclosure failures and other weaknesses in the reporting process; and to view with equanimity or approval the lack of balance that characterises public debate.

Second, my impression is that over time the expert network, while growing in numbers (so that the stock of peer reviewers has expanded *pari passu*), has become increasingly dominated by subscribers to the milieu consensus. It has become more difficult for independent outsiders, who do not share accepted beliefs and presumptions of the IPCC milieu, and of the Panel’s parent bodies and sponsoring

¹⁷A good illustration of this continuing commitment is the most recent issue of the UNEP flagship document, *Global Environment Outlook 3* (2003).

government departments and agencies which provide the overwhelming bulk of research funding in this area, to contribute usefully to the reporting process. For this and other reasons, some nonconforming experts have either declined to become involved with the process or have later withdrawn from it. The network has thus become more numerous but less representative. At the same time, it may have become harder for younger scientists, with careers still to make, not to fall in with received majority opinion which is both officially sponsored and strongly held. In evidence to the House of Lords Select Committee (Vol. II, p. 233) David Holland wrote, admittedly as an outsider: ‘If I were beginning my career I cannot imagine that I could make a living in climate science without accepting the current consensus’. In both scientific circles and the reporting process, therefore, dissenters have been gradually sidelined or eased out.

This is the background against which the professional lapses noted above are to be seen. They are symptomatic of a deeply ingrained bias which has characterised the both the IPCC milieu and its clients from the outset, and which has intensified over time.

11. UNRELIABLE DEFENCE WITNESSES

Admittedly, the IPCC and its official sponsors can quote some eminent independent witnesses in their defence. As noted, the Panel and its work have received unsolicited high-level endorsements from leading scientists and scientific bodies outside both the milieu and the official world. For some observers, this is a telling point. For example, Richard (Lord) Layard, speaking last year (14 July 2006) in a House of Lords debate, said that the ‘scientific consensus’, which ‘includes all but a very few climatologists’

‘... is supported by our own Royal Society and by the American Academy of Sciences. I do not really see how non-scientists can take a different view from those bodies unless we want to question their motivation. These bodies are not composed primarily of climatologists, who might want to exaggerate the importance of their subject, but of those best placed to appraise the work of climatologists...’

But while the support is real—indeed, it has also come from other national academies of science, and from eminent individual scientists speaking on their own behalf - it should not be taken as decisive. In my view, this outside expert testimony is by no means above question. In that connection, some points to be noted are:

- It is not clear how far the statements and expressions of opinion that have been put out by academic bodies reflect the views of their members, or whether those members were consulted.
- None of these eminent outside persons or bodies has to my knowledge faced or acknowledged the key issue of non-disclosure. This is a serious and revealing omission.

- There is a long and still-continuing history of scientific adherence to global salvationist presumptions and beliefs. Much the same forms of ingrained bias exist within this milieu as in the IPCC's client departments and agencies.¹⁸
- Some of the high-level witnesses referred to have evinced a worrying combination of bias, inaccuracy and intolerance: some illustrative evidence here is presented in the Annex to the article of mine referred to in footnote 1 above.

Like the environmental policy milieu, elements within the international scientific establishment appear as strongly committed, rather than neutral and objective, in relation to climate change issues. These committed elements appear to include the two leading scientific journals, *Nature* and *Science*.¹⁹

12. MONOPOLY, CONSENSUS AND OVERPRESUMPTIVE CONCLUSIONS

To sum up: the IPCC process, which is widely taken to be thorough, objective, representative and authoritative, is in fact flawed. Contrary to what its member governments, along with many outsiders, typically believe or presume, it does not justify the confidence that is placed in it. The flaws in the process are the more worrying, because of the special status, one of virtual monopoly which member governments have conferred on the Panel.

Grounds for concern exist in relation to both aspects of the IPCC process: they are in fact inseparable. First, the expert reporting process is subject to continuing professional weaknesses, which bear on the status and authority of the Assessment Reports. Second, the environmental policy milieu, of which the IPCC directing circle forms part, has been characterised from the outset by a pervasive bias. Under this latter heading, it is not just the IPCC process that is in question. The problem of unwarranted trust goes wider: it extends to the biased treatment of climate change issues by the responsible departments and agencies.

At the centre of the problem is a misleading representation of the extent of *consensus*. If the term is taken to mean an absence of serious and credible dissent, it can rightly be attached, as above, to the agreed intergovernmental position that is set out in the 1992 Framework Convention. Arguably, it can also be applied to what I have termed the heightened milieu consensus, in that there are virtually no dissenters from this alarm-oriented view of the world within the environmental policy milieu and it has found considerable high-level support from outside it. But contrary to what is widely asserted or presumed, and continually emphasised by subscribers to the heightened milieu consensus, *there is no scientific consensus* on fundamental issues. The truth is that there are many informed dissenters from the view that increases in concentrations of 'greenhouse gases',

¹⁸Recent publications that fit this alarm-oriented mould are Rees (2003), Lovelock (2006) and Diamond (2005) which was the subject of a detailed critique in Vol. 16 Nos. 3 and 4 (2005) of *Energy and Environment*. Over 30 years ago, the general disposition towards alarm was the subject of comment by John Maddox in a perceptive book called *The Doomsday Syndrome*. A successor study is much needed.

¹⁹As to *Nature*, two recent references are, first, the chapter by McKittrick mentioned in footnote 13 above, and second, an article by Barrett (2005). As to *Science*, a revealing episode is described in Peiser (2005). In a more recent piece, soon to be published, Peiser has reviewed the whole issue of 'editorial bias and the prediction of climate disaster'.

caused by current and likely future anthropogenic emissions, will lead to dangerous climate change. There is significant professional support for the position taken in the already-cited paper by Carter *et al.*, (2007), when they write (p. 162):

'That human-caused climate change is real has never been in question; the point at issue is whether the global signal of human-caused change can be measured, and, if so, whether the resulting effect is likely to be dangerous. After the expenditure of many tens of billions of dollars on cognate research, the answer to these questions is that the global human signal cannot be isolated from the variation of the natural climate system itself, and that—speculative computer modelling aside—no good reason exists to presume that the human impact is dangerous.'

It is not the case, then, that 'the science' is 'settled', so that it provides decisive support to the heightened consensus and establishes the need for 'an urgent global response'. Indeed, given the huge complexity of the systems under review, the limits of present knowledge about many aspects of them, and the pervasive uncertainties that surround possible future economic and technological developments, it would be surprising, in fact disquieting, if a genuine and far-reaching scientific consensus had been established; and any such consensus would have to be viewed, in accordance with accepted scientific procedure, as contestable, and not as representing final truth.

The misleading assertion that 'the scientific evidence is now overwhelming' is not drawn directly from the IPCC Assessment Reports, and arguably it goes beyond them: it is an extrapolation. But the extrapolation would not have been possible, and could not have gained such widespread acceptance, were it not for the strong and continuing elements of bias that have characterised the IPCC process.

In relation to climate change issues, the OECD member governments in particular have locked themselves into a set of procedures, and an associated way of thinking—in short, a *framework*—which both reflects and yields over-presumptive conclusions which are biased towards alarm. These conclusions now form the basis of current policies and of proposals to take them further. They go well beyond the bounds of professional consensus; they take as their prime source the results of a flawed process; and they represent a dubious extension of those results.

An alternative framework has to be built round a different set of working assumptions, less presumptive and more attuned to the huge uncertainties that remain. Within such a framework, the IPCC's procedures, role and status, as also the heightened consensus beliefs which are now so firmly held by its sponsoring departments and agencies and by many leading political figures, would no longer go unquestioned.

In the light of what has been said above, there is a clear present need to build up a sounder basis than now exists for reviewing and assessing the issues. Governments should act accordingly. *Rather than presuming that 'the science' is 'settled', and building policies on that unwarranted presumption, they should take prompt steps to ensure that they and their citizens are more fully and more objectively informed and advised.*

I turn now to the kinds of action that they could take, while noting also the scope for unofficial initiatives to the same end.

13. OFFICIAL ACTION

Two broad lines of official action could be followed. One is to improve the IPCC process, by making it more professionally representative and watertight, while the other is to go beyond it. The more that can be done under the first heading, the less the need for action under the second. I believe that both are needed.

Since the IPCC process is well established, involves virtually every government in the world, and operates a consensus procedure, changing it formally is unlikely to be a straightforward affair. However, explicit world-wide consensus is not a necessary condition for all improvements: there is much that could be done by individual governments or like-minded groups of countries, both on their own account and through influencing intergovernmental proceedings.

One specific change that is called for ought not to be a matter of controversy. As has been seen, the time is long overdue for member governments to address the scandal of non-disclosure. They should insist on full and true disclosure of sources, data and statistical procedures, as a precondition for taking published work into account in preparing Assessment Reports; and a proviso to that effect should be written into the IPCC's terms of reference. It might be hoped that this change would win general if not universal consent.

A second area for reform within the process concerns the choice of participants. There is scope for ensuring broader *expert* involvement, for example by bringing historically minded economists and economic historians into the work on projecting output, energy use, and CO₂ emissions. More generally, a watchful eye should be kept on tendencies towards bias and unwarranted exclusion, first, in the selection of authors, reviewers and contributors, and second, in the treatment of dissenting views.

Alongside such changes, broader participation at the *official* level could contribute decisively to improving the IPCC process, and indeed, it may well be a necessary condition for improvement. Enlargement of the policy milieu is long overdue, and individual governments—as also the European Commission—have the power to act accordingly.

In particular, and to return to an earlier theme of mine, it is high time for the central economic departments of state—treasuries, finance and economics ministries, and, in the US, the Council of Economic Advisers—to become more involved, in ways that include but go beyond specifically economic aspects (which themselves need more attention). As a former official in HM Treasury, and much later an international civil servant whose chief clients comprised the central economic departments of OECD member countries, I have been surprised by the passivity, and the uncritical acceptance of an obviously flawed official process, which these departments have shown in relation to climate change issues. It is time for them to cross the Rubicon and extend the range of their concerns. Where so much may be at stake economically, it is just not good enough to accept without question that 'the science' is 'settled' and that the IPCC process, together with the heightened consensus which claims to be based on that process, is not to be challenged or even inquired into. Any one of these departments could take a more active inquiring role, at insignificant cost though admittedly with the strong probability of making interdepartmental waves. By way of specific examples:

- They could conduct their own reviews, drawing as necessary on independent outside experts, of the work of McIntyre and McKittrick and the reports from the NRC and Wegman inquiries. Such a review could extend to the implications of non-disclosure, and the reliability of the data bases which the IPCC has drawn on in the Assessment Reports.
- A general issue, raised by some of us in evidence to the House of Lords Select Committee, is the extent to which it is necessary or prudent to base policies so heavily on the results of modelling exercises which extend into the distant future. Given a political green light, economic departments could arrange for a full independent technical review of the models on which considerable weight is placed in the IPCC process—the carbon cycle models, the general circulation models of the climate system, and the integrated assessment models that explore the implications of possible climate changes.
- More ambitiously and controversially, though very much in the public interest, these departments could, again with appropriate independent technical support, make their own examination of AR4 as a whole, with special but not exclusive reference to economic and statistical aspects.

OECD member governments could arrange for such review exercises to be undertaken under their collective auspices, within the Organisation and with the participation of the OECD Secretariat. The fact that both economic and environmental officials meet regularly at the OECD, each group with its own supporting Secretariat staff, could be turned to advantage: a whole range of issues could be examined in depth across departmental boundaries.

14. UNOFFICIAL CHANNELS

So far under the heading of action, I have focused exclusively on the role of governments. There is good reason for such an emphasis, since it is governments that fund major programmes and decide policies, while only they can reform the process which they have created and over which they have full control. But in the present situation, with the recent appearance of two major contributions in the Stern Review and AR4, and clear signs that both are being treated uncritically by governments, there is scope for timely unofficially-sponsored contributions which do not take as given current over-presumptive conclusions.

Such initiatives are by no means to be counted on. Despite what is sometimes alleged, there exists no array of commercial enterprises, with a stake in carbon-intensive products and processes, which have shown themselves ready and willing to pour money into projects and organisations that challenge current orthodoxy. To the contrary, big businesses including leading oil companies, and business organisations that they subscribe to, are with few exceptions firmly committed to the orthodox view. One leading illustration among many is the World Business Council for Sustainable Development, whose programme of work features support for ‘the development of a global and efficient framework to combat climate change’. The Council’s membership now comprises some 200 companies, among which on my count are 11 oil companies

including Royal Dutch Shell, BP Amoco, Statoil and Chevron. So far from large firms financing unorthodox views, a more representative instance of current business trends is the recently-announced decision of HSBC, in ‘the biggest charitable donation ever from a British business’, to devote \$100 mn. ‘towards tackling climate change’²⁰ Further, any private sponsors of potentially non-conforming studies, whether or not they were profit-oriented concerns, could expect to be the subject of hostile activist campaigns as well as official disapproval: the pressures to conform are strong and unrelenting. All the same, there is now a clear opportunity, while the costs of new independent studies would be minute in relation to the massive amounts now being spent within the present unbalanced framework—some by businesses and foundations, as well as governments and UN agencies. Simply in the interests of promoting balance and advancing knowledge, the case for initiating such independent studies is a strong one.

A fruitful way forward here could be for the House of Lords Select Committee on Economic Affairs to take the appearance of AR4 and the Stern Review as the occasion for a return to the subject of climate change. Another possibility would be for private sources—individuals, companies or foundations - to fund, either directly or through one or more think-tanks, a full-scale independent interdisciplinary review of AR4, preferably by a well qualified review team chosen from among a group of competing proposals. A promising first move in this direction has already been made, through the publication early this year by the Fraser Institute (of Canada) of an ‘independent summary for policymakers’—a rival to the SPM, which at that time was still not in final draft, of the AR4 report from Working Group I.²¹ But a full and well publicised independent expert review and assessment of all the final AR4 documents is badly needed.

15. CONCLUSION

In relation to climate change issues, governments should think again. In particular, they should recognise the flaws in the now-established IPCC process, and take prompt steps to ensure that they and their citizens are more fully and more objectively informed and advised.

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