The Politics of Climate Change in Australia: the Interplay between the Lavoisier Group, the Media, and Federal Government Policy

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Abstract

The Lavoisier Group is a focal point for climate change skeptics in Australia. This report analyses one aspect of the climate change debate in Australia by examining the Mann *et al* (1998, 1999) climate reconstruction and the ensuing 'hockey stick' controversy. It explores how the Lavoisier Group used the challenges to Mann *et al* to discredit the findings and processes of the Intergovernmental Panel on Climate Change (IPCC). The report then looks at the way in which this debate and its implications were reported in *The Australian*, and suggests the degree to which coverage of this particular debate may have influenced the Federal Government position on climate change. This report concludes that the arguments of the Lavoisier Group, and the way they have been replayed in certain sections of the media, has been useful in allowing the Government to retain a skeptical position on climate change over the past decade and still appear prudent and mainstream. It also suggests the media will have an important role in helping ensure John Howard's new 'realistic' position on climate change generates popular appeal.

Introduction

Climate change has increased in public prominence with the release in February 2007 of the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) 'Summary for Policymakers', and the publication of the Stern Review in November 2006. The 'Summary for Policymakers' (IPCC 2007, p.10) found that "most of the observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations" (emphasis in original). The Stern Review warned of severe social, environmental, and economic costs arising from a 'business as usual' approach and a failure to act immediately on greenhouse gas emissions. Debates about the science of the IPCC, the economics of the Stern Review, and attempted multinational agreements such as the Kyoto Protocol, have been played out globally. In Australia, the Lavoisier Group has been a focal point for those who contest the science, economics, and politics of climate change.

This report analyses the interplay between the Lavoisier Group, the media, and the stance of the Federal Government with regard to climate change policy. My premise was that a strong parallel exists between the arguments of the Lavoisier Group and certain editorials and opinion columns in the print media, particularly *The Australian*, and the articles of Miranda Devine in the *Sydney Morning Herald*. My thesis is that editorial and opinion space devoted to scientific uncertainty about climate change and the economic costs of Kyoto plays an important role in allowing the Federal Government response to appear mainstream and rational.

The arguments of the Lavoisier Group were accessed via papers, submissions, conference proceedings, letters and other documents on their

website. The Factiva database was used to retrieve articles on climate change and Kyoto from *The Australian* and *Sydney Morning Herald*. The Department of the Prime Minister website and the Commonwealth Parliament website were used to access the speeches and interviews of John Howard, and the Energy White Paper (2004). The speeches of Environment Ministers Senator Robert Hill, David Kemp, Senator Ian Campbell and Malcolm Turnbull were accessed via the Department of Environment website.

This report analyses just one point of scientific controversy, namely the Mann *et al* (1998, 1999) climate reconstruction and the ensuing 'hockey stick' debate. The report begins with a background sketch of climate variables, the greenhouse effect, and the role of the IPCC. The founding of the Lavoisier Group is then covered, followed by an outline of natural climate variability in the North Atlantic basin during the Holocene. The main section of the report covers the 'hockey stick' controversy. The findings of Mann *et al* (1998, 1999) are given, followed by the use of their climate reconstruction in the IPCC Third Assessment Report (TAR). Lavoisier critiques of the Mann *et al* reconstruction are analysed. Carter's arguments in *The Australian* regarding natural climate variability are given, followed by an analysis that differentiates between regional and global warming. McIntyre and McKitrick's challenge to Mann *et al* is covered, and the critical findings of the Wegman report are explored. The coverage of the Wegman report by Alan Wood in *The Australian* is examined, and some implications of the 'hockey stick' controversy are drawn. Finally outlines are given on the position of *The Australian* and *The Sydney Morning Herald*, and the position and policy of the Federal Government. The report concludes with a recommendation for further in-depth analysis of a range of arguments advanced by the Lavoisier Group, and the degree to which these

various arguments are paralleled in the media, and the implications for the position and policies of the Federal Government on climate change.

Background

The Earth's climate is complex, and the numerous multi-dimensional interacting variables and feedbacks are still not fully understood by scientists. Key variables are thought to be firstly, the combined effects of variations in the Earth's orbit, axial tilt, and precession (the Milankovich cycles) which influence the intensity and location of solar radiation, and the relative intensity of the seasons (see Flannery 2005, Foster 2000b). Secondly, variations in sunspot activity are believed to affect climate. Thirdly, ocean currents influence temperatures, evaporation, and rainfall by transporting large volumes of warmer or colder water around the globe.

Atmospheric scientists (UNFCCC 2007a, Pittock 2005, RealClimate 2004) maintain, however, that the Ice Age/interglacial cycle cannot be fully explained without also considering the role of greenhouse gases in the atmosphere. Greenhouse gases permit the Sun's visible light rays (short wavelength) to pass through to the Earth, where most are absorbed, but some are reflected back as infrared radiation (longer wavelength radiation). Some of this infrared radiation passes back through the atmosphere. However, greenhouse gases trap a certain proportion of infrared radiation near the Earth's surface and re-emit some of it back to the Earth (UNFCCC 2007a, United States Environmental Protection Agency 2007). The most powerful of the greenhouse gases appears to be water vapour, and the most abundant of the trace greenhouse gases is carbon dioxide (CO_2).

CO_2 is very long-lived in the atmosphere, meaning that increases in atmospheric CO_2 concentrations have a cumulative effect. Data from ice

cores reveals that atmospheric CO_2 concentrations have varied over time. CO_2 forms an important part of the life-cycle on Earth and cycles between the land, oceans, and the atmosphere. When CO_2 leaves the atmosphere, it ends up in carbon sinks, such as forests, the Earth's crust, and the oceans. For example, the Carboniferous forests absorbed CO_2 from the atmosphere, and their subsequent fossilisation 'locked' the CO_2 away underground to form coal and oil deposits. This example illustrates two points. First, land use change and deforestation/reforestation has an impact on the carbon cycle. Second, the ever-increasing anthropogenic combustion of fossil fuels since the Industrial Revolution has led to an increase in atmospheric CO_2 levels from approximately 280ppm around 1750 to 379ppm in 2005 (IPCC 2007, p.2).

In the 1960s and 1970s, scientists drew international attention to increasing atmospheric concentrations of CO_2 (UNFCCC 2007b). In response, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the IPCC in 1988 in recognition of "the potential problem of climate change" (IPCC 2007b). Open to all members of the WMO and UN, the IPCC is an expert group of over 2000 scientists that "bases its assessment mainly on peer reviewed and published scientific/technical literature" (IPCC 2007b).

The Lavoisier Group

The Lavoisier Group formed in 2000 because certain industry sectors were disturbed by the work of the Australian Greenhouse Office (AGO) and the general direction of Government policy. Despite the Howard Governments stated refusal to ratify the Kyoto Protocol, the Lavoisier Group was concerned by the costs to industry arising from the potential introduction of an emissions trading scheme developed by the AGO, and by 'unilateral'

Federal Government proclamations that Australia was 'on track' to meet its Kyoto obligations anyway. Named after the founder of modern chemistry, Antoine-Laurent Lavoisier, who established the existence of oxygen and the formation of CO_2 through the process of carbon oxidation, the Lavoisier Group argues that the drive to meet Kyoto commitments is based on a chain of flawed assumptions about a link between increasing atmospheric CO_2 concentrations and rising global temperatures (Lavoisier Group undated a, b, c).

The Lavoisier Group consistently declares that the current warming period is due to natural climate variability (see Kininmonth undated a, Foster 2000a, 2000b, 2001a, Evans 2006b). Foster (2000b, section 3.4.5, emphasis in original) asserts that the current warming "is related both to an increasing flow of warmer equatorial water to the Nordic seas *and* increasing solar warmth". Foster and Evans both argue that the Milankovich cycles, overlaid by shorter cycles of sunspot activity, are the basis of the long glacial and shorter inter-glacial cycles. Our current interglacial period is known as the Holocene. Foster (2000b, 2001a) and Evans (2006b) note that even within the Holocene, records for the Northern Hemisphere indicate a variable warm/cold cycle that produced the Minoan Warm Period (1450-1300 BC), the Roman Warm Period (250-0 BC), the Dark Ages in Europe (500-800 AD), the Medieval Warm Period (800-1200 AD), and the Little Ice Age (1300-1900 AD). Records indicate that the Vikings colonised and grew crops in Greenland (the name has significance) during the Medieval Warm Period (MWP), whilst the Thames froze on occasion during the Little Ice Age (LIA). This is one reason why the Lavoisier Group dismisses the idea of stabilising the climate as a chimera: it does not accord with historical climate instability. The Lavoisier Group argues that temperatures in the Northern Hemisphere are currently no warmer than during the MWP, an era before the advent of fossil fuels. The implications of this argument are

twofold. First, fossil fuel use is unrelated to previous warm periods, and second, the current warm period is within the bounds of natural variability.

The 'Hockey Stick' Controversy

Difficulties arise in accurately comparing current with past temperature variations because thermometer temperature records in the UK (the oldest land-based records) go back to the LIA, but not to the MWP. Assessing temperatures from the more distant past requires reconstructions from proxy data such as tree rings and ice cores. One of the most powerful reconstructions was that conducted by Michael Mann, Raymond Bradley and Malcolm Hughes (1998, 1999). The Mann *et al* reconstruction produced the famous/infamous 'hockey stick' that depicted a slightly cooling Northern Hemisphere for the past 1000 years, with little natural variation, followed by sharply rising temperatures in the last few decades of the 20th Century. Mann *et al* (1998, p.1) contend that "greenhouse gases emerg[ed] as the dominant forcing during the twentieth century". They (1999, p.1) portray the current warming trend of the late 20th Century as "anomalous in the context of at least the past millennium". Accordingly, Mann *et al* (1999, p.1) conclude that "[t]he 1990s was the warmest decade, and 1998 the warmest year, at moderately high levels of confidence."

Mann contributed to the IPCC TAR. He was a lead author for Chapter 2 'Observed Climate Variability and Change', which formed part of the report of Working Group 1: The Scientific Basis. The Executive Summary of Chapter 2 (IPCC 2001b) states that "[n]ew palaeoclimatic analyses for the last 1,000 years over the Northern Hemisphere indicate that the magnitude of 20th century warming is likely to have been the largest of any century during this period. In addition, the 1990s are likely to have been the warmest decade of the millennium." The findings of Mann *et al* therefore

played a significant part in the TAR. The dominance of greenhouse gas forcing and the 'anomalous' warming imply a human influence on current climate change outside the bounds of natural variability.

The Mann *et al* reconstruction has been attacked as "a fraud" by the Lavoisier Group (see Evans 2006a, p.4) on two main fronts: distortion of historical reality, and statistical malpractice. The Lavoisier Group claim that the Mann *et al* reconstruction "airbrushed out of the historical record" the MWP and the LIA (Evans 2006a, p.4, 2006b, p.10). Evans (2006a, 2006b) accuses Mann *et al* of attempting to rewrite history for the purposes of legitimising IPCC claims that global warming is human induced. The Lavoisier Group point to the fact that other temperature reconstructions, such as those by Esper *et al* (2002 in Kininmonth undated a) and by Naurzbaev and Vaganov (2000 in Foster 2000b, fig.66) capture the LIA and the MWP and show 20th Century warming to be within the bounds of natural variability. However, the Naurzbaev and Vaganov reconstruction of the last 2000 years stops in the mid 20th Century. Yet, Mann *et al* claim that it is the last three decades of the 20th Century that display anomalous warming, precisely the period that Naurzbaev and Vaganov do not capture. And as Kininmonth (undated a) himself admits, the Esper *et al* (2002) reconstruction was from mid to high latitude northern hemisphere sites only, whereas Mann *et al* also included data from the tropics which presumably helped smooth the scale of past temperature variations. Discrepancies between various reconstructions underscore the importance of differentiating between global, as opposed to merely regional, warming trends.

Bob Carter is an Adjunct Research Professor at James Cook University (JCU). Trained as a palaeontologist and marine geographer, he was the former Head of School of Earth Sciences at JCU. Writing in *The Australian*

on 28th October 2005 in his article 'Planet not too hot to handle', Carter (2005) claims that two cycles in Greenland in the last 5000 years were slightly warmer than 1998. Further, previous Antarctic ice core records reveal interglacial temperatures over the last 400,000 years "about 4C, 1C, 6C and 3C warmer than today". He therefore contends that the current warm period is within the range of natural variability, "and that any human-caused global climate signature is buried in the noise of the climate system".

At this juncture, it is important to differentiate between regional and global temperatures. The IPCC (2007, p.10) agrees that average polar (not global) temperatures were 3 to 5˚C higher than present 125,000 years ago "because of differences in the Earth's orbit." However, the examples given by Carter (2005) in *The Australian* appear to relate only to specific regional temperature variations. It is entirely possible that a region such as the North Atlantic may experience climatic cycles that are not mirrored at the Equator or in the Southern hemisphere. The IPCC (2001c, sect 2.3.5) argue that the "marked warmth" of the MWP appears to have been restricted to Europe and the North Atlantic, unlike the "near global warmth of the late 20th century."

The Mann *et al* reconstruction has also been attacked as statistically inept. The Lavoisier Group has publicised the challenges by Stephen McIntyre, who works in the mining industry, and Ross McKitrick, an economist opposed to the Kyoto Protocol (see Evans 2006b). McIntyre and McKitrick (2005) challenged the statistical technique of principal components analysis (PCA) employed by Mann *et al*, and argued that their algorithms tended to produce 'hockey sticks' from various data sets. Mann (2004a, 2004b, 2004c, 2005) answered many of the criticisms on the *RealClimate* website by pointing out that numerous other reconstructions have supported his basic

findings and that the reconstruction by McIntyre and McKitrick itself relies on censoring 70% of the proxy data.

However, the dispute came to the interest of the US House Committee on Energy and Commerce. As a result, Dr. Edward Wegman, a statistics professor at George Mason University and chair of the National Academy of Sciences' (NAS) Committee on Applied and Theoretical statistics, agreed to assemble a team to assess the data on a *pro bono* basis. He was asked only to assess whether the challenge had statistical merit (RealClimate 2006). Wegman (undated, p.4) found the Mann *et al* report "to be somewhat obscure and incomplete" and the criticisms by McIntyre and McKitrick "to be valid and compelling". Wegman (undated, p.51) was "especially struck" by Mann's unwillingness to disclose his data and methodology. He also notes (undated, p.51) that "[t]he public policy implications of this debate are financially staggering and yet apparently no independent statistical expertise was sought or used". He further found that the paleoclimatic social and co-authoring network was so close and inter-connected that the peer review process lacked independence and could lead to the propagation of errors. Moreover, he remarked that "the work has been sufficiently politicized that this community can hardly reassess their public positions without losing credibility" (Wegman undated, p.4). Finally, Wegman (undated, p.5) concludes that "Mann's assessments that the decade of the 1990s was the hottest decade of the millennium and that 1998 was the hottest year of the millennium cannot be supported by his analysis". Consequently, Wegman (undated, p.51) recommends that authors of academic papers such as Mann should not author IPCC documents. The Lavoisier Group has publicised the Wegman report as proof that Mann *et al* and the IPCC have engaged in fraud.

Alan Wood (2006), economics editor in *The Australian* begins his 19th July 2006 feature 'Debate on climate change far from over' with the statement that "The UN panel from which governments get their information is deeply flawed". Wood notes that when challenged by McIntyre and McKitrick, "Mann responded in a notably less than scientific manner by withholding adverse statistical results and important data, and discouraging the publication of criticism of his work." Wood recounts the finding that the Mann *et al* reconstruction was the work of "a small, insular group of paleoclimatologists who incestuously peer review, reinforce and defend each others' work." Wood draws three main conclusions in his piece. First, the IPCC's reputation has been severely compromised by its 'heavy reliance' on a "badly flawed piece of work". Second, there is no "overwhelming scientific concensus" on global warming. Third, the Wegman report "destroys the idea of an alarming escalation in global temperatures and … brings the present temperature rise within the range of natural historical variation."

Wood's conclusions mirror those of the Lavoisier Group. They have important implications. Firstly, questions arise regarding the scientific credibility of the findings from the upcoming IPCC AR4 in 2007, and the degree to which governments should trust them. Secondly, given doubts about the scientific credibility of IPCC findings, and given that the current warming may be within the bounds of natural variability for the past 1000 years, numerous editorials and opinion pieces in *The Australian* and a few in the *Sydney Morning Herald* recommend that a prudent government would be well advised to exercise caution before proceeding with policy options that may excessively harm the Australian economy.

In light of the use made of the Wegman report by climate skeptics, it is important to remember that Wegman was not asked to assess whether the

statistical challenge raised by McIntyre and McKitrick would make any difference to the final analysis (RealClimate 2006). Indeed, Schmidt and Amman (2005) argue that changing aspects of the PCA or even omitting it altogether does not affect the final analysis regarding anomalous late 20th Century warming. Schmidt and Amman (2005) further note that recent climate reconstructions using different methodologies reach similar conclusions to Mann *et al*. This implies that the statistical challenge to Mann *et al* may have been intended to sow doubt by reinforcing notions of scientific uncertainty, with the aim of allowing governments to maintain a 'wait and see' position with regards to public policy on climate change.

The 'hockey stick' controversy is one example amongst several where the Lavoisier Group has challenged not just the science behind global warming, but also the political motivations of the IPCC. The Lavoisier Group has persistently accused the IPCC of placing greenhouse warming theories linked to fossil fuel consumption above the empirical observations of 'sound' science (see Evans 2006b, Foster 2000a, Morgan 2000, Kininmonth undated b, Baliunas 2002, Lavoisier Group undated d, Staley 2000, Walsh 2002). The accusation that the IPCC lacks scientific credibility has been used to bolster the economic and political arguments that the Lavoisier Group has mounted against Australian ratification of the Kyoto Protocol.

Similar lines of argument were a consistent editorial theme in *The Australian* since 2000, notably in the columns by Frank Devine, former editor of *The Australian*, Alan Wood, economics editor of *The Australian*, Christopher Pearson, and guest contributors such as Alan Oxley, Bob Carter and William Kininmonth. By contrast, in the editorial and opinion pages of *The Sydney Morning Herald*, skeptical views appear to be restricted to Miranda Devine and the occasional guest contributor. The position of *The Australian* could be summarised as follows: 'the science is uncertain and

inconclusive, the IPCC process is flawed and lacks credible evidence; hence, we may not have a problem. Additionally, Kyoto is fundamentally flawed, biased against Australia's interests, and unworkable. Therefore we should wait before attempting drastic and unpopular unilateral measures that would decimate our economy and standard of living, and which ultimately may be unnecessary. Should action be required, the most sensible and practical solutions involve clean coal technology and carbon geo-sequestration'.

This essentially appears to be the position of the Howard Government. The Australian Government Energy White Paper, *Securing Australia's Energy Future* (2004) appears to endorse many of the arguments put forward by the Lavoisier Group and reiterated in *The Australian*. The Energy White Paper refuses to extend or expand the Mandatory Renewable Energy Target (MRET) scheme (Australian Government 2004, p.157), endorses clean coal technology, and states that "[t]he Australian Government … remains convinced that ratification of the Kyoto Protocol is not in the national interest" (2004, p.24). And in a recent parliamentary exchange, John Howard told Kevin Rudd that "the jury is still out on the degree of connection" between emissions and climate change (Commonwealth of Australia 2007).

All this stands in stark contrast to the words of Senator Robert Hill (1997b), Australian Minister for the Environment who said that "[t]he Kyoto Protocol was a landmark agreement for the global environment" and a "win-win result that required a comparable sacrifice from Australians to that being borne by other nations." He declared that "[t]he Kyoto Protocol protects Australia's export competitiveness and employment prospects in Australia's substantial mineral processing and energy export industries", and that "[t]he agreement to establish a greenhouse gas emissions trading regime will be an essential component of this." Senator Hill (1997a) also

stated that "Australia accepts the balance of scientific evidence which suggests that human activity is accelerating the increase in the Earth's average temperature". Since the founding of the Lavoisier Group in 2000, there has been a marked shift in rhetoric from the Environment Ministers to one much more in line with arguments canvassed by the Lavoisier Group.

Conclusions and recommendations

It would appear that arguments advanced by the Lavoisier Group and paralleled in *The Australian* in particular, have been useful in allowing the Federal Government to appear prudent, rational, mainstream, and practical. Behind appeals to the 'national interest', the Federal Government has negated any effective action on reducing Australia's spiralling energy emissions and has hindered the development of Australia's fledgling renewable energy sector. This preliminary examination suggest there is merit in analysing in greater depth a range of arguments advanced by the Lavoisier Group, and continuing the research into the connections between the Lavoisier Group and the media, and the implications for the position and policies of the Federal Government on climate change.

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