

PERSPECTIVES



Democratic Challenges in Tackling Climate Change

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Whitlam

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Barry Owen Jones, AO, is one of Australia's living treasures as well as a writer, broadcaster and former Labor politician. His career has spanned education, film, politics, civil liberties, constitutional change and 'the knowledge society'.

Barry represented the federal seat of Lalor (1977-98) and in the Hawke Government became Australia's longest serving Science Minister (1983-90). He served as National President of the Australian Labor Party 1992-2000 and again 2005-06.

In 1985 he became the only Australian Minister invited to address a Summit meeting of the 'Group of Seven' northern industrial powers, in Ottawa. In 1987 he chaired OECD's review of the Yugoslavian economy. In June 1990 he was part of an international think tank invited to investigate 'perestroika' in the USSR and make recommendations to Mikhail Gorbachev. He was a member of the Executive Board of UNESCO in Paris 1991-95, Vice President, World Heritage Committee 1995-96 and a consultant for OECD. He is the only person to have been elected as a Fellow of all four Australian learned Academies: Technological Sciences and Engineering (FTSE) in 1992, the Humanities (FAHA) in 1993, Science (FAA) in 1996, and Social Sciences (FASSA) in 2003.

His books include *Macmillan Dictionary of Biography* 1981, *Sleepers Wake! Technology and the Future of Work* 1982, *Living by our Wits* 1986, *Barry Jones' Dictionary of World Biography* 1994, 1996, 1998. His autobiography, *A Thinking Reed*, was published in October 2006.

Barry currently serves on the boards of CARE Australia, the Macfarlane Burnet Institute, The Centre for Eye Research, Australia, Montsalvat Ltd and Victorian Opera and chairs Vision 2020 Australia and the Port Arthur Historic Site Management Authority. He is currently a Professorial Fellow at the University of Melbourne.

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About the Whitlam Institute



The Whitlam Institute within the University of Western Sydney at Parramatta commemorates the life and work of Gough Whitlam and pursues the causes he championed. The Institute bridges the historical legacy of Gough Whitlam's years in public life and the contemporary relevance of the Whitlam Program to public discourse

and policy. The Institute exists for all Australians who care about what matters in a fair Australia and aims to improve the quality of life for all Australians.

The Institute is custodian of the Whitlam Prime Ministerial Collection housing selected books and papers donated by Mr Whitlam and providing on-line access to papers held both at the Institute and in the National Archives.

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Foreword

"There is no more knowledgeable or popular person in Australian public life than Barry Jones."

So said Gough Whitlam when launching Barry's memoirs, *A Thinking Reed*, in Sydney on 3 October 2006.

In the Foreword to those memoirs, broadcaster Phillip Adams makes the point that Barry has yet to learn cynicism and observes that "more than anyone I know, he cannot help but tell the truth".

All those qualities and more are evident in this brief essay. Barry tackles this vast issue with a remarkable distillation of the science and scientific history of climate change; a direct and vigorous exposition of the political meanderings that risk leaving Australia without any effective response; and a powerful argument for Australian initiative. Yet underlying his essay is an optimism that it is not too late, if only we *choose* to act.

Barry's essay does a great service drawing together, as it does, not just the urgency for action but the accompanying political challenges.

We have been keen to explore this particular question since 2008 when the Whitlam Institute, in partnership with the UWS College of Health & Science, mounted a five-part public information series on Energy Security. During the course of the series there were several passing references to aspects of Australian political decision-making. These broadly lamented the inadequacy of government processes to respond in an appropriate and timely fashion to the climate challenge.

There was no opportunity at the time to do more than note that such comments may mask a much more serious issue about the mounting pressures on democratic processes and institutional capacity that would most likely accompany the demands for tackling climate change. Barry has flung open the door to that debate.

Eric Sidoti
Director
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Barry Jones

Democratic Challenges in Tackling Climate Change

The impact of climate change poses unprecedented challenges not only to the environment but to democratic practice and the pluralist values associated with western humanism.

Introduction

Climate change as a *political* issue has probably had a greater effect in Australia than any other nation.

In 2007 when Kevin Rudd campaigned on climate change as 'the greatest moral issue of our time' it was a major factor in defeating the Howard Government and sweeping the ALP into office. Rudd's Carbon Pollution Reduction Scheme (CPRS) was a flawed model, making too many expensive concessions to polluters, but Malcolm Turnbull made a heavy investment in political capital to get Coalition support for its passage through the Senate. (The Greens never liked it and voted against.) When the political fix failed, Turnbull lost the leadership to a climate change sceptic, Tony Abbott, in December 2009.

Later that month, the Copenhagen Climate Change Conference failed to secure international agreement for binding targets for Greenhouse gas reductions and was beset by controversy about the validity of projections by climatologists. Australia retreated from its aspiration to be seen as an international leader and exemplary model in setting Greenhouse goals, and Labor made the inexplicable blunder of failing to involve the community in education and advocacy, despite opinion polls indicating that more than 60 per cent of voters favoured setting a carbon price and acting decisively on climate change. When Prime Minister Rudd failed to pursue public involvement in the climate change debate and indicated in April 2010 that action on the issue would be postponed until 2013, incredulity and disillusion were immediate. The sudden fall in Rudd's approval ratings began a process which led to his brutal removal from office by his own Party in June. In the 2010 election, climate change was barely mentioned as an issue and Prime Minister Julia Gillard's proposal to establish a 'citizen's assembly' of 150 to promote public engagement in climate change issues attracted much derision.

Climate Change: HUGE problem, tiny solutions proposed

I began talking and writing about the challenge of climate change and global warming in 1984 and can safely claim to have been the first Australian politician to have addressed the issue. This claim is less audacious than it sounds. For some years I was the only competitor in the race, and on balance it probably damaged me politically.

In the United States, scientist and climatologist James Hansen of the National Aeronautics and Space Administration (NASA), had drawn President Jimmy Carter's attention to climate change (without much success) in 1979, but Carter's call for energy efficiency was used against him by Reagan in the 1980 election. In 1983 the US National Research Council published *Changing climate*, raising concerns about increased levels of greenhouse gases in the atmosphere.

Al Gore, US Senator, later Vice President and Presidential candidate (2000), began to take up the issue seriously in the late 1980s.

The science that underpins these relatively early warnings, however, goes back a century and more.

In 1824, the French mathematician Joseph Fourier had anticipated what we came to call 'the Greenhouse effect', arguing that surface heat on Earth was maintained by the atmosphere – otherwise the Earth's orbit was too remote from the Sun for a temperature which could support life.

In 1859, the Irish physicist John Tyndall identified the role of water vapour, carbon dioxide (CO₂) and methane (CH₄) as key factors in maintaining atmospheric temperature, despite their tiny proportion of the total atmosphere.

The Swedish chemist Svante Arrhenius named 'the Greenhouse effect' in 1896 and calculated the relationship between changes in CO₂ levels and atmospheric temperature with astonishing accuracy.

The prodigious American statistician Alfred James Lotka (1880-1949), in *Elements of Physical Biology* (1925), described what we now call 'anthropogenic climate change', but without using the term, a century after Fourier's work.

'Economically we are living on our capital; biologically we are changing radically the complexion of our share in the carbon cycle by throwing into the atmosphere, from coal fires and metallurgical furnaces, ten times as much carbon dioxide as in the natural process of breathing. How large a single item this represents will be realized when attention is drawn to the fact that these human agencies alone would, in the course of about five hundred years, double the amount of carbon dioxide in the entire atmosphere, if no compensating influences entered into play.'

Lotka referred to 'the present régime of "evaporating" our coal mines... into the air', but it is not clear if the coinage was his.

Industrial exploitation changed the impact of the carbon cycle, releasing in decades carbon (coal and oil) which had been laid down over millions of years, seriously disturbing the environmental balance.

Concentration of CO₂ in the atmosphere was stable at about 280 parts per million (ppm) for 10,000 years before the onset of the Industrial Revolution around 1780. It has now risen to 385 ppm, with an impact completely disproportionate to its volume. If recent trends continue the figure could reach 500 ppm before 2020, with some risk of compromising the Antarctic ice shelf. James Hansen argues that governments should aim at stabilising CO₂ at 350 ppm, while others would settle for 450 ppm.

Paul Crutzen, Nobel Laureate in Chemistry, noting how human activity contributes to climate change, argued (2000) that 'we are now entering a new geological epoch, the Anthropocene, which began around 1780'.

Each tonne of coal produces three tonnes of CO₂ on burning. At present, the consumer pays for the coal but takes no responsibility for the cost of disposing of the exponentially increased residue. As Sir Nicholas (later, Lord) Stern pointed out in his review for the British Government *The Economics of Climate Change* (2006), this is treated as a free good by the purchaser/ user, a spectacular example of market failure. The downstream impact of consumption of coal and oil, dug up from underground and put into the air, is a long term contribution to atmospheric pollution taking decades (perhaps centuries – the issue is deeply controversial) to disperse.¹

Six major factors have contributed to climate change in the life of *Homo sapiens sapiens*. Three, possibly four, are beyond human influence (BHI), but our species is very likely to have contributed to two, possibly three.

1. Milanković cycles (1942). Long term variability – because of changes in the axial tilt of Earth's orbit around the Sun in a 26,000 year cycle. Major impact on temperature. Predictable. There are several Milanković cycles, including a 100,000 year cycle on eccentricity in orbit. (BHI).²
2. Sunspots. Eleven year cycles, but since the 1960s the level of activity has plateaued. (BHI).³
3. Volcanic eruptions. Unpredictable. The eruption of Mt Pinatubo (1991), in the Philippines, reduced temperature throughout 1992 because the dispersal of particulate matter screened out heat from the sun. However, the eruption of Mt Eyjafjallajökull (2010), in Iceland, did not have a comparable effect. There is continuing controversy about the volume of CO₂ produced by volcanic activity, with the majority concluding that the human contribution is greater. (BHI).
4. El Niño Southern Oscillation (ENSO). This warm current is a major influence on drought in our region, with 2 > 7 year cycles in the Pacific Ocean. Unpredictable. It is now thought possible that human influence may have some impact, with a risk that ENSO could become permanent. (BHI?)
5. Anthropogenic (human) emissions of particulate matter, which remains in the atmosphere as aerosols, increases the albedo (reflective) effect of the atmosphere and may reduce impact of the sun's rays and cool the atmosphere. Short dispersal cycle of 5-7 years. This probably caused the (very slight) cooling in the Northern Hemisphere between 1940 and 1970, after which temperatures began rising more sharply.⁴ It was a major factor in the (sulphuric) acid-rain phenomenon.
6. Anthropogenic (human) emissions of greenhouse gases, compounded by population increase, higher rates of resource use, aviation, motor vehicles, changing land use, forest clearing, grazing, waste dumping in oceans. Greenhouse gases have a relatively long absorption/ dispersal cycle. The length of the CO₂ cycle is deeply controversial. Carbon dioxide is far more abundant in the atmosphere than methane or nitrous oxide but, at the molecular level, both have a far higher global warming potential.

Synergy develops from adding 5 or 6 to any one of the earlier numbers.

¹ Robert May emphasises the century-scale response of the natural processes that remove CO₂ from the atmosphere, while Freeman Dyson describes a 12 year time-scale that would apply for removal by using large-scale geo-engineering of vegetation.

² Milutin Milanković (1879-1958) was a Yugoslavian (Serbian) geophysicist.

³ While the direct influence of the 11-year cycle seems to be small, long-term variations in the strength of the cycle have been linked to the multi-century cooling of the Little Ice Age.

⁴ Exceptionally, Australia's temperature continued to rise 1940-70.

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988. In its fourth report (2007) the IPCC concluded that 'the post-industrial rise in greenhouse gases does not stem from natural mechanisms. In other words this is anthropogenic climate change and significant increases in greenhouse gases are the result of human activity'.

'The most potent of the greenhouse gases are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Alarming, these are a result of anthropogenic climate change, and the gases are at the highest levels for over 650,000 years'.

In 2007 the Nobel Peace Prize was shared by the IPCC and Al Gore 'for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change', a controversial award which was subject to sustained attack.

The conclusions of the IPCC, inevitably conservative (despite the fierce attacks on its methodology) because based on consensus, are not exactly new. What is unprecedented is the rate of increase in greenhouse gases and its impact on natural systems. Humans are used to living with dramatic changes in temperature. (Melbourne has a temperature range of almost 40 degrees in most years.) But nature is extremely sensitive to small aggregate changes. The biota may be extremely vulnerable to what seem trivial temperature variations (2-3 degrees C) to humans. The mean temperature increase since the last great ice age, 20,000 years ago, has only been 5 degrees C.

On global warming/ climate change there has been an unprecedented convergence of observation and theorizing in a variety of disciplines, including zoology, botany, physics, chemistry, oceanography, glaciology, polar science, geology, epidemiology, population health, and ecology.

The implications for democratic practice

Climatology and atmospheric activity are complex systems and the political process finds it hard to respond to complexity. In addition, the problem is complicated by a 'two cultures' approach, with scientists (apparently) on one side and economists on the other, without a common language or understanding.

The impact of climate change poses unprecedented challenges not only to the environment but to democratic practice and the pluralist values associated with Western humanism. Political and psychological factors paralyze the will to act to slow down global warming, leading to denial, prevarication, crude appeals by vested interest, and a growing, but unspoken, concern that the climate system

may have passed a 'tipping point' and moved into an irreversible cycle.

The Kyoto Protocol on Climate Change was negotiated in 1997, coming into force in 2005 after ratification by 140 signatories. Only four Western nations declined to ratify Kyoto – the United States, Australia, and the micro-states Lichtenstein and Monaco.

When the Rudd Labor Government was elected in November 2007 climate change was an important, vote changing issue, contributing to defeat of the Howard Government which was perceived to be cautiously sceptical on global warming. The Rudd Government's first executive act was to ratify the Kyoto Protocol, which expires in 2012. The United States, since the election of President Obama in 2008, indicated that it supports global action on climate change but has not ratified Kyoto and failed to take a commanding role at Copenhagen.

Denialists and Confusionists

There is broad scientific consensus on many issues involved in climate change/ global warming. However, there are dissidents on particular aspects of climate change theory, including the eminent scientists Richard Lindzen and Freeman Dyson. A distinction can be made between sceptics who are open to persuasion, contrarians who object on some points of detail, and denialists, who act on ideological conviction or vested interest, and may not be open to proof.

Recent successful attacks on the mainstream scientific arguments arguing for the need to take action to mitigate anthropogenic climate change have been from a group which could more accurately be described as 'confusionists', than 'deniers' or even 'sceptics'. The opponents do not analyse the evidence and advance alternate hypotheses which are themselves testable: their main goal is to promote confusion. To confusionists, persuading citizens to conclude 'I just don't understand' is a very satisfactory outcome.

Bjørn Lomborg, adjunct professor at the Copenhagen Business School, an able writer and propagandist, is probably the world's best known 'confusionist', with his best-selling books *The Sceptical Environmentalist* (2001) and *Cool It* (2007). He made a partial recantation in 2010.

Confusionist books including *Climate Caper* by Garth W Paltridge, *Air Con* by Ian Wishart and *Heaven and Earth* by Ian Plimer were given generous promotion on talk-back radio and the Murdoch papers, but were rarely reviewed by scientists. There are many confusionist blogs. Their arguments were never addressed, let alone rebutted, by the Rudd Government.

Creationism v. evolution, smoking as a cause of lung cancer, the safety of vaccination and fluoridation, whether HIV-AIDS is transmitted by virus, 'alternative medicine',

controversies about the authorship of Shakespeare's plays, the Kennedy assassinations, the survival of Elvis, even the historical truth of the Holocaust, are all examples of controversies which promote a confusionist mind-set.

Publications by climate change denialists/ sceptics mostly fall into two categories, knockabout polemic (mostly *ad hominem*) and objectors to a particular point of detail. The publications are rarely published in refereed journals which suggests sharply alternative explanations – (i) that the material is not credible, testable or evidence-based, or, (ii) that there is a conspiracy by a scientific Mafia to suppress dissent. (Denialists are strongly drawn to the second alternative).

Scientists are not immune from vanity, and some dissenters have been encouraged by being told: 'The most important scientific factor in the climate change debate happens to be your area of expertise. Everyone else has it wrong. Only you are right'.

Scientists arguing for the mainstream view have been subject to strong attack by denialists who assert that they are quasi-religious zealots who are missionaries for a green religion. In reality, it was the denialist/ confusionist position to rely on faith, the conviction that there were a diversity of complex reasons for climate change but only one could be confidently rejected: the role of human activity.

Oddly, dissidents rarely refer to observed phenomena (disappearance of Arctic ice, thinning of Greenland's glaciers, fractures at the edge of the West Antarctic ice shelf, ocean acidification, thawing of Siberian tundra, changes in bird migration, earlier flowering of plants) – and there is generally no analysis of *risk* either.

The dichotomy is essentially between observed phenomena and ideological conviction (or vested interest). Denialists also pursued a mixture of fatalism and false optimism in the scepticism about climate change mitigation, arguing that natural changes were far more significant than human factors, and that political action to reduce Greenhouse gas omissions would be politically unpalatable and unlikely to change outcomes.

Contrarians achieved a major success with the US media in the climate change debate (as they did with creationism v. evolution) in ensuring, in the interest of 'fairness', or 'balance', that for every spokesman who argued the mainstream climate change position, a denier had to be given equal time. This created the illusion that a 90/10 (or even 95/5) division of expert opinion was more like a 50/50 division, and that the question was still an open one.

The basic attack was on scientific research and scientific method and the illusion was created that scientists are corrupt, while lobbyists are pure. One of the false assertions is that scientists who take the mainstream position are rewarded, while dissenters are punished

(similar to Galileo and the Inquisition). In the past decade in the United States and Australia the contrary was true.

The proposition that human activity can affect climate is the Galileo/ Harvey/ Newton/ Darwin/ Pasteur/ Einstein insight. The denialist position is closer to the Inquisition, asserting 'it just can't be so' and that proponents are part of a 'lazy [or over-zealous?] consensus'.

Martin Rees (Lord Rees of Ludlow), former President of the Royal Society, commented:

'It is unfortunate that there is a debate about the science, and the reason that comes about is that many members of the public can't discriminate between genuine expertise and strongly held opinions that aren't based on expertise.

To give an analogy: if you suffer from some unusual disease, you may go on the internet and get all kinds of alternatives [for treatment] but you would be very foolish if you attached as much weight to all the blogs on the internet as you would to a qualified specialist on the subject.

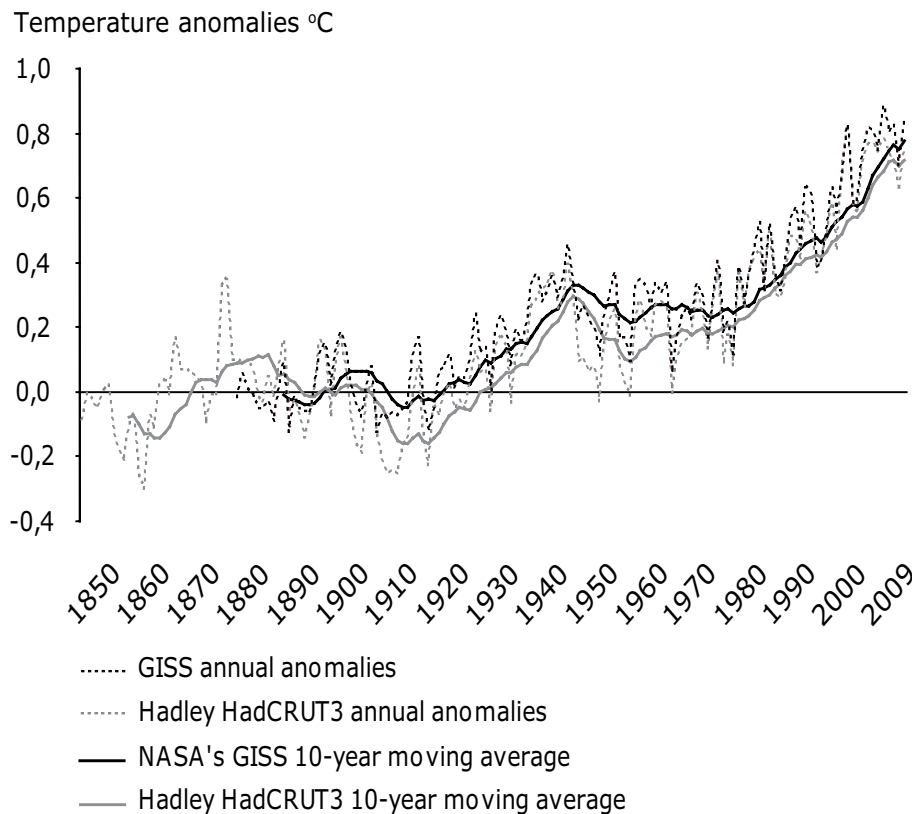
And I think that in assessing the evidence for potentially dangerous climate change, it is very important that members of the public should behave in the same way that they would if some medical issue was at stake. They should accept that not everyone's opinion is of the same value and that those who have credentials and have studied the subject do deserve to be listened to.'

One of the persistent controversies which helped to shake consensus on climate change was the assertion, endlessly repeated by radio shock-jocks and newspaper columnists suffering from Compulsive Columnist Disorder syndrome, that, contrary to what mainstream scientists assert, the world has actually been cooling since 1998.

The Hadley Climate Centre in the UK isolated the calendar year 1998 as the hottest on record for aggregate atmospheric temperature. On the other hand, the Goddard Institute of Space Studies (GISS) at NASA asserts that 2005 was even warmer, with an average global surface temperature of 14.77 degrees C, with the 1998 figure being 14.71 degrees C. A tropical El Niño contributed 0.2 degrees in 1998, but 2005 had no Niño effect.

However, the fifteen year period 1995-2009 included fourteen of the hottest years on record, the exception being 1996. The fundamental question is, 'Which factor is more significant? A spike on a chart representing a single year, or a longer trend line over a decade or more?'

5 Cited by Paola Totaro in 'Creation and Destruction', Sydney Morning Herald 20 March 2010



Source: European Environment Agency

The chart above, prepared by the European Environment Agency (EEA), includes data from the Hadley Centre.

There have been anomalous single years before. It seems that 1934 was the hottest year in the history of the continental United States, but not globally. However, even in the United States the temperature variation that put 1934 in first position (0.1 degree C) is within the margin of error. Historically, 1877 and 1878 were unusually warm years.

Both the Hadley Centre and GISS calculate 2008 to have been cooler than 2007, by margins of 0.072 and 0.13 of a degree C respectively – but the impact of a strong cooling La Niña cycle has to be taken into account.

Globally, 2007 tied with 1998 – but 2007 was a year of low El Niño activity and solar activity was in a low part of the cycle. This means that the 2007 result is far more likely to be anthropogenic.

It is confidently predicted that 2010 will be the warmest year on record.

Climategate, the IPCC and the Copenhagen debacle.

Climategate, the scandal about purloined e-mails from the Climate Research Unit (CRU) at the University of East Anglia (UEA), erupted as an issue in November 2009. 160 MB of e-mails and other data were uploaded from Tomsk,

Russia, disseminated internationally, and used to support an accusation of widespread fraud by climate scientists. The timing was significant and used to undermine the Copenhagen Climate Conference held in December 2009, and as further grounds for attacking the IPCC.

Attacks on the CRU scientists were widely reported, especially in the Murdoch papers, but their vindication, by three independent reviews (the House of Commons Science and Technology Select Committee, a Science Advisory Committee chaired by Lord Oxburgh, former CEO of Shell, and an Independent Review chaired by Sir Muir Russell) were barely mentioned. Many of the intemperate e-mails which were hacked and published to discredit the IPCC and climate scientists generally were provoked by irritation at the time required to answer detailed FOI requests. The use of FOI requests proved to be an effective blocking mechanism, diverting scientists from their primary aim of examining fresh data. The IPCC, which was trying to co-ordinate observations and research findings on an unprecedented scale, came under attack for occasional weaknesses in quality control and failure to check some conclusions, notably a brief, non peer-reviewed, report that Himalayan glaciers would contract by 80 per cent by 2035.

Apart from Copenhagen, Climategate may have had greater impact in Australia than anywhere else, contributing to the Liberal Party's policy change and Malcolm Turnbull's defeat for the leadership.

Australia had argued that there was a moral imperative to pass Climate Change legislation before Copenhagen so that we could play an international leadership role in setting targets. Copenhagen failed to deliver binding targets, an uneasy tension developed between the United States and China and developing nations resisted major changes. The Copenhagen Accord was 'noted' but not 'adopted': it encouraged unspecified action to ensure that global temperature increases be kept below 2°C. Urgency then appeared to drop out of national policy while Australia awaited international consensus on curbing Greenhouse emissions.

Economy v. Environment

With climate change and environment issues, I adopt the words of Tim Wirth, former US Congressman and Senator from Colorado, now President of the United Nations Foundation: *'The economy is a wholly owned subsidiary of the environment, and not the other way round'*.

The environment is the totality of all there is in our world – the planet itself, soil, air, water, biota and minerals. Environmental concerns cannot be regarded as mere discretionary matters to be addressed after the economy has had its whack.

Many Australian politicians, media commentators, corporations and the overwhelming bulk of lobbyists, regard 'environment' and 'economy' as competing interests – strengthen one and you weaken the other – and ethics simply did not come into it. Environment and economy are totally integrated and mutually dependent. A wrecked environment must inevitably wreck the economy.

Because of Australia's huge coal deposits and the low cost of energy, we have been conditioned to think of Australia as a raw-materials based economy.

Guy Pearse in his *High & Dry* (Viking, 2007), subtitled 'John Howard, climate change and the selling of Australia's future', described the powerful, even sinister, effectiveness of the fossil fuel lobby and its allies and its decisive influence on government policy on Greenhouse issues, and this continued even after Rudd's victory in November 2007.

The reaction of the fossil fuel and minerals lobby was essentially a cry for protection, exactly as the motor and textile manufacturers had protested in the 1980s against tariff reductions and introduction of national superannuation, with the familiar cries of woe and desolation ("We'll all be rooned", said Hanrahan) turned into an art form.

Mitch Hooke, Chief Executive of the Minerals Council of Australia, a very determined lobbyist, made such poignant appeals about how the CPRS and the proposed resource super-profits tax (RSPT) threatened the survival of mining that I sometimes felt that I should make a donation to support the industry.

For some time, large scale coal producing nations, such as Australia, put some faith in the largely untried technique of carbon capture and storage (CCS) to achieve Greenhouse gas abatement. A few small pilot projects are being developed internationally. One wishes them well. There has been a notable failure by the coal industry to make significant investment in CCS. The technique involves a process of controlled burning, capturing the effluent, compressing it, and transmitting it (whether by pipe, train or truck) to secure underground storage such as disused mines (in effect returning the coal by-product to where the coal came from). The technique will be expensive, complex, requiring a huge infrastructure investment: the necessary energy for capture, compression, transport and sequestration might require a 30 per cent increase in total coal use – that is, 130 tonnes of coal (= 390 tonnes of CO₂) would be needed for the equivalent of 100 tonnes (= 300 tonnes of CO₂) in net sequestration. CCS may well prove to be a blind alley.

The Australian political scene

Kevin Rudd used to comment that anthropogenic climate change was 'the great moral, economic and social challenge of our time'. These words came to haunt him.

Part of the problem was that the four letter 'c' word – coal – was rarely uttered by Governments, Commonwealth or State. There was a lack of candour in refusing to admit that coal, central to Australia's current exports, industry and electric supply, was the greatest single source of CO₂ emissions.

The Australia 2020 Summit in April 2008, managed as it was to the nth degree, minimised the significance of climate change. I was a delegate in the 'sustainability and climate change' working group, chaired by Senator Penny Wong, Climate Change Minister. She ruled that a 'consensus' approach to decision making would be adopted. This gave the coal lobby and its allies an effective veto. Even a harmless proposition arguing more support for renewable energy research, although supported by about 90 of the 100 members, was declared lost because a handful of dissidents objected.

I angered the Minister by suggesting that we seemed to be arguing as if we could be fatter and thinner at the same time, or that reductions in gambling, tobacco and alcohol use would not result in job losses.

The Australian Financial Review editorialised: 'The lameness of the recommendations from the climate stream was striking. If this is the best we can manage on "the gravest moral challenge" of the 21st century, we are in trouble'.

On his appointment as Minister for Climate Change and Energy Efficiency (September 2010), Greg Combet was quoted in *The Australian* (but not elsewhere) as saying

that he would not apply the adjective 'dirty' to coal, a courageous semantic choice. He may have been ironic.

Professor. Ross Garnaut was commissioned to produce *The Garnaut Climate Change Review* (CUP), published in October 2008.

The Garnaut Review raises the question of how far a single nation/ economy which happens to be a prodigious emitter should be prepared to act unilaterally ('Australian exceptionalism'), attempting to lead other nations by setting a moral example and by working towards a new economic base, less dependent on exporting raw materials.

While Professor. Garnaut described climate change as a 'diabolical' problem with profound moral implications, his recommendations for change were cautious. He thought that Australia should seek international agreement on stabilising the atmosphere at 450 ppm, but if this was not achievable, work for a goal of 550 ppm by 2020.

'If there were no comprehensive global agreement at Copenhagen, Australia, in the context of an agreement among developed countries only, should commit to a reduction in emissions entitlements by 5 per cent from 2000 levels by 2020 (25 per cent per capita) or 13 per cent from Kyoto compliance in 2008–12. This would be Australia's unconditional offer'.

Professor. Garnaut concluded his review: 'On the balance of probabilities, the failure of our generation [to solve the climate change problem] would lead to consequences that would haunt humanity until the end of time'.

This conclusion depends on political will to change outcomes. There is growing concern that there may be no change in political attitudes unless and until a catastrophe occurs.

The timing of Treasury's Paper 'Australia's Low Pollution Future: The Economics of Climate Change Mitigation' (October 2008) could not have been worse, coinciding with the global financial meltdown.

In December 2008, Prime Minister Rudd proposed that Australia would cut emissions, unconditionally, by 5 per cent of 2000 levels by 2020, but offered to make a cut of up to 15 per cent if other nations adopted stronger reductions. The 5 per cent goal for 2020 was substantial given that by 2008 Australia was emitting far above the 2000 baseline and there was projected to be significant growth in population and economic activity by 2020. Rudd said, 'Australia is today the biggest carbon polluter in the developed world on a per capita basis', but provided no figures to demonstrate. In 2006 the EU emitted 10.4 tonnes of emissions per capita each year, Australia 26.1 tonnes. If Australia cuts, it does so from a very high base. However, he went on, 'For the first time in history, we

will begin to include the cost of carbon pollution in the price of goods and services'. He said that the primary objective was 'to set in place a scheme that reduces carbon pollution and supports economic growth'. That sounds like an inherent contradiction – that Australia can reduce emissions while preserving the jobs which create the emissions, or prescribing a diet to simultaneously gain and lose weight. Polluting industries which are 'emissions-intensive and trade-exposed' – such as aluminium smelting and integrated iron and steel production – would be given 'free permits', effectively a subsidy. Free permits would be given for five years to 'the most emissions-intensive coal-fired electricity generators'. There was modest encouragement for renewable energy and three sentences mentioned energy efficiency. He set the goal of 20 per cent of Australia's electricity to be derived from renewables by 2020, but also invested faith (and money) into carbon capture and storage (CCS). There was no reference to transport or car-dependent cities in the text. There was recognition that the problem was huge but that the appropriate response was tiny, determinedly anti-Churchillian, painless, without risk, sacrifice or the need to change behaviour or patterns of consumption. This lacked conviction or psychological carrying power.

Some of the Garnaut Review's recommendations were adopted in the Government's climate change legislation, the Carbon Pollution Reduction Scheme (CPRS) Bill (2009), generally referred to as the Emissions Trading Scheme (ETS). Senator Wong conceded that the scheme was 'not a Ferrari'.

The Rudd Government was originally committed to an ETS, to be operating by 2010. This was to have been a 'cap and trade' scheme in which a 'cap' will be set for major polluters, such as electricity generators by requiring them to adopt emissions abatement schemes. The right to emit would have a value and become, itself, a tradeable good. Investment in activities which absorb atmospheric carbon, such as forestry, would lead to an entitlement to credits. Australia declined to take a leadership role in setting international targets for Greenhouse gas emissions.

CSIRO, the Academies, the Universities, even the Australian Chief Scientist (Professor. Penny Sackett), were barely used to provide expert advice and engage in public debate. CSIRO had been squeezed out in the Howard years, but was still significantly underused after 2007. That the CPRS legislation would be a mechanism aimed at changing behaviour and reducing fossil fuel dependence was never explicitly stated. There was a time when asbestos was seen as a great Australian asset – but now even James Hardie Industries Ltd would concede (reluctantly) that it is a major liability.

Decades of prevarication and obfuscation by effective lobbyists and vested interests have meant that Australia has made only minor efforts to promote renewable energy sources (other than hydro in Tasmania), even less on energy efficiency, reorganizing our cities for the post-

carbon era, and using our scientific and engineering skills to put Australia into a leadership position, rather than limiting ourselves to being a raw materials supplier for China and India.

Apart from the power of the coal lobby, some states were conflicted on any action which might compromise cheap coal for electricity or coal exports. Queensland Ministers seemed orgasmic about the prospects of Clive Palmer's Emerald coal mine and any suggestion that coal dependence should be reduced would seem to be raining on their parade. New South Wales was anxious about the future of the Hunter Valley. Victoria relied on cheap, abundant and extremely dirty brown coal for its industry and for employment in the La Trobe Valley. Nevertheless, John Brumby was prepared to take a lead in promising a 20 per cent reduction in Greenhouse emissions by 2020, and strongly promoted alternative technologies, especially wind and solar. Unusually, he had the support of the Opposition. Tasmania retained its reliance on hydroelectricity.

The Australian Government failed to take on an advocacy role and initiate a forum for community information, involvement and discussion. When confusionists were out in force (Ian Plimer, the 3rd Viscount Monckton of Brenchley, Bob Carter etc), the Government response was Trappist-like. Credible advocates for mainstream science who visited Australia, notably Robert May, Martin Rees and James Hansen, received far less coverage than might have been expected and were virtually ignored by Government.

Australian scientists, including Tony McMichael, Tim Flannery, David Karoly, Graeme Pearman, Barrie Pittock, Steve Rintoul, Ian Enting and Ian Lowe, were grossly under-employed in any advocacy roles.

There was no attempt to produce a document similar to the Royal Society's *Climate Change Controversies: a simple guide*.

A short publication *The Science of Climate Change: Questions and Answers* was produced by the Australian Academy of Science, Canberra (August 2010) and would have been very useful a year or two earlier. Volunteers who wanted to assist with planning a public information campaign were (politely) told that their services were not required.

Confusionists won by default because there was 'no show' by the Government.

'Top down' or 'bottom up'?

With the contentious CPRS legislation, Prime Minister Rudd concentrated – mistakenly, as it turned out – on a 'top down' political solution, 'Plan A', winning support from the Opposition and while Malcolm Turnbull was Opposition Leader, the tactic seemed to be plausible. Negotiations with Malcolm Turnbull actually made the ETS

package worse, with expensive subsidies for high polluting industries and the exclusion of agriculture.

However, once the Coalition fractured on climate change and Turnbull lost his leadership to the sceptical Tony Abbott (who had dismissed the arguments for global warming as 'crap') in December 2009, Plan A became irrelevant.

The ETS was voted down by Senate, rejected both by the Coalition (too green), the Greens (not green enough), Nick Xenophon (preferred an 'intensity based' ETS, not 'cap and trade') and Steve Fielding (didn't understand).

Once Tony Abbott was Opposition Leader, the climate change issue had to be confronted – by calling a double dissolution election on the ETS, or by abandoning it. The Government chose the second option.

Falling off in the priority given to climate change as an issue was profoundly disillusioning to many Labor voters, but following negative reactions from focus groups in Sydney's Western suburbs, fearful of projected rises in electricity bills, the Rudd Government lost its nerve.

By the time Plan A failed, it was too late in the electoral cycle to attempt Plan B, launching a major information campaign to encourage community involvement on a subject on which opinion polls indicated there was strong support. A variant of Plan B would have involved serious discussion with the Australian Greens in the Senate to amend the legislation acceptably, coupled with a major public information campaign.

The CPRS would have been hard to sell in detail, and no attempt was made. I asked several serving Labor MPs if they could explain the legislation and identify its three strongest points but all declined, with some embarrassment.

But Abbott directly addressed voters. Where the Government retreated to silence about a complex, badly designed and woefully explained scheme in an area which was contested and poorly understood, Abbott offered a six word response ('A great big tax on everything'), directed at voter fears, and it was highly successful. At least it was twice as long as the Coalition's response to Knowledge Nation ('spaghetti and meatballs') in 2001.

In Australian political history, it has been common practice to adopt major policy changes by a 'top down' process, essentially by cross-party support within the Parliament, without serious involvement ('bottom up') with the community generally. This important phenomenon has rarely been noted, let alone discussed. Among the outstanding examples of the 'top down' approach have been adoption of the massive post World War II immigration program (run by Arthur Calwell, with Ben Chifley's strong support), abolition of the White Australia Policy (with major contributions by Harold Holt and Gough

Whitlam), and becoming part of the global economy, reducing tariffs, floating the dollar and allowing foreign banks to operate in Australia (Hawke as Prime Minister, supported by Keating as Treasurer). None of the three was raised as an election issue to seek a voters' mandate.

Sometimes the 'bottom up' process, despite – or perhaps because of – its inclusiveness can lead to uncomfortable outcomes.

A Referendum to give the Commonwealth power to legislate on aviation was defeated in 1937 and has not been proposed since. (It became unnecessary after the High Court allowed the Government to make use of its external affairs power.)

Referenda to amend the Constitution to provide that simultaneous elections for the House of Representatives and half the Senate be held on the same day (our almost invariable practice for a century) have been rejected by voters four times (1974; 1977; 1984; 1988).

In 1988 a Referendum to entrench trial by jury for indictable offences and provide for freedom of religion was overwhelmingly defeated, almost 70 per cent voting 'No'. (In this context, defeat of the 1999 Referendum to make Australia a Republic was surprisingly narrow.)

John Howard, with extraordinary persistence, succeeded in getting a Goods and Services Tax (GST) adopted, over strong opposition from the ALP and community groups, by fighting the 1998 election on the issue after having, in 1996, promised that he would 'never, ever' try to introduce a GST. He lost many seats in 1998 but won enough support to enact the legislation. But this example is relatively uncommon.

The history of Australian Referenda is a factor that makes Australian Governments extremely wary about a 'bottom up' approach to major economic or social changes. Normally, Governments take the plunge and hope that at the next election the changes will be (retrospectively) endorsed. They generally are. While reading about the results of Referenda may be depressing (the overwhelming victory for 'Yes' in 1967, bringing Aboriginal affairs into the Constitution, being a striking exception) – generally governments are rewarded, not punished, if they act courageously.

What is to be done?

Paradoxically, the May 2010 Neilsen Poll indicated 58 per cent support for an ETS even after the Prime Minister had read the last rites for the CPRS legislation. David Marr, in *The Sydney Morning Herald*, tried to respond optimistically to the Prime Minister's announcement, concluding that the CPRS Bill was 'a dog' (rather harsh on the animal) and that after a decent interval a new, much improved, Bill could be presented.

That climate change should fall in community priorities became a self-fulfilling prophecy. How could it be otherwise when the Government went silent on the issue: refused to lead, refused to explain, refused to inform?

Typically, many 'true believers' joined the Labor Party because of their emotional and intellectual involvement in a major issue, of which opposition to the Vietnam War, capital punishment and the Franklin dams case were outstanding examples. The issues were seen as minority concerns. Now people often join the party as a means to securing political employment. I struggled to imagine a situation where somebody could say, 'When Labor failed to take action on climate change and a Bill of Rights, and took a harsh line on refugees, I thought "that's the Party for me"'.

Prime Minister Rudd's abandonment of his climate change objectives led to a strong rebuke by a Chinese Government spokesman who argued that Australia's withdrawal would make it significantly harder to secure international agreement on reducing carbon emissions. *The Sydney Morning Herald* reported (May 7, 2010), 'The decision to postpone the ETS until 2013 at the earliest was driven by some in the ALP, including in the NSW Right, who had become worried by focus groups that suggested public opinion was cooling on climate change'.

Focus groups are deplorable sources of policy advice, with their inevitable emphasis on the comfortable and familiar, and exaggerated responses to fear and uncertainty, the lowest common denominator, comparable to talk-back radio.

The Labor Government's handling of climate change was abysmal, although debacles on the Bill of Rights, the handling of the proposed Resources Super profit Tax on mining and the re-allocation of the water in the Murray-darling system ran it close, for identical reasons.

That climate change could be dropped as an issue so easily led to immediate bewilderment, but, in retrospect, it was easy to explain the change in direction.

Australia's approach was inevitably based on an inherent contradiction. Our economic strength, which enabled Australia, alone of all advanced economies, to avoid recession in the global financial crisis (GFC) of 2008-09, was largely based on exploiting the minerals boom and encouraging the export of fossil fuels. But we also had strong central banking and appropriate levels of regulation and non-mining states such as Victoria maintained high levels of activity and employment.

Our environmental policy, such as it was, aimed to discourage the use of fossil fuels by a not very convincing 'cap and trade' scheme.

Could the two policies be reconciled? It was hard to see how.

No attempt was made to persuade people (or industry) to change behaviour or the patterns of consumption, or to cut down on fossil fuel addiction. The level of public debate was abysmal. Nevertheless, community response on climate change as a national issue is, and remains, high and community feeling was well ahead of political professionals.

The difficulty of changing behaviour and consumption patterns is the theme of Ian McEwan's novel *Solar* (2010). A deeply unattractive English Nobel Laureate in Physics, Norman Beard, finds himself in a significant, but undeserved, role in developing new energy sources through photosynthesis as an alternative to burning fossil fuels.

Solar is a powerful metaphor of the failure of political will in addressing climate change. The book has many shrewd observations, but three stand out.

Beard understands the issues involved in climate change and the risks of global warming, but habit and appetite destroy his effectiveness, and his patterns of consumption become increasingly degrading, to the environment generally, but particularly to himself.

Beard's mistress, Melissa, comments that she spends little time thinking about climate change because 'to take the matter seriously would be to think about it all the time... Daily life would not permit it.'

The lobbyists against effective action on climate change assume that since they habitually tell half truths, exaggerate wildly, advance the cause of vested interests and engage in character assassination, that climate scientists must act in the same way.

In an ideal world, political leaders would need to make a fundamental choice: should priority be given to restoring an unsustainable economic model which has clearly broken down, an approach urged by existing industries and their workforces? Or should priority be given to creating new, sustainable, non-polluting approaches to transport, energy generation, energy efficiency? It is essentially a choice between preserving the old, essentially heritage, industries, or creating new ones.

The world faced the challenge of a new Industrial Revolution, as significant as the Information and Communications Revolution predicted in the 1980s, and which would be based on skills, new technology and energy efficiency. Would we be up to it? The early signs were not promising.

Australia had the technological capacity to be a world leader in alternative or renewable energy development but refused to take up the opportunity. Dr Shi Zhengrong, holder of Chinese and Australian citizenship, PhD from the University of New South Wales, estimated in *BRW*'s Rich 200 List to be worth \$US 2.9 billion, returned to China in

2001 to develop his company Suntech Power because of low levels of Australian enthusiasm.

Climate change was barely mentioned by Labor and the Coalition in the campaign for the August 2010 election, but it was central in reducing Labor's primary vote to 38.0 per cent, increasing the Greens vote to 11.7 per cent, and may have contributed to the high informal vote. (Other major areas barely mentioned in the campaign included Foreign Affairs, Defence, Universities, Science and Research, Aborigines, the Environment, Water. Strikingly, Universities and Research were not to be found in the original list of Ministerial arrangements for the Gillard Government).

The proposed Resources Profits Super Tax on mining was deeply controversial and miners funded an expensive advertising campaign against the ALP.

Labor's vote fell sharply in the mining states of Queensland and Western Australia, increased in Victoria, South Australia and Tasmania, and the ALP maintained a majority of seats in New South Wales despite growing distaste for the State government.

Australia refuses to face a 'post carbon' future. The moral implications have been marginalized. Elizabeth Farrelly's coinages 'climate morality' and 'carbon ethics' are timely and appropriate but they are not in the political lexicon.

After the 2010 election produced a hung Parliament, Prime Minister Gillard negotiated a deal with the Greens and Independents which put climate change back on the agenda.

Greg Combet, the new Minister for Climate Change, began talking about energy efficiency, a term which had rarely dropped from his predecessor's lips.

The European Union adopted high targets for Greenhouse gas reductions and these were easier to achieve because of stable population, heavy reliance on nuclear power and compact cities which were less car dependent.

The concept of Australia 'going it alone' to set a moral example and secure a stronger bargaining position in international negotiations had become a very sour joke. We were trailing along far behind. Despite Obama's problems with his Senate, he grasped the issues and some States, notably California, had taken leadership roles. China, potentially facing the greatest risk from climate change of any major state, seemed to be taking practical action.

Britain and New Zealand have both adopted carbon prices. In Australia the Opposition is strongly opposed to setting a carbon price and the Gillard Government is hesitant.

However Marius Kloppers, Chief Executive of BHP-Billiton, has called for setting of a carbon price, looking for long term certainty to underpin business strategy and investment.

It is probably too late for Australia to act unilaterally- and courageously- on Greenhouse targets. We may be able to regain some moral authority if we propose higher targets, developing new scientific programs for alternatives to fossil fuels and work constructively with the United States, the EU, China, India and Indonesia.

In October 2010 Prime Minister Gillard established a Multi-Party Climate Change Committee which she chaired, and with representation from Labor, the Greens and several independents. The Opposition declined to take part, although Malcolm Turnbull and Greg Hunt could have played a valuable role. Terms of reference were narrow, taking the human contribution to global warming as a given, but emphasising two elements, investigating options for a implementing a carbon price (providing the certainty that much heavy industry was seeking) and working on strategies to build community understanding and support for action. The proposed Citizens' Assembly was quietly, and mercifully, put to sleep.

I have proposed my own variant of 'Pascal's wager' to examine the options for climate change:

- If we take action on climate change and disaster is averted, there will be massive avoidance of human suffering.
- If we take action and the climate change problem abates for other reasons little is lost and we benefit from a cleaner environment.
- If we fail to act and disaster results then massive suffering will have been aggravated by stupidity.
- If we do not take action and there is no disaster, the outcome will be due to luck alone, like an idiot winning the lottery⁶.

Failure to act appears to favour the present but it certainly prejudices the future. Political leaders found it hard to recognise a new paradigm. As the French diplomat Talleyrand acutely observed 200 years ago, 'Not to choose is to choose'.

SUMMARY

The impact of climate change poses unprecedented challenges not only to the environment but to democratic practice and the pluralist values associated with western humanism.

Political failure on climate change in Australia has had three direct consequences: inaction on the issue; political mayhem; and the sacrifice of international influence.

Crisis driven policy is a consequence of inaction which in turn heightens risk *both* of environmental disaster and political upheaval.

Public involvement in climate change debate is critical and must be genuine. However, there are limits to consensus and ultimately decisions will need to be made based on what needs to be done possibly in the face of opposition. Leadership matters and political will is required if outcomes are to be changed. The electorate appears to want, or is at least prepared to tolerate, action such that sound decisions even if tough will come to be accepted.

Policy and the debate that surrounds policy development needs to be informed and critical: opinion must be distinguished from fact; argument must be supported; and not all opinions carry equal weight in the absence of such support.

A solution will need to be found to the 'two cultures' approach that separates scientists and economists: the environment and the economy are interdependent.

Ultimately Australia can and should choose to set a moral example and work towards a new economic base. Moreover, as the new version of Pascal's wager suggests, action is the low risk road with the prospect of highest reward. It is in the national interest to do so.

⁶ 'Pascal's wager' was first proposed by the 17th Century French philosopher Blaise Pascal in considering the existence of God and is found in his *Pensées* (Penguin).

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