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Climate Action Now

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Before the 2022 Federal election, people were intrigued about the ‘climate action now’ signs popping up all over the place. No doubt different people interpreted the ‘climate action now’ concept in many different ways.

My aim with this address is to canvass some history illuminating how Australia has gone from acceptance of the need for action, decades of fruitless debate and now pallid action on the issues over the last 35 years or so. I have been directly involved in climate change issues since the 1987 CSIRO-sponsored conference on the implications of the changing atmosphere (Pearman, 1988). Now I am directly involved again, with the Royal Society’s work on whether Queensland’s planning arrangements are fit for purpose for coping with climate change, and as a member of the Steering Committee for ETHOS, the Griffith University program aimed at helping protect against health problems from heatwaves.

My other aim is to contribute to where to go from here so that we continue to increase our understanding of the science, learn to live with the changes already under way and increase our resilience to future changes. I emphasise rural issues, as rural decline has been much discussed in recent years and there is an obvious link with climate change issues.

What Is Climate Action?

I am assuming that climate action is usually shorthand for one or more of the following: limiting the continuing changes in the atmosphere and oceans seen since the advent of the industrial revolution; mitigating their impacts; and adapting to their consequences. These changes have been driven by human activities, primarily fossil fuel use but also others such as agriculture and the use of artificial chemicals. The changes contribute to global warming, climate change, extreme natural events,

marine ecosystem change, sea level rise potential, new or enhanced pollution effects, and changes in the stratospheric ozone layer with land-based consequences. The Australian Academy of Science has provided a good guide to climate change science (Australian Academy of Science, 2015).

Three big issues still involve uncertainty and many opinions:

- the science describing the phenomenon;
- whether and how we should seek to contain the changes; and
- how to adapt to the changes going on around us, which will continue well into the future.

Global changes are commonly conflated into ‘climate change’, thus obscuring the range and reach of other continuing global changes. Whatever is done must also contribute to dealing with, or at least not exacerbating, these other continuing global changes that have human influences as well as some natural causes. These other global change issues are:

- *Changing patterns of biodiversity and balance of life forms*: The continuing increase in the proportion of humans and their domesticated plants and animals compared with other life forms, and in their demands on the earth system leading to resource depletion, accelerated species extinction, loss of biodiversity and habitat, spread of pest plants and animals and pathogens, and a contribution to changing compositions of the atmosphere and the oceans. Some of these changes are irreversible.
- *Changes to landforms and hydrology*: There are changes to land use, land cover and hydrology (including in tidal areas and on the seabed) arising from human settlements, agriculture, mining and transport. These changes include sinking coastal cities.

- *Pollution*: Widespread pollution is causing toxification of ecosystems. Many daily human activities generate waste and pollution, in particular industrial and transport practices, and the use of fossil fuels, toxic substances and fertilisers. The effects are exacerbated where the processes are inefficient, where the ecosystems are fragile, or where air, water, people and their vehicles and animals carry the problem, often for long distances.

The changes from pollution and from biodiversity losses and changes will have a greater impact sooner than from global warming in many situations in Australia (Sheppard & Glanznig, 2012).

Some Personal Reflections on the History

There is still an audience in Australia for those who deny the science, even though probably no other topic and all its associated issues have been as keenly researched so meticulously by so many people. There are those who say the Intergovernmental Panel on Climate Change (IPCC) is political (using the term pejoratively), thereby providing a flimsy prop for dismissing its publications. I was a member of the first IPCC and responsible, with others, for marshalling the Australian contribution on the science, and, with Netherlands and New Zealand collaborators, for developing a major input on impacts and responses for coastal zones and small island States. I was the lead Australian delegate to the first plenary of IPCC Working Group III on Response Strategies, in Geneva in 1990, effectively representing the island countries in the Pacific Ocean as well as Australia. The claim by denialists that we were pursuing a political agenda rather than assembling information and seeking solutions to wicked problems would be amusing for anyone who saw us at work. John Zillman, the former Director of the Australian Bureau of Meteorology, concluded in his account of Australia's IPCC involvement that our influence was strongest in ensuring that conclusions were "based firmly on the peer-reviewed science ... and, as far as possible, kept free from non-scientific bias based on the political or policy interests of IPCC member governments or other stakeholders" (Zillman, 2008, p. 40).

The IPCC provided authoritative assessments of the state of knowledge about climate change issues. Naturally, countries continued to base their responses on their perceptions of their national interests.

Progress was not easy. The Chair of the 1990 IPCC plenary in Geneva gave me the interesting task of mediating between the Japanese and Saudi Arabian delegations with their irreconcilable differences – Japan (a net energy importer) wanted strong action while Saudi Arabia (a net energy exporter) wanted none of it. I was helped by an experienced colleague from the United States. Unsurprisingly, we went home at dawn with the irreconcilable differences in place. This was early notice that the net energy-exporting countries would probably try to frustrate international action on fossil fuels or have difficulty with wholehearted implementation.

In the early 1990s, Australia, Canada, Norway and Russia were among the few net energy-exporting countries apart from OPEC members. Now only Russia and Saudi Arabia export more fossil fuel energy than Australia does (reactions to the invasion of Ukraine may be reducing Russian exports) (Centre for Research on Energy and Clean Air, 2023; Enerdata, 2023). We must assume that our energy-exporting status will always be considered in government decision making.

The Commonwealth Cabinet debate in April 1989 about how to respond to global warming was lively. The Cabinet discussions were the longest recorded at that time (along with the Cabinet discussions in the same era about Tasmanian forestry – I was a co-author of both submissions, so perhaps it was my fault!).

The Australian Position Over Time – Slipping and Sliding

Australians were regarded as the most informed people in the world about the climate change issues in the early 1990s (Taylor, 2014). Maria Taylor in *Global Warming and Climate Change: What Australia Knew and Buried* has written an excellent description of how, from about 1995 onwards, the Australian narrative changed to one of uncertainty and doubt driven by mining and related vested interests and the Howard government. Australia, under the Abbott and Morrison governments, and

Saudi Arabia and a few other countries were aping King Canute's courtiers – he had to take them to the beach to demonstrate that he could not ignore or control natural phenomena.

In the early days, Australia was one of the leading lights scientifically and in international deliberations about what to do (Zillman, 2008). Only the United States had greater input into the establishment and early operations of the IPCC. Australia was one of the 15 countries invited to President Bush's *The White House Conference on Science and Economics Research Related to Climate Change* in 1990 (Bush, 1990a). I was involved in the establishment of the Asia-Pacific Network for Global Change Research, one outcome of *The Whitehouse Conference* (Bush, 1990b), and was a Special Adviser to the Network for a few years. The Network has prospered, but with declining Australian inputs.

The Abbott and Morrison governments reduced us to international pariahs – Australia was not invited to contribute to the 2020 Climate Ambition Summit sponsored by Britain, France and the United Nations. Seventy world leaders did contribute. These past governments dragged us from first in the world to not even in the room. They consciously trashed our higher education system, reduced CSIRO to more a consultancy than research body, degraded, misused and demoralised the Commonwealth public service, and refused to develop and fund key environmental, economic transition and adaptation programs, all the while maintaining huge subsidies to the fossil fuel industries (Campbell et al., 2021) and stalling action on developing effective future strategies for a less energy-intensive economy supported by cleaner, greener energy sources. Those governments put us at risk of paying taxes on carbon exports to other countries, a process already under way in Europe. In 2009, Tony Abbott pointed out in a Sky News interview that a simple tax would be a way to put a price on carbon. Ironically, our carbon products may end up with a simple tax imposed on them, but for the benefit of foreign rather than Australian taxpayers. There is still no end to attempts by the conservative political parties to stall effective action. For example, Bridget McKenzie, Leader of the National Party in the Senate, has been reported (on ABC News on 19 August 2022) as describing the adoption of fuel standards like those in Europe,

the United States and Japan as a tax on families, even though they would reduce transport emissions, save motorists money, increase the availability of electric vehicles and reduce Australia's reliance on imported oil (Quicke, 2022).

Unfortunately, denialism and confusion continue to be spread by people who should know better. The current Minister for Resources, Madeleine King, was quoted in *The Australian* as saying "Absolutely, 100 percent, I support the coal industry ..." (Brown, 2022), and she has also said that the government is committed to taking meaningful action on climate change (Opray, 2021). At some point she will have to get off the barbed wire fence – it doesn't work and it is not very comfortable – and commit one way or the other. She and the government have stayed firmly astride that barbed wire fence with the announcement of the release of large offshore areas for oil and gas exploration (King, 2022).

There are, however, glimmers of hope for progress. The Climate Council, an independent, evidence-based organisation on climate science, impacts and solutions, has said that the Greens' policies match the scale and pace of action the climate science demands (Climate Council, 2022) and that the Australian Labor Party's policies are acceptable but do not go far enough (Climate Council, 2021). Analysts usually conclude that not acting on global change issues can lead to higher costs and greater community disruption than acting swiftly on mitigation and adaptation (World Health Organization, 2023). We already knew this in Australia from examples like weed problems (Rossitor-Rachor, 2023), which climate change is likely to exacerbate (Invasive Species Council, 2009).

Australia is still among the highest per-capita emitters in the world, exceeded only by Oman, Bahrain, Kuwait, United Arab Emirates, Mongolia, and Trinidad and Tobago in 2021 (Our World Data, 2021). Our electricity is still 77% from fossil fuels (2020) (Department of Industry, Science, Energy and Resources, 2021), with little change over the last 60 years (Green Energy Markets, 2011), although evidently declining now (Department of Industry, Science, Energy and Resources, 2022). This decline should continue as coal-fired power stations are being abandoned by their owners; however, any move to revive coal power stations

or gas-fired power stations will increase our fossil fuel emissions again.

Our emissions from stationary energy, transport, fugitive emissions and industrial processes have continued to increase since 2005, the baseline year for the Paris Agreement emissions reduction target. State government decisions on land clearing and forestry account for almost all of the 24% reduction in emissions since 2005. The decrease from all other sources is less than 3% (Evershed et al., 2023).

Resting on Australia's small contribution to worldwide greenhouse gas emissions is another problem. Our fossil fuel exports contribute to emissions overseas, so our contribution is not as tiny as many want us to believe. Continuing to contribute to global warming anywhere will affect the whole world, including Australia.

Emissions from agriculture in Australia have declined since 2005. Although the dominant cause of climate change is the burning of fossil fuels, there have been claims that relatively meat-free diets are important because of the methane produced by herbivores such as cattle. Livestock do not add net CO₂ directly to the atmosphere; they are just part of the continuing carbon cycle involving the sun, water, plants and animals. Cattle were domesticated about 10,500 years ago (Vigne, 2011), so they cannot be blamed for a problem arising less than 200 years ago. In any event, there are already carbon-neutral livestock farming operations in Australia and overseas (Doran-Browne et al., 2016; Thorbecke & Dettling, 2019; Jones, 2010).

Agriculture is not to be confused with overall food production and consumption. Historically in Australia, 89% of energy used in the food system has been post farmgate (Gifford & Millington, 1975), so the best place to start reducing the impact of food production on climate change will be increased efficiency post farmgate.

It seems that we have not been learning from dramatic pre-industrial climatic shifts. The last time carbon dioxide levels in the atmosphere were the same as now was about three to five million years ago (the Pliocene Epoch), when temperatures became about four degrees hotter and sea levels 10 to 20 metres higher than now (Amos, 2019; Little, 2019). From Haywood (in Little, 2019, p. 2):

After studying the Pliocene for 21 years, and all

things being equal in the decades ahead, I will experience first hand a climate state that has not existed for more than 3 million years. (Haywood in Little, 2019, p. 2)

Climate Change Impacts for Australia

There are increasingly significant impacts of climate change in Australia (Cresswell et al., 2021). Some argue that we cannot link any particular event to climate change. A warmer atmosphere, however, has more energy; it will be expressed, and there is more water in a warmer atmosphere, which means increased total rainfall. Global warming has increased the risk of more extreme weather events and made many extreme events more intense, longer lasting or larger in scale than they would have been without it (Herring, 2020). The relevance of the oceans to weather in Australia is important (Wijeratne et al., 2018), thus emphasising the significance of the global warming that affects the oceans. Changes in ocean temperatures and currents will affect climates and weather everywhere.

We know, from precisely measured and recorded tests, that there are already climate changes affecting rural Australia. For example, at a practical level, wine grape harvesting in Australia and other countries has been earlier each year for at least 20 years (Ochs, 2015). I watched this happening when I lived among the vineyards in the Canberra district. More generally, there is an expectation of continuing negative impacts for food production and supply chains (Hughes et al., 2015; Malik, 2022).

The Australian rangelands are an important example, as they may be particularly vulnerable. They are already subject to strong natural variations in climate and to other natural forces such as floods, fires, dust storms, and the depredation and spread of pest plants, animals, diseases and pathogens.

Pastoral industries and the communities they support predominate in our rangelands. They are totally dependent on the environment. Short- or long-term environmental changes can have dramatic impacts for them. They would benefit from environmentally aware political leadership.

However, despite the significance of the environmental issues for the rangelands and the need for strong political commitment, leadership and action, in the 2022 Federal election in rangelands

electorates, 49% of Lingiari voters (Northern Territory), 56% of O'Connor voters (Western Australia), 57% of Durack voters (Western Australia), 59% of Grey voters (South Australia), 68% of Parkes voters (New South Wales) and 75% of Maranoa voters (Queensland) gave their first preferences to candidates who arguably have failed them or are science deniers who have sold out to fossil fuel interests, and who have preferred, supported or not objected to decisions that were unfair, divisive and that increased inequality.

Strong national political leadership is essential. My direct experience has been with the Commonwealth Government, beginning with Menzies. Since then, Whitlam and Hawke have been the only Prime Ministers committed to environmental improvement (it is too soon to judge Albanese's level of commitment).

The Task Before Us – Slowing Climate Change

There is a big job ahead of us to convince everybody that the science is sound, noting that continuing research is needed for both weather (what happens now) and climate (weather patterns over time), for the impacts of the changes, and for adaptation systems and practices.

The highest priorities for climate change avoidance are the same as they were in the early 1990s, i.e.:

- ceasing the extraction and usage of fossil fuels – they should be immediately, but realistically, phased out on an accelerating trajectory;
- electrifying everything (see Saul Griffith's *The Big Switch: Australia's electric future*);
- stopping, or at least severely limiting, land clearing, whether for urban, infrastructure or farming purposes;
- increasing afforestation, including in towns and cities, and on public lands such as transport corridors; and
- increasing soil carbon.

We can all continue to urge governments, businesses and individuals to continue seeking increased energy efficiency and less energy-intensive business and personal activities.

No one says the necessary transformations can

be achieved overnight, but we would be well down the track if we had started when our governments first recognised the need more than 40 years ago.

The Task Before Us – Adaptation

Adaptation was under notice back in the 1990s, although the emphasis then was on the immediate need to understand and deal with greenhouse gas emissions. John Zillman, as head of the Bureau of Meteorology, introduced the idea of a National Climate Program, but it did not get the attention it deserved as we dealt with the more immediate climate change issues (Zillman, 2008, p. 27) – a bit like drought responses, where solutions that simply restore the pre-drought situation are still pursued. As a result, the cycle is repeated endlessly rather than governments implementing long-lasting coping, adaptation and resilience strategies. Many people have advocated action on a climate strategy and broader approaches to drought problems, but we must continue to try to get these ideas on political agendas.

The need for attention to adaptation of agriculture to climate change was canvassed substantially at a CSIRO-organised conference in 1987, including by people like Mark Howden and Graeme Hammer who have been contributing to agriculture and climate change issues ever since. Indeed, many of the contributors to the 1987 conference have continued working actively on climate change issues.

Rural communities have often had to cope with changes driven by outside forces. Adaptation on a voluntary or involuntary basis has been common in many places in rural Australia with the constantly changing situations over the years. Where I grew up in southern Queensland, hundreds of people have had to find new ways to make a living and find new lifestyles because of changes over the last 50 years or so.

To illustrate: there were dairy farms everywhere, as well as maize and peanut cropping, pigs, fruit and vegetable production, and timber. Now there are only one or two dairy farms, few crops, no sawmills or timber industry, a closed meatworks and a closed *Duboisia* cultivation industry. The cheese factory is gone. The dairy farms went the way of the thousands of others in Queensland. The sawmills and the timber industry disappeared because of exhaustion of supply. The meatworks, once one of the ten biggest

export businesses in Queensland, closed because of decisions by New South Wales beef industry interests. The cheese factory closed because of decisions by Melbourne business interests. The local *Duboisia* cultivation industry wound down because of decisions in Germany and India. Now beef production, wine and tourism are major local industries. These are big changes that have been successfully absorbed by the local communities. There will no doubt continue to be changes driven by outside forces, including climate change which may have severe impacts on the wine industry.

Now from the local to the general: the number of dairy farms in Queensland has declined from 3052 in 1980 to 327 in 2020 (Long, 2022), with more closing since then. This decline has been caused by deregulation in 2000, worsening terms of trade, closing of dairy co-operatives (based on appallingly bad advice from experts), and the concentrated control of food and grocery sales in Australia. This dramatic change over only 40 years has had enormous social, economic and financial negative impacts, as well as reducing the resources available for sustainable land management.

One likely climate change outcome will be the continued, more or less unchecked spread of lantana, one of Queensland's worst weeds, and of other weeds. Germaine Greer describes in her book *White Beech* how hard it is to rehabilitate old dairy farm country taken over by weeds. Don Watson describes similar environmental, social and economic transformations over many years in many parts of Australia in *The Bush*.

There is no shortage of well-developed ideas about what needs to be done.

Sher and Sher's report to the Commonwealth Government in 1994, *Beyond the Conventional Wisdom: Rural Development as If Australia's Rural People and Communities Really Mattered* (Sher & Sher, 1994), advocated a community-centred (priority for the wellbeing of communities) rather than industry-driven basis (supporting particular rural industries) for rural development. The 2002 Australian Greenhouse Office issues paper, *Developing a Strategic Framework for Greenhouse and Agriculture*, covered adaptation needs, including incidentally the need for more agroforestry. The key messages in a 2010 CSIRO study, *Adapting Agriculture to Climate Change*, were about

generating better understanding of issues, recognising differences across the country, and seeking flexible and 'win-win' solutions. The CSIRO study emphasised the need for an effective system for monitoring climate change impacts and human adaptive responses, so that policy and management can develop ahead of the game.

Additionally, there are *Australian rangeland futures: time now for systemic responses to interconnected challenges* by Barney Foran and his colleagues in 2019 (Foran et al., 2019), with Barney's update in 2021 (Foran, 2021), and the rangelands work by The Royal Society of Queensland (Sattler, 2020).

The Commonwealth Government released a *National Climate and Resilience and Adaptation Strategy* in 2021 (a successor to the first *Strategy* in 2015). This is weak on practical action and full of fanciful claims of action that are entirely inconsistent with the history.

There are examples of local communities initiating action about their future, with help from advisers like the Rural Economies Centre of Excellence in Toowoomba, which has helped with establishment of the Red Earth Community Foundation in the Burnett area. The Bega Valley Circular Economy Initiative is another example. These two are linked because of the involvement of Bega Cheese in both.

What We Lack

There is no immutable law dictating rural decline or exploitation. So, what is holding us back? There are at least three things that must inevitably be faced as the world changes around us. One is a national decision or choice about how to marshal and deploy resources to generate economically secure and socially vibrant rural communities while protecting and restoring the natural environment.

The second is a new sense of how to relate to our natural systems. Not surprisingly, I commend the outcome of the Australian Royal Societies' work on a new stewardship approach based on Indigenous approaches developed over thousands of years. The Australian Royal Societies advocate adoption of a custodial and obligation ethic involving a sense of Country that encompasses all the knowledge, cultural norms, values, stories and resources within a particular area to contribute to overall health and

wellbeing for people and their environment, and to guarantee wellbeing for future generations (Quinn, 2021).

Collaborative and cooperative relationships to support custodianship are necessary for success. The effort led by CSIRO's Rocio Ponce Reyes in the northern brigalow belt is an excellent example – *Priority Threat Management for Imperilled Species of the Queensland Brigalow Belt* (Ponce Reyes et al., 2012). Different interests worked together to develop common visions, understand each other's perspectives, and agree on cost-effective action that all could accept.

The third is government arrangements that support regional and rural development as a whole. Jonathan Sher rightly pointed out in his keynote address to the International Conference held by the Rural Education Research and Development Centre in Townsville in 1994 that at the Commonwealth level, rural and regional issues had no central focus but tended to be driven by farming concerns (McSwan & McShane, 1994). He did note that John Kerin as Minister for Agriculture had a wider vision, which I know to be true from personal involvement with John, but that this disappeared when he left. This problem is illustrated by the current Drought Hub system, which is all about farmer viability rather than the much wider range of interests described by Sher. Profitable beef farms with no easy access to health, education and other services are not an attractive prospect.

The current Commonwealth Government has continued the problem, as history suggests that the agriculture ministry will retain its narrow focus, the environment department will remain underfunded and struggling to make an impact, and the regional development function in the infrastructure ministry will be overwhelmed by its major infrastructure, transport and communications functions.

Unless the following three issues are addressed effectively, it would be difficult to adopt new approaches for the Australian rangelands, such as those suggested in 2009 by Mark Stafford Smith and Julian Cribb in *Dry Times: Blueprint for a Red Land*. They suggested:

- recognising that domestic livestock are part of the landscape;
- helping graziers develop into natural resource

managers who strive to meet multiple objectives; for example, control of alien and feral pests, restoration and conservation of biodiversity and ecological integrity, fire management; and

- seeking multiple sources of income with an 'at harmony with nature' approach with social and economic benefits.

There has been no national decision to overcome the environmental, social and economic decline in our rangelands, or to prepare for a changing natural environment driven by global changes. Neither has there been a satisfactory resolution of the conflict between a production approach to land management and the need for a custodial and obligation approach to serve both current and future needs. The government administrative arrangements retain the narrow focuses, fragmentation and conflicting policies and laws that have hampered, even prevented, progress.

Funding the transformation Australia needs remains a problem. It should be seen as an investment, not a cost. Australia could catch up with Japan in efficient use of resources (International Energy Agency, 2021) for the benefit of all of us with a less energy-intensive economy, which is one outcome of effective climate action. This investment would deliver savings in the health system, with fewer lives lost from extreme events. There would be less damage from extreme events and reduced reconstruction costs.

The need is to make a start. Barney Foran suggested, in the combined Royal Societies' work on a new stewardship approach, that we need to develop interventions to deal with sparse population, remoteness and social uncertainty, beginning with development of regional plans with five to ten issues aimed at attracting public money and overcoming skills decline. The Burnett example with the Red Earth Community Foundation mentioned above is a start, but we need more so that there is at least a representative cover of Queensland, including the rangelands and the tropics. These attempts will require governments to work with local interests and to invest in them. For example, the Commonwealth Government should be lobbied to adopt the proposals in the 2020–2021 budget submission from the Australian Conservation Foundation seeking:

- \$4.5 billion annually for rural and regional community renewal, and help for communities impacted by extreme natural events to rebuild;
- an increase of almost \$1.5 billion annually to transform Australia's economy into a clean energy superpower; and
- \$2 billion annually to protect and restore wild-life habitat affected by bushfires, droughts, and decades of destroying natural habitat.

Conclusions

Australia has failed to act quickly enough to slow and accommodate climate change and other global changes, rural decline has continued, and too many of our influential people are not committed to effective action. We must accelerate protection and restoration of our natural assets, adopt some of the proposals for reversing rural decline, and lobby our political and business leaders to get on with it, as well as reduce the exploitation and use of fossil fuels.

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