

## We Must Adapt to Our Changing Climate

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Our climate is changing and so must we. As climate changes become manifest, our intrinsic survival instinct will make adaptation an inevitability. However, whether we change quickly and effectively enough to ameliorate catastrophic change so as to ensure future generations enjoy a safe climate is open to question. Recent climate data suggests that warming is occurring at an even faster rate than the worst-case scenarios modelled by the world's leading scientists on the Intergovernmental Panel on Climate Change (IPCC).<sup>1</sup> The more we delay, the worse the effects of climate change and the more draconian will be adaptation measures. We have the ability to make individual contributions and collectively to bring about the necessary and urgent changes. We share a responsibility to take up this challenge, at whatever level is available to us.

The following sections will explore two seemingly separate and unrelated areas of climate change policy: the Australian Government targets for the Carbon Pollution Reduction Scheme (CPRS) and the February 2009 Victorian bushfires. Each demonstrates the complex challenges presented by climate change; they also represent two recent low-points of climate-policy failures. They are juxtaposed to highlight the connection between actions and outcomes. Greenhouse-gas emission reduction targets are necessary to set miti-

gation strategies in train and to measure their success or failure. However, our efforts to reduce emissions will determine the extent to which adaptation measures will be required. The bushfires provide a lesson for climate change planning. Whether or not the fires were directly attributable to climate change, they are emblematic of our tendency to respond after the event; and yet the extreme losses of Black Saturday highlight the need for early action and planning. We may not be able to prevent bushfires or extreme-climate events, but we can prepare for them. Our approach to emission-reduction levels should not be different.

As climate change becomes more extreme so will the impacts on individual communities. The need for a framework that minimises ad hoc and ineffective decision-making is critical. A comprehensive climate change framework makes adaptation a priority and is not only concerned with mitigation. It will involve the integration of climate research with planning and decision-making such as:

- strategies to improve the resilience of natural assets to cope with greater risks from bushfire, coastal erosion and flooding
- actions to ensure our agricultural systems adapt
- appropriate decisions about our buildings, infrastructure and homes
- planning to minimise adverse impacts on the health of Victorians exposed to higher temperatures.

Good adaptive action will result in appropriate emission reduction, but also involves mitigating the worst affects of global warming. It seems a matter of common sense. Why then is it not occurring?

Adapting to changes that we don't like or where we cannot see the immediate impact is difficult. Humans are habitual and behaviours can become entrenched and institutionalised. In relation to climate change — we might conceptually agree that preventative action is necessary, but we are accustomed to our lifestyles, to our bush homes or seaside retreats. We want our airconditioners on hot days and our streets lit at night. We are used to green European-style gardens. We expect to be able to drive whenever and wherever we want, particularly if we live in the country or outer suburbs where public transport is poor. These dependencies and expectations are not simply a problem of individual choices; there are complex structural

overlays that inhibit change. Our economies are predicated on perpetual growth and consumption and there are vested interests in this continuing. At a time when it may be better for the environment to consume less, our governments pump-prime the economy fearing a loss of consumer confidence will feed into a downward economic trend. Governments are increasingly conflicted in seeking to balance competing and sometimes irreconcilable interests. Most recently, corporate, parochial and short-term economic interests are winning out against the voices of individuals concerned for the long-term welfare of the planet.

Governments are often averse to imposing unpopular changes — and our political systems are unhelpful on this score. We know that some changes are difficult — we can each cite personal and collective examples in which change has been sought but not achieved. There is now a raft of public policy initiatives brought about by compulsory government action, such as seat belts, bike helmets and motor vehicle personal injury insurance. Some problems are too serious to be left to voluntary compliance. Climate change is in this category and we need our governments to lead. They have the most recent information, the authority and the mandate to take collective actions to protect individuals from damage and exposure to vulnerability. That is the benefit of an established democratic process.

Increasingly people are concerned about the changing environment — but few have sufficient knowledge to know what are the most effective actions to take. Beyond individual actions, however, it is only governments that can put a price on carbon. Only governments have the capacity to regulate or promote the uptake of renewal energy and fuel alternatives; to promote increased energy efficiency. It is governments that plan for and allocate resources for public transport. Government has the capacity to ensure that when a natural disaster occurs or climate change events happen that we are prepared and have a strategy to minimise the damage. Generally it is governments that speak to and negotiate with other governments when global agreements and action is needed.

It is therefore a problematic reality that even those governments who acknowledge the seriousness of climate change are falling short of the necessary actions.<sup>2</sup> Emission reduction targets are too low — for example, the Australian Government's 5% reduction by 2020 (and

up to 15% contingent on global agreement) is a case in point. The tough and unpopular decisions are not being taken.

### **Emission-Reduction Targets**

The inadequacy of Australia's short-term emission-reduction strategy is sharply illustrated by the gulf between the Government's 5% and recommended levels of emission reduction for developed and industrialised countries by the Intergovernmental Panel on Climate Change in its Fourth Assessment Report (IPCC WGIII AR4).<sup>3</sup> The scientific modelling for stabilisation at 450 parts per million (ppm) emissions would require developed countries to set emission-reduction targets at 25–45% by 2020 against 1990 levels. The current level of carbon dioxide is about 385 ppm, and over the past few decades that number has been rising by about 2 ppm per year.<sup>4</sup> Clearly the Australian Government's response falls a long way short of the IPCC recommended levels.

By contrast the United Kingdom has recently passed the Climate Change Act, which sets legally binding targets; introduced a carbon budgeting system to cap emissions over five-year periods and established a Committee on Climate Change, an independent, expert body to advise government on the level of carbon budgets and where cost-effective savings can be made. Emission reductions are nominated to be at least 80% by 2050, and at least 26% by 2020, against a 1990 baseline. The Committee on Climate Change will submit annual reports to Parliament on the UK's progress towards targets and budgets, to which the government must respond. These measures indicate a serious effort to establish a robust emissions-reduction trajectory, with mechanisms to ensure transparency and accountability.

Australia is treating itself as a Third World non-industrialised country and continuing to treat climate change as an optional issue. Back in 1997 Australia was one of two countries to negotiate a Kyoto Protocol target with an emission increase (of 8% between 2008–2011). It certainly gives a broader context and understanding to the Federal Government's 5–15% reduction by 2020 target. Nevertheless, our emission-reduction trajectory is not heading in the right direction and we expose ourselves to the criticism that like the Ancient Regime in 18th century France and other aristocrats facing calls for equity and change, we cling to our riches even though the tide is turning.

Ironically, many of Australia's natural systems and iconic environmental treasures such as the Great Barrier Reef will be destroyed perhaps within 10 years, with increased water temperatures, ocean acidification and water rises. Our vulnerability is considerable.

### **Bushfires in Victoria**

The 7th February, 2009, Black Saturday will be etched indelibly into the collective psyche of Victorians not only as a day of incalculable loss of life, property and public assets, but as a catalyst for a wide-ranging review of our current approach to climate policy.

The fires that raged through parts of Victoria in February 2009 left an ominous trail of destruction — the scale of which is difficult to fully apprehend. It revealed much about our individual and collective vulnerability to the environment, our lack of preparedness for fire of this scale. The loss of life alone puts this natural disaster in a category of its own. Some 173 people died in terrifying and traumatic circumstances. The loss of those lives and the impact to their families, friends, workplaces and communities is incalculable. The destruction of some 2000 homes and of important public facilities — kindergartens, childcare centres, schools, police stations and infrastructure — was terrible and represents both major costs and significant and long-term dislocation to peoples lives. The ensuing emergency response demanded resources at an unprecedented level — 300 fires with over 4000 volunteer and career fire-fighters being deployed in the response. Some 10,000 personnel became involved in the emergency response.

Is this a portent of events to come? Was this tragedy the result of natural variability — a one in a hundred year event that is not likely to occur again soon, or did climate change contribute? Climate scientists advise that questions about the extent to which climate change played a role in the intensity of the fires are complex to answer. Like a loaded dice, climate change tips the balance.

The CSIRO reports that the extreme fire weather conditions that occurred in Victoria during January and February were due to a number of factors: to very high temperatures following a 50-year warming trend, and very dry conditions following 12 years of below-average rainfall. The dryness over the past 12 years may be due to natural variability, but may also be partly due to an increase in green-

house gases. It is not possible to be definitive. CSIRO assessments are that by 2020 the southern regions of Australia can expect to see a greater number of extreme fire weather days, longer fire seasons and a greater potential for multiple fire events like those seen in the Victorian fires. So the high temperatures, some in excess of 45 degrees, and dry air experienced throughout Victoria on that Saturday resulted in very low fuel-moisture content. This, combined with the extended rainfall deficit for much of the state, resulted in tinder-dry fuel that was very easily ignited and difficult to extinguish. In addition to the high-pressure system there was an approaching cold front that helped to strengthen winds ahead of the front, as well as causing a wind change after the front passed. These strong winds resulted in fires that spread rapidly with the wind and were practically unstoppable until the weather moderated following the cool change.<sup>5</sup>

A leading climate scientist, Professor David Karoly of the Earth Sciences School at The University of Melbourne and member of the IPCC, was invited to comment on the relationship between the fires and climate change.<sup>6</sup> In Karoly's view, 'The records were broken by a large amount and you cannot explain that just by natural variability'. In his view, 'What we are seeing now is that the chances of these sorts of extreme fire weather situations are occurring much more rapidly in the past 10 years due to climate change'.<sup>7</sup>

The Victorian Government has established a Royal Commission to examine the cause of the fires, the preparation and responses of government and other agencies. The Terms of Reference acknowledge that 'The weather conditions on 7 February were unprecedented in terms of high temperatures, low humidity and wind speeds following years of drought. The conditions on that day also followed a heatwave and bushfires'.<sup>8</sup> The Commissioners are asked to make recommendations about prevention and to deliver an interim report by August 2009 so that any measures that need to be in place ahead of next fire season can be implemented. Inevitably there will be recommendations about improved emergency responses and improved systems for early warning enabling people to make earlier assessments to leave their homes. The extent to which the Commissioners will make recommendations in their report in regard to climate change and adaptation planning remains to be seen. Certainly the broad terms of reference create an opportunity for the outcomes of the inquiry to extend beyond emergency response and resources.

There have been a number of immediate policy changes. One such decision is the amendment to the Building Code.<sup>9</sup> Houses being rebuilt (or built) in fire-prone areas must meet higher mandatory building standards. No longer will it be permissible to build a timber home in a fire-prone area. Another interesting initiative was the use of mobile text messaging by Victoria Police to issue warnings ahead of predicted high temperatures and winds speeds on 3 March, 2009. An unprecedented action that was effective — and potentially prevented injury or damage.

These are each appropriate initiatives. There will be many more policy changes and actions that will result from the fires. They will no doubt help to prevent future loss and damage. However, will our collective efforts and government responses be adequate to protect all vulnerable communities against climate change impacts? There is a risk that as we trawl through the events and strive to rebuild and compensate the victims of Black Saturday and associated fires that we fail to undertake the comprehensive and wide-scale, long-term planning that is required. The need for immediate and decisive responses to the catastrophic outcomes of the bushfires will potentially set unhelpful precedents for the future and make long-term planning even harder. For instance, the Prime Minister proclaimed that every house, every community, would be rebuilt, brick by brick.<sup>10</sup> Was this wise climate policy? It is understandable that after significant trauma people want reassurance their lives can resume as before. Despite the natural human emotions associated with these promises it should not necessarily be so. Will all communities that are financially disadvantaged and/or dispossessed by climate change now be compensated in the same manner? For central Victorian towns that run out of water and need it tanked-in and expect the Government to pay the bill, is it not unreasonable? When drains back up and flood homes as a result of a deluge, will householders who incur flood damage as a result of these kinds of natural disasters receive the same promises, support and compensation?

The current government and community response to the unquestionably tragic losses from the fires leads to a broader set of questions about our planning for climate change and future extreme-weather events resulting in further ‘natural disasters’. Governments are the insurer of last resort. They will be forced to step in and play an active

role in redressing damage and assisting communities rebuild. However, in the absence of a climate change strategy governments, and therefore all of us, will continue to underwrite the cost of damage that is sometimes avoidable and preventable. As the Stern (UK) and Garnaut (Australia) reports have demonstrated there is a straight economic 'cost-benefit' to implementing preventative action as opposed to deferred and reactive action when climate affects.<sup>11</sup>

## **Conclusion**

The IPCC warns that over the next few decades we will experience temperature increases of 2 to 6% (depending on global responses to emission reductions), resulting in more heatwaves, drier conditions and reduced rainfall in the southern regions of Australia along with decreased precipitation. These conditions will have a number of impacts. It will increase the risk of fire and put significant pressure on water resources. We know that given reduced precipitation levels it may no longer be appropriate to speak of drought, because it suggests that rain levels will return to previous levels. Given this, our farming practices and expectations about food and water supplies will change. There will be places that we cannot or should not live without consideration of significant risks; eucalyptus forests, for example. There will be sea-level rises, presenting major challenges to coastal towns and cities. Climate change impacts the very fundamentals of our lives: our houses, their location and the building materials used. It impacts on food supply, agriculture and brings into question the merits of water-intensive farming. Like the bushfires, will we respond only after the events, once the damage is done? We might not have been able to prevent the fires of Black Saturday, but unquestionably our ability to plan, anticipate and prevent the extreme impacts was within our capacity.

Climate change is a complex and confounding global problem. Is it beyond our capacity? It is overwhelming in its magnitude and frustrating that so many of the solutions lie beyond our individual reach. On this, the work of Mahatma Gandhi, the Indian spiritual and political leader, provides some inspiration. His campaign for Indian independence was predicated on the basis that it is possible to envisage the impossible and to bring about a radical paradigm shift. It speaks of the kind of wholesale and radical change required in our approach

and thinking on climate change. Gandhi famously said, 'You must be the change you want to see in the world!' This suggests a multilayered approach. We need to internalise and model climate change responses in our own lives. We should take the simple actions that are open to us. More broadly, we can examine what capacity we have to influence the decision-making of others in our communities — our employers, the people we do business with and, importantly, our governments. There is little choice but for a sustained campaign that continues to apply pressure across the board to ensure effective action. We should each ask ourselves, in what ways can we bring about change in our lives to not only 'be the change' but to 'cause the change' and ensure a future for our planet and all its inhabitants.

## Endnotes

- 1 See the material and links on the United Nations (UN) Climate Change Conference Dec 2009. Available at [http://en.cop15.dk/?gclid=CNOX\\_r424lZkCFQmIggodvXcwZw](http://en.cop15.dk/?gclid=CNOX_r424lZkCFQmIggodvXcwZw), which details climate facts.
- 2 See for instance the number of election commitments and promises for a 'fresh start' on climate change on the Australian Labor Party website. Available at <http://www.alp.org.au/index.php>.
- 3 IPCC. (2007). *Climate change 2007: Mitigation of climate change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press. Available at [http://arch.rivm.nl/env/int/ipcc/pages\\_media/ar4.html](http://arch.rivm.nl/env/int/ipcc/pages_media/ar4.html).
- 4 NASA/ *Carbon mission to improve future climate change predictions*. Retrieved 5 February, 2009 from [http://www.nasa.gov/mission\\_pages/oco/news/ocof-20090205.html](http://www.nasa.gov/mission_pages/oco/news/ocof-20090205.html).
- 5 Commonwealth Scientific and Industrial Research Organisation (CSIRO). (2009). *What caused the bushfires in Victoria on 7th February 2009?* Available at <http://www.csiro.au/resources/Victorian-Bushfires-QA.html>.
- 6 ABC Television, Interview on *Lateline* by Tony Jones, 9 February 2009, and ABC Radio National, *Late Night Live* with Phillip Adams on 10 February 2009.
- 7 Extract from ABC Television, Interview on *Lateline* by Tony Jones, 9 February 2009.
- 8 Royal Commission Terms of Reference, clause D, 16 February 2009. Available at [www.premier.vic.gov.au/premier/fires-royal-commission-to-have-wide-terms-of-reference.html](http://www.premier.vic.gov.au/premier/fires-royal-commission-to-have-wide-terms-of-reference.html).

- 9 *Building Code of Australia 2009*, List of Amendments, 26 February. Available at <http://www.abcb.gov.au/index.cfm?objectid=AFC638B2-F921-0CFA-1857968B5A3BEE84>)
- 10 Kevin Rudd, reported in *The Age*, 11 February 2009 (article located at <http://www.theage.com.au/national/well-rebuild-brick-by-brick-20090210-83k9.html?page=2>)
- 11 *Stern Report 2005* (available at [www.sternreview.org.uk](http://www.sternreview.org.uk)) and *Garnaut Review, 2008* (available at [www.garnautreview.org.au](http://www.garnautreview.org.au)).



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