

# Should New Zealand Fight Climate Change?

Jonathan Boston

Institute of Policy Studies

Victoria University of Wellington

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## Introduction

The global community negotiated the United Nations Framework Convention on Climate Change in 1992, 16 years ago. More than ten years ago the Kyoto Protocol to the Convention was signed. New Zealand has ratified both, and we had our first climate change policy in 1990 – 18 years ago. Against this background, it is astonishing that we are still debating whether developed countries like New Zealand should fight anthropogenic or human-induced climate change.

The question, surely, is not whether we should be mitigating climate change, but how and how fast. And on the issue of how, I recall what Lord Ron Oxburgh said in Wellington two years ago. Oxburgh is a former Rector of Imperial College London, an eminent geologist and former chair of the giant Shell oil company – so he is not some ill-informed, anti-capitalist, antediluvian extremist. He argued in stark terms that climate change represents such a serious threat to human civilization that the world community should be placed on a war footing to fight it. Instead, we are fiddling and quibbling while the planet slowly cooks.

In my view, New Zealand should unquestionably seek to mitigate climate change, and do so with conviction, vigour and determination, bringing considerable intellectual and physical resources to bear. This should include working closely with other countries to develop an environmentally effective and economically efficient post-2012 agreement, introducing comprehensive measures domestically to reduce emissions and being prepared, where appropriate, to take the lead on certain matters rather being an international laggard. My stance is based on a multiplicity of

reasons, including ethical, prudential, diplomatic and economic considerations. I will elaborate on these shortly, but first some comments on the nature of the problem we face.

### **Defining the problem**

Anthropogenic climate change represents a quintessential collective action problem: the Earth's atmosphere and climate stability exhibit the defining characteristics of global public goods – that is to say, they are non-excludable and largely non-rival, and they provide benefits across countries and generations. Yet there is a short-term incentive for countries, companies and citizens to go on emitting greenhouse gases and free-ride rather than contribute to a global solution. At the same time, there is collective, multi-generational interest in protecting the atmosphere and maintaining climate stability, and thus for all countries to cooperate and comply with any agreed solutions. In short, climate stability represents a global public good, while climate change or instability is a global public bad. Moreover, while nation states alone have the authority and capacity to negotiate and enforce any effective global solution, other actors also have an ethical responsibility to mitigate climate change. This includes citizens (not least everyone in this venue), organizations, companies, community groups, local government and international agencies.

### **The science of climate change**

The claim that anthropogenic climate change can be characterized as a collective action problem assumes that global warming will be damaging in net terms – economically, socially and environmentally. This presumption, of course, rests on certain scientific theories and evidence. I realize that the relevant science is complex and, on some matters, not yet settled, but several points need underscoring.

First, the proposition that rising atmospheric concentrations of CO<sub>2</sub> will, other things being equal, increase the global mean surface temperature is well established in the relevant scientific literature. (The initial calculations regarding the impact of doubling CO<sub>2</sub> concentrations were undertaken by the Swedish chemist and Nobel laureate, Svante Arrhenius, in the 1890s, and the basic theory has been taught in universities since at least the 1940s.) Even ardent climate skeptics generally accept that the enhanced greenhouse effect provides a plausible explanation for rising global temperatures.

Second, the most authoritative assessments of the available scientific evidence are those provided by the Intergovernmental Panel on Climate Change (IPCC). This body was established by the UNEP and WMO in 1988, and has thus far completed four major reports assessing the evidence, the most recent in 2007. (These assessments involve hundreds of scientists and policy experts from around the world; each report is subject to lengthy, demanding and open peer review processes involving thousands of scientists and policy experts.) The main findings of the IPCC's Fourth Assessment Report (see Synthesis Report, Summary for Policy Makers, approved in November 2007 by all participating governments) can be summarized briefly as follows:

First, to quote the IPCC: "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level." (1906-2005 about 0.75°C increase)

Second, to quote: "Most of the observed increase in globally-averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic GHG concentrations." ('very likely' means 90%+ probability)

Third, to quote: "Continued GHG emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would *very likely* be larger than those observed during the 20th century."

Fourth, if unchecked, anthropogenic climate change is expected to generate large-scale, negative and irreversible impacts, including the extinction of numerous species and the eventual destabilization of the Greenland ice sheet, with a resultant multi-metre increase in the sea level.

Fifth, avoiding the worst impacts probably means keeping the rise in the global mean surface temperature to about 2°C above pre-industrial levels. And remaining within this temperature cap means stabilizing carbon dioxide concentrations well under 450 ppm. Carbon dioxide concentrations are currently about 385 ppm and are rising at around 2 ppm per annum.

Sixth, achieving such a stabilization objective will require large reductions in global greenhouse gas emissions, probably around 50-85% by 2050 compared with emissions in 2000. Eventually, we will need to reduce carbon dioxide emissions to zero in net terms. On grounds of fairness,

developed countries, like New Zealand, will be obliged to take responsibility for a disproportionate share of such cuts, possibly up to 90% by 2050 – not far short of the current government’s goal of carbon neutrality.<sup>1</sup>

Seventh, delaying emission reductions runs serious risks. This is because there are long lags and inertia in the climate system, not to mention substantial path dependence in major infrastructure investments. Moreover, what matters is not the *level of emissions at any specific date*, but the *cumulative* level of emissions over time, less their cumulative removal from the atmosphere. The longer we delay, the more drastic the measures required when we finally act. Even a ten-year delay in the peaking of global emissions means that emission reductions may need to be twice as fast to keep within an agreed global carbon budget and related stabilization target. There is also an important inter-generational equity issue here. For any given global carbon budget, the more we consume today the less we leave for those who come after us.

Finally, the IPCC’s Fourth Assessment Report, together with other comprehensive assessments, such as the Stern Review, highlight that the likely economic costs of reducing emissions are relatively modest. For instance, reducing global emissions substantially by mid century may reduce world income or economic growth by around 1-3%, or the equivalent of reaching a specific world income level a year or so later than otherwise. Indeed, some overseas studies have suggested that the introduction of effective measures to mitigate climate change could actually enhance global economic growth by stimulating a major technological revolution.

The other key conclusion arising from recent economic analyses is that the costs of mitigating climate change are likely to be low relative to the costs of not doing so, or delaying action for several decades – although I recognize that such a conclusion depends on the discount rate adopted and various other assumptions (e.g. the projected scale and scope of damages arising from climate change, the value placed on ecological damage, such as species loss, etc.).

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<sup>1</sup> Put differently, global greenhouse gas emissions (CO<sub>2</sub>e) will need to be reduced from about 6-7 tonnes per capita now to about 2 tonnes per capita in 2050. New Zealand’s emissions are currently about 20 tonnes per capita, compared with the average for developed countries of about 14 tonnes and the average for developing countries of about 4 tonnes. Half of our emissions are from the agricultural sector, which helps explains why they are so high despite deriving 60% of our stationery energy from renewable sources.

## **Why should NZ act to mitigate climate change?**

But why should New Zealand take any action to mitigate climate change? Why not free ride? After all, we produce only a tiny fraction of net global emissions (probably less than 0.2%).

If New Zealand were a poor, struggling developing country with low per capita emissions, there would be no ethical imperative to contribute significantly to the international mitigation effort, at least in the near future.

But New Zealand is not poor. And our per capita emissions are 20 tonnes per capita, more than three times the world average. It would thus be hypocritical, as well as unethical and ultimately self-defeating, for New Zealand to urge other nations to curb their emissions but then not act ourselves. It would also be contrary to our obligations under international law, as a signatory to the Framework Convention and the Kyoto Protocol.

Free-riding would be *unethical* because the current generation has a moral obligation to protect the environment and the planet for the benefit of future generations of humanity; it also has a duty to minimize the loss of species and protect the planet's biodiversity. To those who claim otherwise, I would simply note that the ethical imperative to care for the environment and to protect the interests of future generations is central to most moral traditions, whether consequentialist or non-consequentialist, whether based on religious or non-religious world views, and is consistent with most ideological traditions whether conservative, liberal or social democratic – e.g. utilitarians (Peter Singer), rights-based approaches (Amartya Sen), Christian approaches (Michael Northcott), etc.

Free-riding by New Zealand is also likely to be utterly counter-productive – diplomatically and economically. To carry weight in international forums and thereby influence the shape of future climate change treaties, our words and deeds must be consistent. Unlike powerful countries, the quality and *integrity* of our message is paramount. Reneging on our Kyoto commitments, for instance, would seriously damage New Zealand's credibility and leave us marginalized in climate change negotiations, and probably on related policy issues as well. It would also represent a breach of our obligations under the Framework Convention, including our obligation, I quote, to “take precautionary measures to anticipate, prevent or minimize the causes of climate change” (Article 3).

Equally, in economic terms, a choice to free-ride and thus, for instance, abandon the emissions trading scheme and other complementary domestic policy initiatives, runs serious risks. These include:

- the risk of protracted policy uncertainty and hence lower overall investment;
- the risk of encouraging investment in carbon intensive activities, which although potentially attractive in the short-term may simply exacerbate the cost of economic adjustment over the longer-term;
- the risk of discouraging innovation in, and the application of, low-carbon technologies, with New Zealand thereby falling behind key competitors and being less able to capitalize on the green economy wave; and
- the risk of damaging the country's brand as 'clean and green' and thus reducing trade and other economic opportunities.

For such reasons, to quote John Whitehead (2007), the Secretary to the Treasury, "... doing nothing is not an option ...".

To those who say it is too expensive for New Zealand to act, or that we must only act in concert with the most sluggish of our trading partners, I have three quick responses.

First, as previously noted, the aggregate costs of taking action are likely to be relatively modest, and there is little reason to suppose that the costs for New Zealand will be significantly greater than in other developed countries. Nevertheless, designing initiatives that maximize opportunities for least-cost solutions will be critical. This means having a robust international carbon market to which New Zealand's domestic trading scheme is linked. Equally, we need to be mindful of competitiveness-at-risk issues, the potential for leakage and distributional concerns.

Second, most of our major trading partners are already taking action, not least Australia, California and the European Union. Canada, Japan, Korea and the rest of the US will probably not be far behind, as will some of the larger developing economies.

Third, there are economic opportunities and co-benefits from moving to a lower-carbon economy, not simply costs. Many initiatives available to firms and citizens will generate net benefits. These must be fully exploited. In the final analysis, we need, as Professor Ross Garnaut (2008, p.4)

argued in his Interim Report “to end the linkage between economic growth and the emissions of greenhouse gases” – as California has begun to do.

### **Where to from here?**

To sum up, both enlightened self-interest and wider ethical considerations point to the same compelling conclusion: New Zealand must fight climate change, and do so urgently but also intelligently. The fight must engage our full diplomatic energies and resources because only global action can ultimately be effective. Our goal should be an ambitious post-2012 global agreement, with a clear long-term stabilization goal, a stringent medium-term global emission-reduction target, responsibility targets for all developed countries, a fair sharing of the burden of adjustment, sensible rules especially for land use, land use change and forestry, and serious action on adaptation.

Domestically, our policy responses must be congruent with, and underpin, our diplomatic initiatives. We must fulfill our international obligations, and do so in a cost-effective and equitable manner. This certainly includes introducing a comprehensive, all gases and all sectors emissions trading scheme, rethinking our energy and transport systems, and investing substantially in relevant research and development, especially to find ways to reduce livestock emissions – where New Zealand can, and should, take the lead. We should also set ourselves an aspirational national, emission-reduction target for 2050, and this target should reflect the relevant scientific evidence and New Zealand’s fair sharing of the available global carbon budget. Further, as demonstrated by the European Union and California, and as recommended by Professor Ross Garnaut (2008, p.5) for Australia, we should consider a mix unilateral, unconditional initiatives, as well as actions that are conditional on securing a wider global agreement.

We have cogitated for twenty years; the problem is urgent; now is the time for action.

## References

Garnaut, R. (2008) *Garnaut Climate Change Review: Interim Report to the Commonwealth, State and Territory Governments of Australia* February.

Intergovernmental Panel on Climate Change (2007a) *Climate Change 2007: The Physical Sciences Basis – Summary for Policymakers* Working Group I.

Intergovernmental Panel on Climate Change (2007b) *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability – Summary for Policymakers* Working Group II.

Intergovernmental Panel on Climate Change (2007c) *Climate Change 2007: Mitigation of Climate Change – Summary for Policymakers* Working Group III.

Intergovernmental Panel on Climate Change (2007d) *Climate Change 2007: Mitigation Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, B. Metz, et al., (eds) Cambridge, Cambridge University Press, pp.746-807.

Meinshausen, M. (2006) 'What does a 2°C Target Mean for Greenhouse Gas Concentrations?' in Schellnhuber, H.J., Cramer, W., Nakicenovic, N., Wigley, T. and Yohe, G. (eds.) *Avoiding Dangerous Climate Change* Cambridge, Cambridge University Press.

Metz, B. and van Vuuren, D. (2006) 'How, and at what costs, can low-level stabilization be achieved? – An Overview', in Schellnhuber, H.J., Cramer, W., Nakicenovic, N., Wigley, T. and Yohe, G. (eds.) *Avoiding Dangerous Climate Change* Cambridge, Cambridge University Press.

Prime Ministerial Task Group (2007) *Report of the Task Group on Emissions Trading* Canberra, Department of Prime Minister and Cabinet.

Stern, N. (2006) *Stern Review on the Economics of Climate Change* Cambridge, Cambridge University Press.

Whitehead, J. (2007) 'Climate Change – Challenges for New Zealand in an Economic and Wider Context', Speech to the Otago Foreign Policy School, Dunedin, 23 June.