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# Surreal economic debate on climate change

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Amidst the current policy debate in Australia and internationally on climate change is a surreal argument that policies that will destroy the Great Barrier Reef (GBR) and other coral reefs around the globe are acceptable and economically rational.

Nicolas Stern concluded in his landmark economic report that “coral reef ecosystems [will be] extensively and eventually irreversibly damaged” by temperature change relative to pre-industrial levels of 0.5-2°C.<sup>1</sup> He found that at 2°C warming “coral reefs are expected to bleach annually in many areas, with most never recovering, affecting tens of millions of people that rely on coral reefs for their livelihood or food supply”.<sup>2</sup> While Stern is an economist, his conclusions were consistent with the leading research on the vulnerability of coral reefs to climate change.<sup>3</sup> Yet for what were clearly reasons of pragmatism and feasibility, Stern recommended the global stabilisation goal should lie within the range of 450-550 parts per million carbon dioxide equivalents (ppm CO<sub>2</sub>-eq), thereby accepting a likely warming of 2-3°C and loss of coral reefs, including the GBR.

Ross Garnaut, the Australian Government’s handpicked economic advisor on responding to climate change, followed Stern’s approach and was alive to the damage to the GBR when recommending stabilization targets. He recommended that Australia should initially aim for a global consensus next year at the Conference of the Parties to the *United Nations Framework Convention on Climate Change 1992* in Copenhagen to stabilise greenhouse gases in the atmosphere at 550 ppm CO<sub>2</sub>-eq, accepting an expected 3°C rise in mean global temperatures, and hope that global consensus can be reached later for lower stabilisation. Garnaut was brutally frank in his supplementary draft report: “The 550 strategy would be expected to lead to the destruction of the Great Barrier Reef and other coral reefs.”<sup>4</sup> His final report does not shy away from this conclusion. He describes the probable outcome for the GBR of stabilising greenhouse gases at 550 ppm CO<sub>2</sub>-eq as:

Disappearance of reef as we know it, with high impact to reef-based tourism. Three-dimensional structure of the corals largely gone and system dominated by fleshy seaweed and soft corals.”<sup>5</sup>

The new Australian Government has silently avoided the issue of the expected impacts to the GBR when explaining the costs and benefits of its climate policies. It does not yet have a stabilisation target for the rise in global temperatures or greenhouse gases but recent modelling of economic impacts of mitigating climate change considered only three stabilisation targets, none of which will produce a safe climate for coral reefs. The Australian Treasury modelled the economic cost of stabilisation scenarios between 450-550 ppm CO<sub>2</sub>-eq and allowing a rise of 2-3°C in mean global temperatures above pre-industrial levels. It concluded:

Australia and the world continue to prosper while making the emission cuts required to reduce the risks of dangerous climate change. Even ambitious goals have limited impact on national and global economic growth.<sup>6</sup>

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<sup>1</sup> Stern N, *The Stern Review on the Economics of Climate Change* (Cambridge University Press, 2007), p 330.

<sup>2</sup> Stern, n 1, p 94.

<sup>3</sup> Reviewed in McGrath C, “Will we leave the Great Barrier Reef for our children?” (IUCN, 2008), [http://cmsdata.iucn.org/downloads/cel\\_op\\_mcgrath.pdf](http://cmsdata.iucn.org/downloads/cel_op_mcgrath.pdf), viewed 4 November 2008.

<sup>4</sup> Garnaut R, *Garnaut Review Supplementary Draft Report: Targets and trajectories* (Garnaut Review, 2008), p 38, available at <http://www.garnautreview.org.au>.

<sup>5</sup> Garnaut R, *Garnaut Climate Change Review Final Report* (Cambridge University Press, 2008), p 127, <http://www.garnautreview.org.au/index.htm> viewed 4 November 2008.

<sup>6</sup> Australian Treasury, *Australia’s Low Pollution Future: The Economics of Climate Change Mitigation* (Australian Government Treasury, 2008), page ix, <http://www.treasury.gov.au/lowpollutionfuture/> viewed 4 November 2008.

Surprisingly, in attempting to model the economic impacts of climate mitigation the Australian Treasury did not incorporate costs such as the loss of the GBR with its chosen targets of stabilizing mean global temperature rises at 2-3°C. Treasury notes as a mere aside, “the modelling does not include the economic impacts of climate change itself, so does not assess the benefits of reducing climate change risks through mitigation.”<sup>7</sup> The report refers to “other studies” for analysis of the costs of climate change on the economy such as Stern (2007) and Garnaut (2008). In working on stabilising at 2-3°C warming, it is not even mentioned that Stern concluded that at 2°C warming “coral reefs are expected to bleach annually in many areas, with most never recovering, affecting tens of millions of people that rely on coral reefs for their livelihood or food supply.”<sup>8</sup> The Treasury report is fundamentally flawed by omitting the costs of climate change on the economy. It’s conclusions on the economic benefits of the targets it recommends should not be accepted on this basis alone.

Stern and Garnaut’s frank admissions of the expected impacts to the GBR reflect research findings since mass coral bleaching occurred globally in 1998 and 2002. Rising sea temperatures and increasing acidity of the oceans due to our use of fossil fuels are now well-recognized as major threats to coral reefs and the marine ecosystem generally in coming decades. The findings of the Intergovernmental Panel on Climate Change (IPCC) suggest that a rise of 1°C in mean global temperatures and, correspondingly, sea surface temperatures, above pre-industrial levels is the maximum that should be aimed for if the global community wishes to protect coral reefs.<sup>9</sup> The range of 1-3°C is the danger zone and 2°C is not safe.

When the conclusions of the IPCC are synthesised, it is clear that reductions of greenhouse emissions of 60% by 2050, such as proposed by the Australian Government,<sup>10</sup> even if they can be achieved, are not likely to prevent serious damage to the GBR and other coral reefs. A 60% reduction in global emissions by 2050 is likely to lead to a mean global temperature rise around 2.4°C,<sup>11</sup> which is likely to severely degrade coral reefs globally. Stabilising greenhouse gases and aerosols around 350 ppm CO<sub>2</sub>-eq and allowing a rise in mean global temperature of 1°C appear to be the highest targets that should be set if coral reefs are to be protected from serious degradation.

This brings us back to the current policy debate – Stern and Garnaut’s frankness in recognizing the likely damage to the GBR and coral reefs from the targets they recommend is welcome but their conclusions leave us to wonder: is this the best we can do? Should we be prepared to write-off the GBR and other coral reefs and their economic, social, and environmental values?

Stern and Garnaut’s targets are not ambitious enough and we should not accept them, nor should we accept such targets if the Australian Government adopts them for negotiations next year at Copenhagen. We should judge our climate change policies by this simple test: will we leave the GBR and other coral reefs around the world for our children? At present the answer we are giving to this question is “no”. We are all responsible for changing the answer to “yes”. We should demand targets based on what we as a society want to achieve. We should not accept targets that will produce unacceptable outcomes.

We do not yet know if we can stabilise atmospheric greenhouse gases as 350, 450 or 550 ppm CO<sub>2</sub>-eq but think of it this way: if we want to build a bridge across a river that is 1 kilometre wide we would not ask our engineers to build us a bridge that is 500 metres long. We should apply the same logic to climate change policy and set targets for our engineers and scientists to achieve that produce results that we want to achieve.

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<sup>7</sup> Australian Treasury, n 6, page xi.

<sup>8</sup> Stern, n 1, p 80.

<sup>9</sup> IPCC, *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability. WGII Contribution to the IPCC AR4* (Cambridge University Press, 2007), pp 12, 321, and 853, <http://www.ipcc.ch/ipccreports/ar4-wg2.htm> viewed 4 November 2008.

<sup>10</sup> Australian Government, *Carbon Pollution Reduction Scheme Green Paper* (Department of Climate Change, 2008), <http://www.climatechange.gov.au/greenpaper/index.html> viewed 4 November 2008.

<sup>11</sup> IPCC, *Climate Change 2007: Synthesis Report* (IPCC, 2007), p 67, <http://www.ipcc.ch/ipccreports/ar4-syr.htm> viewed 4 November 2008.