

REQUIREMENTS FOR EFFECTIVE INTERNATIONAL CLIMATE CHANGE ACTION: AUSTRALIA'S ROLE

**PUBLIC LECTURE
BY PROFESSOR ROSS GARNAUT**

WEDNESDAY 20 FEBRUARY 2008, ADELAIDE CONVENTION CENTRE

CHECK AGAINST DELIVERY

I am glad to be here in Adelaide at the time of the Solar Cities Conference. South Australia has again brought together some of the leading policy makers and leaders on climate change mitigation from across the world.

As everyone here knows, South Australia is in the firing line of the world climate change problem.

The challenges are obvious. They include the impact of diminished water flows in the Murray. They include the struggle of large car manufacturing in an era when people and society are starting to take seriously the costs of carbon emissions. I have been talking to your wine research people today, and have learned about the vulnerability of the value of Australia's wine production to modest changes in temperature at the time of harvest.

The Interim Report of my review of climate change, will be discussed with all State Premiers at a meeting here in Adelaide tomorrow and then be released publicly. The Interim Report notes the evidence that the costs of inaction greatly outweigh the costs of action.

The large majority of the relevant scientific opinion, and of the leadership of the learned academies of science in the countries of great scientific accomplishment, hold the view that human-induced climate change is with us, that it is already affecting natural and human systems, and that it will increasingly create risks to current patterns of human settlement and activity.

The effects of climate change are local. They vary from region to region, state to state, country to country. However, the causes are global. Greenhouse emissions respect no boundaries.

Australia is a high emitter relative to our population, but in absolute terms we are a very small emitter. We were responsible for only around 1.2% of global CO₂ emissions in 2004¹. We cannot hope to solve global warming on our own. Global warming is a global problem that can only be addressed by global action.

Anything that Australia plans to do in the area of climate change will only make sense if it is viewed through this global lens: will it encourage effective international action to combat climate change? That topic – which is a cornerstone of the Review I am currently engaged in – is the one I want to focus on today.

In this lecture, I ask, and try to answer, five main questions:

1. *What would an effective global response to climate change look like?* Since this is our only hope of a solution, it is the first question that needs to be asked.
2. *How close are we to an effective global response?* The simple answer to this question is that, at current rates of progress, we are decades away.
3. *Is this current rate of progress commensurate with the urgency of the problem?* This question also has a very simple answer: No. Given the current growth rate of greenhouse gas emissions, the urgency of addressing climate change is much more serious than most people realize. Set against this urgency, currently international efforts, however welcome, are truly inadequate.
4. *How then can progress towards effective international action be accelerated?* Ambitions for the post-Kyoto framework need to be lifted, and complementary unilateral and regional initiatives pursued.
5. *What can Australia do?* We might be a small emitter, but we can have a disproportionate influence by taking credible and creative action at the national, regional, and multilateral levels. And it is in our national interest to exercise that influence, but in a careful, pragmatic way without taking undue risks.

Let me now address these questions in turn.

1. What would an effective global response to climate change look like?

To address, and ultimately solve the problem of climate change, an effective international architecture will be required to succeed the Kyoto Protocol, which runs to 2012. Reaching that agreement will no doubt be a difficult process, full of political twists and turns. But it is worthwhile to step back from all that and ask what an effective international response to climate change would look like. Unless we know the destination we want to get to, we cannot be confident that we are heading in the right direction.

An effective international response to climate change would require three components: (1) acceptance of global limits on emissions; (2) sharing of rights to emissions across countries within these limits; and (3) international collaboration to help countries live within their agreed national limits or budgets.

¹ World Resources Institute, 2004. (NB. Does not include land-use change and forestry)

(1.1) Setting global emissions 'budgets'

The science tells us that the extent of global warming depends on the concentration of greenhouse gases in the atmosphere. The global 'budget' of greenhouse gases represents the total volume of greenhouse gases that can be emitted over time all over the world to remain at or below a specified atmospheric concentration. The specified concentration should correspond to the international community's judgement about the climate change risk that is acceptable. After stabilisation occurs, current emissions could not exceed the natural sequestration level.

How tight the budget should be depends on the concentration of greenhouse gases that the international community wants to stay below. The lower the temperature increase we are prepared to accept, the lower the maximum eventual concentration of greenhouse gases needs to be, and the smaller the budget of allowable future emissions.

The European Union is urging that the world pursue policies to stabilize greenhouse gas concentrations at 450 parts per million. (Since there are many greenhouse gases, they are all converted into carbon dioxide "equivalents" for the purpose of these measurements). 450 parts per million is a level which, scientists tell us, gives us a 50% probability of restricting global temperature increases to under 2 degrees.

Others, such as the Stern Review, argue that 450 parts per million will be too hard to achieve, and that it would be more realistic to settle for a goal of 550. This would give us about a 50% probability of restricting global temperature increases to under 3 degrees. But others, such as the Australian Conservation Foundation, WWF and the Climate Institute suggest that even 450 is too high and that our stabilization target should be 400 parts per million. They argue that the risks of damage to aspects of the Australian environment, including the Great Barrier Reef and Kakadu National Park, are unacceptably high even at 450ppm.

I am clearly not in a position today to be able to endorse a particular temperature or concentration target. That will be a job for the full Review provided in September 2008. But I will note today that there are several reasons why Australia is likely to be more exposed to the impacts of climate change than other developed countries.

First, our climate is already exceptionally hot, dry and variable. Second, agriculture plays a large role in our economy relative to other developed economies. Third, our terms of trade are highly sensitive to economic performance in Asian developing countries that are vulnerable to climate change. And fourth, our close proximity to fragile developing countries at high risk of climate disruption and inundation from rising sea levels introduces special geo-political risks.

Australia is not only particularly sensitive to climate change, but also well-placed to do well in a world of effective global mitigation. We have a strong human resource base in relevant areas of expertise. We are blessed with large endowments of low-emission fuels, such as uranium, gas and high-quality coal, renewable energy resources, and good sites for carbon capture and storage.

The livestock industry is less emissions-intensive in Australia than in the Northern Hemisphere. Our near neighbours, especially Papua New Guinea and Indonesia, themselves have exceptional opportunities to reduce carbon emissions from deforestation and to expand

output of renewable energy in various forms, which could be developed to mutual advantage. Ironically due to our past profligacy in energy use, Australia has significant opportunities for low-cost energy savings in business and amongst households.

The combination of Australia's exceptional sensitivity, relative to other developed countries, to climate change, and the real opportunities for it to do relatively well in a world of ambitious, comprehensive mitigation, suggest that Australia should be pressing the international community towards the strongest feasible global mitigation outcome.

(1.2) Sharing the global budget across countries

Once the global greenhouse gas budget is determined, an effective response to climate change requires that this budget be allocated among countries, using widely accepted principles.

Effective global action can only be ensured by individual countries taking on responsibility for emissions mitigation. Unless all major emitters take on targets, it will be impossible to ensure that action at the global level is adequate (adds up to an effective global mitigation effort), and that some countries are not free-riding on the effort of others.

Not everyone agrees with this. Some argue that there are better prospects for progress if, rather than seeking comprehensive agreement on targets, each government makes efforts in line with its own judgements about the seriousness of the problem, the costs of mitigation in its own country, and the mitigation cost that it is prepared to carry. Others prefer that effort be concentrated on seeking international agreement on a common rate of carbon tax.

I accept that an agreement around a satisfactory international allocation of effort will be difficult to reach. We certainly need to attach high value to unilateral, bilateral and regional mitigation initiatives that can generate working models for progress, and reassure others that they are not alone. Nevertheless, only with a broad consensus on distributing the abatement burden across countries is there any chance of achieving the depth, speed and breadth of action that is now required from all major emitters including developing countries.

Such an approach builds on current international architecture (which submits developed countries to targets). It would provide incentives for developing country participation, since, as I discuss later in this lecture, they will be able to financially benefit by selling some of their carbon permits to the rest of the world. This international trading will also ensure the most efficient international approach is taken to the abatement tasks. Finally, explicit agreement on sharing the abatement burden, after a period of experiment and confidence building, will allow the resolution of the "prisoners' dilemma" that otherwise blocks mutually beneficial collective action, as I laid out in my speech at the Australian National University late last year.

To be widely accepted, principles to guide the allocation of a global emissions budget across countries will need to be practical, and be widely accepted as being fair. The full Review will address this question in much detail, and the Interim Report to be released tomorrow afternoon provides some suggestions. It suffices to say here that to be considered practical, the international allocation principles will need to be simple and transparent and will need to allow long periods for adjustment. To be considered equitable, these principles will need to give much weight to equal per capita emissions rights. Indeed, any allocative formula that

does not emphasise population over current or past emissions levels as the basis for long-term emissions rights has no chance at all of being accepted by most developing countries.

(1.3) Increasing international collaboration to reduce emissions

Once national limits on greenhouse gas emissions are agreed, it will be up to each country to work out the best mix of policies to achieve them. Some countries will want to set up domestic emissions trading systems, as Australia is doing. Others might want to rely more heavily on tax instruments or on regulatory controls. While achieving national targets will primarily be a national responsibility, international collaboration will also play an important supporting role.

First, there will need to be international monitoring of compliance with agreed national targets, backed up by international enforcement mechanisms.

Second, as already mentioned, adoption of national budgets also opens the door to international emissions trading. This would have major benefits for both efficiency and equity.

In terms of efficiency, trading of emission rights would create an international carbon price, and would ensure that the cheapest mitigation options were pursued first, wherever they occur.

Emissions trading would also be a principal avenue for addressing international equity concerns in greenhouse gas mitigation. These concerns require that developed countries, which are responsible historically for the great bulk of greenhouse gas emissions and which have greater financial capacity, help developing countries meet the costs of mitigation and adaptation. Many developing countries have low-cost mitigation options, and so would be sellers of permits on the international market, which could pay for the cost of restructuring and offer financial incentives above that cost.

Indeed, the income generated by reductions in emissions could be large in some developing countries which currently have abundant low-cost abatement opportunities, notably through reduction of deforestation and promotion of reforestation. Such large payments could become controversial in the countries buying permits if they were not embodied in a development framework. It would need to be agreed that the funds realized through trading would be used to combat or adapt to climate change and/or to promote development.

The third sort of international collaboration required to help countries live within their national targets would be public funding for research and development and adaptation. Low-emissions technology is an area desperately in need of public R&D funding. An international agreement between high-income countries would raise levels of low-emission research and development and commercialization and to agree to transfer new technologies to developing countries that accept emission targets. A similar agreement would be needed to help developing countries meet the costs of adaptation to the climate change that will now inevitably occur.

2. How close are we to an effective global response to global warming?

I have described to you what an effective global response to global warming would look like. How close are we to making that ideal a reality? Sadly, the world is a long way from an effective international architecture.

There has been some progress. A framework for dealing with climate change has been established through the United Nations Framework on Climate Change and the Kyoto Protocol, with emission limits for most developed countries to be achieved over the next four years. Other supportive fora have emerged to encourage climate change action.

Some rich countries have unilaterally defined longer-term targets. Australia has recently committed itself to a reduction in 60 per cent of emissions by 2050. The European Union has committed itself to a 60 to 80 per cent reduction by 2050. California has legislated an 80% reduction by 2050.

Some developing countries have made important domestic commitments. China has announced that it will reduce the energy intensity of economic activity by 20 per cent below 2005 levels by 2010, and that the contribution of renewables to total energy supply will rise sharply. These are highly ambitious targets that will not be easy to realise.

These instances of progress notwithstanding, any objective assessment can only conclude that, as an international community, we are nearer the starting-line than the finish post when it comes to forging an effective response to global warming.

There is no agreed global goal in terms of temperature, greenhouse gas concentrations, or carbon budget. Most countries have not proposed long-term targets. The United States at national level has been missing in action through the current decade – as has Australia until recently. All developing countries, which are now responsible for most of the growth in emissions, continue to reject binding targets.

Most recently, last December in Bali the world agreed on a post-Kyoto framework. It was agreed that there would be incentives to reduce tropical deforestation, technology transfer measures and financing for adaptation to climate change. This is all good, but the Bali agreement fell short of getting all major emitters to agree to emission limits. Developed countries agreed to take on quantitative mitigation commitments, but developing countries only agreed to undertake “measurable, reportable and verifiable” mitigation *actions*. There is no guarantee that even if developing countries do take mitigation actions, their emissions will not continue to grow so rapidly that it is impossible to hold the risks of dangerous climate change within acceptable limits. In the absence of comprehensive commitments for major developing countries, it will be difficult even to agree on ambitious reduction targets among all developed countries.

Bali took us some way beyond Kyoto, but not nearly far enough.

3. Is the current rate of international progress commensurate with the urgency of the global warming problem?

Does it matter that we are a long way from an effective global solution? After all, it is a complex problem, in which each country has the incentive to “free-ride” on the efforts of others. It has only risen to the top of the international agenda in the last few years. One would not expect a quick solution. There is a school of thought that a gradualist approach is the only possible one, and that, in particular, binding targets for developing countries should only be considered not for the post-Kyoto agreement, but for the one after that, which might hold from 2020 onwards.

Unfortunately, time is not on our side. I am increasingly of the view that climate change is a problem we must as a global community tackle effectively in the next few years if we are to avoid unacceptable levels of risk.

Recent scientific work is suggesting that the climate system may be responding more quickly than climate models indicate (Rahmstorf et al., 2007). For example, global mean surface temperature increase since 1990 has been measured at 0.33°C, which is in the upper end of the range predicted by the IPCC in the Third Assessment Report in 2001 (Rahmstorf et al., 2007). There are also signs that the capacity of the oceans and the terrestrial biosphere to absorb increasing emissions will decrease over time. This means that a greater proportion of emitted carbon dioxide will remain in the atmosphere in the coming years, which will exacerbate the warming trend (Canadell et al., 2007).

The largest source of increased urgency is the unexpectedly high growth of the world economy in the early twenty-first century, combined with unexpectedly high energy intensity of that growth and continuing reliance on high-emissions fossil fuels as sources of energy. While worldwide carbon dioxide emissions from fossil fuels and industrial processes grew at only one per cent a year on average during the 1990s, they increased at three per cent per year from 2000 to 2006.

These recent trends are associated with strong economic growth in the developing world, first of all in China. The faster growth has strong momentum and is likely to continue. Scenarios which show rapid future emissions growth which were once considered extreme now seem realistic or moderate.

There is no reason why emissions will not continue to grow at three per cent a year out to 2030 or even longer. Some initial work undertaken for the Review suggests that if the current growth rates continue unabated, we could reach concentrations of 550 ppm CO₂-e already by around 2030.

It is neither desirable nor remotely feasible to seek to remove environmental pressures through diminution of the aspirations of the world’s people for higher material standards of living. People of human sensitivity see the broad spread of modern economic growth through the developing world in the early twenty first century as a thoroughly good development. Growth in itself is not a problem. The challenge is to end the linkage between economic growth and emissions of greenhouse gases.

We do not have much time to meet this challenge. Recall the 450ppm and 550ppm stabilization targets which I mentioned earlier. Initial scenario analysis carried out for the Review suggests that to meet the former target, global emissions will have to start declining

almost immediately. To meet the latter, they will have to start slowing immediately, and declining by 2030.

Even with strong, early cuts in emissions in developed countries, there is limited headroom for continued emissions growth in developing countries. To illustrate, assume that all developed countries cut their emissions by one-third between 2000 and 2020 (which against the backdrop of the Bali Roadmap, would be seen as a successful outcome of the negotiations on post-2012 arrangements). Initial scenario work for the Review suggests that to keep global emissions growth within a trajectory that could eventually lead to stabilisation of atmospheric concentrations at 450 ppm CO₂-e, developing countries would only be able to emit roughly the same amount in 2020 as in 2005. This contrasts with fossil fuel emissions having grown at over six per cent on average in developing countries from 2000 to 2006.

Even for the more modest 550 ppm CO₂-e stabilisation target, the illustrative scenario work suggests that the same one-third cut in developed country emissions would leave developing countries having to hold emissions growth to 2.5 per cent per year between now and 2020. This would be less than half the rate of increase of the early twenty-first century.

To summarize, the world is moving towards high risks of dangerous climate change much more rapidly than has generally been understood. Without strong action by both developed and major developing countries alike between now and 2020, it will be impossible to avoid high risks of dangerous climate change. The show will be over.

4. How can progress towards effective international action be accelerated?

The fundamental challenge therefore facing all those who are serious about addressing climate change is encapsulated by this question: what can be done to accelerate effective global action? To quicken the pace of progress to match not only the seriousness but the urgency of the global warming challenge, action will be needed at the multilateral, regional and national levels.

We have already seen that there is little prospect within the Bali framework of holding the risk of dangerous climate change to moderate levels. At the multilateral level, the world should instead aim for a post-Kyoto agreement in which all major emitters, developed and developing, are subject to emissions budgets. Waiting until 2020 (potentially the starting time for an agreement to follow the one currently being negotiated) would be to abandon hope of achieving climate stabilisation at moderate levels.

Clearly, no significant progress in the multilateral sphere will be possible, until the United States shows that it is serious about addressing climate change by adopting a long-term target. Legislative initiatives underway in the U.S. are encouraging in this regard, and a new Administration is widely expected to take a much more proactive role in international climate policy. Australia should do all it can to encourage the U.S. in this direction.

But assuming the US does move, is there any hope for developing countries also to adopt emission limits? Why would they, when they resisted both under Kyoto and again at Bali? The situation is not as bleak as it looks.

First, as the attention of developing countries is drawn to the realities of prospective emissions growth and the risks associated with them, they will surely come to see it as being in their interests as a precondition for an effective global agreement to combat climate change. China has already advanced a considerable way down that path.

Second, the terms of the debate can be changed. Developing countries will have to see it as equitable that all countries have limits on their emissions, but that richer countries have much more stringent limits (in relation to rates of growth, not in total emissions) than developing countries. Developed countries would be required to show absolute cuts. Developing countries, at least initially would be required to commit to substantially slower rates of growth of emissions. Such an approach would be squarely within the paradigm of “common but differentiated responsibilities” articulated in the UN Framework Convention on Climate Change.

Third, in the interests of both equity and stimulating early action, developing countries need to be offered financial incentives for accepting targets.

Given the difficulty of the problem, not everything can be left to the multilateral process. Developed countries need to show unilateral and regional leadership.

Agreement on difficult political and economic issues can be much easier to achieve among small groups of countries than in large multilateral negotiations. That is because in negotiations among small groups of countries, it is easier to establish trust, to take account of individual countries’ circumstances and preferences, and to link across issues. Furthermore, self-selected groups are much less subject to being held hostage by the least willing.

Formations of groups of countries that are prepared to subject themselves to binding budgets can accelerate global action, by demonstrating that ambitious cooperative action is possible. In particular, groupings that bring developed and developing countries together in regional trading systems have the potential to show that developing countries can live within, and indeed benefit from, national budgets.

The hurdle for developing countries to take on emissions targets could be much lower in such a situation. Commitments could be fashioned around the capabilities, needs and aspirations of each individual country. Similarly, it would make it easier for developed countries to enter arrangements that include large-scale resource transfers to developing countries for climate change mitigation.

Unilateral, regional and multilateral efforts underway in parallel might make for a ‘messy’ process, but it is one which has the highest chance of success in the short time available. The more and the sooner individual countries and groups of countries undertake unilateral and regional efforts to mitigate climate change, the greater the prospects for a comprehensive and ambitious future global framework.

To ensure compatibility, unilateral and regional schemes would need to be based around common guiding principles. Early movers on regional agreements would need to base their actions on explicit principles for allocating a global emissions budget that they consider to have good prospects for wider international acceptability. Early action on the basis of such principles would then play a role in the international discussion of principles and in the movement towards international agreement.

5. What can Australia do to accelerate progress towards effective international action?

What does all this mean for Australia? One option would be for Australia to simply take on the role of a follower, and wait until an effective global action was on the table before taking effective action ourselves. After all, we are a small part of the global warming problem in an absolute, quantitative sense. But if even a small number of developed countries take this position, there will never be a solution to global warming. We cannot afford to free ride, but neither should we act in isolation. A carefully calibrated response is required, at the multilateral, regional and national level.

(5.1) Multilateral action

At the multilateral level, Australia can play an important role in accelerating progress towards an effective global architecture first of all by encouraging greater ambition for a post-Kyoto framework, and by promoting creative approaches. A more ambitious and comprehensive framework would be encouraged by drawing attention to the new evidence that the case for urgent action is much more compelling than earlier realised. It would be encouraged by providing developing countries with greater financial opportunity and assistance in return for them adopting appropriate targets.

The steps that Australia has already announced – its long overdue ratification of the Kyoto Protocol, and its target of a 60 per cent reduction in emissions by 2050 over 2000 levels – have already helped give important momentum to multilateral efforts. Australia's diplomatic role in the Bali negotiations is widely recognised as having contributed a great deal to international agreement. More can be done though, through regional and national action.

(5.2) Regional action

Australia can play an important international role by developing and applying exemplary regional mitigation arrangements. In particular, Australia can promote the bilateral and regional agreements which cross the current deep divide between developed and developing countries.

Indonesia and PNG provide opportunities for such an approach. Both have expressed interest in cooperation with Australia on climate change policy, and this was consolidated in bilateral Heads of Government meetings in Bali in December 2007. Both are high per capita emitters due to land-use change, in particular deforestation. Both would have a strong interest in reducing emissions from deforestation provided that they were compensated for the loss of economic opportunity and were able to sell the avoided emissions on an international market.

The immediate opportunity is for agreement with Papua New Guinea and other South Pacific countries. The Australian and Papua New Guinea Prime Ministers agreed in their bilateral meeting in Bali in December that cooperation on climate change would be a major feature of the future relationship. The two countries together could achieve substantial reductions in emissions relatively fast, if policies to reduce deforestation were pursued with vigour and the necessary financial and political backing, and if a congenial environment were established for utilisation of Papua New Guinea's extraordinary potential for low-cost renewable energy. National budgets for emissions, coupled with international permit trading, would be the central elements of a framework for achieving this.

Such an agreement, if built around a framework for utilising the large revenue flows from the sale of emissions permits for development purposes, could provide major advantages for PNG. This could include cash and development opportunities for village communities currently enjoying cash and services from forestry operations.

Such an agreement would also be strongly in Australia's interest. Both countries would need to define an emissions contraction path that they thought could later be consistent with an international approach to allocating a global emissions budget. Both Australia and Papua New Guinea would face declining entitlements to emit (as both are currently high emitters in per capita terms). Given the scope for large cuts in emissions in PNG through rapid reductions in deforestation, it is highly likely that Australia could purchase freed-up emissions permits, and so be able to achieve reductions in emissions (net of trade) at lower cost than when acting alone. This could be considered in setting Australian interim and long-term targets.

The potential for mutually beneficial arrangements involving Australia's near neighbours is large. Indonesia's emissions are thought to amount to as much as two GtCO₂ per year, around five times Australia's total CO₂ emissions, with over three quarters of that from deforestation. PNG's forestry related emissions may exceed 100 MtCO₂, a quarter of Australia's total CO₂ emissions.

Developing country adoption of national targets and participation in a regional trading scheme in this manner would be a world first and would have substantial demonstration impact. In addition to large gains through emission reductions, it could help generate momentum towards the adoption of binding targets by developing countries by demonstrating that it could be in their financial interests to do so.

Opportunities for bilateral and regional agreements with other Asia Pacific economies will be explored in the September Final Report. Discussions so far indicate that there are interesting opportunities to explore with other parts of Southeast Asia, with Japan, with New Zealand, perhaps with coastal cities of China and with California and some other states of the American Union.

(5.3) National action

Australia's adoption of an efficient and comprehensive emissions trading scheme, its implementation of equitable compensation arrangements for households disadvantaged by such a scheme, and its creation of effective public funding mechanisms for low-emissions research and development, will have a powerful global demonstration effect. Much of the review is dedicated to the domestic arrangements which need to be put in place for success in these areas.

No domestic decision made by Australia in the area of climate change mitigation will have greater international ramifications than the choice of Australia's carbon budget. Strategic as well as policy considerations argue for dual carbon budgets: one representing what Australia is prepared to do initially as part of the developed country contribution to keeping open the possibility of effective, comprehensive global agreement; and another representing what Australia would be prepared to do in the context of effective, global action. The more effective and ambitious the agreement(s) reached, the more Australia should be prepared to move towards its full share of a fully effective agreement.

The EU provides a relevant example. It has committed itself to a reduction in emissions of 20 per cent from 1990 levels by 2020, and 30 per cent provided that other developed countries

commit themselves to comparable emission reductions. This sort of approach, which should apply both to interim emission targets and to long-term targets or budgets, is a sensible way of finding a middle ground between doing nothing and doing too much.

Much more detailed work is required to determine these dual budgets. An emissions reduction schedule culminating in a 60 per cent reduction from 2000 levels by 2050 may turn out to be broadly in line with the adjustment burden embodied in comparable “offers” made by other developed countries. However, Australia would need to be prepared to go considerably further in reduction of emissions as part of an effective global agreement, with full participation by major developing countries, designed to reduce risks of dangerous climate change to acceptable levels.

National, regional and multilateral action are all inextricably linked, and should be mutually reinforcing. Australia should, during the course of the Bali roadmap discussions, put on the table an offer embodying the cuts in emissions that it would be prepared to make should the major, including developing, emitting countries agree on a comprehensive set of commitments that together would reduce risks of dangerous climate change to acceptable levels.

Conclusion

I have tried in this lecture to answer five questions all related to the international dimensions of the problem of addressing climate change. The answers to these five questions can be summarized into just two points. One, international action is not proceeding at a pace commensurate with the urgency of the global warming problem. The world needs to do more, developed and developing countries alike. Two, there is much Australia can sensibly do to encourage the world to do more.

It is not certain the world will be able to accelerate progress to the degree required. But it is certainly in Australia’s interests to do as much as it can to support acceleration. Australia playing its full part in international efforts on climate change can have a positive effect on global outcomes. The direct effects of Australia’s emissions reduction efforts are of secondary importance.

Whether the post-Kyoto framework will be one which commits all major emitters to targets is at best uncertain. But given the rapidity of emissions growth, a more ambitious post-Kyoto framework is essential. Australia, despite half a dozen lost years for international climate policy in the early twenty-first century, can play an important but pragmatic leadership role. Between now and 2012, there is still a window of opportunity for Australia to adopt a variety of unilateral, regional and multilateral initiatives to help instil greater ambition into a post-Kyoto international framework. It is in our interests that the world embraces greater ambition.