

11

THE INTERNATIONAL RESPONSE TO CLIMATE CHANGE TO DATE: AN ASSESSMENT

Key points

Climate change is a global problem that requires a global solution.

Mitigation effort is increasing around the world, but too slowly to avoid high risks of dangerous climate change. The recent and projected growth in emissions means that effective mitigation by all major economies will need to be stronger and earlier than previously considered necessary.

The existing international framework is inadequate, but a better architecture will only come from building on, rather than overturning, established efforts.

Domestic, bilateral and regional efforts can all help to accelerate progress towards an effective international agreement.

Greenhouse gas emissions are a global public 'bad'. One country's emissions affect all countries. Global warming therefore requires a global solution. Individual countries will not on their own undertake adequate mitigation, since each country has an incentive to free ride on the efforts of others. An effective response to climate change has to be an effective international response. As a country that is vulnerable to climate change (chapters 6, 7, 9 and 10), Australia has a particularly strong interest in an effective international response to climate change.

An effective international response to climate change needs to cover both mitigation and adaptation. The main focus of the Review's discussion of the international response is mitigation. This is not to underplay the importance of adaptation, but adaptive responses are largely national and regional. There is, however, an international element required in the adaptation response (see section 13.2).

This chapter assesses the global mitigation effort to date, and concludes that progress on the current trajectory is too slow and limited to constitute an effective global response to the risk of climate change. Chapters 12 and 13 describe what a more effective response to international climate change might look like.

11.1 The evolving international framework for addressing climate change

11.1.1 United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) provides the foundation for the international collaborative effort to mitigate and adapt to climate change. The Convention was established in 1992, entered into force on 21 March 1994, and has been ratified by 192 Parties to date.

The UNFCCC articulates a global goal of the 'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system' (Article 2).

It also gives important guidance on the allocation of mitigation effort among countries. It divides Parties into different groups according to their commitments. Annex I Parties include the industrialised countries that were members of the OECD in 1992, plus countries with economies in transition.

Apart from reporting duties, all countries commit to 'formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions' (Article 4.1(b)). But developed countries are called on to do more. In particular, on the 'basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities', developed countries 'should take the lead in combating climate change and the adverse effects thereof' (Article 3.1). Developed countries are also called on to bear the cost of the financing 'needed by the developing country Parties to meet the agreed full incremental costs of implementing measures' (Article 4.3) to take actions to mitigate and adapt to climate change.

11.1.2 Kyoto Protocol

The Kyoto Protocol was adopted by the UNFCCC Parties in Kyoto, Japan, on 11 December 1997, and entered into force on 16 February 2005 once enough countries had ratified it. The Protocol commits developed and transition economies to limit or reduce their greenhouse gas emissions to specified levels during the commitment period of 2008 to 2012, with the aim of reducing their collective emissions by at least 5 per cent from 1990 levels (Article 3.1). Countries with target commitments are listed in Annex B to the Protocol, which largely coincides with Annex I to the UNFCCC.

The use of a five-year budget (2008 to 2012) is sometimes referred to as a 'flexibility when' provision, as it allows countries to average their emissions over time (Frankel 2008). 'Flexibility what' is also allowed under the Protocol, which includes fixed conversion factors for different greenhouse gases. Finally, the Protocol includes three 'flexibility where' mechanisms to assist countries to achieve their targets: international emissions permit trading, the Clean Development Mechanism, and Joint Implementation. In international emissions permit trading, if an Annex B country reduces its emissions below its Kyoto target it can sell surplus reductions to another country. The other two flexibility mechanisms enable credits from emissions-reducing projects in one country to be used to meet the Kyoto target of another country. Under Joint Implementation, projects are hosted in Annex B Parties. Under the Clean Development Mechanism, projects are hosted in non-Annex B Parties. Because the complementarity principle of the Protocol requires that countries primarily achieve their emissions reduction goals through domestic efforts, these flexibility mechanisms play a supporting role. However, the Protocol does not place any quantitative limits on their use.

The Protocol also sets out specific rules regarding the accounting of emissions and removals from the land use, land-use change and forestry sector, establishes detailed accounting and reporting systems and creates a compliance committee.

11.1.3 The Bali Roadmap

The United Nations Climate Change Conference held in Bali, Indonesia, in December 2007 resulted in two negotiation tracks—the Convention track and the Protocol track, collectively known as the Bali Roadmap—aimed at achieving agreement on an arrangement to succeed the first Kyoto commitment period. While the exact shape of a future architecture is still unclear, both tracks are proceeding in parallel and have the same anticipated end date of December 2009, at which point Parties will come together in Copenhagen with a view to agreeing on the way forward post-2012.

The Convention-track negotiations will work towards a 'shared vision for long-term cooperative action', likely to be framed as a long-term global goal for emissions reductions. Developed countries have agreed to consider 'nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives', while developing countries have agreed to consider 'measurable, reportable and verifiable' mitigation actions 'supported and enabled by technology, financing and capacity-building' (UNFCCC 2007a: 3). Underlying these undertakings is a commitment to put in place 'positive incentives for developing country Parties for the enhanced implementation of national mitigation strategies and adaptation action' (UNFCCC 2007a: 5).

The purpose of the Protocol track is to agree on second commitment period (post-2012) emissions reduction commitments for developed countries. This track will need to result in quantified emissions reduction targets for Annex I Parties and agreement on the time frame of the second commitment period.

11.1.4 Other international initiatives

The UNFCCC is the focus of international climate negotiations, but is no longer the sole home of international discussions on climate change.

Major Economies Meeting on Energy Security and Climate Change

The Major Economies Meeting process on Energy Security and Climate Change was launched by the United States in September 2007 with the purpose of bringing together the largest emitters of greenhouse gases to discuss a global response to climate change.¹ US President George W Bush nominated agreement in 2008 on a long-term global goal for emissions reduction as a key outcome for the process.

Group of Eight (G8)

In 2005, climate change dominated the Gleneagles Leaders' Summit agenda, resulting in the establishment of the Gleneagles Dialogue on Climate Change, Clean Energy and Sustainable Development. Bringing together the G8 nations² as well as key developing countries and other major emitters, the Gleneagles Dialogue has focused on technology and finance and will report at the 2008 G8 Summit in Toyako, Japan. The Toyako Summit (7–9 July 2008) will have a strong focus on climate change.

Asia-Pacific Economic Cooperation (APEC)

At the 2007 APEC Leaders Meeting in Sydney, Australia, the leaders of the 21 member economies³ reaffirmed their commitment to the UNFCCC and

agreed on an Action Agenda, which included APEC-wide aspirational goals of reducing energy intensity (the amount of energy used by unit of output) by at least 25 per cent by 2030 from 2005 and increasing forest cover in the region by at least 20 million hectares by 2020. Other agreements were to establish an Asia–Pacific Network for Energy Technology and an Asia–Pacific Network for Sustainable Forest Management and Rehabilitation.

Asia–Pacific Partnership on Clean Development and Climate

The Asia–Pacific Partnership on Clean Development and Climate is based on a model of cooperation and collaboration between partner governments,⁴ business and researchers. Joint government–business task forces in eight sectors (cleaner fossil energy, aluminium, coal mining, steel, cement, buildings and appliances, power generation and transmission, and renewable energy and distributed generation) agree on projects that are then financed or provided with in-kind support by both government and industry participants. Progress to date has been limited by funding commitments.

Other international bodies

In addition, work on climate change mitigation and/or adaptation is taking place in many other international bodies, including many United Nations agencies, the World Bank and regional development banks, the International Monetary Fund, the Organisation for Economic Co-operation and Development, the International Energy Agency, and others. The UN Secretary-General has made climate change a priority issue and the UN General Assembly holds regular thematic debates on the issue. Heads of state and government made declarations on the urgent need to address climate change at the Commonwealth Heads of Government Meeting and the East Asia Summit (both held in November 2007).

11.2 National-level commitments and policies to mitigate climate change

11.2.1 Developed countries

Some countries have proposed national emissions reduction goals beyond the end of the first Kyoto Protocol commitment period:

- **Australia:** The Prime Minister of Australia announced at the Bali conference that by 2050 Australia would reduce emissions by 60 per cent over 2000 levels.

- **European Union:** The European Union has put forward dual emissions reduction goals: an 'independent commitment' for a 20 per cent reduction over 1990 levels by 2020, and a conditional offer for a 30 per cent reduction over 1990 levels by 2020. The trigger announced for moving to the conditional offer is 'a satisfactory global agreement to combat climate change post-2012',⁵ which implies as prerequisites that 'other developed countries commit themselves to comparable emission reductions and economically more advanced developing countries commit themselves to contributing adequately according to their responsibilities and capabilities'.⁶ The European Parliament and Environment Ministers have also proposed 2050 targets of a 60–80 per cent reduction relative to 1990 levels.
- **Individual European countries (EU member and non-member states):** Some European countries have made separate national commitments, often showing greater ambition than the EU approach. For example, the United Kingdom has committed itself to reducing emissions by 20 per cent on 1990 levels by 2010 and 60 per cent by 2050 (with scope for greater reductions if needed). Germany has committed to a 40 per cent reduction on 1990 levels by 2020. Norway is noteworthy for its ambition—30 per cent reductions on 1990 by 2020 and carbon neutral by 2050.
- **Canada:** In April 2007, the Canadian Government announced new targets to reduce Canada's greenhouse gas emissions to 20 per cent below the 2006 level by 2020, and to 60–70 per cent below the 2006 level by 2050.
- **Japan:** The Japanese Prime Minister recently announced a target of a 60–80 per cent cut in emissions by 2050 from current levels.
- **United States:** Under the Bush administration, the United States declined to ratify the Kyoto Protocol or to take a strong stance on domestic emissions reductions. However, the signs from presidential candidates, Congress, various states and even the judiciary indicate that major changes in the US position can be expected (Box 11.1).

Box 11.1 Recent developments in US climate change policy

Active participation by the United States will be a crucial element of an effective global climate change framework.

Under the Bush administration, the United States declined to ratify the Kyoto Protocol and has taken a back seat in international negotiations. In April 2008, President Bush announced a new national goal to stop the growth in US greenhouse gas emissions by 2025.

In contrast, both presidential candidates have committed to reducing emissions to 1990 levels by 2020. The Democrats have promised an 80 per cent reduction and the Republicans a 60 per cent cut, both from 1990 levels by 2050. Both candidates are in favour of taking on a more active international role and introducing a nationwide emissions trading scheme. This suggests that, no matter what the political persuasion of the new administration, the array of legislative cap and trade proposals introduced during the 110th Congress might be considered with a more open mind by the White House in future. The Lieberman-Warner Climate Security Act is the proposal that has progressed the furthest, though it too has so far been unable to command majority support. Its provisions would reduce overall US greenhouse gas emissions by roughly 63 per cent by 2050 (Pew Center 2007).

Meanwhile, the US states have moved ahead. Multistate, regional initiatives include the Regional Greenhouse Gas Initiative, involving northeastern states, the Western Climate Initiative, with California at its centre, and the Midwestern Regional Greenhouse Gas Accord. All have a cap and trade scheme at their cores, although with different levels of ambition and design. California has passed legislation requiring emissions to fall to 80 per cent of their 1990 level by 2050.

Existing federal legislation, such as the Clean Air Act, is also being used to tackle climate change. The Bush administration is opposed to this course of action, but in 2007 the US Supreme Court decided that the Act did in fact give authority to the US Environmental Protection Agency to regulate greenhouse gases and that the Agency would need to make a very strong case if it decided not to exercise that discretion.

While major changes in policy can be expected after the November 2008 election, there is still uncertainty and the prospect of delay. Even with majority support in the Congress, and a supportive president, US legislative processes mean that the timely passage of climate change legislation is far from guaranteed.

Many developed countries have policies in place to reduce emissions. These include emissions trading schemes, renewable energy targets, and fuel efficiency targets. For example, in addition to its emissions trading scheme, the European Union has a goal of sourcing 20 per cent of its energy from renewables by 2020. It has also legislated a suite of measures on building, appliance and vehicle standards. Japan has various renewable energy and

performance standards in place for its industry. Canada aims to meet its interim and long-term targets by establishing a carbon trading scheme, forcing industry to improve its emissions performance and implementing measures such as new fuel consumption standards for cars and energy efficiency standards for buildings. Many other developed countries are pursuing similar policies and measures, though most are struggling to meet their Kyoto targets (section 11.3).

The United States and European countries have introduced mandatory requirements and subsidies for the use of biofuels. These have had strong effects in putting upward pressure on global food prices, with negligible environmental benefits.

11.2.2 Developing countries

All developing countries continue to reject containment of their emissions growth through the adoption of mandatory targets. Nonetheless, some developing countries have already made important domestic commitments or are on the way to doing so.

- As the largest developing country and now the world's largest emitter, **China** is particularly important (Chapter 4). As part of its 11th Five-Year Plan (2006–10), China has committed to reducing the energy intensity of its economic activity by 20 per cent below 2005 levels by 2010. In June 2007, China released its first National Climate Change Program, which confirmed the energy intensity target and also renewable energy and forest coverage targets. Under the program, the renewables goal is set at 10 per cent of the energy mix by 2020 (this has since been revised by the National Development and Reform Commission to 15 per cent by 2020), and an increase of carbon sinks by 50 million tons over 2005 levels by 2010 is mandated. China has also announced its intention to halve its energy intensity by 2020 over 2008 (DRC 2005). These are ambitious targets that will not be easy to realise.
- **India** is expected to release a national plan of action on climate change in 2008. The current five-year plan for India (2007–12) sets out a number of environmental targets, including increasing energy efficiency by 20 per cent by 2016–17 and achieving a 5 per cent increase in tree and forest cover.
- In 2007, **Brazil** released a white paper on its contribution to preventing climate change, focusing particularly on energy and avoided deforestation. Specific initiatives referenced in the paper include the Program for Incentive of Alternative Electric Energy Sources launched in 2002 which sets an overall goal of 10 per cent of annual energy consumption to come from renewables by 2022; and the National Ethanol Program, implementation of which has led to ethanol accounting for about 40 per cent of vehicle fuel currently used by Brazilians (WRI 2008).

- **South Africa** has launched a Long-Term Mitigation Scenarios process, designed to lay the foundations for a more comprehensive national climate change policy and eventually ‘inform a legislative, regulatory and fiscal package that will give effect to our policy at a mandatory level’ (Department of Environmental Affairs and Tourism, South Africa, 2008).

11.3 Assessment of progress under the Kyoto Protocol

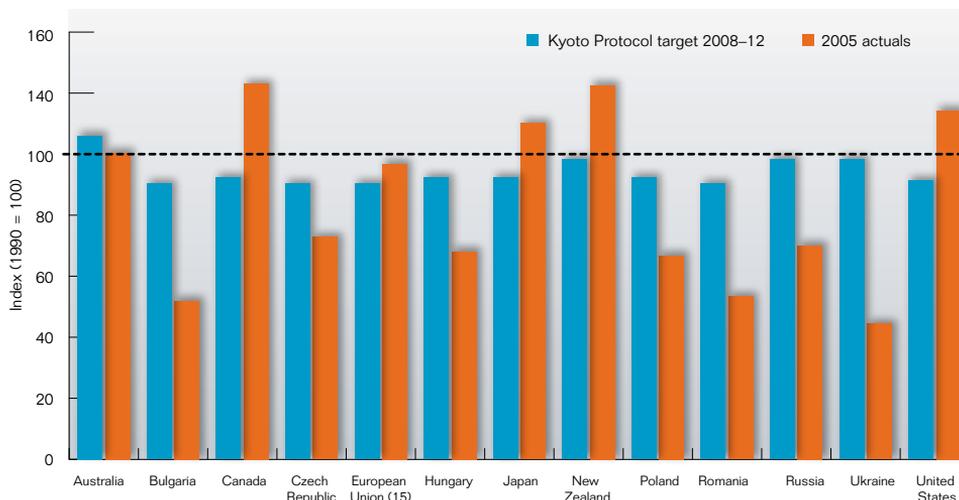
The decision not to ratify Kyoto by the United States and Australia after the election of the Bush administration seven years ago was of historic importance in disrupting an international approach. Australia’s return to the international fold following the election of the Rudd Labor Government is an important corrective.

The performance of developed countries against their Kyoto Protocol targets varies (Figure 11.1).

- **Ahead of target:** Countries that were moving out of centrally planned economic systems, including Russia, Poland and Ukraine, were required to make similar reductions in emissions from 1990 levels to OECD countries. They currently have emissions at levels far below their targets due to the large fall in economic activity and emissions in the 1990s. Since these emission reductions were not the result of any mitigation effort but rather were achieved before the Kyoto Protocol was signed (due to economic restructuring with the collapse of central planning), the gap between emissions and the targets is referred to as ‘hot air.’
- **On target without use of flexibility mechanisms:** Australia is one of the few countries that currently have national emissions at or close to the level required by the Protocol over the 2008 to 2012 period (in Australia’s case due to one-off reductions in land clearing—see Chapter 8).
- **On target if flexibility mechanisms are used:** The domestic emissions of most countries are above their Kyoto targets. This is true for the European Union as a whole, and for Japan and New Zealand. They could still be in compliance with Kyoto if they were to purchase sufficient Clean Development Mechanism or Joint Implementation credits (see section 11.1.2), or buy permits from those countries that are ahead of target (i.e. the ‘hot air’ countries).
- **Off target:** In Canada, against a required 6 per cent cut, emissions had increased by 27 per cent as of 2005 compared to the 1990 base. In the United States emissions had grown by 16 per cent over the same period

against a required 7 per cent reduction. The United States has not ratified the Kyoto Protocol. While Canada did ratify, the current government has declared it will not be able to meet its target.

Figure 11.1 Kyoto targets and 2005 emissions, relative to 1990



Notes: Only Parties with emissions of 100 million tonnes of CO₂-e or more are included, except for New Zealand. The United States has signed but not ratified the Kyoto Protocol, and is not a Party to it. The 2008–12 target is simply the Kyoto target over the 1990 baseline. Growth in greenhouse gases from 1990 to 2005 for countries other than Australia excludes land-use change and forestry. Note that for countries other than Australia there may be discrepancies between greenhouse gas emissions as reported to the UNFCCC and as calculated in relation to Kyoto Protocol commitments. These are expected to be minor. For countries with base years other than 1990, the following years are used: Bulgaria—1988, Hungary—average of 1985–87, Poland—1988, and Romania—1989.

Sources: UNFCCC (2007b, 2008b); Australian Greenhouse Office (2007).

The Kyoto Protocol is more than a set of targets for Annex I countries. The main way in which the Protocol engages developing countries is through the Clean Development Mechanism, which promotes abatement projects. The Clean Development Mechanism has grown rapidly, but is flawed in a number of respects (Box 11.2).

Finally, it is only in the last year or so that developed countries have started to pay more attention to and put more targeted financing into research and development, and mitigation financing in developing countries (section 13.1).

Box 11.2 The Clean Development Mechanism: a flawed mechanism?

The Clean Development Mechanism (CDM) is a market-based offset mechanism, where tradable credits are awarded for emissions reductions on a project-by-project basis and the resulting credits are bought by firms or governments that are under an obligation to reduce emissions. As of May 2008, there were around 3400 CDM projects under way or in preparation, covering 2.5 billion tonnes of carbon dioxide emissions equivalent until 2012 (UNEP Risoe Centre 2008). Over the course of 2007, the CDM had primary transactions worth US\$7.4 billion, with demand coming mainly from private sector entities in the European Union, but also from EU governments and Japan. The World Bank (2008) estimates that in 2007, the CDM leveraged US\$33 billion in additional investment for clean energy, which exceeded the cumulative amount over the previous five years.

The CDM's geographic coverage is concentrated. UNFCCC figures (2008a) show that 64 per cent of CDM projects registered to date are in Asia and the Pacific (mainly China (20 per cent) and India (32 per cent)), 33 per cent in Latin America and the Caribbean, and only 2 per cent in Africa.

To many, the CDM is a 'win-win' solution for all countries—it provides developed countries with low-cost abatement opportunities and a way of engaging developing countries in mitigation efforts, and it provides developing countries with a source of funding for lower-emissions technologies and practices. However, it is becoming increasingly clear that the CDM is a flawed device, from both an environmental and a market perspective.

First, under CDM rules, a project must be proved to be additional, i.e. that it would not have been undertaken had it not been for the CDM. But it is becoming increasingly obvious that additionality is difficult to prove or disprove (Wara & Victor 2008).

Second, the project basis of CDM is problematic. It leads to high transaction costs and a patchy price signal for emissions reductions. There are moves under way to expand the CDM to cover programs of activities, but this may heighten concerns about additionality.

Third, an offset mechanism does not in itself lead to any global reduction in emissions. Rather, CDM credits are used by developed country parties wishing to emit more domestically. A CDM credit simply offsets domestic reductions in countries with targets.

Fourth, large-scale sales of CDM credits may stand in the way of developing countries taking on more comprehensive commitments. Recent signs that the European Union intends to restrict acceptance of CDM credits can be seen in this light.⁷

In summary, the fact that most developed countries are in a position to achieve their Kyoto targets is positive, and it is desirable for developed countries to be in part meeting their targets through financing the mitigation efforts of developing countries, as this provides international financing for these efforts. However, the large divergence between domestic effort and targets in some countries, the virtual repudiation of the Protocol by Canada, and the failure of the United States to ratify it are all serious threats to its credibility. The engagement through the Protocol of developing countries via the Clean Development Mechanism is inadequate, and the Protocol has not done enough to stimulate investments in research and development, and in mitigation financing in developing countries.

11.4 Projections given the current trajectory of mitigation effort

With emissions growing rapidly in recent years and projected to continue to do so (Chapter 4), the current trajectory of abatement action appears inadequate for achieving the UNFCCC goal of holding the risk of dangerous climate change to moderate levels.

To illustrate this point, assume that developed countries commit to reduce emissions by 20 per cent to 30 per cent by 2020 over 1990 levels (the range to which the European Union has committed itself).⁸ For developing countries, the current trajectory of negotiations cannot be expected to deliver any reduction in global emissions above that credited to developed countries. If the Clean Development Mechanism continues to be the main vehicle for engaging developing countries in the international mitigation effort, then, even if it is expanded, all abatement in developing countries would continue to be on an offset basis: that is, all financed by developed country payments in lieu of their own reduction in emissions. Developing country reductions could then be modelled as zero, since, as set out in Box 11.2, any actual emissions reduction in developing countries would simply lead to a correspondingly smaller reduction in emissions in developed countries.

On these assumptions, what would global emissions look like in 2020? Using the Platinum Age assumptions on developing country emissions growth (Chapter 4), the level of global emissions by 2020 will be 58 Gt CO₂-e with a 20 per cent cut by developed countries and 56 Gt CO₂-e with a 30 per cent cut. Stabilisation trajectories for 450 and 550 ppm CO₂-e show that global emissions at 2020 need to be in the broad range of 40 to 50 Gt CO₂-e at 2020 (Stern 2007: Figure 8.4). Thus even the more ambitious proposed cuts in developed country emissions would not be sufficient to restrict global emissions to the extent required without additional reductions from developing countries. Indeed, developing country emissions alone under business as usual would

start to exceed these stabilisation trajectories in the 2020s: according to the Platinum Age projections, developing country emissions exceed 40 Gt CO₂-e by 2020 and are almost at 50 Gt CO₂-e by 2030.

Exceeding emissions containment paths over the next decade and beyond would increase climate change risk. Offsetting the earlier overshooting would require deeper cuts in emissions in later years, possibly greatly increasing overall mitigation costs.

Clearly the current trajectory of effort traced out from the Kyoto Protocol to the Bali Roadmap and beyond will not enable the world to hold the risks posed by climate change to moderate levels. One of the reasons the current trajectory of mitigation effort is inadequate is that it has not responded to the acceleration in the growth of emissions seen so far this century, and projected to continue. As discussed in Chapter 4, earlier scenarios forecast much slower emissions growth even in the absence of concern about climate change. This earlier outlook is captured by the 'SRES median scenario', which is representative of the various long-term scenarios developed by the IPCC in the 1990s (Chapter 4: Figure 4.8). If the SRES median scenario were valid, then a 20 per cent emissions reduction by developed countries alone (relative to 1990) would result in global emissions in 2020 of 45 Gt CO₂-e. A 30 per cent reduction by developed countries would result in global emissions of 43 Gt CO₂-e. Thus, even without any reduction in emissions from business as usual by developing countries, the world would be in the vicinity of a stabilisation path. As Chapter 4 showed, the SRES median scenario can no longer be regarded as a reasonable guide to future emissions growth. Other emissions trajectories that show much more rapid growth, once considered extreme, now appear moderate or even cautious. The world has changed, but climate change negotiations have not yet adjusted.

11.5 Accelerating progress

Without strong action by both developed and major developing countries between now and 2020, it will be impossible to avoid high risks of dangerous climate change.

Chapters 12 and 13 analyse how the world can best move to a more effective international framework for responding to climate change. The magnitude of the task should not be underestimated.

Climate change negotiations have long been on a path that unhelpfully divides the world into two large groups. In addition, any multilateral negotiations concerning global public goods will face difficulties. The incentives facing individual delegations in a single, large multilateral negotiation are not conducive to reaching sound agreement. Each country will try to secure a better deal than

others, with equity concerns figuring large and incentives for free-riding working against cooperative outcomes. Countries' circumstances and interests in the negotiations will differ widely, and geopolitical considerations will interfere. The dominant outcome is a low common denominator. This is evident from the experience with the Kyoto Protocol.

Here the world is dealing with a genuine international 'prisoner's dilemma', in which the cooperative outcome is the superior one, but in which countries have an incentive not to cooperate.⁹ In the case of global warming, all countries are better off if they reduce greenhouse gas emissions than if no country does, but each individual country has an incentive to get the environmental benefits of other countries reducing emissions without having to incur any mitigation costs themselves.

There are three possible saving graces in the international space. One is the high level of community support for action in many countries including Australia, and the high international profile the issue now has, as evidenced by the attention the issue is receiving across global forums, and the growing number of countries, developed and developing, announcing emissions reduction targets and policies. The second is that a start has been made on international cooperation, and that some countries have taken steps, at some cost, towards reduction of emissions. The third is that international climate change policy is not played out just once, but rather plays out through interactions over time, allowing countries' policies to influence each other (Axelrod 1984), and allowing countries to evolve towards agreements that are individually and collectively rational—and considered fair (Barrett 2003). The global success at combating ozone depletion (Esty 2007)—albeit at a much smaller scale and for a less challenging problem—shows that effective international action on environmental issues is possible.

How can the world build greater ambition into current international efforts to mitigate climate change? The details are provided in the next two chapters on the basis of four key principles for accelerating progress.

11.5.1 Building on existing architecture

While the Kyoto Protocol is inadequate, and has only been partially implemented, it is a starting point and it would be counterproductive to attempt to start again with a new international architecture, based on a different set of principles, such as price rather than quantity targets. Existing frameworks should be built on, and used to broaden participation and deepen the level of ambition. The basic principles embodied in the Protocol are sound: the abatement burden should be distributed explicitly and equitably; and developed countries should support and provide incentives for mitigation efforts in developing countries. Proposals to move forward should build on these principles.

11.5.2 Developed country leadership

No significant progress in the multilateral sphere will be possible until the United States shows that it is serious about addressing climate change by, among other things, adopting a credible long-term target. Legislative initiatives under way in the United States are encouraging in this regard, and a new administration is widely expected to take a proactive role in international climate policy.

All developed countries need to be subject to, and meet, emissions reduction goals. While many will need to resort to international trading to reduce the costs of achieving deep cuts, it is important that developed countries show credible domestic abatement effort to demonstrate to developing countries not only their seriousness, but that it is possible to reduce emissions without sacrificing prosperity.¹⁰

A dual approach is needed. Accelerating progress requires that developed countries show leadership and good faith by accepting binding reductions immediately and unconditionally. But steeper cuts can be offered if developing countries also agree to restrict emissions. A number of developed countries, including Australia, have now indicated long-term reduction goals. Others need to follow suit.

Emissions reduction goals need to be complemented by more generous offers of assistance and collaboration by developed countries through both trading and public funding. (Details of the proposed mechanisms are presented in Chapter 13.)

Developed countries can exercise leadership by encouraging developing countries to come on board with regional initiatives (section 11.5.4).

Countries committed to effective international action on climate change need to provide negative as well as positive incentives for other countries to participate (Chapter 13.5).

11.5.3 Developing country participation

As the analysis of the preceding section showed, waiting until 2020 for any developing countries to commit to significant emissions containment policies (potentially the starting time for an agreement to follow the one currently being negotiated) would be to risk the prospect of achieving climate stabilisation at moderate levels. Reductions in developing countries' emissions below business-as-usual levels are needed in addition to developed country reductions, and not only as cheaper substitutes for them, as has been the case so far.

The differentiation between developing and developed countries, more recently reiterated in the Bali Roadmap, will continue to be important. However, interpretation of the UNFCCC phrase 'common but differentiated responsibilities' as meaning that only one group of countries is responsible for containing emissions is no longer viable. All countries need to be jointly

responsible, but poorer countries should have more flexible targets, more room for growth, and the financial and technical support required to help them live within their emissions budgets.

For progress to be made, it will also be important for developing countries not to be seen as comprising a single category, and for relevant differences in circumstances to be acknowledged. In particular, more can and should be expected of major emitters and of fast-growing middle-income developing countries than of low-income countries. China, as a superpower and already the world's largest emitter, has a similar influence in the international negotiations as the United States.

Why would developing countries participate more actively in the international abatement effort? First, as they focus on the realities of prospective emissions growth and the risks associated with it, they will increasingly come to see an effective global agreement to combat climate change as being in their interest. China, South Africa and Brazil have already advanced a considerable way down that path. Second, major developing countries need to be offered financial incentives. The combination of transfer of public funds and technology, and the availability of funds from trading would provide powerful incentives.

11.5.4 Action by individual countries and groups of countries

Given the limitations inherent in any multilateral process of negotiations, accelerating progress will also require that countries act unilaterally and in regional groupings to move from the status quo and increase the chance of a successful multilateral outcome. Early unilateral and regional efforts will help secure a more ambitious post-Kyoto framework.

Agreement on difficult political and economic issues can be much easier to achieve among small groups of countries than in large multilateral negotiations. This 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 agree on emissions reduction and technology transfer goals can accelerate global action by demonstrating that ambitious cooperative action is possible (see Box 13.1 for examples of technological cooperation). In particular, groupings that bring together developed and developing countries into regional trading and technology transfer systems have the potential to show that developing countries can live within, and indeed benefit from, national emissions budgets. Agreements reached between major developed and developing emitters have the potential to break multilateral deadlocks and give negotiations fresh impetus. They allow

for direct high-level political input, without which negotiations will languish if not stall.

The hurdle for developing countries to take on emissions reduction commitments could be much lower in such a situation, as any 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 into arrangements that include large-scale resource transfers to developing countries for climate change mitigation.

Unilateral, regional and multilateral efforts occurring in parallel might make for a messy process, but it is one that 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 encouragement of international discussion of principles and eventually in the movement towards international agreement.

Notes

- 1 Participants are the United States plus Australia, Brazil, Canada, China, the European Union (current President and European Commission representative), France, Germany, Indonesia, India, Italy, Japan, Mexico, Russia, South Africa, South Korea, the United Kingdom, and the United Nations.
- 2 The G8 nations are Canada, France, Germany, Italy, Japan, Russia, the United Kingdom and the United States. The European Commission is also represented at all meetings.
- 3 APEC's 21 member economies are Australia; Brunei Darussalam; Canada; Chile; People's Republic of China; Hong Kong, China; Indonesia; Japan; Republic of Korea; Malaysia; Mexico; New Zealand; Papua New Guinea; Peru; Philippines; Russia; Singapore; Chinese Taipei; Thailand; United States; and Vietnam.
- 4 Asia-Pacific Partnership on Clean Development and Climate partner governments are Australia, Canada, China, India, Japan, Republic of Korea and the United States.
- 5 See 'Questions and answers on the Commission's proposal to revise the EU Emissions Trading System', MEMO/08/35, Brussels, 23 January 2008, available at <<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/35>>.
- 6 See the 2008 'Proposal for a Decision of the European Parliament and of the Council on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020', available at <http://ec.europa.eu/environment/climat/pdf/draft_proposal_effort_sharing.pdf>.
- 7 See 'Questions and Answers on the Commission's proposal to revise the EU Emissions Trading System', MEMO/08/35, Brussels, 23 January 2008, available at <<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/35>>.

- 8 Strictly speaking, the distinction should be between Annex I and non-Annex I countries, but for simplicity this discussion refers to developed and developing countries.
- 9 The prisoner's dilemma is named after the situation in which two suspects would receive short sentences if neither informs on the other, and long sentences if both inform on the other. If only one suspect informs on the other, the informant will go free. The best solution for the suspects is the cooperative one (neither informs on the other), but each has an incentive not to cooperate (to inform).
- 10 As Morgenstern (2007: 218) comments: 'The prospects for international progress would certainly be enhanced if one could point to genuine success in the United States or other large nation... Even though international negotiations on climate change have been under way for almost two decades, to date no major nation has yet demonstrated a viable domestic architecture suitable for achieving large-scale emission reductions and none, except for special cases like the United Kingdom, which experienced large changes in its resource base, or Germany, which benefited from economic restructuring, has made substantial progress in actually reducing emissions.'

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