The Institute of Policy Studies, School of Government at Victoria University of Wellington

POLICY Quarterly

Volume 4 – Number 4 – November 2008

Special Issue on Global Climate Change Policy: Burden Sharing Post-2012

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ISSN: 1176 - 8797 (Print)
ISSN: 1176 - 4325 (Online)
Volume 4, Number 4 – November 2008
Design & Layout: Aleck Yee
Production: Alltex Design

Institute of policy studies

Victoria UNIVERSITY OF WELLINGTON
Te Whare Wānanga o te Ūpoko o te Ika a Māui
SCHOOL OF GOVERNMENT
Te Kura Kāwanatanga

Editorial Note

This issue of Policy Quarterly focuses exclusively on the global challenge of climate change and, in particular, the problem of international 'burden sharing' or 'effort sharing' – as it is variously called. The issue contains ten articles – one by a politician, three by diplomats and six by researchers and consultants with an interest in climate change. Most of these articles have their origins in presentations or background papers prepared for a symposium held in Wellington in late July 2008 on the subject of Post-2012 Burden Sharing, jointly hosted by the NZ European Union Centres Network and the Institute of Policy Studies.

I will not attempt to summarize these various articles here. Rather, let me provide a brief account of the central problem that the contributors all seek to address.

Negotiations are currently underway to secure a new international agreement on climate change to take effect when the first commitment period under the Kyoto Protocol expires at the end of 2012. Undoubtedly, the biggest stumbling block for any new multilateral agreement is the sharp disagreement over how to share the costs of mitigation and adaptation. The difficulties are multiple, complex and overlapping.

First, policy measures to reduce emissions will almost certainly impose short-term economic costs on those nations taking them, but the benefits that accrue will be enjoyed by all countries regardless of their contribution. There is thus an incentive for each country to minimize its cost-bearing obligations while relying on others to do more.

Second, the United Nations Framework Convention on Climate Change (UNFCCC), negotiated in 1992, embraces the principle that countries should contribute to the challenges posed by climate change 'in accordance with their common but differentiated responsibilities and respective capabilities'. But the precise meaning of this principle is unclear. Indeed, many different (and competing) principles of justice can be advanced to inform the issue of how responsibilities should be fairly differentiated. And this means that what constitutes a fair or just sharing of the burden (or 'effort') of mitigating and/or adapting to climate change will depend on which of the suggested principles is embraced and how they are weighted. Unfortunately, therefore, all burden sharing formulas are open to the accusation that they are unfair in some important respect.

Third, under the UNFCCC, countries are divided into two main categories – Annex 1 (i.e. industrialized countries) and non-Annex 1 (i.e. developing countries). Annex 1 countries, understandably, are expected to take the lead in reducing greenhouse gas emissions. But in recent years, the emissions of some large emerging economies, like China and India, have grown rapidly. Moreover, it has become increasingly clear that if substantial temperature increases are to be avoided later this century and beyond, global emissions will need to be cut by at least 50% by 2050 (i.e. compared with levels in 1990). This will require massive reductions by most Annex 1 countries (e.g. 80% or more), but also significant cuts by some developing countries. Unsurprisingly, few countries are yet willing to face this prospect.

Fourth, aside from principles of justice, there are various other considerations which impinge on the question of how the burdens of mitigation and adaptation should be shared. These include the availability of technologies to reduce particular types of emissions, the rate of population growth, the imperative of poverty eradication, and the limited capacity of many developing countries at present to quantify their emissions in a reliable and verifiable manner. Again, any conclusions about burden sharing will depend on which of these considerations is taken into account and what weighting they are given.

Fifth, and related to this, there is a natural incentive for each of the key participants (and groups of participants with common interests) to emphasize those principles and considerations that minimize their expected contribution to the global mitigation effort. Many countries are also likely to claim that they face unique, or at least special, circumstances which make it particularly costly or inappropriate for them to take strenuous action to curb their emissions. And while it might be preferable for matters of principle to prevail over narrow conceptions of national self-interest, considerations of realpolitik cannot be eliminated from the equation – as highlighted by the outcome of the negotiations over the Kyoto Protocol, and the effort-sharing arrangements agreed to within the European Union in recent years. Inevitably, all this will complicate efforts to reach an international consensus.

Given these various disagreements and constraints, will it be possible to cut a post-2012 deal? Maybe. But informed observers doubt that a fully-fledged agreement will be negotiated by the end of 2009 – the current target date set by the UN. That said, many are hopeful that a workable deal will be struck during 2010.

In all likelihood, much will depend on the negotiating position adopted by the US, and this in turn will be influenced by the outcome of the presidential and congressional elections in November. The current global financial crisis may also play a role – but probably not a helpful one.

Yet for the sake of future generations of humanity and our planet's many and varied species, every effort must be made to find a satisfactory way forward – one that is environmentally effective, economically efficient and acceptably fair.

Jonathan Boston
Co-Editor

David Parker

Sharing the Burden of Climate Change

I have been asked to talk about 'sharing the burden of climate change'.[1] Of course, that means all of us playing our part. It is unfortunate that the language of this topic is in itself loaded to the negative. 'Playing our part' sounds far more desirable than 'sharing the burden'!

Right now, the primary global response hinges on the Kyoto Protocol. The first commitment period of the protocol ends in 2012, so our next challenge will be looking at the options for tackling climate change after this date.

Here I would like to explore some of the key issues countries will need to consider post-2012 to effectively tackle climate change.

Setting the scene

One of the achievements at the UN negotiations at Bali last year was adoption of the Bali Action Plan, which sets out the building blocks needed for a comprehensive international response after 2012. The Bali Action Plan agrees that we must have a 'shared vision for long-term cooperative action'. This vision will set a long-term goal for the international community.

Importantly, the shared vision envisages emissions reductions goals for both developed and developing countries. Developed countries, including the United States, must state their quantified emission limitation and reduction objectives, taking into account their national circumstances. Developing countries will need to take on measurable, reportable and verifiable, nationally appropriate mitigation actions. The international community will strive to find ways to reduce greenhouse gas emissions in ways that are compatible with a country's circumstances, such as its size or economic situation.

Deciding what mitigation actions are appropriate and fair for different developed countries, and as between developing and developed countries, is referred to in the plan as 'comparability of effort', or what we're calling burden sharing.

The concept of 'comparability of effort' builds on a key principle developed early on in the United Nations Framework Convention on Climate Change – the principle of 'common but differentiated responsibilities and respective capabilities'.

These principles reflect the notion of equity. Equity doesn't necessarily require us all to do exactly the same things. To be sure, the global community shares a common resource that must be collectively managed and cared for. However, it must be acknowledged that developed nations have a greater responsibility to deal with climate change because over time they have produced a large percentage of the emissions that are in our atmosphere today. Additionally, developed countries have more capacity to address climate change and, in the convention, are called to 'take the lead'.

The principles of 'comparability of effort' and 'common but differentiated responsibilities and respective capabilities'

Hon David Parker holds the climate change and energy portfolios in the Labour-led government, and in this role has taken part in a number of international meetings and UN negotiations on climate change. On the domestic front, he has overseen the development of the New Zealand Emissions Trading Scheme which recently passed into law.

will guide the design of a future agreement after the end of the first commitment period. We should also keep these two principles in mind when discussing how the global community should address climate change or when we make decisions about New Zealand's role in this task.

The type of burden sharing I have been referring to ... is really about how to fairly mitigate climate change across individual countries.

A global response is needed

So, we know that a global response is needed, but what kind of response? The Kyoto Protocol provides just a stepping stone towards tackling climate change equitably and effectively. In its present form it cannot solve climate change, since it places commitments only on some developed countries and does not provide the basis for equitable burden sharing.

An effective global solution will require all major emitting countries to play their part. The future agreement will need to support strong global action on climate change. Developed countries alone will not be able to stabilise greenhouse gas emissions. As developing country economies and emissions grow in absolute and relative terms, they will, by 2020, account for more than 50% of global emissions. Therefore, developing countries – in particular those which are major emitters, and those which have graduated or should graduate from developing to developed status – will also need to take action.

Before negotiating what actions are fair for individual countries, we must first decide what overall emissions reduction efforts are required to determine our global goal. This long-term global goal must be meaningful and something that all parties can, and will, sign up to.

The latest science has reinforced the need for the international community to take urgent action on climate change. According to the Intergovernmental Panel on Climate Change, developed countries will need to collectively reduce global emissions by between 25% and 40% below 1990 levels by 2020. Developing countries, on the other hand, are in an intense growth phase. They will need to significantly reduce their projected emissions.

At the G8 summit in early July 2008 in Japan, some of our most important political leaders emphasised the need for a goal that achieves 'at least 50% reduction of global emissions by 2050, recognizing that this global challenge can only be met by a global response'. We still lack clarity as to whether that 50% reduction is below 1990 level emissions or uses some other base year.

Burden sharing

Bearing that in mind, a key issue for the negotiations over the coming years is deciding exactly how much should be done and by whom. It comes back to the concept of 'comparability of effort' or 'burden sharing'. To be politically acceptable, our individual burdens will need to be decided at the same deadline, using principles that are regarded as fair, equitable and practical.

As previously noted, a shared burden does not mean a simple division based on population. Each country's effort to reduce emissions will need to be determined in respect of their circumstances. These national circumstances include each country's mitigation potential, their capacity to reduce emissions and their stage of economic development.

As part of the collective effort by developed countries, New Zealand will take action that reflects its fair share.

Developed countries will also need to strengthen their assistance to developing countries. There needs to be an international effort to boost investment in the research, development and deployment of low-emissions processes and products. Again, the focus in each country will differ. In New Zealand we are focused on agricultural emissions and renewable energy. Australia has a greater focus on clean coal technology. The different emphasis reflects our national circumstances.

The type of burden sharing I have been referring to above is really about how to fairly mitigate climate change across individual countries. But burden sharing is not just about mitigation. It is also about adaptation.

The Bali Action Plan stated the need to increase action on adaptation, technology development and transfer, and financial resources and investment. If we are unable to effectively share the burden of mitigation, adapting to climate change will become extremely costly. Sharing the burden of adaptation would then become a critically important issue for developing countries especially. I would be concerned that unless we can achieve a fair mitigation agreement, fairness in adaptation will be very hard to achieve.

Maintaining the integrity of the global carbon market

I would like to comment briefly on the emerging global carbon market. We all have an interest in seeing a durable global carbon market develop. As part of this, substantial benefits will accrue to developing countries through the Kyoto mechanisms such as the Clean Development Mechanism. In my view, more work needs to be done to maintain the reputation of international linkages and Kyoto mechanisms in the developed countries from which capital is flowing.

We need to ensure that these precious capital flows are focused on ensuring the widespread adoption of the most crucial low-carbon technologies. We already know that to beat climate change we need to deploy low-carbon electricity generation and new low-carbon transport technologies, and make progress in emissions-intensive sectors like aluminium, steel and cement.

In my opinion we may need to consider linking generous capital flows with agreements with recipient country governments to introduce and enforce regulated minimums. For instance, for a government to be eligible to obtain money generated by developed country emissions trading schemes

for clean stationary energy, such as for carbon capture and storage or renewables, we should consider whether this should be linked to adoption of a broader regulatory rule against high-carbon electricity generation, such as new coal-fired power stations without carbon capture and storage.

We need to protect the integrity of carbon markets. Corrupt or negligent practices, including poor audits of savings or additionality, must be stamped out. We should not undermine or pay for regulatory standards that ought to be applied anyway. We should not pay for what already makes economic sense without any subsidy.

We need to improve the understanding in all countries of the importance of government interventions around regulatory standards and of how carbon taxes work and can be recycled. We need mechanisms to deal with avoided deforestation. New Zealand has some experience and ideas on this front that may help.

Unless these issues are resolved, it will be very difficult for willing developed countries like New Zealand to justify to our people who elect our governments that the investment flows desired by developing countries should be part of the post-2012 agreement.

Agreement on the rules for global commitments

I turn now to New Zealand's negotiating position. Before New Zealand will commit to quantifiable goals for emissions reductions, both the accounting framework and the rules that will apply post-2012 need to be agreed. Our mantra on this issue is 'rules before commitments'.

Why do we want this? Past experience has shown that agreeing on the rules before making a commitment is vital for environmental integrity. Early on in the Kyoto international negotiations, countries made commitments and then chose to effectively modify their commitment by modifying rules. The international agreement around land use, land use change and forestry – or LULUCF for short – is one such example. Throughout the LULUCF negotiations, countries manoeuvred to claw back the concessions they had made in taking on their emissions reductions targets. In retrospect, this was perhaps a natural response – but we shouldn't repeat it again. Commitments need to make sense and be achievable.

This time we need both transparency around the rules and an open discussion before we start to negotiate our commitments. These discussions will help each country to determine how much it can reduce its emissions based on its national circumstances, and then make realistic commitments. Paying lip service to 'rules before commitments' would be to everyone's detriment, and would put at risk being able to reach a post-2012 agreement that all countries can accept.

Burden sharing in New Zealand

The issues I have outlined here in relation to burden sharing within the international community are also relevant to the New Zealand government's domestic climate change goals. Sharing responsibility is in the design of the New Zealand emissions trading scheme (ETS). It incentivises emission reductions by rewarding decreases and charging for increases. It reflects into the economy the reality that we face as a country under Kyoto.

Without an emissions trading scheme, taxpayers would have to pay the whole cost of fulfilling our obligations under the Kyoto Protocol. Furthermore, there would be no incentive to reduce emissions, leading to an increase in New Zealand's liability under the Kyoto Protocol.

To avoid distortions, our ETS covers all six Kyoto greenhouse gases and all sectors of the economy over time. This ensures fair sharing of responsibility. Fairness among sectors is achieved by way of differing levels of free allocation, subject to the principle that all sectors see the full marginal cost for increases in emissions.

Reducing emissions is about more than just cost or meeting international obligations. Climate change puts the well-being of our economy, our communities and our environment, and our way of life at risk. It is right and proper that we do what we can to reduce our emissions, prepare for climate change and become more environmentally sustainable. Of course, all countries have this to consider in the international negotiations. Plainly, there is a lot at stake here.

> There is a special responsibility on the world's major economies – both developed and developing – to show leadership.

A shared vision

While it might seem like reaching agreement on goals for emissions targets is an almost insurmountable task, we already have an end date in sight. These negotiations are meant to be finalised at the meeting in Copenhagen in late 2009. This is not far away and we will need to make the most of the time we have because the issues are complex and agreeing the details won't be easy.

Our shared vision will help us get there. It reminds us that we all have a responsibility, no matter the size or the nature of our economies. We account for around 0.2% of the world's emissions. We can and will do our bit, but clearly we can't overcome without the rest of the world.

There is a special responsibility on the world's major economies – both developed and developing – to show leadership. I remain hopeful that we can reach a positive outcome from these negotiations. The people of the world are overwhelmingly behind us. We have the political mandate to act.

1 This is an abridged version of the opening address by Hon David Parker at the Post-2012 Burden Sharing symposium, 29 July 2008, Wellington, jointly hosted by the European Union Centres Network and the Institute of Policy Studies.

Ross Garnaut, Frank Jotzo and Stephen Howes

A Framework for a Post-2012 Global Climate Agreement

Introduction

Global greenhouse gas emissions are on a steeper growth trajectory than assumed in most scenarios that underlie current international policy discussions and negotiations.[1] Effective global climate change mitigation action will require speed, depth and breadth well beyond any efforts seen to date, and will need to involve all major emitters, including developing countries (Garnaut et al., 2008). To achieve a comprehensive global agreement at or after the Copenhagen climate conference, a principles-based framework for mitigation is needed. Here we outline a system that adds up to a global solution, and that could be broadly acceptable. It involves internationally tradable emissions rights allocated across countries, with allocations moving over time to equal per capita allocations. Developing countries would receive increasing emissions entitlements, linked to their GDP growth, for a transitional period. Binding emissions targets would apply to all developed and high-income countries plus China from the outset. Other developing countries, but not least developed countries, would be required to take on one-sided targets below their business-as-usual trajectory, and they would expect to benefit from international trade in allocations. Additional building blocks would be commitments by high-income countries to invest in low-emissions technologies and to provide additional assistance for climate change adaptation in developing countries, and sectoral agreements to place a comparable carbon price on emissions-intensive, trade-exposed industries in all countries.

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Why quantitative commitments?

Any agreement on a global goal for climate change mitigation requires that effort to be distributed among countries. Any agreement will arise from negotiations involving in particular the major emitters, especially China and the United States, but there are basic principles that would facilitate agreement. The first choice to make is what form national level commitments should take, with the main alternatives being price-based and quantity-based commitments (see Garnaut, 2008, chapter 9 for an extended discussion). Price-based commitments would involve setting an internationally agreed tax rate on greenhouse gas emissions (Cooper, 2000; Nordhaus, 2008), or hybrid systems with quantitative caps that have a government-backed price cap as an override (McKibbin and Wilcoxen, 2002; Pizer, 2002).

The main argument for price control is the inevitable uncertainty about the costs of reaching any particular quantitative emissions outcome. Other arguments in favour of agreements on prices are that international financial flows and the question of distribution of effort between countries would be avoided, that transaction costs would be low and political distortions limited. On the other hand, tax rates would need to be adjusted from time to time in light of the emissions reductions achieved, and in light of new scientific knowledge that might demand limitation of emissions to defined levels, for example to avoid specific tipping points in the climate system if they can be identified.

Ultimately, a quantity-based system of commitments, or 'cap-and-trade', is more likely to succeed at the international level than a price-based one, for a number of reasons.

First, it builds on existing international structures. The Kyoto Protocol, though nowhere near as effective as needed, did establish an architecture around emissions targets, and quantitative targets frame the current negotiations about a post-2012 framework. The urgency of the climate challenge argues for building on existing efforts, not overturning them. Second, the option to differentiate efforts, and to trade emissions rights internationally, can provide a strong incentive for developing countries to come on board. Differentiation under cap-and-trade is possible without sacrificing efficiency, because differentiated targets do not affect the common international price that prevails under trading. Third, quantitative targets control emissions levels more directly than taxes, and are thus more easily communicated. Fourth, they can be implemented with flexibility over time to avoid cost blow-outs. And finally, emissions target commitments retain countries' freedom to implement whatever mix of policies they choose domestically, in contrast to an agreement on a specific tax rate. Also, international comparison and verification of tax effort across countries would be fraught.

A principle for allocating emissions entitlements

The crucial question in any cap-and-trade system is how emissions entitlements are allocated, and it is the question on which a future international climate agreement is going to swim or sink. The Kyoto Protocol allocated emissions entitlements essentially on an ad hoc basis, with a narrow range of differentiation around 1990 base years. An approach like that would be unacceptable to most developing countries, as it locks in historical patterns of usage of the atmosphere, which are strongly skewed in favour of current developed countries. Developed countries account for most of the anthropogenic greenhouse gases already in the atmosphere, while developing countries on average and in most cases have relatively low levels of emissions per person, but strongly growing populations and economies.

This implies that emissions entitlements in developing countries would need to continue growing for some time, albeit at a slower rate than would be the case without climate change mitigation, while rich countries' entitlements would need to fall.

Any system for differentiating the global effort that is put forward in earnest needs to add up to a global total that limits the risk of climate change to acceptable levels. Formulas can be devised that coincide with the interests of any particular nation, but they will not be broadly acceptable elsewhere. By contrast, principles that are broadly acceptable and can garner support from heads of government in the lead-up to the 2009 Copenhagen climate conference need to be simple, transparent and readily applicable. They will need to be seen as fair, and that will mean that they will need to give much weight to population, acknowledging the stark differences in per capita emissions between developed and developing countries that exist today. And they will need to be seen as practical, which implies long periods of adjustment towards population-based allocations.

Various proposals for differentiating targets have been made, for example around principles of responsibility and capacity and effort (see discussion in Garnaut, 2008, chapter 9). However, many of these approaches include complex or contestable indicators and computations. It is difficult to see how broad international agreement about what is equitable, especially in the longer term, could be formed in anything but a very simple framework.

The only approach that seems to have a sufficient degree of perceived fairness as well as practicality is a gradual move to equal per capita emissions entitlements, starting from the status quo. Anything but a move to equal per capita allocations would not be acceptable to most developing countries. In fact, a gradual move to equal per capita allocations may be seen as unduly favouring current and past high per capita emitters, as it does not address the issue of historical responsibility. International funding for climate change mitigation by developed countries, discussed further below, would provide additional support to developing countries (as suggested by Bhagwati, 2006) and help make a gradual shift to equal per capita allocations defendable.

The per capita principle may seem challenging in developed countries that currently have well above global average per capita emissions, including Australia and New Zealand. Yet it is broadly consistent with the emerging longer-term emissions goals of developed countries. For example, the mid-century emissions goals announced or anticipated for the United Kingdom, Japan and the United States equate to per capita emissions of between 3 and 5 tonnes. They are much below current levels in these countries of between 11 (UK, Japan) and 22 tonnes (US) per person, below the current global average of 6 tonnes per person, and close to the 2–3 tonnes per capita average implied by stabilisation scenarios put forward by the Intergovernmental Panel on Climate Change, together with United Nations population projections.

Importantly, the actual effort required by a move to equal per capita allocations compared to targets framed in absolute terms relates not just to the starting levels of per capita emissions, but also to the rate of population growth. Countries with high per capita emissions but growing populations, such as Australia, but also the US and Canada, will find that their population growth reduces the extent of emissions reductions which receive greater absolute allocations if emissions targets are framed in per capita terms.

A modified contraction and convergence approach

A gradual move to equal per capita allocations is often referred to as 'contraction and convergence' (Global Commons Institute, 2000): a contracting global annual emissions budget, with national allocations converging to equal allocations per person everywhere. This basic principle has been promoted by India and found support in recent times in Europe, and

variations of the approach have figured in recent reports on the way forward for global climate negotiations (Stern, 2008; Commission on Growth and Development, 2008). Allocations would decrease continually for countries above the per capita global average. For countries below the average they would increase for some time – albeit typically at a rate slower than unconstrained emissions growth – before decreasing in line with the global (average) emissions.

In considering principles for allocating emissions entitlements and thus sharing the burden of mitigation effort, it is important to remember that these entitlements would be tradable between countries.

Equity in this system is addressed simply and transparently. Slow convergence favours current high emitters as it preserves current patterns for longer. Fast convergence favours countries that are now below the global average, as it allows their allocations to grow faster until reaching the (falling) global average. Thus the convergence date becomes the main equity lever in the system.

An important modification to a pure contraction and convergence system concerns rapidly growing middle-income countries, especially those that are already close to the global average per capita emissions, such as China. They would find it difficult to immediately stop and reverse the growth in per capita emissions. To enable these countries to come on board an international agreement immediately, 'headroom' would need to be provided in emissions allocations for a transitional period, to allow for a more gradual adjustment. Emissions allocations could, for example, be linked to actual growth of the economy, making them 'intensity targets' for a limited period of time.

In the Garnaut Review (2008), the rule considered was that developing countries' emissions allocations would grow at half the rate of their GDP, if this is greater than the growth in allocations under direct convergence. The 'headroom' rule would apply until 2020 or until developing countries reach the developed country average per capita allocations, whichever occurs first. Emissions growth at half the rate of GDP growth is implied by China's announced goals for reductions in energy intensity and its commitment to increase the proportionate role of low-emissions energy sources, and that could be an important factor in making the system work for the world's largest emitter.

Starting levels of emissions from which countries converge are also important. In the Garnaut Review model, convergence begins in 2013. For Annex I (developed) countries that ratified the Kyoto Protocol, the starting point is their Kyoto target levels, so that countries do not gain an advantage from not complying with Kyoto. The one exception to this is successor states to the former Soviet Union, whose Kyoto targets are well above their business-as-usual levels. The former Soviet Union, the United States and all non-Annex I (developing) countries converge from their no-mitigation levels in 2012.

Computations undertaken for the Garnaut Review, using 2050 as the convergence date and the rules sketched above, imply a reduction of developed countries' average emissions entitlements, compared to 2000 levels, by around 15% at 2020 and around 75% by 2050 (Garnaut, 2008, chapter 9). This is for a global emissions trajectory consistent with stabilisation at 550 part per million (ppm) CO_2-equivalent. For a more ambitious global trajectory consistent with stabilisation at 450ppm, developed countries' average emissions entitlements are reduced by around 30% (2020) and 85% (2050) compared to 2000 levels. Within the group of developed countries, reduction numbers are differentiated because of differences in starting levels (Kyoto target levels or 2012 projected actuals) relative to 2000 levels; the starting levels of emissions per capita, with high emitting countries subject to greater reductions; and projected population growth, with absolute reductions greater for countries with low or negative population growth.

Developing countries as a group in this model increase their emissions entitlements to 2020 by around 90% from 2000 levels and by around 20% compared to 2012 levels. 2050 entitlements are 5% below 2012 levels under the 550ppm scenario, and 45% below 2012 actual levels (though still above 2000 levels) under the 450ppm scenario. Individual developing countries' growth or contraction of entitlements differs strongly, in the longer term depending especially on the starting level of per capita emissions and population growth, and in the short term to an extent on GDP growth rates.

In considering principles for allocating emissions entitlements and thus sharing the burden of mitigation effort, it is important to remember that these entitlements would be tradable between countries. That is, individual countries would be able to remain above their allocated levels by buying extra allocations from other countries that in turn remain within their allocations. Trading is a prerequisite for overall economic efficiency of the scheme, as it allows the price to equilibrate internationally. It would be particularly important in the transition towards equal per capita entitlements, when it may not be feasible or affordable in particular economies to change existing systems fast enough to reduce emissions in line with contracting emissions allocations, while other countries may find that with policy action they can remain comfortably below their allocations.

In the longer term, very low per capita emissions levels globally would make large deviations from the global per capita average for large emitters infeasible, but nevertheless there may be some countries that continue at significantly

different per capita emissions levels due to structural reasons. For example, countries that are home to export industries that produce emissions even with advanced low-emissions technologies – possibly including some forms of agriculture and mining – would cover their excess emissions through purchases of emissions entitlements from countries that do not have these industries and that import the emissions-intensive goods.

A transition period for developing countries

The period up to 2020 should be regarded as a transition period for developing countries. This is reflected in the Garnaut Review proposals in two ways. First, as already mentioned, emissions are allowed to grow to 2020 in developing countries at half the rate of GDP. 2020 emission entitlements in developing countries are about 10% below business-as-usual levels, with the corresponding figure for developed countries implying a much greater reduction below business-as-usual.

Second, all high-income countries as well as China, because of its financial capacity and global status as the world's largest emitter and emerging superpower, would be required to submit themselves to binding economy-wide emissions constraints. Other developing countries, however, should be required only to take on one-sided commitments until 2020. A one-sided commitment allows a country to benefit from the international sale of purchases if it exceeds the target but it is not forced to buy permits if it fails to meet its target. This no-loss arrangement for developing countries would again help facilitate developing countries' participation.

Least developing countries would not be asked to sign up to economy-wide targets at all, but would be expected to participate in relevant sectoral agreements (see below), and would continue to host Clean Development Mechanism (CDM)-type offset projects. The CDM would thus become, as it should be, a mechanism to benefit the least developed countries and not an arrangement to engage the giants of the developing world; even so it would need to be strengthened compared to today's arrangements. Overall, developing world emissions are growing so rapidly that reductions in their emissions compared to business-as-usual are needed in addition to absolute reductions in developed countries, and not, as under the CDM, as a substitute for reductions in developed country emissions.

Complementary commitments

Other policy mechanisms besides emissions targets and trading will be needed to achieve comprehensive international mitigation action at sufficient speed. They consist principally of commitments by high-income countries to make funding available for technology development and for developing countries to deal with climate change impacts, but also of commitments to sectoral emissions taxation by all countries that have significant industries producing emissions-intensive traded commodities.

First, a global agreement on minimum commitments to investment in new low-emissions technologies is needed to ensure an adequate level of funding of research, development and commercialisation. Energy research and development funding have fallen over time, despite the clear need to invest in new technologies to support the shift to a decarbonised energy system. Only recently has technology research funding received greater attention, with a number of funding initiatives launched. Widespread implementation of national emissions targets and emissions pricing would not fully take care of the technology development funding, because of the public good aspects of many new technologies, and because markets for clean technologies are missing in developing countries at least in the interim. The Garnaut Review proposed an International Low-Emissions Technology Commitment requiring high-income countries to allocate a small proportion of GDP above a threshold. They would retain flexibility in the use of funds provided, which could be spent domestically or abroad, on public funding for low-emissions research and development, for technology commercialisation, or to kick-start the mitigation efforts of developing countries. Given the need to support developing country mitigation, the Garnaut Review proposes that a minimum proportion of the commitment be expended in developing countries, say 50%. An annual global amount of US$100 billion is proposed, which would today require the 50 richest countries to contribute on average 0.24% of their GDP to technology funding.

Achieving effective global climate change mitigation action will be extremely difficult, and time is running out to meet ambitious targets for atmospheric greenhouse gas concentrations.

Second, sectoral agreements would seek to ensure that the main trade-exposed, emissions-intensive industries face comparable carbon prices across the world. Such sectoral agreements, with broad international participation, would ensure that countries which lacked economy-wide targets, such as the least developed countries, would not achieve an unfair advantage in trade in emissions-intensive activities. They would thereby help avoid economic distortions and political pressures in those countries that implement carbon pricing ahead of others, because the fear of 'carbon leakage' – that is, the artificial movement of industrial activities to countries that do not impose carbon penalties – would be

alleviated. Sectoral agreements should be kept simple and focused on ensuring the emergence of appropriate and comparable price signals. In the absence of economy-wide emissions pricing, each government would at a minimum impose a carbon tax on the main producers in each industry producing emissions-intensive tradable goods. This common tax rate in itself does not allow differentiation of commitments between countries, but differentiation would not generally be necessary in industries where producers are part of a global market. National governments would keep the revenue, giving them an incentive to follow through with the commitment. Sectoral agreements would apply to key traded energy-intensive commodities, including metals, but the same principles could also apply to international civil aviation and shipping, and, in a different context and with greater institutional difficulties in implementation, land-use change and forestry emissions.

Third, an International Adaptation Assistance Commitment would provide new adaptation assistance to developing countries that join the mitigation programmes. Adaptation needs will differ strongly between countries, with activities in the core development agenda generally also beneficial in helping to deal with climate change impacts, and it is difficult to estimate the financing needs for future adaptation. Given the close similarities between the development and adaptation agendas, it is advisable not to force a division between the two, and there is no need for a new global adaptation financing infrastructure. Instead, developed countries should commit to providing adaptation support to developing countries in addition to current and planned development assistance. In the Pacific region, enhancing labour mobility in the region will be particularly important to help economies diversify and insure against climate change risk.

Conclusions

Achieving effective global climate change mitigation action will be extremely difficult, and time is running out to meet ambitious targets for atmospheric greenhouse gas concentrations. Nevertheless, it is possible to construct systems that 'add up' to the required global effort, and that should be broadly acceptable to the majority of countries, given increased realisation of the gravity of climate change risks. Here we have outlined a system of near-global coverage of efficient emissions control policies, geared in particular to facilitate early developing country participation in reducing emissions below business-as-usual levels, a fundamental precondition for effectively limiting global emissions.

It has as its centerpiece national quantitative commitments, with international tradable emissions entitlements derived from a model of gradual convergence to equal per capita emissions entitlements. For a transition period, extra headroom would be allocated to fast-growing developing countries, and most developing countries would have 'one-sided' commitments that safeguard them against any unexpected difficulties in meeting targets. These provisions could make the system attractive to developing countries. Alongside quantitative commitments stand effective sectoral agreements in the short term, and commitments by developed countries to finance technology development and deployment as well as adaptation in the context of development.

Such a system would operationalise the principle of common but differentiated responsibilities in a framework that requires and incentivises effective and efficient mitigation action from all countries in the near future, but that differentiates the effort in line with development status. It will always be possible to construct different systems, including ones that benefit particular countries by easing the burden placed on them, but any system put forward will have to add up to achievement of a global environmental outcome, while being broadly acceptable to most countries.

1 This article draws heavily on the report by the Garnaut Climate Change Review (Garnaut, 2008), especially chapter 9 and also chapter 10.

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Bruno Julien

An EU perspective on International Burden Sharing Post-2012

Introduction

Climate change issues have come to the forefront of international diplomacy and will increasingly dominate policy discussions, both within our countries and among them.[1] New Zealand, like the EU, has engaged with the battle on climate change and is currently grappling with the complexities of putting in place an emissions trading scheme.

The aim of this article is, first, to explain how the EU is contributing to the fight against climate change. In particular, I want to highlight how we already differentiate efforts within the EU among member states and different sectors, setting a real example of what could be done. Then I wish to outline some core elements for global burden sharing to be negotiated at the Copenhagen conference to be held under the United Nations Framework Convention on Climate Change in late 2009.

I use the expression 'burden sharing' because it is in the title of this conference, but I think that this is not the most appropriate concept. What we should in reality be sharing is the responsibility to maintain our planet in good order for our children and grandchildren. If we don't share the commitment to address the situation now, then we will all have to share the catastrophes in the future, no matter if we are rich or poor, developed or developing.

EU global ambition level

The European Union (EU) has been at the forefront of the fight against climate change for almost a generation now and we are generally presented as 'a', if not 'the', leader in this area. There are three important reasons why the EU has been proactive.

First, we know that all nations, one day or another, will have to take measures to mitigate and to adapt to climate change. So the sooner, the better.

Second, we have a duty as developed nations – and as such, significant polluters – to develop policies and the essential technology transferable to other parts of the world.

Finally, the EU is convinced that the first to move will be able to harvest the early fruits of the adaptation needed for the new economic environment.

His Excellency **Bruno Julien** is the Ambassador and Head of Delegation of the European Commission to Australia and New Zealand. Mr Julien has worked with the European Commission in Brussels for 25 years, most recently as head of the LIFE unit in the Directorate-General for Environment, managing around 800 projects that form LIFE, the EU's financial instrument for the environment. He was also in charge of the EC nature policies and biodiversity policies.

It was as early as 1991 when the EU started to be concerned with the growing body of scientific evidence showing the ill effects of climate change. That evidence prompted the EU to launch its first strategy to limit carbon dioxide emissions and improve energy efficiencies.

By 2000, the EU was ready to adopt the first European climate change programme. This helped to address the challenges of climate change in a more systematic way. It identified a list of priority actions and policy measures in areas as varied as voluntary standards for car emissions and co-generation and urban greening.

A second programme was launched in 2005 – one that extended the initial package and introduced an emissions trading system (ETS). The ETS, with all its imperfections, was the first integrated system in the world to be applied by a collective number of states. The EU has learnt from its experience and is now improving this system.

In March 2007 the EU heads of state and government endorsed a package of concrete policy proposals to set Europe firmly on a path towards a low carbon economy. The EU now stands ready to deliver this ambitious medium- and long-term climate change package – without waiting for the results of Copenhagen.

We are making commitments already to show a good example. The EU has committed itself to reducing its overall emissions to at least 20% below 1990 levels by 2020. We are ready to scale up this reduction to as much as 30% under a new global climate change agreement, if other developed countries make comparable efforts.

We have also set ourselves the target of increasing the share of renewable energy use to 20% by 2020; so much so that the French presidency of the European Union has made it a major priority to conclude this package of measures by the end of 2008.

The mechanics

The EU as a region has a highly diverse economy. To achieve these goals, we must set out policies and share targets with this in mind. Some of our member states have a gross domestic product (GDP) per capita that is among the richest in the world, while others have a GDP per capita similar to that of Brazil.

The European Commission has come forward with a package of measures designed to ensure that the overall EU-wide target agreed by the EU Council in March 2007 is met; that the system is fair given such a diverse set of member states; and that policy instruments are flexible enough to ensure overall cost efficiency. The package treats the emissions of the EU emission trading system – the EU ETS – and sectors and gases outside the EU ETS differently.

As a reminder, the EU ETS broadly covers 40% of the EU's overall emissions by the largest emitters (about 11,000 companies in the energy, metal, mineral, cement and paper industries). The non-ETS section covers all other emissions, from transport to agriculture to waste, and so forth.

Two separate legal instruments are proposed by the European Commission, one to cover the reviewed EU ETS and one to cover the sectors and gases outside the EU ETS. This is a top priority of the current French presidency.

The EU has allowed for two different sets of targets to ensure reduction of its greenhouse gas emissions by at least 20% compared to 1990:

- for the EU ETS, this target is set at the EU level: a reduction of 21% compared to 2005;
- for the other sectors the reduction target is set at the member states' level. These add up to an emission reduction in the non-ETS sectors of around 10% compared to 2005.

Once a global agreement is reached, both targets will be adjusted to a stricter reduction target as necessary. For the non-ETS sector, the proposed decision sets national emission targets which take into account fairness and reflect differences in GDP per capita. The EU's largest and richest economies are required to reduce emissions to up to 20% below 2005 levels by 2020, while those economies with the lowest GDP per capita levels may still see growth in emissions compared to 2005, capped at +20% for the poorest. This allows some of our poorest member states to continue emission growth in sectors such as transport and housing, where they still have much to catch up compared to the rest of the EU.

Let me now turn to the ETS. Our current proposal to strengthen and improve the EU ETS draws on the lessons learned during the implementation of the first phase from 2005 to 2007. We envisage the introduction of an EU-wide cap on the total number of emission allowances – replacing the current system of national caps, and reducing emissions to 21% below 2005 levels by 2020. Companies will be treated equally, wherever they are located in the EU. To address fairness concerns, the European Commission proposes that countries with low GDP per capita will receive relatively more allowances to auction than richer member states. This redistribution is capped at 10% of the allowances allocated to the richer member states. Overall, the sharing of efforts (not burden) is designed to take into account the economic development of the various member states.

International action

The EU has long recognised that climate change is a global problem, and that the solution demands concerted international action. The EU climate change and energy package confirms that the EU is determined to move ahead. It has elements in it that will feature during negotiations in the international arena:

- It confirms and strengthens the carbon market as a tool to reduce emissions cost effectively.
- Through increased use of auctioning, it provides an innovative and sizeable source of finance for climate action.
- It differentiates between countries in the action they need to undertake.

The Bali conference recognised the need for action from both developed and developing countries. But there

are substantial differences in circumstances and capabilities between countries that cannot be ignored. Action on climate change needs to be fair and thus differentiated. Debate and reconciliation of these differences and responsibilities in nature and magnitude is the key task in the next 18 months leading to Copenhagen.

We must reach agreement by Copenhagen in 2009. Given our ambitions and the level of agreement required, the road to Copenhagen will not be easy. As an international community we face the common challenge to at least halve global emissions by 2050 compared to 1990 levels. Business as usual is not a viable option – neither for developed countries nor emerging economies.

Developed countries

It is clear that developed countries – with their still substantially higher per capita emissions and income level – need to take the lead. An agreement will have to make sure that all developed countries move towards sufficiently ambitious emission reduction targets that are binding and comparable, including those countries that are not part of the Kyoto framework.

The EU believes that developed countries must take the lead. This should translate into binding targets. The EU thinks that these binding targets need to lead to an emission cut to 30% below 1990 levels by 2020 by the group of developed countries. This is in line with the findings of the Intergovernmental Panel on Climate Change that indicate that emissions from developed countries have to be reduced in the range of 25% to 40% in order to be on a 2°C pathway.

The good news is that much is happening in the United States both at state level and within Congress. Climate change is now part of the political debate, as we can see from the current presidential campaign.

The G8 meeting has moved the international community closer to an ambitious long-term vision. Between now and Copenhagen we need to agree to ambitious, meaningful and binding goals for emission reduction by all developed countries for the short and medium term, consistent with our long-term ambitions.

The EU, with its invaluable experience, is ready to engage with an open mind to set fair and effective targets. Hopefully this debate will still start this year.

Developing countries

But enhanced contributions from developing countries will be necessary too. We must ensure that their contributions lead to substantial reductions in greenhouse gas emissions compared to business-as-usual projections. Their main challenge and responsibility is to devise development strategies that follow lower carbon emission pathways. Many of these actions can come at no or low cost. They will certainly include many energy efficiency policies, beneficial in the longer term in times of energy insecurity.

Additional initiatives will be required beyond those win-win options. An agreement will need to work out concrete and measurable actions. To some extent it will have to be supported by developed countries. The global carbon market has an important part to play. Developed countries will need to live up to their existing and potential new commitments vis-à-vis developing countries, whether through access to technologies or to finance in general.

Climate change is incorporated as a key element in the European Union's development policies worldwide. Nowhere is this more relevant than for vulnerable Pacific Islands. Our 'blue-green' approach in partnership with Pacific Island governments aims to help their countries adapt to and mitigate the effects of climate change.

At the political level, we are building a global climate change alliance to work towards a post-2012 framework. We look forward to New Zealand's participation in the global climate change alliance in the Pacific in the near future.

We need to open a discussion on some of the innovative finance mechanisms as proposed by some parties in ongoing negotiations. The necessary shift in investments will neither come only from public finances and instruments, nor can it be mobilised in the private sector alone. Both aspects should be part of the package.

We want a more formal debate as soon as possible on how to differentiate between developing countries. Many parties agree that the least developed countries should not be asked to take on new commitments. But even among the remaining developing countries, differences in emissions and development levels are substantial and should be reflected in their contributions to the global efforts needed to fight climate change.

For emerging economies we must find the right combination of tools and incentives to ensure sufficiently ambitious contributions from them, which will then pave the way for further efforts on their side after 2020. Certainly, the most advanced developed countries will have to contribute significantly through their own domestic efforts to pursue a low-carbon development path.

Conclusion

As I said initially, to win the battle against climate change, all countries and responsible policy makers need to understand this major point: we should not focus too much about sharing a possible burden. At least equally, if not more importantly, we must concentrate on creating common opportunities when moving towards low-carbon economies.

Internationally, our lasting goal should be the creation of sustainable jobs and stronger economic growth in a more secure energy future. The EU example shows that as long as there is strong political will and commitment, states can cooperate and agree to share the necessary adjustments.

We have a historic opportunity ahead of us to reach a successful agreement in Copenhagen that must re-shape the future of mankind. Let's seize it together!

1 This is a slightly edited version of the address given by His Excellency Bruno Julien at the Post-2012 Burden Sharing symposium, 29 July 2008, Wellington, jointly hosted by the European Union Centres Network and the Institute of Policy Studies.

Zhao Yanbo

A Chinese Perspective on Post-2012 Burden sharing

The issue of climate change is a major challenge for humankind.[1] It concerns the ways of survival and development. We need the common efforts of all members of the international community to tackle the problem.

Climate change is, in essence, an issue about development. In the past 200 years the emissions of developed countries during the process of industrialisation have been the main contributor to climate change. Of the total amount of carbon dioxide emissions from the burning of fossil fuels, developed countries contributed 95% from the Industrial Revolution to 1950, and 77% from 1950 to 2000. It has to be acknowledged, therefore, that developed countries should take the larger part of the responsibility for solving the problem due to their past emissions.

As countries differ in terms of stage of development, level of scientific and technological capability and national conditions, we believe our endeavour to combat climate change should be guided by the following principles.

First, we need a comprehensive programme of measures that recognises the importance of sustainable development. There needs to be a sound balance between economic growth and environmental protection to achieve the win-win result of both development and tackling climate change.

Second, we need to adhere to the principle of common but differentiated responsibilities. On one side, both developed and developing countries should work together and share responsibilities of adopting mitigation and adaptation measures to address climate change. On the other, developed countries should take responsibility for their historical emissions and current high per capita emissions, making explicit commitments to take the lead in emission reductions.

Third, we need to promote both mitigation and adaptation. For developing countries, adaptation is more realistic and urgent.

Fourth, we need to adhere to the main channel for tackling climate change, namely the United Nations Framework Convention on Climate Change (UNFCCC), and the effective implementation of UNFCCC and its Kyoto Protocol.

Fifth, we need policies to address technology transfer and provide funding support. Developed countries have a responsibility to promote technology transfer and provide

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funding to help developing countries improve their mitigation and adaptation capabilities.

In December 2007 the international community adopted the 'Bali Road Map', which is an important milestone in the global endeavour to tackle climate change. It charts the course and sets the timetable for the negotiations for a post-2012 arrangement. This year there have been meetings in Bangkok and Bonn, with others to follow. It is crucial that every effort is made to implement the Bali Road Map and secure a new agreement by the end of 2009. The international community should work together to ensure that there is progress in the negotiations.

China is among the countries that will be most seriously affected by the negative impacts of climate change. Looking at China's emissions, it is necessary to take into account the following three factors.

In the past 200 years the emissions of developed countries during the process of industrialisation have been the main contributor to climate change.

First, China is a developing country in the process of industrialisation and modernisation. Imbalances exist in terms of development between the urban and rural areas, among different regions, and between the economic and the social sectors, and average living standards still need improving. China's core task now is to develop.

Second, China's per capita emissions are relatively low, particularly if calculated in cumulative terms. A significant share of China's total emissions falls into the category of subsistence necessary to meet people's basic needs.

Third, as a result of changes in the international division of labour and manufacturing relocation, China faces the challenge of international transfers of emissions – from the developed world to the developing world.

The Chinese government, with a responsible attitude towards the Chinese people and the whole world, takes the issue of climate change very seriously. In the past two decades China has adopted a sustainable development strategy and undertaken a series of economic reforms, including conserving energy, improving structures, raising efficiency and promoting afforestation. This has saved 800 million tonnes of standard coal, equivalent to a reduction in carbon dioxide emissions of 1.8 billion tonnes, which is a significant contribution to the global effort to curb emissions

The Chinese government has also set up the National Leading Group headed by Premier Wen Jiabao to improve coordination between different departments. Public awareness of the need for mitigation is growing. Further, China has adopted the national climate change programme, which sets various targets – for instance, the energy intensity per unit of GDP will be reduced by 20% by 2010 based on 2005 levels, the percentage of energy coming from renewable sources will be increased from 7.5% to 10%, the total discharge of major pollutants will be cut by 10%, and forest coverage will be increased to 20% from 18.2%. We are firmly committed to meeting these targets.

China will also make continued efforts to strengthen the nation's adaptation capacity in the fields of agriculture, natural and ecological systems and water resources, it will place great importance on disaster prevention and reduction, and it will seek to minimise the losses caused by disastrous weather conditions and extreme climate events.

China is actively involved in multilateral forums on climate change, including and the relevant activities of the Asia Pacific Partnership on Clean Development and Climate, the International Methane to Market Partnership and the Carbon Sequestration Leadership Forum. China has held bilateral negotiations on climate change with a number of countries, including the EU, Japan, Canada, India and Australia, issued a joint statement on climate change with France and a joint communiqué on strengthening environment cooperation with Japan, and deepened negotiations and coordination on climate change with Brazil, Mexico, South Africa and other countries.

In April 2008 the New Zealand prime minister, Helen Clark, visited China. During her meeting with Wen Jiabao, the Chinese premier specifically invited New Zealand to play a role in assisting with China's transition to a low carbon economy through greenhouse gas mitigation. China is ready to cooperate with New Zealand on such issues.

In summary, China, in accordance with the requirements of UNFCCC and its Kyoto Protocol, and particularly the principle of common but differentiated responsibilities, actively promotes negotiations on the implementation of the Bali Road Map and is ready to work unremittingly with the rest of the international community to achieve harmonious, clean and sustainable development in the world.

1 This is a slightly edited version of the address by Zhao Yanbo at the Post-2012 Burden Sharing symposium, 29 July 2008, Wellington, jointly hosted by the European Union Centres Network and the Institute of Policy Studies.

Beat Nobs

The Future of Combating Climate Change: How to Share the Burden Among Countries?

A Swiss Perspective

I would like to contribute to the ongoing discussion on this topic by adding two elements.[1] Firstly, it might be interesting to shed some light on how another small country – Switzerland – tackles the issue of climate change. Secondly, it is useful to remember at all times that it is in the negotiation room itself, where– regardless of all the statements by governments or by scientists outside of that room – the decisions on a future climate regime will finally be taken. What are the conditions to be met for a breakthrough at the Copenhagen conference to be held in December 2009 under the United Nations Framework Convention on Climate Change (UNFCCC)?

His Excellency **Dr Beat Nobs** has been the Ambassador of Switzerland to New Zealand since 2005. From 1993 to 1997 he was Deputy Permanent Representative of Switzerland to the United Nations Environment Programme (UNEP), and from 1997 to 2005 he was the first Ambassador of Switzerland for the Environment and chief negotiator for Switzerland in the field of environmental diplomacy, where he negotiated the Kyoto Protocol for Switzerland. He is a former vice-president of the UNFCCC and the UNEP, and founder of the Environmental Integrity Group, one of the negotiating groups in climate change diplomacy, encompassing Switzerland, Mexico and South Korea.

1 This article is written in my personal capacity and may not necessarily correspond to the official position of the Swiss government. It is based my remarks at the Post-2012 Burden Sharing symposium, 29 July 2008, Wellington, jointly hosted by the European Union Centres Network and the Institute of Policy Studies.

Switzerland and climate change

Switzerland has a population of 7.6 million, per capita CO_2 emissions of about 7 tonnes and has already experienced a temperature increase of approximately 1.5°C since the early 20th century (i.e. much more than the global average temperature increase of 0.8°C). As an alpine country, Switzerland is particularly vulnerable to climate change and knows it. A series of extreme weather events, such as storms, heat waves and torrential rains, have caused great damage and great cost for many towns and villages in the country. Worse is to be expected. Increased precipitation or the thawing of the permafrost soils in the Alps, for example, poses increasing risks for an increase of devastating avalanches, floods or mud slides that cause not only damage to the lives and livelihoods of people but bring about structural damage to transport and communication infrastructure, buildings and winter sports installations such as cable cars and ski lifts.

A policy that in a very tangible and concrete way addresses the adverse effects of climate change both at the national and international levels has therefore been widely accepted in Switzerland.

Climate policy in Switzerland is incorporated into a number of sectoral policies, such as energy, transport and agriculture policies. The most important ones are the National Energy Act (in force since 1998) and the CO_2 Act of 2000. The Kyoto Protocol was ratified in 2003. Under the Kyoto Protocol, Switzerland is to reduce its greenhouse gas (GHG) emissions by 8% by the end of 2012 compared to 1990 emission levels.

To limit the use of fossil fuels – which account for about 75% of Switzerland's GHG emissions – the CO_2 Act stipulates CO_2 emission reduction targets for 2010 compared to 1990 levels. Apart from an overall reduction target of 10%, emissions from heating/process fuels are to be lowered by 15% and emissions from transport by 8%. In order to achieve its targets, a carrot and stick approach is applied. Private companies negotiate voluntary but concrete reduction agreements with the government (i.e. the Federal Office of Energy) individually or via the newly established Energy Agency for the Economy.

As any sound emission-reduction policy will not kick in the first day the measures enter into force, Switzerland set a number of benchmarks both in quantity and time for its emission reductions. One such was the target of a reduction by 6% for heating/process fuel by 2007. As this benchmark was unfortunately not achieved as set out in the CO_2 Act, a CO_2 levy of CHF 12.-/tonne CO_2 emissions (= 3 cents per litre) was imposed as of 1 January 2008. Due to this measure, but certainly due also to the price hike for oil on the international spot markets, 2007 proved to be more successful and CO_2 emissions were reduced by another 7%, down to 88.8% of 1990 levels.

The situation will be continuously monitored in order to determine whether the levy needs to be increased in 2009. Since the levy is not a tax, its proceeds will be distributed back to the population by way of a health insurance refund and to companies by way of a refund on social security premiums which are collected on wages.

As far as transport fuel is concerned, a different approach has been used thus far. On the initiative of oil and car importers, the Swiss Climate Cent Foundation was established. They were given the right to add a special surcharge ('climate cent') of currently 1.5 cents per litre at the pump: the proceeds are to be used for climate projects in Switzerland, but also to acquire Emission Reduction Units (ERUs) through international projects under the Kyoto flexible mechanisms (i.e. Joint Implementation and the Clean Development Mechanism).

The above-mentioned policy measures must suffice for Switzerland to be in compliance as to its commitments under the Kyoto Protocol. There is no a legal provision to use tax funds to buy ERUs in order to meet our international commitments; nor do we think such an approach to be future oriented, as it would not increase the worldwide competitiveness of Swiss businesses in the promising energy efficiency market and other sectors, where cost-saving gains can be made. Climate change undoubtedly poses problems for certain industries, like cement, but its cost induced technology drive presents a huge field of opportunity for a country like ours, where the economy is largely knowledge-based, with companies constantly trying to compete at a global level.

Of course, given the fact that the end of the first commitment period under Kyoto (on 31 December 2012) is approaching very fast, Switzerland, like every other country, is both at the national and international level in the process of defining its next steps. One might advocate, that being small with low overall emissions we should be offered a free ride or less stringent conditions than larger emitters. We don't share this view. As an Annex I country under the Kyoto Protocol, you are only taken seriously as an active participant in the negotiations if you meet your Kyoto commitments to the letter and are willing to do your bit.

As far as the national arena is concerned, Switzerland has embarked on a consultation process on how best to amend the national CO_2 law. Internationally, we think that the offer of the European Union to reduce CO_2 equivalent emissions by 20% by 2020 compared to 1990 levels is a sound starting point from which to enter into negotiations. However, as mitigation efforts will only kick in at a very late stage, adaptation to climate change is crucial. This is why we have proposed a new international adaptation scheme, funded via a CO_2 levy on emissions. This Swiss proposal, based on the principle of 'common but differentiated responsibilities' and the polluter-pays principle, will be presented in detail at one of the next meetings of the UNFCCC.

Switzerland has not yet, however, officially presented its position on how – on a global scale – the mitigation challenge should be tackled by the international community post 2012.

It is unfortunately not unusual to see official delegations in disarray during negotiations, when rifts within the delegation become obvious or when delegations are unprepared for the twists and turns of events.

A personal view on the mitigation challenge

Let me share some thoughts on this matter in a purely personal capacity and not as the Ambassador of Switzerland to New Zealand.

As mentioned above, the final result which hopefully will be achieved by the negotiators at the 15th conference of the parties to the UNFCCC in Copenhagen at the end of 2009 (COP 15) will depend much on the dynamics as they will be playing out in the negotiation rooms themselves. This will not be the first time. It is important to remember that all major breakthroughs in climate change negotiations in the past came about in that fashion. I refer to COP 3 in Kyoto in December 1997, COP 6 in Bonn in July 2001, and COP 7 in Marrakech in December 2001 where the Marrakech Accords were agreed upon.

Governments therefore will have to prepare accordingly. The issue of climate change merits the highest attention by governments around the world. Due to its potentially dire consequences across a wide array of other areas, such as agriculture, security, migration and so forth, the issue of climate change is increasingly taking centre stage in the international political arena and it is recognised by many as one of the, if not *the*, major foreign policy challenges of the 21st century. Political coherence within government policies and consequently between government departments is therefore as important as coherence between political statements made to the national and international public on the one hand and the unified instructions given to the delegations on the other hand.

It goes without saying that governments never put all their cards on the table in the initial phases of the negotiations. However, governments are well advised to define a bottom line. It is unfortunately not unusual to see official delegations in disarray during negotiations, when rifts within the delegation become obvious or when delegations are unprepared for the twists and turns of events. Since decisions are taken by consensus, pressure usually increases on a country that finds itself in the usually uncomfortable situation to hold out all alone for reasons of national 'special circumstances'. Especially smaller countries are well advised to plan for the unforeseen and, unfortunately, also for the unwelcome.

The media and the public of a country have to play a role, too: the media in taking a very close interest in what is happening during the negotiations and by reporting in great detail to the public not only their own national positions, but the actual state of play. This helps governments to make their audience understand that international negotiations are a give-and-take for everyone, and that a compromise – as painful as it might seem at the time – might be inevitable given the dynamics and is in the long run in the interest of the country.

But what is the interest of a country? In international negotiations, it is a matter of course, that a country pursues its clearly defined national interests. In an increasingly globalized world, where problems and solutions alike are globalized, the sheer concept of 'national interest' might need to be broadened. A new concept of 'global domestic policy' might need to be put forward. This means that governments increasingly realise that an internationally achieved sustainable solution to a global issue – such as climate change – over the longer term becomes as important as, or even more so, to a country's well-being and future than short- to mid-term national interests usually pursued in international negotiations. To apply this to climate change: it is in the interest of a small country to accept a solution in the end, if the solution contributes substantially to the reduction of emissions among large-scale emitters, even if in the process a particular objective of that small country cannot be realized and therefore the result of the negotiations, at first glance at least, might be rather painful from a purely traditional viewpoint of the definition of national interest.

In the lead up to important conferences, it is crucial that governments communicate possible outcomes to the public in order to create the necessary acceptance. At the World Trade Organisation Doha Round negotiations in Geneva in mid-2008, the possibly costly impact of the negotiating packet on Switzerland's agricultural sector was widely discussed in the Swiss media, while it was pointed out at the same time that the overall gains for the Swiss economy at large would outweigh losses incurred by the agricultural sector alone.

However, while small countries might, in the best of cases, play a creative and constructive role – as Switzerland was able to do in its role as chair of the negotiations leading up to the Marrakech Accords – given the size of emissions it is obvious that the large emitters must take the lead and must substantially contribute to mitigation efforts under the post-2012 climate change regime. This, of course, includes the United States, but increasingly also the large developing countries, such as China, India and Brazil, as their emissions, both in total and per capita, are growing. By 2015 half of the emissions will originate from the large emerging economies of the developing world. They must, according to their emissions profile, actively participate not only in the problem but also in the solution. This is in their best interest, given the fact that the brunt of the cost of the damage caused by climate change will have to be born by developing countries. To remain in a state of denial will make matters worse over time.

Unfortunately, the current state of affairs indicates a rocky path ahead. A close look at the declaration adopted in Bali at COP 13 in December 2007 – which in its general approach is very promising – reveals little substance and progress beyond well crafted words.

If we want to achieve an outcome in Copenhagen that seriously contributes to an overall emission reduction at the global level in the next decade, the way forward, seems to be clear:

One major step must be to revise the current split of membership under the UNFCCC between Annex I and non-Annex I countries, and – following a proposal made by Japan at the recent climate talks in Bangkok – it should be replaced by a system whereby the actual emission profile of a country is taken into account. A new set of groups could then be established, with large emitters, medium-size emitters and small emitters given various and differentiated responsibilities according to the principle of 'common but differentiated responsibilities':

It is clear that the current Annex I countries, given their commitments under the Kyoto Protocol, would remain in the group of countries with the most stringent reduction targets to be negotiated under the new regime.

They would, however, be joined by countries with high per capita emissions that have not had mitigation commitments under the Kyoto Protocol. In order to make this more acceptable – a tall order anyway – no-regret targets and individual solutions according to the national

emission profiles would have to be negotiated, supported by a compliance regime, which might be less punitive in the case of non compliance than the current one under the Kyoto Protocol is. Also, additional financial means and a practical solution to promote the transfer of state-of-the-art technology are necessary.

A second tier of newly developed countries would – in a first phase – be included in this global mitigation regime on a voluntary basis, with the provision to integrate them fully at a later stage if their emissions keep growing.

The third group would consist of countries, such as small island developing states or least developed African countries, with a very low per capita emissions profile and a very low GDP. No emission-reduction commitments on their part would be envisaged under the regime.

Of course, the broadly successful Kyoto mechanisms, which allow for joint action across borders and have given a price to CO_2 equivalent, need to be preserved under all circumstances.

The second step that then needs to be taken is the determination of the individual national emission reductions. Rather than just cutting emissions along the lines of the Kyoto Protocol as we know it, a logical – albeit politically very difficult – approach seems to be a budget approach. If there is a need to reduce global emissions by 50% by 2050 – as is very conservatively indicated by the Intergovernmental Panel on Climate Change – in order to achieve certain climate stabilisation objectives, then an emissions-budget can be calculated for every country, based, for practical purposes, on a mix of factors. This would then allow national emission reduction targets to be calculated – or indeed in the cases of countries with low per capita emissions, such as India, even emission growth targets.

This method seems to be – from a purely physical point of view – a practical one if we are serious in trying to implement the overall objective of UNFCCC, namely 'to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system' (Article 2, UNFCCC).

Whether physical logic can be successfully transferred into political logic remains to be seen. All we can do is to try. We have no time to lose.

Lucas Kengmana

ETHICS and International Climate Negotiations

Introduction

There is no consensus amongst policy makers and scholars about the role that ethical considerations should and will play in international climate change negotiations. In this article, I defend the role of ethics in these negotiations, both in the normative sense and in the descriptive sense.[1] In doing so, I respond to a number of arguments which hold that ethical considerations either should not or will not play an important role in international climate change negotiations. First, I reply to claims that all ethical theories and positions are subjective and, as such, it is not wise to use them as a guide to shaping a new treaty. Second, I argue against claims that ethical considerations are not relevant in the international sphere. Third, I challenge the commonly held view that it is rarely in the interest of countries to contribute their ethical share of the effort to mitigate climate change. Fourth, turning to the descriptive question, I argue that ethical considerations already pervade international negotiations and suggest that they will continue to do so. I conclude that arguments against the use of ethical considerations in relation to climate change are not convincing and that there are good reasons to believe that ethics should and will play a significant role in international climate change negotiations.

Is ethics subjective?

Some scholars argue that ethics is, by its very nature, subjective. Because of this, some people believe that it is unsuitable for use in international negotiations. Their argument generally runs like this: (1) ethics is subjective; (2) it is not possible to resolve subjective matters through reason or observation; (3) because of this, considering subjective matters may delay negotiations without producing any real progress; (4) it is of great import that we come to quick agreement in the climate change negotiations; (5) therefore, it is undesirable to take into account ethical considerations when negotiating a new climate treaty.

A number of objections can be raised to this line of reasoning. The first is that it is not at all clear that ethics is subjective. In fact, a number of philosophers have suggested that ethics is objective, and have proposed a range of methods that might be used for settling moral disputes (e.g. Moore, 1903; McDowell, 1978; Railton, 1986; Sayre-McCord, 1988; Smith, 1994).

Even if it is true that ethics is subjective and that ethical issues cannot be resolved through reason or observation, it remains the case that there is substantial agreement on a number of ethical matters, particularly on the practical level. For example, there is much disagreement about what makes

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murder wrong but there is almost universal agreement about the wrongness of murder. Likewise, in the case of climate change, the same ethical conclusions are reached again and again. On the theoretical level, equality, capability and historic responsibility consistently turn up in the literature as important factors in determining how much of the effort of mitigation particular countries should agree to take on.[2] Moreover, on a practical level, it is widely recognised[3] – in fact, it is even imbedded in the United Nations Framework Convention on Climate Change (UNFCCC) – that developed countries have a responsibility to take the lead in dealing with climate change. Thus, while there is disagreement about the appropriate division of the mitigation burden, this must be understood in the context of significant moral consensus within the overall debate.

Returning to the original argument, it is not clear that ignoring ethical issues will reduce delay. While there is no straightforward method of applying reason to ethical problems in order to come to an objective conclusion, there remain at least two methods to resolve moral disagreements. The first is to rely on intuition to guide us in identifying an ethical framework. The second is to use a range of moral theories to narrow down the list of justifiable principles that play a role in the climate change debate (see Kengmana and Boston (2008) for an application of this method). This can significantly reduce the realm of disagreement and minimise delay. Furthermore, as will be discussed below, it is not clear that trying to ignore ethical issues will successfully speed up the process, as those who feel they have justified moral grievances are not likely to be willing to ignore them.

Do we have ethical responsibilities to other nations?

Another objection that is sometimes raised against the use of ethics in climate change negotiations is that ethics cannot be applied at the international level. This argument differs from the previous argument in that it does not rest on a premise about the universal nature of ethics but rather claims that the nature of ethics rules it inapplicable on the international level. It holds that there are significant disanalogies between applying ethics to individuals and applying ethics to countries. So, they claim, countries do not have the same responsibilities to other countries as individuals have to other individuals.

John Rawls (1993) supported this position. He suggested that although countries have an obligation to promote distributive justice for their citizens, these obligations do not extend beyond national borders. This asymmetry in the moral responsibility of society is justified, in his view, because institutions are legitimised by a hypothetical social contract. While these contracts could clearly be formed on the national level, he argued, global contracts that guaranteed distributive justice would be highly controversial. Hence, he concluded, countries do not have an inherent responsibility to look after the well-being of other citizens.

Michael Black (2001) offers a more contemporary defence of this position. He argues that the implicit social contract between those who live in liberal nations includes a commitment on the part of the state to preserve, wherever possible, the autonomy of its citizens. While this agreement does not supersede the other duties a state has, it does imply that states should not compel their citizens to take actions unless those actions are necessary for a well functioning society. As such, it is perfectly consistent for countries to apply coercive force to ensure distributive justice within their own borders, as this is (arguably) a necessary part of a well functioning society, without also promoting distributive justice internationally. While stopping short of concluding that countries have no international obligations, he argues that countries, without the approval of their citizens, are not justified in going any further than providing subsistence aid to other nations.

Many scholars regard the positions advanced by Rawls and Black as implausible. For example, Thomas Pogge (1989, 1992, 1994 and 2003) argues that the country where a person is born is determined solely by chance. Accordingly, it is similar to other arbitrary factors such as a person's race and gender, and thus should not be used as a basis for discriminating between people. On this basis he concludes that it is more appropriate to form social contracts on an international level than on a national level. This implies that governments should consider global welfare rather than simply national self-interest in determining their course of action. As a result, according to Pogge, countries should take issues of global justice into account when negotiating, or indeed taking, any action on the international level.

> ... since climate change is a collective problem, the only effective way it can be addressed is through global co-operation.

Even if Pogge's objections are not considered to be a decisive refutation of Rawls' and Black's positions, there are two other reasons why their arguments do not apply in the case of sharing the burden of climate change. First, since climate change is a collective action problem, the only effective way it can be addressed is through global cooperation. Although robust institutions for global burden sharing do not exist yet, it is in our interests to build them. As such, it is in our interest to negotiate an international social contract, and such a contract must be based on equitable principles to garner large-scale acceptance.

Second, it is clear that the actions of large emitters have harmed, and are continuing to harm, other countries. Therefore, developed countries have not only a distributive duty to take on greater costs than developing countries but also a moral debt for creating the problem that is adversely

By implementing policy that promotes a nation's environmental image or environmental innovation, small countries may capture an emerging market for environmental goods which is small in absolute terms but may make a significant contribution to their economy as a whole.

affecting others. Accordingly, even if considerations of distributive justice cannot play a role at the global level, in the case of climate change there are serious questions of retributive and commutative justice that must be addressed.

Is ethical action inconsistent with self-interested action?

Underlying the two objections presented above is the commonly held belief that a country's self-interest is at odds with its ethical responsibilities. If this is not the case – i.e. if there is no difference between the ethical action and the self-interested action – little rides on the question of whether ethics should play a role in the climate change debate.

In general, the belief that ethical action is at odds with self-interested action stems from the fact that the negotiation problem is often framed as a simple prisoner's dilemma. The argument assumes that countries are facing a choice between acting ethically (offering to take on stringent emission reduction targets) and acting selfishly (refusing to adopt targets). It is pointed out that since each country's emissions are small relative to total global emissions, their efforts cannot unilaterally prevent dangerous climate change from occurring. Therefore, countries gain little from taking action but must take on real costs if they choose to address climate change.

This line of reasoning leads to the conclusion that it is in a country's self-interest to take as little action as possible. However, as Scott Barrett (1999) points out, this is a misleading way to construe the problem. It wrongly assumes that one country's action does not influence other countries' actions; that countries face two discrete strategies; and that there are only costs and no benefits from addressing climate change. Each of these assumptions is incorrect and replacing them with more realistic assumptions can radically reshape the nature of optimal action.

The assumption that one country's action cannot affect the actions of other countries does not hold in the climate change debate. By taking actions, countries change the incentive structure other countries face. For simplicity, let us consider a two-country case in which Country A chooses to take action by limiting emissions. Before Country A's action, Country B had the option of unilaterally taking action but, if Country A did not follow, this would harm its high-emission industries, possibly forcing them offshore. This would impose significant short-term economic adjustment costs, as labour and capital moved to less emission-intensive industries, as well as significant political costs, as high-emission industries would be likely to resist this change. However, after Country A's action, Country B's costs of action are drastically reduced. Although there are still some opportunity costs in taking action (e.g. Country A's high-emission industries do not leak over to Country B), the adjustment costs disappear, since the high-emission industries already in Country B can no longer go to Country A to avoid internalising the cost of their emissions – and the political costs are much lower – since existing industries are not under threat.

So, in economic terms, if we were to represent this game as providing countries two discrete choices, it would be more accurate to represent it as the stag hunt game shown in Table 1 (where the number in the bottom left corner relates to Country A and the number in the top right corner relates to Country B) than as the prisoner's dilemma shown in Table 2. The difference is that in the prisoner's dilemma, there is a single dominant strategy equilibrium in which both countries fail to act, while in the stag hunt game there are two Nash equilibria: either both countries fail to act or both countries act. Both countries wish to get to the second equilibrium but to do so one of them must take costly unilateral action in the faith that the other will follow.

Table 1: The stag hunt

		Country B	
		Act	Fail to act
Country A	Act	4 4	3 0
	Fail to act	0 3	1 1

Table 2: The prisoner's dilemma

		Country B	
		Act	Fail to act
Country A	Act	3 3	5 0
	Fail to act	0 5	1 1

Interpreting the international negotiations process this way gives us a much more accurate picture of a country's self-interest, but it remains an oversimplification because it only allows a binary choice: to act to mitigate climate change or to fail to mitigate climate change. In reality, countries can

choose whether or not to take action as well as the level of effort in their emissions reduction. If, as most experts suggest (e.g. Stern, 2006; IPCC, 2007), the cost of rising temperature increases exponentially, then the first emissions removed from the atmosphere will reduce the most marginal harm, and if the reduction policy is well designed the emissions that produce the least marginal benefit will be the first to go. This is significant because it strongly increases the likelihood that it will be in a country's self-interest to mitigate climate change, since this will be the case whenever the marginal harm of the last (and therefore the most expensive) unit of emission causes more harm than removing it through the cheapest method possible.

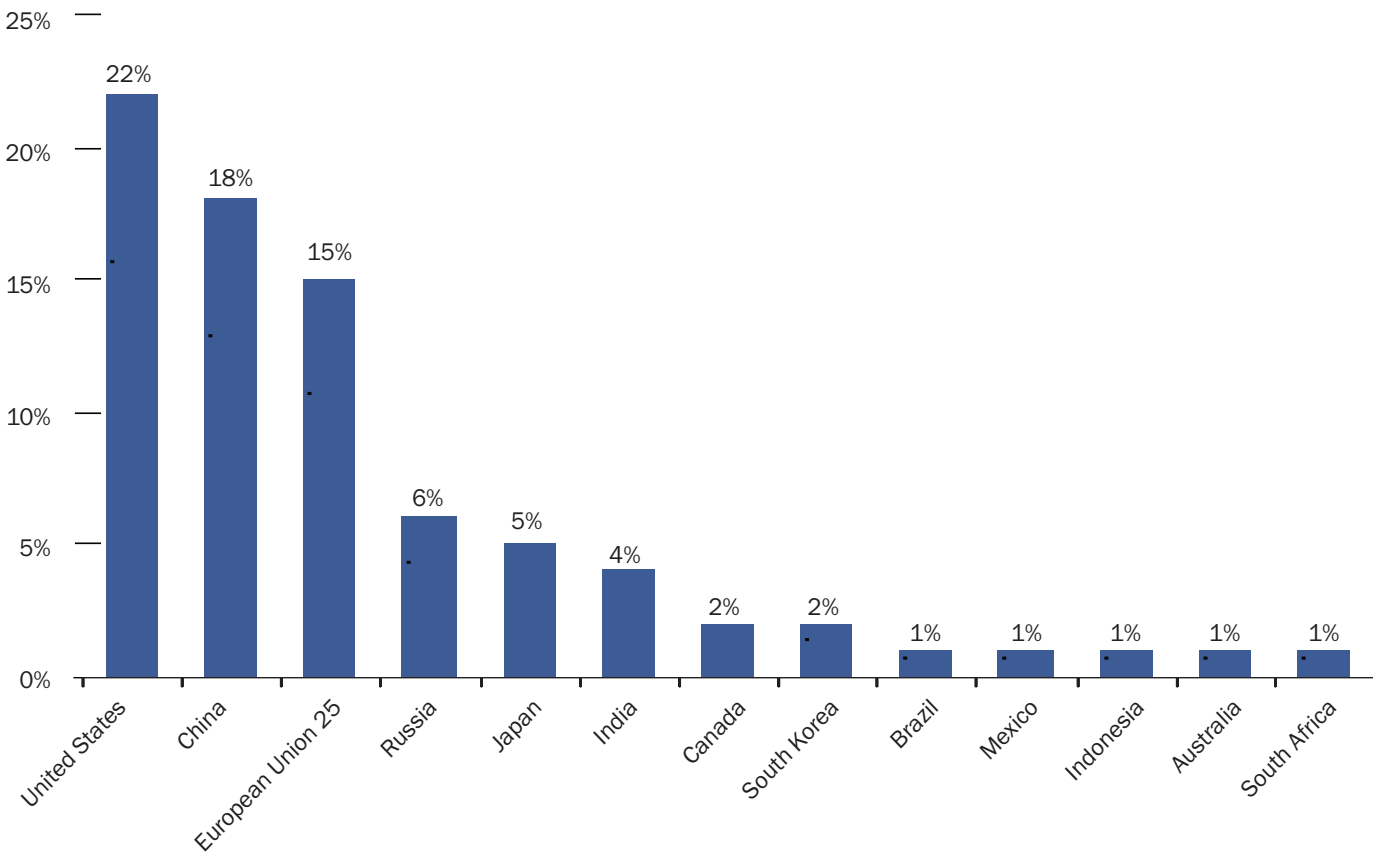
Of course, if only a negligible part of the harm from emissions is internalised, then it would still remain the case that reducing emissions will not be in a country's self-interest. However, for large countries it is not the case that their emissions, as a percentage of the global total, are negligible. As Figure 1 shows, at least three parties – the United States, China and the EU – each produce 15% or more of global emissions. If it is the case that the marginal harm caused by the current levels of emissions is much larger than the marginal benefits that these emissions produce, as Nicholas Stern (2006) suggests, then it is in fact in these countries' self-interest to reduce some of their emissions. So it is likely that the equilibrium result involves taking at least some action, and in the current circumstances it may even imply that it is in the interest of large emitters to commit, unilaterally, to substantial action.

It should also be noted that if these commitments were to form the basis of an international treaty, the self-interested level of action taken is likely to increase even further since commitments by one party are likely to increase the commitments other parties are willing to make.

These facts notwithstanding, it does not make sense to reduce emissions if these emissions are leaked to other countries. This simply moves the problem offshore while imposing a significant cost on local producers and reducing economic efficiency. Taking on stringent targets may cause this leakage to occur in two ways. It might directly cause high-emission goods to leak to other countries with less stringent controls on emissions, or it might cause this to happen indirectly by reducing the incentive for other countries to take action (since the most harmful emissions are no longer in the atmosphere).

Against this, there are some reasons to think that by undertaking mitigation, a country will encourage reciprocal behaviour. Again, this can be caused directly, through economic, diplomatic or consumer pressure on countries which do not reduce emissions, or indirectly, through a reduction in the cost competitiveness of burden sharing.

Figure 1: Annual carbon dioxide emissions as a proportion of global emissions, 2004



Source: Claussen (2007), based on data from the International Energy Agency

For small countries, the incentives to mitigate climate change are different. They cannot unilaterally change the level of harm they face from climate change since they cannot materially affect the global emission level. However, they face a range of other incentives.

First, although economic sanctions have not at this point yet been used against countries which have not taken steps to address climate change, a number of officials, such as European Commission president José Manuel Barroso (Harrabin, 2008), have signalled their use in the future. This presents a real risk to small economies, many of which are highly reliant on international trade.

As the 'food miles' incident potently illustrated,[4] even if formal sanctions are not imposed, environmentally aware consumers may penalise goods produced in countries seen to be shirking their responsibilities to mitigate climate change.

... moral causes can provide the necessary political will for difficult policy actions. Standing up to the United States on nuclear weapons was costly ... for New Zealand, yet public opinion was sufficently strong that the real costs of action were deemed acceptable.

Further, smaller countries also have the flexibility to profit from early mitigation by capturing niche markets, such as ecotourism and sustainable energy technology. Because of their size, it is likely that a limited number of small countries will be able to profit by pursuing an aggressive climate change strategy. By implementing policy that promotes a nation's environmental image or environmental innovation, small countries may capture an emerging market for environmental goods which is small in absolute terms but may make a significant contribution to their economy as a whole.

Although it may not always be in a country's interest to act ethically, ethical action is not dialectically opposed to self-interested action. There are, in fact, many situations – e.g. in attempting to solve the collective action problem, or in trying to overcome political resistance – when it is in a country's self-interest to explicitly act ethically.

Will ethics play a role in the negotiation process?

Even though there are compelling reasons to think that countries should act ethically, it is not clear that they will do this in practice. Instead, they may negotiate merely from their country's perceived interests or in the interest of their country's current governing party. Although, as argued above, coming to an ethical agreement may be in most countries' interest, the common perception is that it is in their interest to avoid actions. Therefore, if a particular country were to attempt to negotiate an ethical outcome while all other countries negotiated solely from a position of self-interest, it may well end up hurting its own citizens without materially affecting the overall equity of the outcome.

Bruce Burson (2008) identifies three reasons why ethics plays a role in climate change negotiations. Firstly, there are real moral concerns fundamental to the question of burden sharing. Some countries and individuals are able to cut emissions at lower welfare costs than others. Some countries have played a much larger role in creating the problem than others. Therefore, a negotiation that fails to take into account these factors would be rejected by those who are morally entitled to a smaller burden.

Second, the principles of common but differentiated responsibilities and of equity are clearly embedded in the UNFCCC and the Kyoto Protocol (Rajamani, 2006). Therefore, legally they must be taken into account.

Thirdly, politically, if the division of the burden is perceived to be unjust then the outcome will not have the legitimacy necessary to be sustained over time. On the international level, a legitimacy deficit is likely to lead to costly renegotiations every time there is a change in the relative influence of a major country (or block of countries). On the national level, there will always be political pressure for policy makers to renege on a commitment that is perceived to impose an unfair burden on their nation.

For these reasons, future negotiations will need to find a genuinely just solution (or something very close), even if countries are fundamentally motivated by self-interest.

Conclusion

The four questions explored in this article surrounding the use of ethics in climate change illustrate the following:

(1) that the fact that ethical considerations may be subjective does not constitute a reason to ignore ethics in negotiating a climate treaty;
(2) that there is good reason to think that ethics is relevant to the relationships between nations;
(3) that ethical and self-interested actions are often synonymous; and
(4) that for moral, legal and political reasons, ethics has played a part, and will continue to play a part, in international climate negotiations.

While I have focused on defending the place of ethics in international climate negotiations, I would like to conclude with some positive reasons for the inclusion of ethics in these negotiations. First, moral causes can provide the necessary political will for difficult policy actions. Standing up to the United States on nuclear weapons was both economically and diplomatically costly for New Zealand. Yet public opinion in New Zealand was sufficiently strong that the real costs of the action were deemed acceptable. Likewise,

on the international level, taking an ethical perspective may potentially break deadlocks since it provides a perspective that every party can relate to. The fact that a certain action is good for Country A will provide little motivation for Country B to support the action unless it happens to be good for Country B. However, the fact that it is morally right can influence Country B to support it even if it is not in Country B's self-interest to do so. Accordingly, ethics must play an important role in climate negotiations if we are to achieve a desirable post-2012 international agreement.

1 This article draws on an earlier paper prepared for the Post-2012 Burden Sharing symposium, 29 July 2008, Wellington, jointly hosted by the European Union Centres Network and the Institute of Policy Studies. It is available at http://ips.ac.nz/publications/publications/show/34. The author would like to thank Jonathan Boston and Sebastian Henderson for their helpful comments on earlier drafts of the article.

2 See, for example, Ott et al. (2004), Höhne et al. (2005), Rajamani (2006), Boston and Kengmana (2007) and Ott (2007).

3 See, for example, UNFCCC (1992), Singer (2002), Ott et al. (2004), Höhne et al. (2005), Rajamani (2006), Boston and Kengmana (2007) and Ott (2007).

4 The 'food miles' incident was caused by a British company urging its consumers to avoid New Zealand butter because of the emissions produced by freighting the butter all the way to England.

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Bruce Burson

Justice and Post-2012 Global Climate Change Mitigation Architecture

Introduction

This article[1] considers how justice relates to and informs the structure of international climate change mitigation[2] architectures under which burdens are assumed by individual states. The argument can be made that the structure of the current global architecture has, to a substantial extent, been determined in the domain of *realpolitik*, not justice. In the domain of *realpolitik*, states seek to maximise their national self-interest based on practical rather than ethical considerations. The more powerful the state, the more able it is to stay outside global regulatory systems if its perception of its national self-interest deems this appropriate. But if this is so, are considerations of justice relevant to the shape of future global climate change mitigation regimes? This article argues that they are.

Some account of justice must, therefore, be given. This will be addressed in part 1. Part 2 will then consider the role principles of distributive justice have played in the development of the current global architecture. In so doing, it will identify an analytical matrix comprised of the twin concepts of *a negotiated hierarchy of differentiation* and an *obligation gap* as a tool for deconstructing climate change mitigation architectures. Using this matrix, part 3 examines how some important models for the global post-2012 architecture build upon or depart from the current model.

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Part 1: Why is justice relevant?

Identification of dimensions of relevance

It is possible to identify three interrelated dimensions in which a concern for justice was and continues to be relevant. First, there is the *moral* dimension. The conclusion of the Intergovernmental Panel on Climate Change (IPCC, 2007, p.9) that there is at least a 90% probability that most of the observed increases in globally averaged temperatures since the mid-20th century are due to anthropogenic greenhouse gas (GHG) concentrations only tells half the story of climate change. The other 'inconvenient truth' revealed (IPCC, 2007, p.12) is that, in many cases, the most substantial effects of climate change will be felt by millions of people from countries across Africa, Asia and the Pacific, whose historical path of development has not contributed significantly to this build-up of GHGs and whose citizens' standard of living and lifestyles do not cause substantial carbon emissions. The issues raised by climate change are thus pregnant with moral concern.

Second, there is the *legal* dimension. The 1992 United Nations Framework Convention on Climate Change (UNFCCC)

is an international treaty. Under article 3(1) of the UNFCCC, equity is identified as a core principle to guide parties in the discharge of their binding commitments under article 4. Central to the UNFCCC is the issue of 'common but differentiated responsibilities and respective capabilities' (CBDR). While the principle of CBDR does not, of itself, impose any legally-binding obligation, it has sufficient legal weight to form the foundation for future legal instruments that deal with this problem (Rajamani, 2000, p.124). Rajamani (p.130) aptly describes the CBDR principle as 'the ethical anchor' of the developmental process behind the current global climate change architecture. If this principle forms the ethical anchor, then justice forms the ethical material from which the anchor is constructed. Viewed thus, the role of justice is to constitute the boundaries of the CBDR principle in this developmental process.

Third, there is the *political* dimension.[3] Concern with justice enhances the possibility of wide participation by states, particularly from 'the global south', in the arrangements made under any future architecture (Grasso, 2007, pp.224-5; Najam, 2005, p.305; Rajamani, 2000, p.123; Ringus et al., 2002, p.1; Shukla, 1999, p.7). Without broad agreement by states that any future global architecture is just and fair, there is likely to be a legitimacy deficit in both the domestic and international arenas that will prove fatal to attempts to build an effective and truly global framework (Pew Centre, 2005, p.11).

Justice, then, is highly relevant. The effectiveness of any post-2012 climate change mitigation architecture will, to a significant degree, be determined by the extent to which concerns with justice across these dimensions restrain the influence of *realpolitik*. Moreover, the ability of justice to restrain *realpolitik* will depend on how alternative visions of justice are reconciled in the development of this architecture.

Justice of what?

While acknowledging that the unequal distribution of power that drives concerns with procedural justice is relevant to the ongoing negotiations regarding a post-2012 policy framework (see Grasso, 2007, p.228; Shue, 1999, p.531), I will focus here on the more substantive considerations of distributive justice. What follows is a necessarily brief overview.

Distributive justice

Conceptually, distributive justice is ordinarily concerned with legitimating the distribution of benefits (usually wealth and income) and burdens within and by political authorities (Feinberg, 1973, p.107).[4] Distributive justice relates to the incidence of costs and benefits among a group of individuals and is commonly described by the maxim 'to each his or her due'. This begs the question as to how the dues of any particular individual are to be calculated.

Here, the concept of justice bifurcates into 'formal' and 'material' principles. The formal principles of justice are twofold. First, where persons are equal in all relevant respects, their dues are the same and they should be treated in the same way. Second, where a person's dues depend upon some quantifiable attribute, the amount of benefit to be enjoyed, or burden suffered, should be proportionate to the quantity of the relevant attribute they possess. Material principles of justice relate to answering the question of how each person's dues are to be assessed (Feinberg, 1973, p.100; Miller, 1976, 21).[5]

Two commonly acknowledged material principles of justice are particularly important in this context, namely:

- to each according to his/her deserts; and
- to each according to his/her needs.

> Competing notions of what is equitable or just will depend on perception of – usually short-term – national self-interest

Desert and justice

Desert-based principles of distributive justice denote 'a relationship between an individual and his conduct, and modes of treatment which are liked or disliked' (Miller, 1976, p.92). There are different bases for calculating 'deserts' (Feinberg, 1973, p.102; Miller, 1976, p.89). They include merit (to each according to his/her merit) and contribution (to each according to his/her contribution). 'Merit' focuses on what attributes – typically virtues such as courage or technical skill and ability – a person possesses (Feinberg, 1973 p.192; Vlastos, 1984, p.51). 'Contribution' focuses on what a person has done in the past to produce a particular state of affairs.

Need and justice

There is broad acceptance of a linkage to the avoidance of harm (Benn and Peters, 1959, p.142; Miller, 1976, pp.129-31; O'Neill, 1996, p.115). Beyond this, the task of identifying basic needs is controversial. Some see needs as including both natural and socially determined needs (see Benn and Peters, 1959; Townsend, 1983). Others argue that needs remain constant even if increases in the standard of living over time produce more commodities (e.g. televisions) which social pressure may present as 'needs' (see Miller, 1976; Braybrooke, 1987).

Part 2: The role of principles of distributive justice in the development of current climate change architecture

The negotiated hierarchy of differentiation under the UNFCCC

Both the preamble to the UNFCCC and article 3 make clear the drafters' concern in establishing a framework that is just and fair in both the international and the inter-generational spheres. In other words, at its heart the UNFCCC is a mechanism for rendering distributive justice both across

borders and across time. That said, a degree of moral ambiguity as to what is 'just' is present (Muller, 2001, p.286). Competing notions of what is equitable or just will depend on perception of – usually short-term – national self-interest (Baer and Athanasiou, 2007, p.12). State perceptions of these interests will diverge greatly (Bodansky, 1993, p.477).

The UNFCCC responds to and moderates this moral ambiguity. At its heart lies the notion that states, while nominally *equal* on the international plane, possess *morally relevant differences* with respect to their responsibility for addressing climate change. The UNFCCC thus embraces the Aristotelian formal principle of justice and sanctions an unequal distribution of climate change mitigation burden. Embedded within it are a set of principles of distributive justice which determine the pattern of distribution of mitigation burden between states.

When measured by the relative level of burden assumed by states under the UNFCCC, a three-tiered structure emerges in which separate, discrete, categories of differentiation are made.

The ordering of these principles represents a *negotiated hierarchy of differentiation*:

- *Negotiated* – there is no inherent hierarchical order of the material principles of justice (Ringus et al., 2002, p.17). The hierarchy that emerged resulted from a process of negotiation and compromise.
- *Hierarchy* – the selected material principles of justice are ranked according to the weight they are to have in determining the level of any particular state's mitigation burden relative to the burdens assumed by other states.
- *Differentiation* – the effect of the negotiated hierarchy is that states are to be treated differently.

This is not to say that this hierarchy requires that the burden borne by states as a result of the highest ranked principle be exhausted before burdens are imposed as a result of lower order principles. Rather, each principle acts simultaneously, resulting in a balance of commitments (Rajamani, 2001, p.125).

When measured by the relative level of burden assumed by states under the UNFCCC, a three-tiered structure emerges in which separate, discrete, categories of differentiation are made. These will be referred to as first-, second- and third-order differentiations. Driving these differentiations are separate principles of distributive justice. In particular:

- the first-order differentiation is desert-based linked to contribution;
- the second-order differentiation is also desert-based but linked to ability;
- the third-order differentiation is need-based.

The first-order differentiation

For present purposes, the critical point is that achievement of the UNFCCC's stabilisation objective requires limiting future total global emissions – ideally at a level close to current levels[6] – if dangerous adverse climatic events are to be avoided. Under the UNFCCC, Annex 1 parties are required to take the lead and bear a greater burden by receiving a lesser share of the future total global GHG emissions allowable in order to achieve the stabilisation objective. In other words, Annex 1 parties 'deserve' a lesser share in the future and must therefore take steps to reduce the impact of climate change through mitigation action. Non-Annex 1 parties, by contrast, deserve a greater share of future emissions but such greater licence to emit must be exercised in an environmentally sustainable manner.

While developed countries resisted any suggestion they were to bear the main responsibility (Bodansky, 1993, p.498), the preamble to the UNFCCC (recital 3) nevertheless records the historical contribution of developed states to current emissions levels as the context of their obligation under article 3 'to take the lead' in combating climate change. This points to the first-order differentiation being based on contribution to current levels of anthropogenic GHG emissions.[7] Furthermore, while both the preamble (recital 6) and article 3(1) also refer to the 'respective capabilities of the parties', capability is a characteristic which all parties possess in some measure. Yet article 3(1) requires only some to take the lead in combating climate change. This also suggests that it is the characteristic of historic contribution, unique to Annex 1 developed countries, rather than current ability, which is common to all parties in some form or another, which is given greater weight and which drives the first-order differentiation. Rather, ability as a distinct sub-species of the desert-based principle of distributive justice forms the basis of a second-order differentiation.

The second-order differentiation

At this level of differentiation, the UNFCCC postulates that the 'just' distribution of mitigation burden depends on the state's ability to assist with global efforts to reach the stabilisation objective. It reinforces the first-order differentiation by prioritising the abilities of developed states – typically with greater technical and financial ability – over those of developing states. However, an additional ability-based differentiation is also now introduced, this time *between* Annex 1 parties. While the UNFCCC expressly allows for flexibility for some Annex 1 parties identified as economies in transition so as to 'enhance the ability of these States to address climate change' (see article 4(6)), article 3(1) does not identify what the particular ability-related characteristics might be. Much of the focus of the post-UNFCCC development process can be seen as an attempt to identify and agree on just what the relevant and appropriate individual circumstances should be.

Article 4(2)(a) sets the broad parameters of second-order differentiation. These include a state's:

- starting point and approach;
- economic structure;
- resource base;
- available technology; and
- other individual circumstances.

While reference is also made in article 4(2)(a) to various needs, such as the 'need to maintain strong and sustainable economic growth' and the 'need for equitable and appropriate contributions', need in this context is being used as a broad policy parameter applicable to all Annex 1 parties and not as a basis for distributing *different* quantities of burden among them.

The third-order differentiation

The preamble and article 3(1) reflect the truism that all states will possess some ability to contribute to global efforts to reach the stabilisation objective. However, such capability will vary. Countries with large populations but low development levels have the potential ability to contribute by adopting policies and measures that restrict certain aspects of their development (e.g. transport). Often, these same countries have not contributed to the problem and so it seems unjust to impose such a burden on them.

Concern that ability-based distribution may, even after historical contribution is taken into account, nevertheless result in an unjust distribution of burden is reflected clearly in article 3(2) of the UNFCCC. This provides that, in determining the level of CBDR under article 3(1):

> the *specific needs* and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, *that would have to bear a disproportionate or abnormal burden* under the Convention, should be given full consideration. (emphasis added)

Furthermore, article 4(7) states that:

> [t]he extent to which developing country parties will effectively implement their commitments under the Convention … will take fully into account that economic and social development are the first *and overriding* priorities of developing country Parties. [emphasis added]

Although not expressed as needs, these 'priorities' clearly take the form of needs. Any burden that would otherwise 'justly' attach to a non-Annex 1 party as a result of the second-order, ability-based distribution criterion is effectively subordinated to a need-based distribution. When viewed from the level of burden assumed, this clearly represents the UNFCCC's third-order differentiation.

Obligation gap

The term 'obligation gap' describes the domestic policy effect of the negotiated hierarchy of differentiation under the UNFCCC.

- *Obligation* – at the end of the day, the UNFCCC is like any other treaty. It is a part of public international law, which imposes binding obligations on states to perform what they have agreed to do in good faith (see Brownlie, 2003, pp.591-2).
- *Gap* – the obligations assumed by states differ in kind and exert differing degrees of force on the particular state's future domestic policy arena in terms of the limitation and reduction of GHG emissions.

Under the UNFCCC, Annex 1 parties accepted additional commitments to the general commitments that all parties made (articles 4(2), 4(1)). In particular, Annex 1 parties committed themselves to taking positive steps by adopting national policies and taking corresponding measures by limiting anthropogenic GHG emissions and protecting and enhancing GHG sinks and reservoirs (article 4(1)). While a 'certain degree of flexibility' was allowed for those Annex 1 parties with an 'economy in transition' (article 4(6)), this flexibility related only to the *implementation* of their commitments, not the *nature* of their commitment to limit GHG emissions. For these states, there is an obligation to implement appropriate policy to achieve this outcome and show they are taking the lead in modifying longer-term emissions trends. The force exerted by the UNFCCC on their future domestic policy is strong.

As a framework document, the UNFCCC sets out the principles that guide the parties in further negotiations undertaken at subsequent conferences of parties.

In contrast, non-Annex 1 parties undertook commitments of a lesser nature. These included:

- the development of emissions inventories (article 4(1)(a));
- the formulation and implementation of national and regional mitigation programmes (article 4(1)(b));
- the promotion of sustainable management (article 4(1)(d)); and
- taking climate change into account when formulating wider policy (article 4(1)(f)).

These obligations are generally much weaker and do not contain the same degree of specificity as to policy outcomes. While national plans must be formulated and implemented which contain measures that 'address' anthropogenic emissions by sources and removal by sinks (article 1(b)), this commitment does not specifically require there to be any limitation in GHG emissions so as to achieve the UNFCCC's overall stabilisation objective. Provided the

domestic policy addresses climate change mitigation in good faith (for example, by prioritising renewable energy sources), this commitment validates domestic policies by non-Annex I parties under which GHG emissions may grow.

Justice and the further development of the UNFCCC architecture

As a framework document, the UNFCCC sets out the principles that guide the parties in further negotiations undertaken at subsequent conferences of parties (COP). The following two were particularly important in shaping the current architecture.

It is important to recognise that there is no inherent hierarchy among the competing principles of distributive justice that preordains any hierarchy of differentiation between states

COP 1: The Berlin Mandate

The Berlin Mandate maintains the basic differentiations of the UNFCCC and, in particular, the first-order differentiation between Annex 1 and non-Annex 1 parties. It is notable for the emphasis placed on the need-based principles of justice which underpin the UNFCCC's third-order differentiation as a means for reinforcing the UNFCCC's first-order differentiation. Need-based justifications such as 'the specific needs and concerns of developing country parties and least developing country parties' (article 1(b)) and the 'legitimate needs' of developing countries in terms of achieving sustained economic growth and eradicating poverty (article 1(c)) dominate the principles designed to guide the development of the global climate change mitigation regime.

The Berlin Mandate directed a process to result in time-bound, quantified reduction and limitation objectives (QERLOs) for Annex 1 parties (article 2(a)) while, at the same time, eschewing the introduction of any new commitments by non-Annex 1 parties (article 2(b)). The principal effect of this extra emphasis on developing-state oriented, need-based distributive principles of justice has been to widen the 'obligation gap' created by the first-order differentiation.

In so doing, the clear intention was to ensure that climate change mitigation burdens assumed by developing countries should not prevent their adoption of policies designed to close the income gap with developed countries. At this level, the UNFCCC architecture expressly endorses equalitarian principles of distributive justice, 'designed to bring those with greater initial burden or deficit up to the same level as their fellows' (Feinberg, 1973, p.111). This contrasts with the non-equalitarian principles of desert (contribution) and desert (ability) which underpin the first- and second-order differentiations

Ability-based principles of distributive justice are also present. The Berlin Mandate refers to the CBDR principle under UNFCCC article 3(1) (articles 1(a), 1(e)). A critical component of the work undertaken subsequently by the ad hoc group on the Berlin Mandate (AGBM) was precisely to develop a bundle of possible relevant characteristics for differentiating *among Annex 1 states* for possible inclusion in the new legal instrument.[8] The flexibility proposed to be granted to parties with economies in transition in accordance with UNFCCC article 4(6), together with the establishment of Joint Implementation and Clean Development mechanisms, represent instruments by which Annex 1 parties could discharge their obligations under UNFCCC according to their ability.

COP 3: The Kyoto Protocol

The AGBM eventually produced a text for negotiation by parties at COP 3 in 1997 (UNFCCC/AGBM/1997/3/Add.1, 22 April 1997). The work of the AGBM culminated in the adoption at COP3 of a protocol to the UNFCCC – the Kyoto Protocol. The Kyoto Protocol quantifies the commitments made under UNFCCC articles 4(2)(a) and 4(2)(b) by setting a specified schedule of reductions of GHG emissions for Annex 1 parties. This has collective and individualised components. The individualised burdens are derived from a subjective assessment of a state's own capabilities, having regard to their particular circumstances.

Whereas both the UNFCCC and the Berlin Mandate relate to the nature of the mitigation burden assumed by a state, the Kyoto Protocol is significant because it represents the mechanism for determining the *extent* of the burden that any state is to bear as a result of the application of the negotiated hierarchy of differentiation to its particular national circumstances.

Part 3: Justice and the structure of post-2012 policy architecture

The negotiated hierarchy of differentiation and the obligation gap – a matrix for analysis

I suggest that conceptualising climate change mitigation architectures as constituting a negotiated hierarchy of differentiation and resulting in an obligation gap provides a useful matrix for shaping the complex issues that arise in designing any post-2012 policy architecture.

The sort of questions this analytical matrix opens up include:

- Is the current desert (contribution) based first-order differentiation, as reflected by Annex I status, simply too blunt an instrument when patterns of projected future global emissions (particularly the future projections of major developing country emitters) are considered?[9]
- Should the material principles of justice upon which the current differentiations are based be re-ordered or re-calibrated? To what extent should 'need' be prioritised

over 'ability' across all non-Annex 1 parties, and for how long, particularly for those developing states such as China with large populations and rising per capita emissions? Should some forms of ability (perhaps sector based) be prioritised over historical contribution? If so, which?

- Should principles of distributive justice not currently informing the shape of the global architecture (e.g. equality, effort to date, etc.) be introduced? One recent study suggests that, although efforts vary, of the G8 countries, none has yet implemented measures commensurate with a goal of avoiding an increase in the global mean surface temperature of more than a 2°C (Hoehne, Graus and Ellermann, 2007, p.34).
- Should some 'needs', such as the need to ensure adequate food, shelter and health, be expressly recognised and given greater emphasis? If so, in what way? How are 'needs' to be measured – by reference to some agreed level of the particular social good in question or by proxy measurements such as GDP?[10]
- Is the current obligation gap too wide? Patterns of global emissions mean that on a business-as-usual scenario, while short- and medium-term levels of GHG emissions can be expected to be attributable to emissions from the 'industrialised West', this will not necessarily be the case in 2050. If so, to what extent should a major emitter developing country's domestic policy choices be subject to less constraint than states of the industrialised West?[11]

It is important to recognise that there is no inherent hierarchy among the competing principles of distributive justice that preordains any hierarchy of differentiation between states; nor does any particular type of mitigation commitment automatically flow from the application of any particular principle of distributive justice. While the differentiation informs the pattern of distribution of the mitigation burden between states (broadly, do states assume an equal amount of burden or, if not, which states assume more and which less?), the nature of the mitigation commitment that results from the pattern of distribution is an entirely free-standing matter. Ethical considerations apply to both issues.

While it may be that there is no single, objective answer to the question, what constitutes a 'just' distribution of climate change mitigation burden post-2012, principles of distributive justice can usefully inform the ongoing negotiations as to the post-2012 burden sharing agreement. Applying considerations of distributive justice to the twin dimension suggested here will, I believe, allow for a more nuanced mitigation architecture to emerge – one that has greater chance of being more widely accepted as 'just', and thus being more effective in meeting the UNFCCC's climate stabilisation objective.

Analysis of some suggested models for the post-2012 policy architecture

There are a plethora of suggested proposals for burden sharing in the post-2012 environment.[12] Commentaries on them are equally prevalent (see, for example, Baer and Athanasiou, 2007; Bodansky et al., 2004; Boeters et al., 2007; and Hoehne et al., 2007). It is simply not possible to review them all here. Accordingly, I will focus on three models:

- contraction and convergence;
- multi-stage approaches; and
- sectoral approaches.

A brief discussion of the essential features of each type will be given, in order to shed some insight on how competing principles of justice are utilised. In all cases, unless otherwise stated, these descriptions are taken from the summaries set out in Hoehne et al. (2007, pp.13-20).

...equal per capita emissions cannot be achieved by the stroke of the pen and both C&C and CDC envision a relatively lengthy period over which equalisation/convergence will take place.

Contraction and convergence (C&C) and common but differentiated convergence (CDC)

C&C and CDC models are driven by the idea that states are ultimately entitled to an equal per capita allocation of GHG emissions. This emphasis on equality between states around a shared characteristic (i.e. population) is their basic organising principle of justice. Mitigation burdens are not distributed on desert-based principles because the essence of these models is that all states ultimately are due the same per capita share of future emission allowances. As such, these models represent something of a paradigm shift from how concern with distributive justice is dealt with under current arrangements, which emphasise fundamental moral *differences* between states. Moreover, no obligation gap arises under the C&C and CDC models; each state has an immediately binding emission target designed to equalise per capita emissions over time.

Plainly, however, equal per capita emissions cannot be achieved by the stroke of the pen and both C&C and CDC envision a relatively lengthy period over which equalisation/convergence will take place. The amount of temporal latitude is determined by the maximum level of GHG concentrations judged acceptable and the convergence time frame. Although negotiations over the convergence date may well involve intense debates as to how long developing states require to converge, the principle of need plays a lesser, more transient role. It does not exempt those states with development needs from assuming binding commitments. It simply delineates the

length of time these states can entertain a rise in per capita emissions. Once convergence is reached, the 'need' ceases to play any part in shaping the distribution of mitigation burden. While the CDC model does give some emphasis to historical contribution in that it maintains the Annex 1/non-Annex 1 distinction, as with need, this differentiation also has a weaker role than under present arrangements. It does not result in weaker commitments, but rather makes the assumption of commitment contingent on the reaching of the agreed threshold.[13]

... the requirements of justice – and especially the immorality of a business-as-usual scenario – remind us why we must take the scientific evidence seriously

Multi-stage approaches[14]

As the name suggests, under such approaches, states participate in a global framework but at different stages. Each stage involves the assumption of an increasingly stringent mitigation commitment. A comprehensive example of this model is the Climate Protection Programme's South–North Dialogue proposal (Climate Protection Programme, 2004). The SND proposal divides states into six separate categories based upon status under the UNFCCC and development status, with each category falling into a particular stage.[15] At one end of the spectrum are Annex I parties, which have absolute reduction targets. At the other end are least developed countries, which have no quantitative reductions commitments. The SND proposal utilises three main concepts:

- *Responsibility* – contribution to temperature increase. The larger the degree of responsibility, the more onerous the mitigation commitment assumed by the state in question.
- *Capability* – the 'financial and socio-economic wherewithal' to help overcome the climate problem. Those with greater capability fund sustainable development in states with low capability.
- *Potential* – the opportunities for mitigation within the economy through GHG reductions or pre-empting growth through cleaner development. The greater the potential, the higher the domestic reduction commitments.

Driving this proposal is a complex, four-tiered system of differentiation. In terms of the underlying principles of justice, noting the moral and practical necessity of deep cuts in emissions by Annex 1 states, the first-order differentiation is accordingly desert (or contribution) based, as under the UNFCCC. Beyond this, the picture becomes blurred. 'Need' is employed to moderate both capability and potential. For example, the model recognises that a certain level of emissions may well be necessary to guarantee 'a decent life for poor people'. However, under the SND proposal, need-based principles of justice do not assume any independent role but instead are subsumed within broader considerations of capability and potential. Rather than trump outright any pattern of distribution of mitigation burden that might otherwise arise from capability or potential-based considerations, 'need' acts to moderate their effect as part of the complex interplay between the three nominated criteria. In this sense, the South–North model stands in stark contrast to the current architecture.

The effect of this moderating role is reflected in a more nuanced range of mitigation burdens. The model recognises that a state's social and development 'needs' change and thus, by definition, both their mitigation potential and capability change over time. States are therefore able to move between the categories as they meet or fall below thresholds in all three criteria. Insofar as 'need' impacts upon the mitigation capability or potential of any non-Annex 1 party, this is capable of giving rise to a graduated level of commitment. The SND proposal therefore seeks to close the obligation gap that need-based principles of justice produce under the current framework, at least in relation to some non-Annex 1 parties.

What seems clear is that, in contemplating a more nuanced approach to issues of responsibility in which some current non-Annex 1 parties assume absolute limitation or reduction targets, the model extends the application of desert-based distribution beyond that of the current framework.

Sectoral approaches

Sectoral approaches fall into three broad categories: transnational, intergovernmental and sectoral crediting (Boston and Kengmana, 2007, pp.161-2). Each has the common goal of addressing competitiveness-at-risk concerns by imposing common rules on identified sectors, and products within sectors, across all countries (Hoehne et al., 2007, p.18).

In terms of the organising principles of justice, a number of points arise in relation to sectoral approaches. First, in general terms, sectoral approaches differ from other models of possible post-2012 climate change mitigation architectures in that the unit of analysis is not the state, as such, but a particular sector of economic activity within the state. Distribution of mitigation burden is, therefore, contingent on the presence of the economic activity within the territory of the state and this represents the first-order differentiation under such models.

Second, in contrast to the present architecture, the first-order differentiation under any sectorally-oriented post-2012 architecture utilises ability-based principles of distributive justice. Bodansky (2007, pp.9-11) identifies three categories of factors for evaluating which sectors represent the best

candidates for inclusion under this approach, namely environmental, economic and negotiation/participation factors. The common characteristic of these factors is that they all relate to the capability of any particular sector to contribute to global efforts to achieve the UNFCCC's stabilisation objective.

Third, whereas transnational and intergovernmental approaches do not differentiate on the basis of historical responsibility (contribution), the sectoral crediting mechanism is very much intended to reflect this. For sectoral crediting approaches, which retain the Annex 1/non-Annex 1 distinction, this represents a second-order differentiation. However, any distribution of mitigation burden on the basis of desert (contribution) occurs only *after* a prior differential distribution of burden on the basis of desert (ability). This represents an inversion of the hierarchy under the current architecture.

Fourth, sectoral agreements are very flexible devices, able to include almost any kind of mitigation commitment (Bodansky, 2007, p.3). As such, they represent an ideal vehicle for introducing more graduated normative force into the mitigation burden assumed by states than presently exists. Moreover, each state would possess differing amounts of the relevant distributive characteristic, i.e. the presence of economic activity in the particular sector. It is entirely possible for there to be differing types of commitment not just between states but between sectors within states. This demonstrates the potential responsiveness of sectoral approaches to the particularities of a state's unique emission profile. As such, these approaches arguably represent a more viable mechanism for calculating the 'dues' of any particular state in terms of the climate change mitigation burdens it assumes.

Finally, depending on the precise structure of any sectoral agreement, need-based principles of justice may not have the same prominence as under the current architecture. Under intergovernmental and transnational agreements, developmental 'need' does not operate so as to exclude a developing country from the regime, nor result in any difference in the type of mitigation commitment assumed. Insofar as sectoral crediting may result in some difference in the distribution of burden, this results not from need, but from merit-based concerns linked to historical responsibility. This is not to say that need-based principles of justice will necessarily be wholly absent from the design of any sectorally-based post-2012 architecture. Considerations of 'need' may well play some role in determining the degree to which voluntary pledges are assumed in relation to some sectors of economic activity.

Conclusion

While much attention is placed on the science of climate change in the design of a post-2012 policy architecture, and rightly so, it is equally important not to lose sight of justice. After all, the requirements of justice – and especially the immorality of a business-as-usual scenario – remind us why we must take the scientific evidence seriously.

This article has argued that a concern for justice is at the heart of the UNFCCC, and must continue to play a significant role in determining how mitigation burdens are distributed post-2012. Whether any proposed policy architecture is accepted by states to be both internationally and inter-generationally 'just' will be critical in ensuring its wide acceptance, and thus the regime's overall effectiveness in terms of reducing GHG emissions.

But, as the proceeding analysis has highlighted, there are a number of different material principles of distributive justice. There are also competing models for achieving global emission reductions, each of which gives somewhat different weightings to these principles. The fact that there are a number of competing principles and models points to the need for compromise and accommodation, in terms either of the degree of differentiation between states or of the nature of the obligations assumed on the basis of that differentiation. Plainly, securing an acceptable compromise over the next year or so will be difficult. The negotiations leading up to Copenhagen (and beyond) will be tough. Realpolitik will never be far from the surface. Ott (2007, p.17) has described the process of international negotiations over current and future climate change regimes as being akin to 'trench warfare' conducted in zero-sum terms. It is only by keeping the ethical underpinnings of the UNFCCC firmly in mind that we can ensure that the narrowly defined self-interest which leads to this trench warfare is overcome to the mutual benefit of us all.

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1 This article is a revised and abridged version of a paper submitted as a course requirement for completion of a Masters of Public Policy. The revised version was provided as a background paper for the Post-2012 Burden Sharing symposium, 29 July 2008, Wellington, jointly hosted by the European Union Centres Network and the Institute of Policy Studies. I would like to thank Jonathan Boston and Lucas Kengmana for their comments on earlier drafts.

2 While some overlap between mitigation and climate change adaptation exists, adaptation raises a discrete set of issues. For discussion of this topic see, generally, Boston and Kengmana (2007, p.168), Climate Protection Programme (2004, p.210) and Paavola and Adger (2002).

3 This political dimension has also been termed a 'negotiation dimension by Ringus et al. (2002, p.3), who argue that justice operates in three different ways. First, it can serve as a source of 'motivational strength' for actors who believe they are being 'unfairly' treated. Second, it can operate as a framework of soft constraint in the pursuit of self-interest. The point here seems to be that justice may set the outer bounds of negotiation positions taken in response to the Westphalian imperative to maximise a national self-interest. Third, it may operate as a decision premise, 'where self interest provides no clear guidance'.

4 Some, notably Rawls (1993), argue that principles of distributive justice have no place in the international arena where no institution fulfils the same role as the national political authority (Banuri et al., 1996, p.85). While others (Caney, 2005a, 2005b; Pogge, 2002) mount a fuller defence of the case for extending familiar principles of justice from the domestic to the international arena, the relevance of these non-international principles of justice is simply assumed in the available literature (see, for example, Grasso, 2007, p.230; Muller, 2001, p.273; Ringus et al., 2002, p.4). This can, perhaps, be explained by the UNFCCC's reference to 'equity' as a guiding principle and by Shue's (1999, p.531) observation that '[t]he concept of fairness is neither Eastern not Western, Northern or Southern, but universal. People everywhere understand what it means to ask whether an arrangement is fair or biased towards some parties over other parties' (Shue, 1999, p.531).

5 While there is some debate as to whether there is only one single criterion of justice or, if many, how many, it is not proposed to enter into his debate here. Arguments in favour of a single criterion run the risk of circularity as the criterion chosen must have been chosen because it was considered the most just.

6 Currently CO_2 concentration is at approximately 385ppmv (CO_2 only). One study has concluded that to have 50/50 chance of stabilising at 2°C above pre-industrial levels would require atmospheric concentrations of 400ppmv (CO_2 only), and that current levels mean it is not 'likely to be met' in the sense of there being a 2% –55% chance of stabilising above this level – see Hoehne et al. (2007, p.10 and sources).

7 In this regard, the UNFCCC removes some of the concerns expressed by Feinberg (1973, pp.114-6) as to how the 'contribution' can be accurately measured in other policy contexts, such as the distribution of national wealth and income.

8 See reports of the AGBM UNFCCC/AGBM/1996/7 which, at paragraph 10, notes different

approaches and records (paragraph 23) that three broad types of indicator, namely national emissions, national circumstances and costs of action, were advocated. Within each type, a cluster of further potential indicators are specified – see paragraphs 31 and 12.

9 For example, one modelling exercise has predicted that, depending on which GHG sources are counted, taking historical and projected emissions into account there will be parity of contribution to atmospheric GHG levels as early 2030 (Baumert et al., 2004, p.16). The issue is further underscored by another study which suggests that China's emission will grow by 119%, India's by 131% and Brazil's by 70%. In comparison the EU's will grow by only 8% (Claussen, 2007).

10 The Greenhouse Development Rights Framework (Baer, Athanasiou and Kartha, 2007, pp.27-8) is a model which seeks to accommodate concern with alleviating poverty and underdevelopment within a global climate change mitigation burden. Its authors argue for a 'development threshold, below which individuals are entitled to prioritise their development needs over any burden they otherwise have to bear in respect of climate change mitigation or adaptation'. The authors argue for an income-based measurement and that an individual income level of $16 per day constitutes the appropriate threshold level at which climate change mitigation and adaptation burdens will be assumed.

11 The answer may well depend on the time period regulated by way of further commitment periods. It may be that if second and subsequent commitment periods are relatively short, similar in length to that set by the Kyoto Protocol, the obligation gap between the mitigation commitments assumed by China and other major emitter developing states may 'justly' be considered less. If subsequent commitment periods stretch to substantially longer-term horizons, say 2050-2080, current non-Annex 1 parties whose share of global emissions are projected to rise by significant amounts might 'justly' take on a greater level of mitigation commitment.

12 Bodansky et al. (2004) identity 40 separate ideas emanating from the literature, reports and symposia on this topic. Ott (2007, p.29) puts the figure is as high as 50.

13 If equalising per capita emissions is to be the basic principle then this suggests a distribution pattern that would require most cuts in Australia and the United States, the latter not having ratified the Kyoto Protocol. South Korea has the same per capita emissions as the United Kingdom and more than the EU average. Baumert et al., (2004, pp.11-12) note that if gases other than CO2 are used the gap in per capita emissions between Annex 1 and non-Annex 1 countries closes. Per capita emissions for China, India and Brazil rise by 38%, 67% and 160% respectively, while those for the EU, United States and Japan rise by 22%, 20% and 8% respectively. The position changes even more dramatically if emissions from land use change are added, as this represents a third of developing country emissions levels while developed states may be net absorbers in this context. If all gases, including CO_2 from land use, are included Brazil and Indonesia have higher per capita emissions than the EU.

14 In Baer and Athansious's (2007) analysis, this is called the South–North Dialogue's 'Equity in the Greenhouse' proposal.

15 The six categories are: UNFCCC Annex I parties, except Annex II states (i.e. economies in transition (EIT)); Annex II states; newly industrialised countries (NICs); rapidly industrialising developing countries (RIDCs); other developing countries; and least developed countries.

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Murray Ward

What Might a Future Global Climate Change Deal Look like?

The task ahead

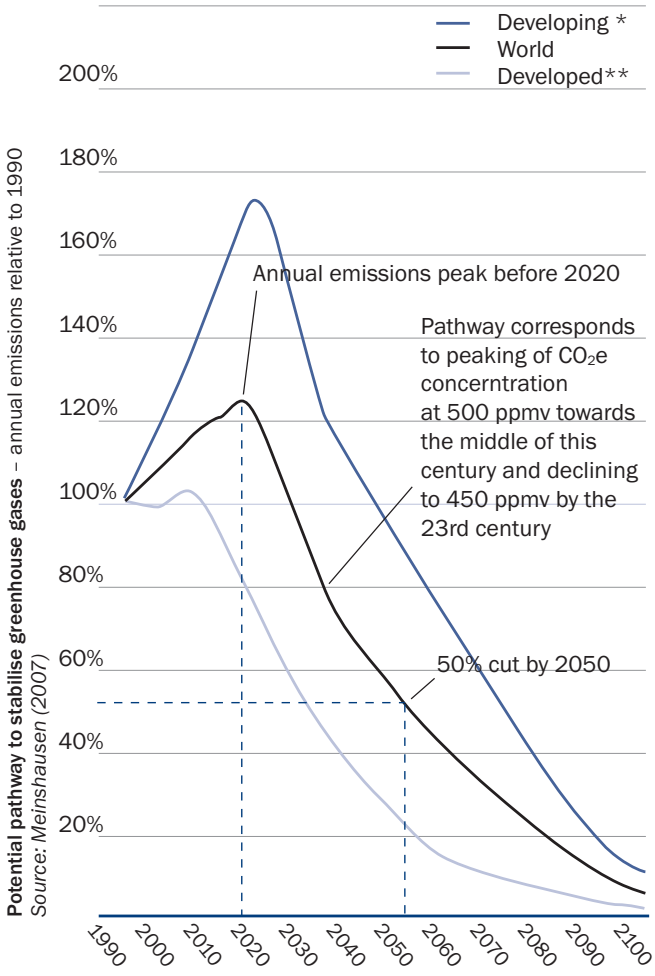
For the world to have a reasonable chance of avoiding the worst effects of climate change, the challenge is have global emissions of greenhouse gases peak by 2020 and then to reduce them to 50% of 1990 levels by 2050. These goals have been articulated by international science and policy leaders – the second even by the heads of state of the G8 countries at their recent 2008 meeting in Japan. For industrialised countries, the challenge is much greater than just the global percentages. Figure 1, taken from the recently released report by Tony Blair and The Climate Group (Climate Group, 2008), shows an illustrative set of pathways for global emissions and shares of this for industrialised and developing countries.

Lord Nicholas Stern points out in a very recent report (Stern, 2008), that what the global 50% by 2050 goal means 'as a matter of arithmetic' is average global *per capita* emissions of about 2 tonnes of carbon dioxide equivalent (CO_2e) by 2050 – and that if there are any large economies emitting more than this, there need to be other equally large economies emitting commensurately less.[2]

From 1996 to 2002 **Murray Ward** led the New Zealand Ministry for the Environment's climate change team. In addition to steering the development of domestic climate change policy, he was a leading senior negotiator in delegations to international climate change meetings. He is considered to be one of the key architects of the Kyoto framework, in particular for his international work on land-use, land-use change and forestry ('sinks') and market trading mechanisms. Now running his own consultancy, Global Climate Change Consultancy (GtripleC), Murray provides senior counsel specialising in the post-2012 agreement to a range of public and private sector clients internationally and in New Zealand. He is also a Senior Associate of the Institute of Policy Studies.

1 This article draws, in particular, from a briefing paper, *The Architecture of a Global Climate Change Agreement,* prepared as part of the Tony Blair/Climate Group 'Breaking the Climate Deadlock' Initiative (see http://www.theclimategroup.org/special_projects/breaking_the_climate_deadlock/).

Figure 1: Emission pathways towards 450ppm and 2°C



Meeting the needs

The challenge in front of the global community is to craft, agree and *ratify* a multilateral agreement that adequately addresses the scale of the climate change problem. The agreement must therefore be able to meet the needs and expectations of all countries and 'voting' publics. This also must be done in the context of other imperatives that are bearing on country leaders, in particular energy security, water security, food security and sustainable development – and now, most recently, the global financial crisis.

To achieve, and be mindful of, these many objectives, of necessity any agreement will have to be both very comprehensive and very flexible. Given the need for global emissions to peak by about 2020 (in the face of current emissions growth trends), the agreement needs also to build on the international climate change policy that exists and is working. There is not the time to start with a new page. However, the sheer complexity of the challenge also means that the agreement must additionally be open to innovation and diplomacy of the highest levels.

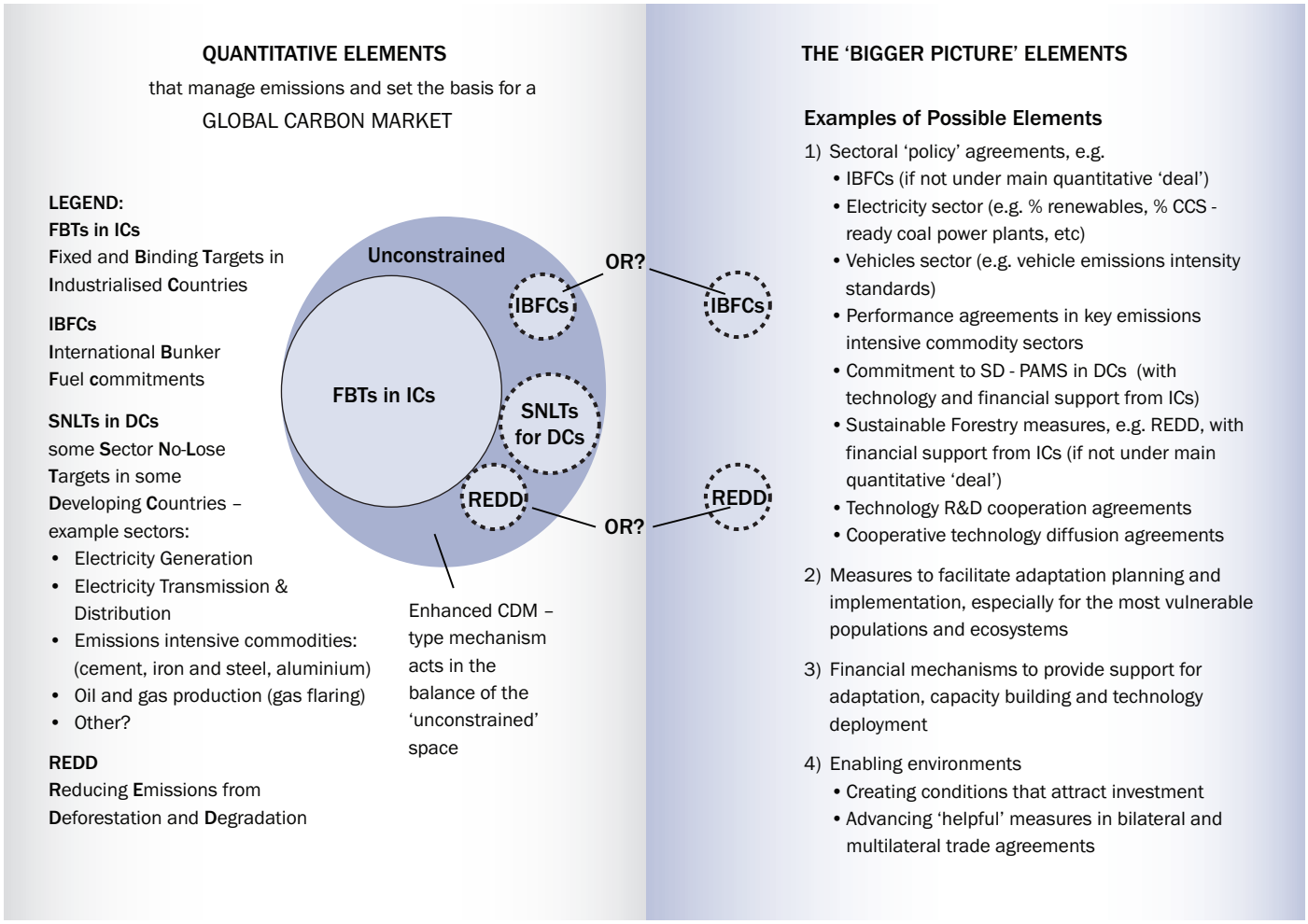
Key elements of a global agreement

Taken together, these above points clearly signal the need for an agreement that has at its core both some quantitative elements and some 'bigger picture' elements.

By quantitative, what is meant are elements that constrain emissions in a predictable way. This means a cap on the aggregate emissions of industrialised countries. And it can mean other forms of targets or commitments: for example, of a sectoral nature in some key developing countries, or covering international aviation and marine 'bunker' fuels. Importantly, it is these quantitative elements that create the basis for the emergence of a more robust and broad-based international carbon market. This is generally seen by experts to be a needed fundamental element of a future climate change agreement because of its ability to engage the world's private sector and mobilise necessary levels of investment worldwide in low carbon technologies and practices.

But these quantitative elements can be seen as 'threatening' in some circles. In industrialised countries they can be seen to exacerbate competitiveness concerns in key industry sectors, especially at a time of economic slow-down and job losses. And for developing countries, any suggestion that emission constraints might place a cap on their right to industrialise and address their priority development concerns is an anathema. They can rightly point to the fact that current levels of climate change have been caused by the emissions of the developed world, that emissions in developing countries are typically just a fraction of those in developed countries on a per capita basis and that growth in emissions in developing countries

Figure 2: The two-sided architecture of a comprehensive and flexible agreement



over the last few decades is frequently tied to the fact that emissions-intensive manufacturing of products consumed in industrialised countries is now being done in their countries.

It is therefore unrealistic to expect agreement to be reached on a framework that is essentially just of a quantitative 'managed emissions' nature. Moreover, such quantitative elements and the carbon markets they engender do not, in themselves, ensure an adequate mitigation response. And dealing with the climate change challenge is not just about mitigation. There is a much bigger picture that an effective global agreement needs to address. Importantly, it is this 'bigger picture' side of the agreement that provides the possibilities for the needed innovations, leadership and diplomacy. Some of these 'bigger picture' elements will be important to help enable acceptance of the elements on the quantitative side of the agreement. In short, they are of the type: 'We will be prepared to do this as long as, in return, you do that.' The proposal by the European Union in January 2008 – 'we can unilaterally agree to taking on a minus 20% target by 2020, but could go to minus 30% as part of a broader multilateral agreement with others doing their part' – can be seen in this light, albeit what 'bigger picture' elements they are seeking from other countries, both industrialised and developing, are not yet clearly set out.

But there is much more to the 'bigger picture' side than just enabling the 'quantitative' side. By their nature, quantitative elements, especially those that rely on international carbon prices as a key driver for action, cannot be expected either to cover all sectors in all countries, or necessarily to achieve the full potential of emissions reductions in those sectors that are covered. In some circumstances it will be the 'bigger picture' measures that may play the greatest role in achieving the potential mitigation outcomes.

And as noted, it is not all about mitigation. The effects of climate change are large and increasingly looming, especially for some of the world's most vulnerable populations and ecosystems. An effective global agreement must now also take a firm stance on means to address adaptation needs.

Figure 2 provides a depiction of the two-sided architecture that is proposed here. However, especially on the 'bigger picture' side, it is not intended to be exhaustive of possible innovative ideas for needed and helpful elements. It should be seen as high-level and generally illustrative.

On the quantitative side, the emissions circles represent aggregate emission totals under the various forms of management. The difference in the edges of these circles – i.e. of the large 'FBTs in ICs' (fixed and binding targets in industrialised countries) circle compared with the three smaller circles – is intended to denote the fixed nature of the former and the likely rate-based nature of the latter. In an emissions trading context, the trading unit associated with FBTs in ICs would be 'allowances' and for the other three it would be 'emission credits', where performance was better than the crediting baselines that these targets and commitments represent. In addition, as noted in the depiction, the remaining 'unconstrained' space is where current and future enhanced CDM (Clean Development Mechanism)-type activities could be undertaken and provide a supply of credits into the FBTs in ICs circle to enable those countries to meet their targets at lower cost.

Further, with respect to the FBTs in ICs circle, such a circle is made up of the aggregate of the allowed emissions represented by the industrialised countries' targets – e.g. the targets that Annex B countries agreed to under the Kyoto Protocol. This is shown as a single circle, and this may imply that this results from a single agreement that all industrialised countries are party to. But in practice this may be the sum of targets collectively negotiated by a group of countries under such an agreement, plus others' targets that may sit outside the multilateral agreement but, nevertheless, represent self-imposed fixed and binding targets – for all or parts of their economy.[3]

A possible scenario for their being on the 'bigger picture' side would be if they struck a deal with the international community to voluntarily reduce or offset a certain percentage of their emissions.

This situation may necessarily result in some different emissions trading scheme 'linkage rules' between those in the collective and those outside. However, the overall point is that there is a sum of allowed emissions stemming from the targets of all these industrialised countries, and these form the basis for international emissions trading of the cap-and-trade variety among them.

Sector no-lose targets (SNLTs) for developing countries are expected to be of an intensity nature (e.g. carbon dioxide (equivalent) per megawatt-hour of electricity (CO_2e/MWh) or per tonne of cement). The no-lose nature of these targets simply means that there is no compliance penalty if the targets (intensity baselines) are not met. However, because the purpose of such a mechanism is to significantly 'scale up' the inward flows of carbon finance-supported low carbon technology (compared with the current CDM), these targets would be something that can reasonably be expected to be met and beaten. But this is not to suggest that they should be seen as overly soft targets opening the door to large credit generation for 'likely to be done anyway' actions. Given that these targets will be negotiated as part of the quantitative agreement 'package', subsequent additionality assessments would not be required. This is one of the means by which

this mechanism is different from any form of CDM.

In negotiating an acceptable intensity baseline, the process would be interested to know details of all relevant factors by which a given developing country could improve its intensity in the sector prior to the point that carbon finance is to take over. In this way, there will be an expectation on the industrialised countries' side that major developing countries will commit to some level of self-funded mitigation efforts, rather than just have all their efforts positively incentivised by industrialised countries through carbon credits.

The nature of possible international aviation and marine bunker fuel commitments (IBFCs) is somewhat less discernible. It is for this reason that they are shown as possibly occurring on either side of the quantitative and 'bigger picture' divide line. If on the quantitative side, this would imply some means had been negotiated to have these sectors accept (and be held to) some form of a binding emissions target (whether of a fixed or intensity nature). This would set the stage for these two sectors to be sellers into the international carbon market if they met and beat their targets, and be buyers from it if they did not.

A possible scenario for their being on the 'bigger picture' side would be if they struck a deal with the international community to voluntarily reduce or offset a certain percentage of their emissions. Their activity might therefore occur in the voluntary carbon market, not the compliance market that occurs through the elements on the compliance side of this proposed agreement.

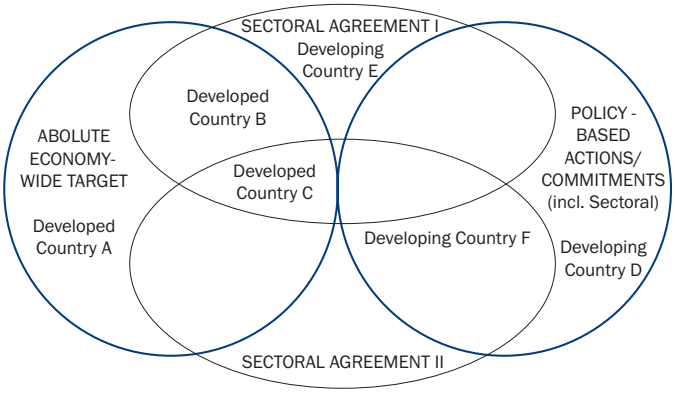
Similarly, on the issue of reducing emissions from deforestation and forest degradation (REDD), opinions currently are still quite divided as to whether this sector in developing countries should be one which receives its needed financial support through public sector (or even voluntary carbon market) funds, hence on the 'bigger picture' side. Or is it feasible to have its potential supply of credits incorporated into the compliance carbon market – with the risk of perhaps swamping the market and severely lowering the cost of carbon?

A sectoral perspective

When considering the proposed two-sided architecture from a sectoral perspective, a number of types of groupings and linkages become apparent. This has usefully been elaborated in work of the Pew Center on Global Climate Change on what they refer to as an integrated multi-track climate framework (Bodansky and Diringer, 2007). In a subsequent 'background note' on sectoral approaches (from which Figure 3 below is taken), they note that:

> Sectoral approaches could sit alongside other types of action/commitments as elements of a comprehensive post-2012 framework. For example, the framework could include absolute economy-wide targets for some countries; policy-based actions/commitments (sectoral or economy-wide) for other countries; and one or more overlapping sectoral agreements (with different country groupings in each). (Pew Center, 2008)

Figure 3: Possible means of engagement at a sector level



In the illustration in Figure 3 above:

- developed dountry A takes an absolute economy-wide target;
- developed country B takes a target and participates in one sectoral agreement;
- developed country C takes a target and participates in two sectoral agreements;
- developing country D takes a policy-based (possibly sectoral) action/commitment;
- developing country E participates in a sectoral agreement; and
- developing country F takes a policy-based (possibly sectoral) action/commitment and participates in a sectoral agreement.

The two-sided architecture depicted in Figure 2 is fully consistent with this sectoral concept helpfully set out here by the Pew Center.

Negotiation process issues

Leaders have affirmed a number of times that the United Nations Framework on Climate Change (UNFCCC) is the proper forum within which to conclude a comprehensive climate agreement. This process is looking to achieve its primary outcomes at the 15th meeting of the Conference of the parties to the UNFCCC to be held in Copenhagen (COP 15) at the end of 2009. In particular, it would be expected that all of the quantitative elements of the agreement shown in Figure 2 would be negotiated under the UNFCCC process.

However, it is quite feasible (indeed probably necessary) that some of the agreements on the 'bigger picture' side might better be struck outside the UNFCCC process per se, but then be recognised as existing as the overall UNFCCC process 'package deal' is coming together. These, for example, might be cooperative financing or technology sharing elements that complement those in the UNFCCC agreement – for example, agreed bilaterally between key countries or among smaller groups of countries, or even among key industries operating in some countries. There might also be elements of the agreement – for example, related to sustainable forest

management or international trade – which might be struck in other multilateral fora.

While this 'inside and outside the UNFCCC' model suggests a more complex negotiating process, it has the great advantage of providing significant flexibility for the necessary diplomacy and leadership to bring an overall global deal together. In particular, it gets past the problem that the UNFCCC is a forum where it is only national governments at the negotiating table. A global climate change deal will need leadership initiatives also from international business, local government and civil society non-government groups at large. This is difficult when they can only be observers – and are out of the room completely when the final deals are being done.

2 For reference, current per capita emissions of some large economies (and current average annual growth rates) are: United States 22T (0.4%); Russia 16T (1.2%); Japan 10T (0.7%); EU-27 10T (0.4%); Brazil 15T (0.2%); China 6T (2.7%); India 2T (2.8%).

3 A reality that faces negotiators is that the United States may, as with the Kyoto Protocol, struggle at home to ratify an international UN agreement. But this time around the signs are that, under a new administration, the US may agree to establish domestic targets and a binding internal emissions trading scheme.

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Jonathan Boston

Framing a Post-2012 Climate Change Agreement: The Quest for 'Comparability of Efforts'

> Nothing could be worse than the fear that one had given up too soon, and left one unexpended effort that might have saved the world.
>
> Jane Addams (Nobel Peace Prize, 1931)

Introduction

A formidable number of complex issues will need to be resolved if a new global agreement on climate change is to be reached to cover the years immediately following the expiry of the first commitment (or 'compliance') period under the Kyoto Protocol in 2012.[1] With little doubt, the most contentious issue will be how to allocate the burden of reducing global greenhouse gas (GHG) emissions. In short, there is a need for a fair sharing of the 'effort' between countries. But what is fair? What principles and considerations are relevant? And how should such principles and considerations be weighted?

The broad framework for a post-2012 agreement was established, after intensive negotiations, at the 13th conference of the parties to the United Nations Framework Convention on Climate Change (UNFCCC) in Bali in mid-December 2007 (COP 13). Under the Bali Action Plan or 'Roadmap' (as embodied in the terms of reference of the ad hoc working group on long-term cooperative action) the parties agreed, amongst other things, to undertake:

> Enhanced national/international action on mitigation of climate change, including, inter alia, consideration of:
> Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, by all developed country Parties, while ensuring the comparability of efforts among them, taking into account differences in their national circumstances;
>
> Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner. (UNFCCC, 2007, paragraphs 1, (b)(i) and (b)(ii))

Both the meaning of these paragraphs and their implications for the nature of any new climate change agreement have been the subject of much debate within the international community since late 2007. A particular focus of attention has been the rationale for, and the meaning and implications of, the clause 'while ensuring the comparability of efforts among them'. This clause has not hitherto been included in international climate change agreements and its meaning has yet to be clarified.[2] Potentially, however, these apparently bland eight words could be crucial to the framing of a post-2012 agreement. After all, words matter, and some words pack a large punch.

Accordingly, this short article explores the possible interpretations and applications of 'comparability of efforts'. First, it comments briefly on the reasons for the inclusion of this phrase in the Bali Action Plan, including why it is applied solely to *developed* countries. Second, it explores the meaning of the words 'comparability' and 'efforts', and thus the possible interpretations of the phrase 'comparability of efforts' (or 'comparable effort'). Third, consideration is given to what the parties at the Bali conference thought they were agreeing to by including the notion of 'comparability

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of efforts'. Fourth, the article examines how the phrase has been interpreted since Bali and how it relates to well-established principles of justice. Finally, I examine the possible significance of the inclusion of this phase in the Bali Action Plan and how it might be applied in the context of a post-2012 agreement.

Why 'comparability of efforts'?

The inclusion of the clause 'while ensuring the comparability of efforts among them' in paragraph 1(b)(i) of the Bali Action Plan reflected the unwillingness of some developed countries, most notably the United States, to accept the need for all Annex 1 parties to take on internationally-binding quantified emission limitation and reduction objectives (i.e. Kyoto-type 'responsibility' targets or 'commitments') during the immediate post-2012 period. Instead, the United States was only prepared to endorse something weaker and less demanding, namely 'actions'; hence the inclusion of both 'commitments or actions' in paragraph 1(b)(i). Bear in mind that the United States is alone amongst Annex 1 countries in not having ratified the Kyoto Protocol; it is thus not bound by the 'responsibility' targets for the first commitment period (2008–12) in Annex B of the Protocol and is not part of the Kyoto cap-and-trade system.

What precisely is meant by 'actions' is not spelled out in the relevant paragraphs of the Bali Action Plan, but it is reasonable to assume that 'actions' refers to a wide range of possible policies and measures designed to reduce GHG emissions, with the explicit exception of time-specific, internationally-binding emission reduction targets. Examples of such policies and measures include domestic carbon taxes or emissions trading schemes, targets for renewable energy production, biofuels targets, energy efficiency targets, intensity targets, and policies and measures to reduce deforestation and agricultural emissions. They might also include policies and measures designed to assist other countries to reduce emissions, via technology transfers, financing and research and development.

From a negotiating perspective, the unwillingness of a single significant Annex 1 party to take on internationally-binding, Kyoto-type targets for a second commitment period poses a serious dilemma for the global community. If a large emitter, like the United States, is not prepared to commit to binding emission reductions, the political incentives (and probably also the economic incentives) for other developed countries to take on stringent responsibility targets will necessarily be weakened. After all, the exclusion of a major developed country runs the risk of undermining the environmental effectiveness and economic efficiency of any new climate change agreement while at the same time making it much harder for political leaders across the developed world to secure the support of their legislatures and electorates for domestic action to mitigate climate change (see Garnaut, 2008a, 2008b). In short, when collective action is a prerequisite for successful policy action, free-riding by a significant player poses huge policy risks.

It is these considerations that prompted the parties at COP 13 in Bali to seek the inclusion of the words 'while ensuring the comparability of efforts among them'. In a context where the United States, as the largest emitter in the developed world, was only willing to undertake 'actions' rather than 'commitments' beyond 2012 the other parties wanted to ensure that any actions by the United States to reduce its domestic emissions would, in aggregate, be sufficient to render any new agreement environmentally effective, broadly equitable and politically feasible. In effect, therefore, the United States would need to commit in some credible way to implementing a series of domestic (and international) measures during a second commitment period (whether under Kyoto or a new protocol) that would be seen by the rest of the world as constituting a fair share of the global mitigation burden. Put differently, a new, environmentally effective global agreement may not be politically feasible unless the United States is prepared to implement explicit measures that are broadly similar in nature, scope and scale to the 'commitments' – in the form of internationally-binding responsibility targets – being taken on by other developed countries (or at least the overwhelming majority of developed countries). The words 'comparability of efforts' sought to give expression to this notion. Had the United States been prepared to take on 'commitments' rather than 'actions', the phrase 'comparability of efforts' (or similar wording) may not have formed part of the Bali Action Plan.

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Four other points are worth noting briefly at this juncture. First, while the phrase 'comparability of efforts' (or 'comparable effort') has not previously been incorporated into an international climate change document, such as the Bali Action Plan, similar wording has been used in the international climate change context for some years. For instance, Ashton and Wang (2003) identify 'comparability of effort' (note the singular 'effort' rather than the plural 'efforts') as one of 'five dimensions' of equity in a collection of essays on post-2012 arrangements published by the Pew Center. They interpret the phrase to mean that those countries 'with similar circumstances should undertake a similar degree of effort' and note that this links to other dimensions of equity,

most notably the 'capacity' to act (or relative wealth). This point will be discussed below.

Second, the clause 'while ensuring the comparability of efforts among them' applies only to developed countries; it is not included in paragraph 1(b)(ii). Hence, developing countries are excluded. The reason for this is that a number of large emerging economies opposed the inclusion of these words in paragraph 1(b)(ii) because of the possible implication that some developing countries (i.e. those with relatively high per capita incomes and/or high per capita emissions) should do more than others. At some stage, however, differentiation between the burdens accepted by developing countries to limit, and ultimately reduce, their emissions will be necessary, and such differentiation will need to be based on well-established principles – above all, principles of distributive justice. If the clause relating to 'comparability of efforts' were to prove helpful in fashioning an acceptable post-2012 agreement, at least in relation to the roles of developed countries, it is likely that pressure will grow for the application of this provision to developing countries in a future climate change deal.

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Third, the inclusion of the word 'actions' in paragraph 1(b)(i) constitutes a significant weakening of the Kyoto policy framework, under which all Annex 1 parties were expected to take on internationally binding 'commitments'. Put bluntly, there is a risk that the policy measures agreed for a second commitment period will be even less environmentally effective. Further, if the United States insists on taking 'actions' rather than making 'commitments', other developed countries (e.g. Canada, Japan and Russia) may seek to follow suit. In these circumstances, the global policy framework for addressing climate change, patiently crafted over the years 1992–2005, would be put at risk.

Fourth, the inclusion of the word 'efforts' in paragraph 1(b)(i) has been seen by some observers as constituting another departure from, and weakening of, the Kyoto framework. This is because 'efforts' can be interpreted to mean merely striving towards a goal rather than the actual achievement of desired results or outcomes. I will consider this point further below.

Defining 'comparability of efforts'

In order to explore the possible meanings of 'comparability of efforts', it is helpful to examine what is meant by 'comparability' and 'efforts'. According to the Oxford English Dictionary, the word 'comparability' has Latin roots (*comparo*) and is closely linked to the words 'compare', 'comparable', 'comparative', and 'comparison'. The prefix 'com' (or *cum* in Latin) means 'with', 'together' or 'jointly', while the Latin word *par* refers to 'equality' or 'likeness'.

Accordingly, 'comparability' embraces a number of ideas. The first is the notion that two or more things (e.g. items, objects, ideas, etc.) are capable of being compared; that is, they have qualities that render it possible for meaningful comparisons to be drawn between them. Such qualities could include, for instance, matters of size or magnitude (e.g. scope, scale, density, weight, etc.) or matters of value (e.g. beauty, moral worth, monetary value, etc.). The second is the notion that the things being compared are not merely capable of comparison, but are also actually *comparable*; that is, they are alike or similar in some relevant respect. For instance, they might be of similar size or weight, or similar value or worth, or of a similar standard or quality. *Similar*, in this context, does not necessarily mean exactly the same, identical or equal in some crucial respect. Nevertheless, as noted above, the Latin word *par* also means equal, so in many situations referring to objects as being *comparable* may well imply that they are equal, if not in every respect, then at least in some relevant way. Thus, we might say that two essays are of a *comparable standard*, by which we would mean that they were not merely capable of being compared but they are also of a broadly equal standard or very similar in quality. In the policy sphere, the word 'comparability' is employed in a variety of contexts, most notably industrial relations (e.g. pay comparability) and in relation to statistics (i.e. data comparability).

The noun 'effort' (and the plural 'efforts') derives from the Latin prefix *ex-*, which means 'out', and *fortis*, meaning 'strong' or 'force'. In the contemporary context, making an effort is generally thought to mean an earnest, vigorous or strenuous attempt or an activity being undertaken by exertion or hard work, whether physical or intellectual. Hence, we talk about people making an effort (or efforts) to complete a task, or perhaps failing to make the necessary effort. But 'effort' can also refer to an achievement or accomplishment. For instance, we might say that a particular book was the author's *best effort* thus far or that a person's efforts were not in vain. In both cases, we would be implying that something had been achieved – i.e. there had been more than a mere expenditure of effort with nothing to show for it.

Nevertheless, when the word 'effort' is invoked the most likely implication is that something is in process (or that work is being undertaken or an attempt is being made), rather than that a worthy result or positive outcome has been, or will be, achieved. Indeed, in the discourse on social (or distributive) justice, the principle of effort is typically distinguished from other desert-based principles, such as merit (or achievement) or contribution (see Feinberg, 1973, pp.112-17). Hence, if

we decided to reward people for their *effort*, as opposed to their effective *contribution*, we would be seeking to assess how hard they had worked rather than what they had actually produced as a result of their labours. For various reasons, attempts to measure the amount of exertion, and thereby assess the relative effort made by different people, can be very difficult.

What do these varying definitions imply for the meaning of the clause 'while ensuring the comparability of efforts among them'? First, it is evident that the clause is open to a number of possible meanings, depending on how the words 'comparability' and 'efforts' are interpreted. With the various definitions in mind, as discussed above, there are at least six possible options (see Table 1). A minimalist interpretation of the clause would be that any expenditure of effort (or efforts) by developed countries to reduce their GHG emissions must be amenable to meaningful comparisons, but nothing more. There would be no requirement to ensure that the efforts in question were similar or equal in some respect, or that they actually produced the desired results. Against this, a maximalist interpretation would be that any agreed efforts by developed countries to reduce their emissions must be equal (or equivalent) in some relevant respect, and that this equality refers to a desired end state (or outcome) rather than merely the equal exertion of effort (somehow measured). Between the minimalist and maximalist interpretations there are four other possibilities, as shown in Table 1.

Bear in mind that the six options identified in Table 1 are essentially high-level or conceptual in nature. Within each option it would be possible to identify a range of practical ways in which the parties to the UNFCCC could give expression to the quest for 'comparability of efforts'. As discussed later, for instance, there are many ways in which the notion of equal effort might be applied.

What did the parties mean by 'comparability of efforts'?

It is not entirely clear what each of the parties involved in drafting the Bali Action Plan thought they were agreeing to when they supported the inclusion of the clause 'while ensuring the comparability of efforts among them'. The evidence suggests, however, that different parties may well have understood the clause in different ways. While it is doubtful that either the minimalist or maximalist interpretations drew much support, it is equally probable that there was no clear majority for any one of the other possible broad interpretations – to the extent that these options were actually identified and discussed.

In all probability, the clause only proved so widely acceptable because it is relatively ambiguous and thus open to a range of different (and potentially equally valid) interpretations. Had there been an attempt to define (or narrow the possible range of definitions of) the clause at COP 13, it might well have died a quick death. At the same time, the choice of the word 'efforts' over, say, 'results' was no doubt viewed by many of the parties and observers as a deliberate and intentional weakening of the Kyoto framework, in the sense that it opened up the possibility of developed countries undertaking 'actions' (as opposed to 'commitments') that could be judged (somehow) on the basis of the effort expended rather than the outcomes achieved. It is also likely that few of the parties interpreted *comparability* to mean *equal*, not least because the notion of equality sits uncomfortably with the construction of the relevant paragraph in the Bali Action Plan – which concludes '… comparability of efforts among them, taking into account differences in their national circumstances'. If 'national circumstances' are to be given weight, then strict equality (or any kind) is not an option. In any event, to the extent that some of the negotiators had *equality* (rather than, say, *similarity*) in mind, they would have been aware of the many possible forms of equality (e.g. equal percentage emission reductions by all developed countries, equal per capita emission reductions, etc.).

Table 1: Possible interpretations of 'comparability of efforts' in relation to mitigating climate change

The meaning of *comparability*				
The meaning of *efforts*		**Able to be compared**	**Similar/alike**	**Equal/ equivalence**
	Expenditure of effort to reduce emissions	The efforts of the parties are able to be compared	The efforts of the parties are similar (on some relevant dimension)	The efforts of the parties are equal (on some relevant dimension)
	Achieving a result, in terms of reduced emissions	The efforts of the parties achieve results that are able to be compared	The parties achieve similar results (on some relevant dimension)	The parties achieve equal results (on some relevant dimension)

To the extent that the parties had any common understanding of the clause it is likely that they interpreted it to mean that all developed countries (including any that chose not to ratify a new climate change agreement) should 'pull their weight' and make a 'fair contribution' to the collective endeavour to reduce emissions. In other words, free-riding would not be acceptable, whether ethically, environmentally or politically. Similarly, it was probably envisaged – and this is certainly captured by the use of the plural *efforts*, as opposed to the singular *effort* – that any agreed actions and commitments should be viewed holistically. That is to say, in comparing the various policy measures being taken by countries to mitigate climate change during a second commitment period (including internationally-binding and non-binding measures) it would be important to consider the measures in question as a total package. The question would not simply be whether this particular target for this particular country was fair, but whether the particular packages of commitments and/or actions by particular countries were

fair relative to the packages of measures being taken by others.

How, then, should 'comparability of efforts' be interpreted and applied?

Since COP 13 in Bali, various contributions have been made to the debate over how the clause 'while ensuring the comparability of efforts among them' should be interpreted (e.g. see Helme, 2008; Schmidt et al., 2008). Not surprisingly, it has been suggested that the clause means 'equal treatment of equal countries' or that 'countries in similar circumstances should make similar contributions' (Schmidt et al., 2008). Such an approach resonates with the Aristotelian principle of comparative justice, also known as the principle of like treatment. This states that like cases should be treated alike and different cases differently, in direct proportion to the differences (or inequalities) between them (Feinberg, 1973, pp.99-100). This principle is reflected in the more modern conceptions of vertical and horizontal equity which hold that those who are the same in all morally relevant ways should be treated the same while those who are different in some morally relevant manner should be treated differently (Miller, 1976).

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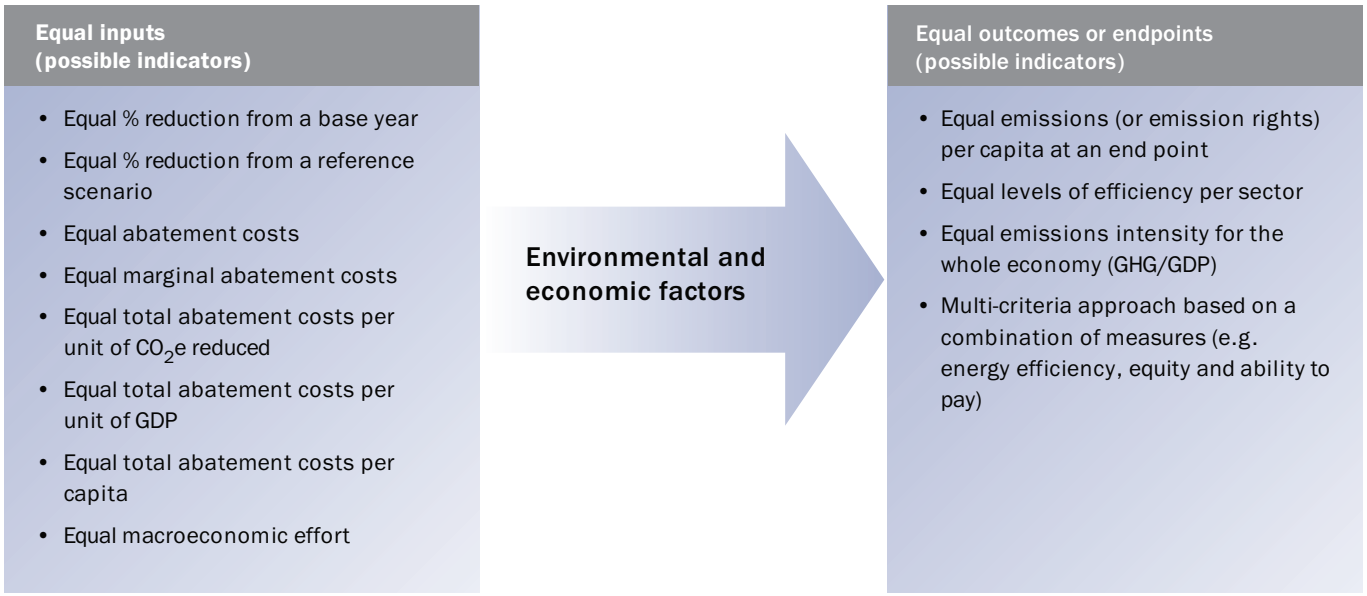
But while the principle of like treatment has significant merit and, indeed, wide appeal, it is entirely *formal* (or formalistic) in nature. It merely tells us to treat like cases (or countries) alike; it does not supply a basis upon which to decide the relevant kind or degree of alikeness; nor does it provide guidance on how we should vary our treatment to reflect different kinds or degrees of unalikeness (i.e. how the principle of proportionality should be applied). In order to give the principle real content, and thus enable it to be applied meaningfully in a particular context, it must be supplemented with *material* principles of justice. That is to say, we need criteria for determining whether something is alike or not and which differences are relevant. In terms of climate change mitigation by developed countries, the relevant issues are: what criteria (or material principles) should be used for making inter-country comparisons, how should such criteria be weighted and applied, and how should relevant differences between countries (i.e. 'national circumstances') be taken into account?

There are two related steps in addressing this issue, one largely procedural, the other distributive. From a procedural perspective, as noted earlier, 'comparability of efforts' implies that any *efforts* must be measurable against one another. For example, it might require that all developed countries measure their emission reductions from a given base year, use a common metric (e.g. the same Global Warming Potentials), or embrace common targets (e.g. national or sectoral). In this sense, the inclusion of 'comparability of efforts' in the Bali Action Plan reinforces the requirement (earlier in the same paragraph) for 'measurable, reportable and verifiable … commitments or actions' and sets a limit on the variability of commitments and/or actions that developed countries can take; only those policies that can be meaningfully measured and compared can be included. Plainly, this limits the flexibility that countries have in choosing the nature of their 'efforts' (whether these be internationally-binding or not). For example, without this constraint, countries could readily commit to, say, funding new research on clean technologies in place of making emission reductions. In practice, however, it is likely to be difficult to measure the efficacy of such research efforts or compare them meaningfully to the impact of emission reductions.

From a distributive perspective, criteria are needed to determine when two (or more) countries are similar (or alike) and when they are not. In relation to climate change, a number of material principles have been suggested over the years, including equality, historical responsibility (or contribution to the problem), capacity (or wealth), need (or basic needs), welfare costs and monetary costs (see Ashton and Wang, 2003; Kengmana and Boston, 2008). There is not the space here to explore such principles in detail, but it is important to note that there is no consensus, within either the scholarly or diplomatic communities, on their relative importance. There is, however, reasonable widespread support for the principle of equality – in the sense that each person, irrespective of their nationality, should have an equal right to emit GHGs and hence that all countries should (at some point in the future) receive equal per capita emission allowances, provided there are no offsetting considerations. This principle, incidentally, provides the primary basis for the proposal known as 'contraction and convergence' (see Kengmana and Boston, 2008). It also underpins the argument expounded by the Garnaut Climate Change Review that there should be a gradual convergence, covering all countries, to equal per capita allocations by around 2050 (see below, and Garnaut et al. in this issue of *PQ*).

If the goal were to equalise *efforts* between developed countries, how might this be achieved and what metrics should be employed? There are a variety of ways of approaching such issues. For instance, Schmidt et al. (2008)[3] distinguish between two broad ways of conceptualising comparability and applying notions of equality to climate change mitigation (see Figure 1). On the one hand, countries could contribute comparable inputs towards the objective of reducing emissions – that is, inputs such as costs could be

Figure 1: Equal inputs versus equal outcomes



Source: Primarily derived from Schmidt et al. (2008)

of a comparable size;[4] on the other hand, countries could take on 'commitments' or 'actions' with the aim of achieving comparable end-points or outcomes.[5] Since countries face different environmental and economic conditions and these have impacts on the efficacy of inputs, contributing equal inputs need not lead to achieving equal outputs. Likewise, committing to equal outcomes does not imply that countries will face equal costs in achieving these targets.

As highlighted in Figure 1, there are a variety of ways in which 'equal inputs' and 'equal outcomes' (or 'end-points') could be interpreted. A detailed analysis of each of these options, and their related metrics and implications, is beyond the scope of this article. But various points are worth highlighting. First, some of the suggested options are not mutually exclusive. A combination is thus possible (and might indeed be preferable). Second, most of the suggested end-points would not be possible to achieve by the end of the next commitment period (e.g. 2020). In these circumstances, some form of agreed milestones would be required. Third, the different options imply significantly different emissions paths for Annex 1 countries during the next commitment period. This is bound to colour the attitudes of the respective parties to the relative merits of such options. Fourth, while each of these approaches has potential advantages and disadvantages, some are clearly more problematic (and controversial) than others (e.g. because of data limitations or the implications for how the mitigation burden would be shared).

Quite apart from this, there is the question of how the application of the concept of 'comparability of efforts' during a second commitment period might relate to the longer-term quest for large global emissions reductions (e.g. 50–85% below 2000 levels by 2050). It will be important, for example, that whatever is agreed in relation to a second commitment period is broadly consistent with longer-term policy goals, both in relation to an overall stabilisation objective for GHG concentrations (and the emissions reductions required to achieve this objective) and the respective contributions of the various parties to achieving the agreed stabilisation goal. With this in mind, let us suppose that, subject to certain provisos, the concept of comparable effort is taken to be consistent with the view that the entitlements of countries to emit GHGs should be linked increasingly to the respective size of their populations, with an eventual policy framework based on the principle of equal per capita allocations (i.e. emission rights would be equalised on a per capita basis). Let us also assume that emission rights will be tradable and thus actual emissions per capita will vary – depending, for instance, on the relative wealth and economic structures of different countries.

What might such an approach mean for different countries? The proposals in the supplementary draft report of the Garnaut Climate Change Review (Garnaut, 2008b) provide some possible answers. Specifically, the Garnaut Review suggests that emissions allocations per capita should be equalised by 2050, with the process commencing in 2013 and taking a relatively linear path. It also suggests two possible stabilisation targets – 450 and 550 parts per million (ppm) CO_2 equivalent. Tables 2 and 3 summarise the magnitude of the emissions reductions required (relative to 2001 levels) to achieve such targets, first in relation to total emissions per country and second in per capita terms. They also include target reductions for 2020 – a possible date for the end of the second commitment period (assuming there is one).

In terms of parameters, the Garnaut Review assumes that emissions were 35.3 $GtCO_2$ equivalent in 2001. With the global population being approximately 6.15 billion at this time, emissions were about 5.74 tonnes per capita. Mid-range projections point to the global population reaching about 9

Table 2: Emissions entitlement allocations for 2020 and 2050 relative to 2001: total emissions by country

	450ppm CO_2 equivalent		550ppm CO_2 equivalent	
	2020 over 2001	**2050 over 2001**	**2020 over 2001**	**2050 over 2001**
World	29%	-50%	40%	-13%
Developed	-31%	-86%	-15%	-76%
Australia	-25%	-90%	-10%	-80%
Canada	-45%	-89%	-33%	-80%
EU25	-30%	-82%	-14%	-69%
Japan	-41%	-86%	-27%	-75%
USA	-28%	-89%	-12%	-81%
Developing	85%	-14%	91%	50%
China	195%	-45%	210%	-4%
India	97%	90%	98%	230%

Source: Garnaut (2008b, p.18)

Table 3: Emissions entitlement allocations for 2020 and 2050 relative to 2001 on a per capita basis

	450ppm CO_2 equivalent		550ppm CO_2 equivalent	
	2020 over 2001	2050 over 2001	2020 over 2001	2050 over 2001
World	4%	-66%	14%	-41%
Developed	-37%	-88%	-22%	-79%
Australia	-40%	-95%	-30%	-90%
Canada	-54%	-92%	-43%	-86%
EU25	-33%	-82%	-17%	-69%
Japan	-40%	-82%	-25%	-69%
USA	-40%	-92%	-26%	-86%
Developing	-45%	-46%	49%	-5%
China	166%	-50%	179%	-13%
India	52%	22%	53%	112%

Source: Garnaut (2008b, p.19)

billion in 2050. Hence, if aggregate global emissions are to be cut by 50% by 2050 (probably the bare minimum required to meet the lower stabilisation target of 450ppm), per capita emissions will need to fall by 66% (to about 1.95 tonnes).

Three matters deserve particular mention. First, the decision as to whether population growth projections should be included or excluded in assessments of 'comparable effort' will have substantial implications for individual countries – and thus their respective post-2012 mitigation burdens. The ramifications for countries where rapid population growth is likely (e.g. India) are particularly significant. Second, on a per capita basis, the emissions reductions required by *developed* countries by 2050 to meet both stabilisation targets are very large. But interestingly, the magnitude of the reductions does not vary greatly across the developed world. The situation is rather different, however, for the target date of 2020. For instance, to meet the lower of the two targets (i.e. 450ppm), Canada would need to reduce its emissions per capita by around 54% (or 45% overall), whereas the equivalent figures for the EU25 are 33% and 30%. Third, neither of the two stabilisation targets can be achieved without reductions (relative to 2001 levels) by *developing* countries on a per capita basis. Moreover, to meet the lower of the two targets, China will need to make substantial reductions on 2001 levels, and this implies even greater cuts relative to current emissions levels (given the rapid growth of emissions in recent years). Put bluntly, this means that any attempt to limit the notion of 'comparable effort' (and related considerations of distributive justice) to developed countries is misplaced.

The Garnaut Review does not include New Zealand in its analysis. However, the emissions reductions required (in both aggregate and per capita terms) are relatively easy to calculate, at least for 2050.[6] To achieve the lower stabilisation target, per capita emissions will need to fall from about 18.8 tonnes per capita in 2001 to 1.95 tonnes in 2050, a reduction of 89.6%.[7] This is slightly less than the corresponding figures for Canada and the US, but greater than for the EU25 and Japan. The aggregate reductions required (86.7%) are less than in per capita terms, but roughly comparable to the *developed* world average. For the higher stabilisation target, New Zealand's per capita emissions would need to fall by 81.9%, slightly above the *developed* world average. Bear in mind that such figures reflect the likely allocation of rights to emit in the context where rights per capita are equalised globally by 2050. Assuming that such rights can be traded across national borders, actual per capita emissions will continue to vary between countries – although almost certainly much less than now.

Conclusion

This article has briefly explored the possible meaning and implications of a key clause in the Bali Action Plan: 'while ensuring the comparability of efforts among them'. I have argued that the clause is ambiguous and open-ended, and that the concept of 'comparable effort' constitutes a formal rather than a material principle. As such, it lacks agreed, substantive content – other than the minimalist notion that any *efforts* (whatever form they might take) must be capable of comparison. This underscores the requirement (elsewhere in the relevant paragraph of the Bali Action Plan) for the 'mitigation commitments or actions' of developed countries to be 'measurable, reportable and verifiable', but it probably does not add a new, distinctive requirement.

The clause's open-ended nature, of course, has both advantages and disadvantages. It enabled the various UNFCCC parties, often with different views and agendas, to embrace a commonly accepted principle – one that accords with the Aristotelian notion of comparative justice. Against

this, it leaves for a future date the much more difficult task of giving this principle some real flesh and bones (i.e. agreeing on relevant material principles and applying them to the challenge at hand). On this reading, then, 'comparability of efforts' should not be thought of as a distinct principle of distributive justice, such as equality, need or contribution, but rather as a broad, overarching principle that has the potential to embrace and balance a range of competing material principles (and related policy initiatives).

Whether the inclusion of comparability of *efforts* represents a weakening of the Kyoto framework in relation to the obligations of developed countries remains to be seen. As noted, it is possible to interpret *efforts* as embracing either strenuous activity or the achievement of results (or both). The parties thus have a choice ahead of them, namely whether to focus on measures or indicators that relate to mere 'striving' or whether instead to focus on those that relate to measurable results (whether in the form of 'inputs' and/or of 'end-points'). The methodological and political difficulties associated with the former approach are likely, in practice, to ensure that primary attention is given to actual, time-bound results (e.g. specific emissions reductions against a base year). Equally, however, it is likely that the inclusion of the phrase 'comparability of efforts' will help draw attention to the need to consider the overall packages of measures being proposed for the post-2012 period, and their respective implications for different countries, rather than focusing on a single policy instrument or indicator of progress. *Total effort*, in other words, is what matters, and potentially such effort could embrace domestic actions as well as enabling activities in other (especially developing) countries. Nevertheless, to the extent that some developed countries refuse to take on international 'commitments' (i.e. responsibility targets) and only agree to nationally appropriate 'actions', there are bound to be problems deciding how these respective policies ought to be compared, whether they constitute a comparable effort and how compliance is to be enforced.

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1 An earlier version of this paper was presented at the Post-2012 Burden Sharing symposium, 29 July 2008, Wellington, jointly hosted by the European Union Centres Network and the Institute of Policy Studies. I would like to thank Ben Gleisner, Lucas Kengmana, Martin Manning and Paule Stephenson for their help in preparing this paper.

2 But note that article 4, para 2(a) of the UNFCCC requires the parties to make 'equitable and appropriate contributions' to mitigate climate change.

3 Helme (2008) also deals with these issues, but since his treatment is similar but briefer than Schmidt et al. (2008) it is not discussed here.

4 Where comparable is taken to mean equal when relevant differences are controlled for.

5 Note that this terminology differs slightly from the terminology adopted in Schmidt et al. (2008). Most notably, Schmidt et al. refer to equal inputs as 'equal efforts', but since countries can make efforts towards outcomes as well, the term 'equal inputs' may be preferable.

6 Calculating the aggregate and per capita reductions required for individual countries for 2020 is more problematic than for 2050 because the key parameters for 2050 (i.e. total global emissions and equal per capita emissions) are fixed, whereas for 2020 a number of different assumptions can be made about the speed of convergence, and a wider range of factors may affect the obligations of different countries (including the extent to which emissions have grown between 2001 and the commencement date for a post-2012 policy framework).

7 In 2001 New Zealand's CO_2 equivalent emissions were 73.1 million tonnes, the population was 3.9 million and per capita emissions were around 18.8 tonnes. Mid-range projections suggest that New Zealand's population will reach just over 5 million by 2050.

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Lavanya Rajamani

Differentiation In the Post-2012 Climate Regime

Introduction[1]

Since the dawn of the intergovernmental dialogue on climate change, countries have bickered over who should take responsibility, in what measure and under what conditions to avert climate change. At the heart of these questions in the ongoing negotiations on the post-2012 climate regime is the notion of "differentiation." The Framework Convention on Climate Change, 1992 (FCCC) and the Kyoto Protocol, 1997, differentiate between developing and industrialized countries, and assign a leadership role in mitigation to industrialized countries. Should the post-2012 climate regime differentiate between developing countries, based on "objective criterion," in determining who, amongst them, should take greater responsibility, perhaps even akin to the responsibility that industrialized countries have currently assumed?

The Great Divide[2]

The Bali Action Plan, December 2007, that launched the process to negotiate a post-2012 climate agreement, uses the terms "developing country parties" and "developed country parties," rather than the FCCC categories of "Annex-I" and "non-Annex I" Parties indicating that at least some countries hoped thereby to open up the categories of developing and developed countries for discussion. As Japan notes in its submission to the *Ad Hoc* Working Group on Long term Cooperative Action, Parties will need to "clarify the definition of 'developed country Parties' and 'developing country Parties,'" and "identify the scope and criteria of those 'developing country Parties' required to take actions."

Most industrialized countries are in favour of a more flexible and evolving categorisation of Parties which will permit differences within and between developed and developing countries to be taken into account in fashioning obligations under the future climate regime. The US has long sought to differentiate between those developing countries that are major economies/emitters and those that are not. The recent multilateral initiatives the US has launched which include major economies/emitters alone (rather than all developing countries) stand testimony to this stance. Canada is similarly insistent that binding commitments be extended to all "major emitting economies." The EU also believes that differences between developing countries must be taken into account, and that the economically advanced developing countries must make "fair and effective contributions" to the climate effort.

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The rationale is simple and apparently neutral. As Australia points out, if the GDP per capita of FCCC Parties is taken as the benchmark there are "more non-Annex-I Parties that are advanced economies than existing Annex-I Parties." They argue that the top 15 emitters are responsible for 3/4 of global greenhouse gases (GHGs) and they will have to act as part of a 2012 agreement. There should, therefore, they argue, be an "objective" basis for graduation of non-Annex I Parties to Annex I, "with a view to all advanced economies adopting a comparable effort towards the mitigation of greenhouse gas emissions." In recent submissions various industrial countries have suggested indicative "objective" criteria including:

- GDP per capita (Australia, Japan, Turkey and others)
- relative rates of economic and population growth, stage of economic development, structuring of economies emissions, recognition of regional realities and interdependencies, relative mitigation potential and costs over time (Canada)
- OECD membership, stages of economic development, capacity to respond, and emission share in the world (Japan)
- primary energy consumption per capita, R & D expendi-ture, emissions per capita, population growth, Human Development Index, historical responsibility and energy intensity (Turkey), and
- global emissions and economic development (US).

Industrialized country submissions on differentiation carve out an exception for Least Developed Countries (LDCs) who, in their view, cannot be expected to contribute significantly to the mitigation effort. It is worth noting in this context that the LDC, like the developing country, stamp is not an accurate descriptor for current social and economic ranking. Maldives, for instance, currently classified as an LDC has a higher per capita income and Human Development Index ranking than India, classified as a developing country. Several countries classified by the World Bank as low-income countries are not considered LDCs, and several LDCs are on the World Bank's list of middle-income countries.

Most developing countries, for their part, are opposed to any efforts to differentiate between them – both because such differentiation would threaten their leveraging power as well as destabilize the burden sharing architecture of the climate regime. Notwithstanding material differences, the 130 developing countries that form the G-77 share a common ideological vision and approach to international law, and they perceive efforts to differentiate between them as threatening their identity and leveraging power. In the climate negotiations, the differences between members of the G-77, encompassing as it does both the oil exporting countries and the small island states, run deep. However the G-77 has thus far, but for a few notable occasions, exhibited a tenuous yet tenacious togetherness.

In the Accra negotiations in August 2008 the EU raised the issue of differentiation between developing countries, which the EU noted was important to its political constituencies. The EU's call for differentiation was supported by Australia, Japan, New Zealand, Turkey, and the US. The G-77 responded that such differentiation between developing countries would entail a renegotiation of the Convention and the Kyoto Protocol, which Parties had the sovereign right to attempt, but in the appropriate forum. The Bali Action Plan, in the G-77's view, launched a process to close the implementation gap, not to discuss amendments to the Convention or Protocol.

It is questionable if competitiveness fears in the industrialized world are legitimate concerns within the climate regime, and indeed if differentiation between developing countries should be used to address such fears.

Dealing with Chindia: Levelling the playing field through Differentiation?

Of the objective criteria industrial countries have suggested for differentiation between countries, GDP per capita and emissions profiles figure in many submissions. If these criteria are taken however, as Australia acknowledges, India and Indonesia do not figure in the mix. Yet India, in particular, is very much at the centre of the international full court press on climate change. India has low per capita (1.2 metric tons) and cumulative emissions (4.6% of global emissions), is 128th on the Human Development Index, 44% of its population lives without access to electricity, and an estimated 80% of its population lives on less than US$2 a day. By most objective criteria India would not be required to prioritise mitigation commitments. It is nevertheless a country that is at the top of the industrialized world's list of "advanced developing countries," "emerging economies," "major economies" etc. This is presumably due to its healthy economic growth rate, attendant competitiveness concerns in developed countries, and its projected emissions growth trajectory. India's projected emissions growth rate is certainly a relevant factor, but it is unclear to what extent, given the fickle nature of economic growth on which it is dependent (ever more evident in the ongoing financial crisis), and the impact that climate change is likely to have on India's monsoons to which its economy is anchored. India's projected emissions growth rate may not therefore be sufficient to make the case for it to be treated as an "advanced developing country" in the regime today. So why then is India clubbed together with China, to form *Chindia*, the intended target of the call for differentiation?

The answer at least in part lies in the competitiveness concerns that appear to implicitly drive negotiating positions in the climate regime. A draft version of the EU's third-phase emissions trading scheme contained in Article 29 a border carbon adjustment measure titled Future Allowance Import Requirement (FAIR). While the FAIR provision has been dropped for now, the EU appears ready to keep an open mind on measures to obtain a "level playing field" for its industries. The US is also considering a similar carbon equalization measure in the proposed American Climate Security Act, 2007 and the Bingaman-Specter Low Carbon Economy Act. Needless to say, there is little sympathy for such concerns in countries like India. India's ambassador to the World Trade Organization (WTO) has warned the EU of retaliation and litigation if it implements such trade restrictive measures. The WTO Appellate Body in the Shrimp-Turtle case made it clear that however legitimate the policy goal "unilateral and non-consensual procedures" will be viewed with suspicion. It is questionable if competitiveness fears in the industrialized world are legitimate concerns within the climate regime, and indeed if differentiation between developing countries should be used to address such fears.

Given that most industrialized countries have had limited success in meeting their Kyoto commitments, their grasp on the high ground in pressing developing countries to take such action is tenuous.

Applying Objective Criteria Objectively

Notwithstanding their espousal of it, it is intriguing that differentiation on objective criteria is not a method that industrialized countries followed, or are likely to follow, to differentiate between themselves or their GHG mitigation targets in the climate regime. Both the Intergovernmental Negotiating Committee in the run-up to the FCCC, and the *Ad Hoc* Group on the Berlin Mandate in the run-up to Kyoto, discussed criteria for inclusion into the annexes, but these discussions proved bootless. The rough rule of thumb followed was that members of the OECD and those countries with economies in transition were included in Annex I of the FCCC and OECD members were included in Annex II. The emphasis was on auto-election (either directly or through membership in a political/economic organization) not on differentiation based on objective criteria. The targets chosen were also nationally determined and internationally negotiated. They were not listed according to objective criteria. If they had been the US would have had a far more onerous commitment.

The only method industrial countries countenance is one that respects their sovereign choice and autonomy, albeit within a negotiated context, not one based on objective criteria, which would in effect limit the scope for deal-seeking. The current negotiations in the *Ad Hoc* open-ended Working Group to consider further commitments for developed countries beyond 2012 under the Kyoto Protocol (AWG-KP) and the Bali Action Plan are focused on actions/commitments that are nationally determined and tailored and then internationally negotiated. If a departure from this approach and differentiation on objective criteria is to be explored, perhaps differentiation between *all* countries *and* targets could be implemented based on internationally negotiated objective criteria? Needless to say, most developing countries would emphasize historical responsibility and per capita emissions use, as their preferred objective criteria and the negotiations would grind to a halt.

A Way Forward: Differentiation in Actions

To be clear, differentiation between countries, developed and developing, is in principle, desirable. Ambiguity in the classification of countries creates a legitimacy deficit in the system. It can hamper efficient distribution of scarce resources. And, it can prevent identification of those countries that bear greater responsibility for contributing to climate change. This is true between developing countries as well as between developed and developing countries. It is also desirable that there are limits to differential treatment in the climate regime, a theme I have explored at length elsewhere. What is not acceptable is first, that differentiation on seemingly objective criteria is used to address competitiveness concerns, and second, that standards for differentiation prescribed for developing countries are not countenanced for industrialized ones. The use of such criteria reduces the space for negotiation, for political jostling and deal-seeking, and either it should be effected across the board to level the playing field or not at all.

A preferred alternative to differentiation between developing countries based on objective criteria would be differentiation in actions, in combination with auto election. In theory at least, three methods exist to categorize parties to international treaties: the definition, list, and auto-election methods. In the definition method, the treaty provides criteria based on which categories of parties are identified (and across the gamut of new generation multilateral environmental negotiations, not a single definition of "developing countries" exists). In the list method, the treaty creates lists that include relevant parties, and, in the auto-election method, parties elect themselves to a particular category. The list and the auto-election method are not mutually exclusive. Parties can elect themselves to particular lists created by the treaty. These lists could be of Parties or actions. And, countries could elect themselves to perform actions which appear in a particular list.

South Africa in a recent submission suggested the creation of a register of mitigation actions by developing countries which combines the list and auto-election methods, and is a useful model to pursue. A register would be created by a COP decision and maintained by the Secretariat. It would list actions rather than countries. And, it would permit developing countries to elect to implement certain actions conditional on the provision of appropriate international support. The register would allow actions currently being undertaken in developing countries to be recognized, and it would enable the implementation of proposed actions which require support. The registry would permit an accurate evaluation not just of each country's climate performance, but also of emission trends across developing countries. Should such a voluntary approach not catalyze a trend towards the requisite deviation (15-30% below baseline) for developing countries, Parties could review and reassess the level of effort required.

It is worth referring in passing to countries like Mexico and the Republic of Korea, that are members of OECD, Singapore, which is ranked 25th in the Human Development Index, and Cyprus and Malta, which are now EU member states. These countries are currently non-Annex I countries. Differentiation in actions may be inappropriate for these countries, given their relative wealth and capacity, and their membership in organizations signifying such wealth and capacity. These countries could in the context of their membership in the OECD or EU be requested to elect themselves to FCCC Annex I. The process of amending the Annexes, whilst tedious and time consuming, is not impossible.

Conclusion: The Key to Developing Country Engagement

If developing countries are to participate proactively in the climate challenge, persuasion not coercion is key. As a first step, the global regime must reinforce the confidence-building architecture of the climate treaties, not destabilize them, which implies both that industrialized countries must lead by example (thus far only in patchy evidence), and that they must operationalize and go beyond, in real, concrete and credible ways the financing and technology provisions of the climate treaties. Given that most industrialized countries have had limited success in meeting their Kyoto commitments, their grasp on the high ground in pressing developing countries to take such action is tenuous. Financing will need to be the centrepiece of the deal in Copenhagen. The FCCC Secretariat estimates that mitigation measures needed to return global GHG emissions to current levels require additional investment and funding of between 200 and 210 billion USD in 2030, and adaptation measures will require several tens of billions of USD. Although seemingly large, this sum is small in relation to estimated world GDP (0.3 to 0.5%) and global investment (1.1 to 1.7%) in 2030, and insignificant compared to the damage that uncontrolled climate change will wreak. The current levels of funding by industrialized countries are limited and will need to be stepped up significantly.

In addition the global regime must offer developing countries attractive opportunities to engage. It must recognize and reward actions that are currently being taken, and create the conditions necessary to tempt them to take further commitments. The emphasis in this context must be on auto-election by countries, not forcible differentiation (on debatable indicators) and binding targets. This is not just because differentiation in its current avatar is politically controversial, questionably motivated, and inconsistently applied but also because a well designed system with built-in incentives and disincentives will achieve, without friction, effective differentiation in actions.

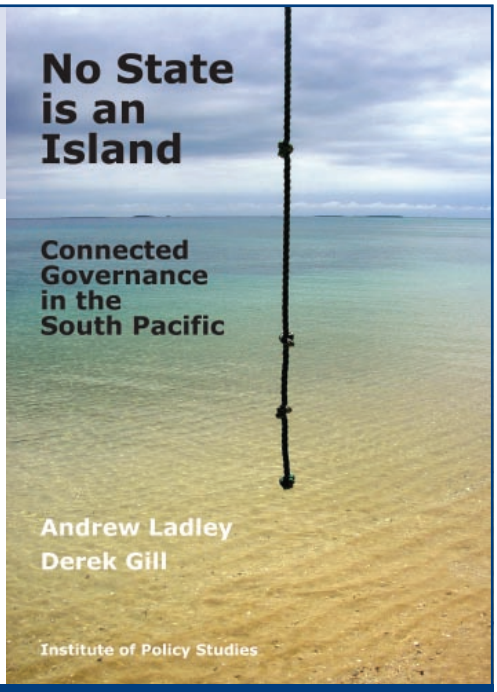
1 This article builds on an existing pool of work where a full list of references may be found. This includes, Rajamani, L. (2006) Differential Treatment in International Environmental Law, Oxford: Oxford University Press; (2007) 'Differential Treatment in the International Climate Regime,' 2005 Yearbook of International Environmental Law, 16, p. 81; and (2008) 'From Berlin to Bali and Beyond: Killing Kyoto Softly' International and Comparative Law Quarterly, 57(3), pp. 909-939.

2 All submissions of Parties to the Ad Hoc Working Group on Long term Cooperative Action are available on <http://unfccc.int/meetings/items/4381.php>

No State is an Island

Connected Governance in the South Pacific

by Andrew Ladley & Derek Gill



What is the future of governance in the South Pacific? Will the dominant form of governance in 30 years still be each (micro) state trying to do everything by itself (governing alone)? Have we reached the limits of colonization? Looking ahead, will the two referenda (in 2006 and 2007) on self-government in Tokelau be regarded as the 'high-tide mark' of deconolisation?

In No State is an Island Andrew Ladley and Derek Gill explain how instead of 'governing alone' there is some scope for 'governing together' with governments choosing from a spectrum of cooperation. States can do some things by themselves, but not everything. Increasingly, governance will be shared at local, national and pan-regional levels. Governing together, rather than alone, is the logical future – indeed, it is already starting

This book draws on Andrew Ladley's field research and substantial practical experience on the ground in the South Pacific and in a diverse group of developing countries around the world. Derek Gill draws on his extensive involvement in New Zealand's economic and public sector reforms and consultative assignments on public governance issues in a wide range of developing countries.

An Institute of Policy Studies publication by Ryan Malone
Published – November 2007
Format – A5 Paperback, pp 259
ISBN - 1-877347-20-5 Price - $25.00 (including P&P within New Zealand)
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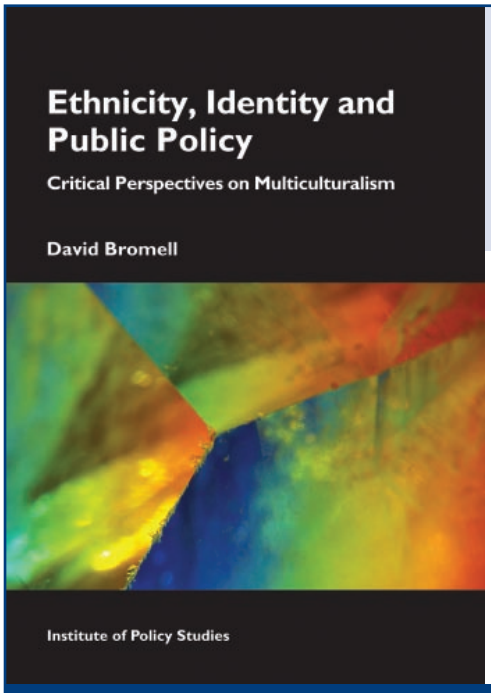

Ethnicity, Identity and Public Policy

Critical Perspectives on Multiculturalism

by David Bromell

Should government adopt multiculturalism as public policy? What is the role of the state in managing diversity? Are all cultures of equal value? And is ethnicity the difference that most matters?

In *Ethnicity, Identity and Public Policy*, David Bromell evaluates theory developed in other national contexts against challenges for public policy arising from ethno-cultural diversity in New Zealand. He concludes that this is a time to refine – and complicate – our thinking, and that the task of developing normative theory in relation to diversity and public life is still a work in progress.

In Bromell's view, New Zealand should endorse neither multiculturalism nor biculturalism as its official policy stance. Instead, he advocates safeguarding individual rights, which all share equally, and a restrained role for the state in 'managing' diversity. He argues that reducing inequalities ought to be a higher priority than recognising identities.

Overall, Bromell urges the cultivation of citizen participation in deliberative democracy and seeks to inform and stimulate debate about big ideas and difficult questions for public policy. This is a challenge for hearts as well as minds.

An Institute of Policy Studies publication by David Bromell
Publication - November 2008
Format – B5 Paperback, pp 338
ISBN 978-1-877347-26-92 Price - $35.00 (including P&P within New Zealand)
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