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A Strategic Assessment of the Kyoto-Marrakech System

Synthesis Report

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Sunset at the Wilton International Petrochemicals Complex © FreeFoto, 2003

Key points

- Carbon markets established under the Kyoto mechanisms will differentiate carbon prices between the mechanisms and between different projects.
- Business approaches to climate policy will diverge as markets (for emission reductions and low carbon technologies) develop and concerns over liabilities grow.
- US position on climate change is likely to be unsustainable beyond 2005 owing to growing domestic political pressure.
- Regime development will hinge on US re-engagement, increased developing-country participation and dealing with climate impacts.
- Prospects for the Kyoto system remain highly uncertain, with potential outcomes ranging from collapse to impasse to full restoration.
- Negotiations over further commitments will be highly complex, involving structural distinctions between different groups and new design elements to control perceived costs and risks.

Climate change emerged during the 1990s as probably the most complex of international environmental problems, and after the rejection of the Kyoto Protocol by the new US administration in 2001, certainly the most controversial. To the surprise of many, the international community decided to press ahead with negotiations on implementing the Protocol, that culminated in the Marrakech Accords establishing the 'rulebook' for implementing Kyoto. One hundred and nine countries have now ratified the treaty on this basis, and its entry into force now only awaits Russian ratification. But what in reality has been achieved, and where does the international effort go from here?

This paper summarizes the main findings from a study of strategic aspects of the international system for addressing climate change established under the Kyoto Protocol, as elaborated at Marrakech after the US withdrawal. The research was conducted in four main parts:

- **The 'real-world' economics of the Kyoto-Marrakech system** examines how the commitments and mechanisms may operate in practice, given the likely aggregate surplus in initial allocations.
- **Business participation and influences** analyses the role of business in policy formation in the major industrialized countries and in the international negotiations.
- **US engagement: prospects and influences** examines the political and policy

developments within the US that will influence its future involvement in the international system.

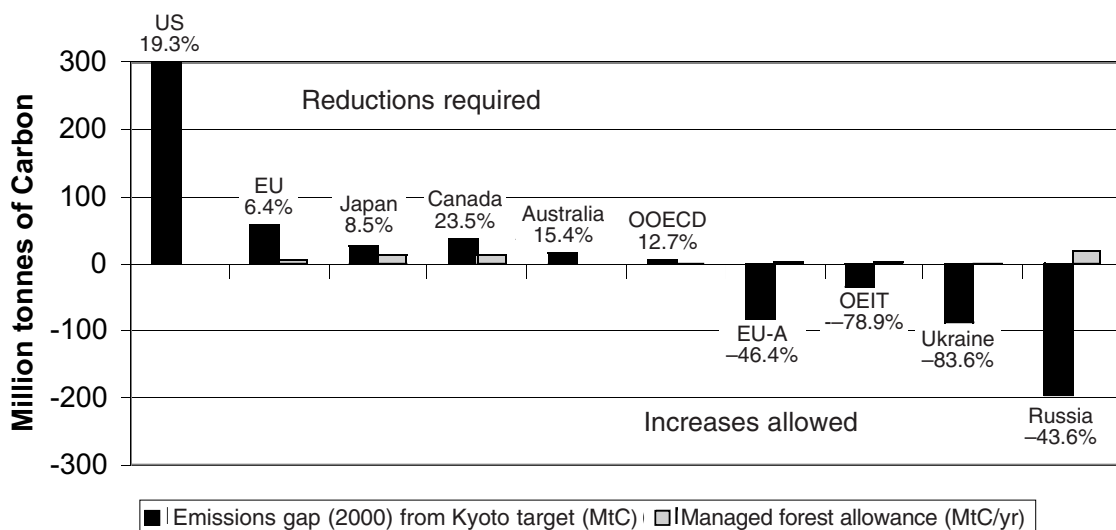
- **Framing future emission limitation commitments** explores the factors that will influence how countries may, or may not, engage in negotiations on future commitments.

This synthesis paper summarizes these four 'modules', and then explores the implications for possible scenarios of future development.

1. The 'real-world' economics of the Kyoto-Marrakech system

Economic models of the Kyoto system generally assume that the international mechanisms will function as a competitive market in emission allowances and credits. Projections of international carbon prices under the Kyoto system generated by these models have fluctuated wildly over time and between models. Now, however, most models project very low prices owing to the US pullout, the carbon sink agreements at Marrakech, and revised (much lower) projections of emissions, especially in Russia and Ukraine. Figure 1 illustrates this in terms of the gap between present emissions and Kyoto commitments; after the US withdrawal, the potential surplus available from Economies in Transition (EITs)¹ is evident even if their emissions start to rise rapidly.

FIGURE 1: THE PRECURSOR SUPPLY-DEMAND BALANCE IN THE KYOTO SYSTEM



Note: The main (single or larger) bars show the gap between 2000 emissions and Kyoto commitments for the principal countries/groups in Annex I. The smaller bars show the maximum allowance that each can claim for carbon absorbed from managed forests under the Marrakech Accords (excluding the US which is not included in that agreement), which can in effect be deducted. Percentages show the cut required to get from current levels to the Kyoto targets (negative numbers indicate the corresponding % growth from current levels for EITs).

Key: EU-A = the 10 EU candidate countries heading for early accession. OEIT = the 5 other countries applying for EU membership. OECD = all other OECD countries. Data represent CO₂ total national emissions.

Source: 2000 emission data: US Energy Information Administration (EIA).

TABLE 1: SUPPLY-DEMAND BALANCE IN KYOTO FIRST PERIOD COMMITMENTS WITHOUT US (MTC/YR): LIMITING SCENARIOS

MtC/yr average	Low surplus scenario (High demand, low supply)		High surplus scenario (Low demand, high supply)	
	(% change 2000–2010)	MtC/yr	(% change 2000–2010)	MtC/yr
<i>Demand</i>		220		53
EU-15	7	120	–3	30
Japan	10	58	–3	17
Canada	15	61	0	37
Other GHGs		12		–2
Managed forests		–30		–30
<i>Supply</i>		331		587
Russia	20	106	0	196
Ukraine	20	67	0	87
Accession 10	25	45	5	75
Other EIT	25	24	0	36
Other GHGs		24		79
Managed forests		40		40
CDM (equiv. Annual)		15		50
<i>Surplus</i>		110		530

Table 1 sets out extreme scenarios for the resulting balance of 'supply/demand'. Even assuming that emissions in all countries grow from present levels – with rapid growth in Canada and the EITs – there is still a surplus of over 100MtC/yr (millions of tonnes of carbon per year). An opposite, plausible, set of assumptions, extrapolating observed recent trends including the fact that emissions in EITs generally have remained flat after economic transition, leads to a surplus of over 550MtC/yr. Thus, the surplus of potential supply over demand is likely to be in the range 100–550MtC/yr, with most likely range perhaps 200–450MtC/yr, i.e. a total surplus of 1,000–2,250 MtC over the Kyoto first period (2008–12). Dealing with this surplus is likely to be a major challenge facing the future evolution of the system.

Such a surplus would lead to price collapse if all allowances potentially available were freely and competitively traded. The real international system is not likely to behave in this way. Ultimately, emission units under the Kyoto system only have economic value to the extent that supplying governments are willing to issue and transfer them, and the governments of receiving countries wish to recognize and use those units for compliance assessment under Kyoto. The Kyoto registries system requires the source of all units to be registered by a unique identifier, so governments

can be selective about what they do or do not accept. They will use this capacity to meet strategic concerns:

- EITs, and in particular Russia and Ukraine as dominant exporters, may seek to raise prices by retaining allowances for 'banking' (and have some market power to help do so);
- potential importing governments (predominantly the EU, Japan and Canada) can use the mechanisms selectively so as to protect existing domestic programmes and to support strategic interests and the legitimacy of the Kyoto system overall.

There is likely to be an international private-sector market with relatively unfettered access to project credits, based around emerging domestic trading systems in the EU and Canada and backed up by more restrained exchanges of Assigned Amount Units (AAUs).² Different importers are likely to approach international units with differing emphasis, though with some common themes (as charted for the EU, Japan and Canada separately in the full module). On top of this, companies will be concerned with protecting themselves against reputational and political risks.

All these factors mean that prices will diverge according to the source, the nature of the project (if any) and the user. This also implies price discrimination

between the various Kyoto mechanisms, and different applications of them. Expert predictions of those already engaged in real trading strongly confirm the hypothesis of wide price differentiation between projects and mechanisms.

Renewable energy projects, many of which could qualify under the Clean Development Mechanism (CDM) rules on small-scale projects that were agreed at the Eighth Conference of the Parties (COP8) to the United Nations Framework Convention on Climate Change (UNFCCC) in Delhi in October/November 2002, could command the highest prices. This, combined with its early entry into effective legal operation under Kyoto, implies that the CDM may provide an initial 'marker price' despite the probably small volume of this market overall. Prices up to £25/tCO₂ might be supported to provide an economically significant incentive.

Most other kinds of CDM and Joint Implementation (JI) projects would attract lower prices. Emissions trading may attract the lowest unit price, though ultimately only this may yield the volumes required to secure compliance for Japan and Canada. Political constraints on international financial transfers mean that direct intergovernmental exchanges of AAUs, especially for Canada, may be at far lower prices than on the private market (perhaps below £5/tCO₂). Such trades would be shielded from private-sector exchanges and linked to reinvestment of the revenues for mutually acceptable purposes. Such exchanges could form the biggest source of revenue for Ukraine and Russia (because of the high potential volume), but they would only occur if Kyoto enters into force.

Such behaviour is essential because of the overall surplus, and because Kyoto's international mechanisms combine two quite different functions: the traditional role of providing market flexibility and efficiency at the margin of private-sector investments; and a basically redistributive function, correcting the excessively lopsided nature of the original Kyoto allocations. The cost of making such transfers at prices that would be required domestically to sustain effective action on climate change may be politically untenable, leading towards greater price consistency over time. However, price instability and discrimination between different kinds of emission units may be fundamental features especially of the early stages. Thus the international trading market – like most other markets – will be built from the bottom up and step-by-step.

2. Business participation and influences

Business participation will be crucial for implementing commitments as business organizations influence both domestic and international policy development.

Module 2 examines corporate engagement in three geographical blocks – the US and Canada, the EU, and Japan – during the period between Kyoto (1997) and Marrakech (October/November 2001), and analyses the current situation and prospects in each. Despite distinct political contexts and histories within the climate change debate, some common themes emerge in each. Companies, and more particularly business organizations, do influence public policy. The principal business interest is national policy, given the stronger immediate and material effect on companies; and business has most influence at this level.

However, the UNFCCC and Kyoto Protocol are seen as a critical framework shaping the longer-term business environment, creating both a market threat to companies with heavy reliance on fossil fuels, and future market opportunities through the commodification of carbon. Business engagement at the international level has principally been through trade associations and has shifted, post-Kyoto, from 'big picture' strategic matters to detailed rules on how carbon markets will function. Even so, the business lobby does reflect tensions between perceived engagement in short-term emissions reductions and the more fundamental transformation of the energy economy away from fossil fuels. This could complicate negotiations on next period commitments, where some consensus over the longer-term goals will be required.

Business approaches

The US At present businesses based in the US face complexity and uncertainty in climate policy, not least because of the open question of US future 're-entry' into the Kyoto system. In addition, there are marked differences in approach in several key areas: a hands-off federal approach to climate policy versus increasing state-level CO₂ policy implementation; the voluntary approach preferred by the administration in contrast to a Congress where firmer policy approaches are increasingly being introduced; the national versus international approach; and – where US multinational companies face a bifurcating system – the Kyoto mechanisms on the one hand, and a national or potential 'hemispheric' approach on the other.

These dichotomies are the result of powerful interventions by emissions-intensive industry sectors during the last decade, clashing with growing public and political concern about this issue. This is creating a situation where there are increasing splits between and within sectors *vis-à-vis* the hedging strategies they are using to tackle this uncertainty. While there remains an extensive and powerful lobby against any mandatory approach to emissions reduction, there is also a gradual acceptance that more mitigation measures are likely, and many companies now have emissions goals of widely varying types and stringency.

Canada Most Canadian businesses have, in common with US colleagues, regarded the Kyoto Protocol as a potential threat to their economic growth opportunities. This is the case even for relatively proactive oil companies such as Shell and Suncor, as evidenced by their continued plans to make significant investments in Alberta's tar sands. However, many companies (including these two) are increasingly sensitive to potential carbon liabilities and so are pursuing a number of avenues – carbon offsets, emissions trading, technology, renewables – that will work to protect their exposure in this area.

Nevertheless, some industries are speaking out about potential lost opportunities for moving Canada's economy in a more climate-friendly and sustainable direction over the long term. Coalitions such as KyotoSmart (comprised of a range of stakeholders including the private sector, provinces, labour groups, NGOs) are gaining growing political attention, though at present they remain clearly in the minority of Canadian private-sector interests.

The EU European business has a more 'progressive' reputation than its US counterparts, thanks to specific interventions (such as Sir John Browne's speech breaking BP from the ranks of the US oil sector), an active progressive lobby at the negotiations (sustainable energy businesses, the insurance sector) and early experimentation with carbon trading and overseas mitigation efforts. EU companies now face a more predictable policy environment than US counterparts owing to the high-level commitment to Kyoto (irrespective of its entry into force). In addition there is a strong public expectation of business responsibility on climate and other environmental issues.

A deeper transatlantic difference, going beyond hedging, is less easy to establish. 'Corporate social responsibility' (CSR) and reputation risk management are high on the corporate agenda in the EU for public relations and political reasons, driving strong marketing campaigns. Yet, in general, interest in emerging carbon trading markets, for example, still remains defensive at this stage – self-protection against a carbon-constrained future, rather than new market opportunity. Lobbying efforts, by traditionally influential business associations, at EU level remain focused on securing a voluntary or market approach, ostensibly to protect international competitiveness, although splits have emerged over the carbon trading discussion. The progressive business voice is growing but remains relatively small and fragmented within many EU countries.

Japan The context for the conventional business view of climate policy is a 'widespread consensus' on the existing energy efficiency of the economy, which is

characterized as a 'wrung-out towel', contrasting with the inefficient 'dripping wet towel' of the United States. Technology being put forward within the European Climate Change Programme reports was already outdated within Japan, and the industry there perceives that it faces considerably higher marginal abatement costs than its European or US counterparts. Six sectors (led by electricity and iron and steel) produce 80% of total energy and industrial emissions, giving these sectors political weight and influence within the main business lobby, Keidanren (now the Japanese Business Federation). Keidanren's Voluntary Action Plan (KVAP) is central to the business strategy.

Japanese business felt misled by the Kyoto process. Targets in Japan are generally used to signal direction rather than establishing mandatory obligations. This, together with remaining uncertainties over the 'burden-sharing' between government and industry required to meet Japan's Kyoto commitment, has reinforced business resentment surrounding the Protocol.

A more aggressive approach to emissions reductions and technological leadership opportunities is emerging, particularly within the automobile manufacturing sector. In common with the EU and US, Japanese small and medium-sized enterprises (SMEs) are not active, and the progressive lobby in favour of reductions is small and weak. Overall, Japanese business is likely to look for a second commitment period approach which more explicitly recognizes sectoral or economic efficiency.

Common approaches and future commitments

Across all regions there is a common set of policy preferences from the emissions-intensive and energy-intensive sectors, which generally hold greatest political sway. These preferences can be categorized as voluntary rather than mandatory, market rather than regulatory, and 'inclusive' rather than restrictive *vis-à-vis* technology. In the case of emissions trading, the preference is for comprehensive country coverage, including non-Kyoto nations, for inclusion of all activities and for full fungibility between units. Indeed, there is an international business 'consensus' that these market-orientated approaches will deliver – if 'flexibility' is fully handed over to business.

However, the discrepancy between emissions trends and reduction goals suggests that voluntary-based approaches have not yet worked, nor is it clear whether they could foster longer-term investment changes in preparation for much deeper cuts in emissions, compared with the preferred business 'management' of the issue. The constraints needed to make the Kyoto system work in the absence of US participation (module 1) will have to be handled with care to manage any negative backlash from business.

Sustainable development has already emerged as a critical political matter in the context of future commitments, and the lack of a clear, shared definition has opened it up as a new battleground, as observed in COP8 interventions by the US, OPEC and industry actors. There are already signs of a consolidating business front embracing the vocabulary of 'sustainable development' and equity in relation to new commitments, but emphasizing a view that commitments which constrain business activities could adversely affect sustainable development. At its worst the rhetoric of poverty alleviation and sustainable development is used to cleave divisions between North and South – a repackaging of the early 1990s strategy of the US industry lobby aimed at provoking a North–South cleavage to break the global negotiations. While these clear warning signs need to be noted, the development agenda is a critical place in which to bring together economic and poverty alleviation strategies together with strategies for climate change mitigation and resilience to climate change impacts.

Regionally and nationally, debates leading to national permit allocation plans for trading schemes will start to crystallize real sectoral strategies and differences. As 'micro carbon' issues become more clearly resolved – when carbon appears on the corporate balance sheet and carbon assets and liabilities are defined – this will precipitate a situation of more sharply differentiated winners and losers. In addition, as the business impact of climate policies is tested in the real world and facts emerge on competitiveness impacts of government policy, this should help provide both a firmer basis for government policy and greater clarity for business.

Finally, surprises and risks, such as climate disasters and litigation interventions, have the potential to alter rapidly the public policy and corporate liability environment.

3. US engagement: prospects and influences

Political and economic context

US government perspectives and policies on climate change for the next few years will have a low priority compared with issues of terrorism, conflict in the Middle East and nuclear weapons proliferation. Economic problems that may ensue, as well as more familiar business cycle fluctuations, will reinforce the current administration's emphasis on the short-term economic costs of climate change mitigation efforts, rather than on long-term environmental, social and economic benefits. Climate change issues will receive generally superficial and dismissive attention at nearly

all levels of the administration except among specialists. High-profile events, such as large conferences, White House announcements and presidential speeches, are designed to obscure a business-as-usual approach, as are semantic inventions such as 'national carbon intensity'.

At the same time, the evolution of opinion in Congress, the public and some sectors of industry is increasing domestic political pressures on the national administration to take more serious action, including mandatory emission limits. The bi-partisan McCain-Lieberman bill introduced in January 2003 has changed the domestic political dynamics.

There is already much governmental activity at the state and local levels, particularly, though not exclusively, in the northeastern and west coast states. This activity will continue to increase for the next few years, and it will contribute to the growing political pressure for more national governmental action. Climate, energy and other related policies will be re-evaluated following the 2004 election, no matter which party wins the presidency or control of Congress. Within this context, the report of the private National Commission on Energy Policy will be important.

Principles and actions for engagement

As an issue of domestic politics, during the next few years, climate change in the US will be increasingly reframed as an issue that is more:

- localized – i.e. a local economic problem because of droughts, floods and storms, for which local action is appropriate;
- particularized – i.e. a business strategy problem for individual firms and industries, which will respond with variable solutions adapted to their own particular interests;
- linked – i.e. an issue that is inescapably linked to other issues such as energy efficiency, where there are at least some win-win policy possibilities.

As an issue of diplomacy, climate change will be increasingly seen as an international economic issue that involves international energy, technology, trade and investment issues. Efforts to engage the US on international climate change mitigation efforts can therefore be most effectively framed by focusing on:

- emissions trading as a market-based economic solution;
- technology development and international technology transfer;
- competitiveness and liberalization issues in international trade and investment;
- energy security issues in an unstable world.

There are numerous specific, tangible initiatives that could advance the climate change mitigation agenda within the context of existing international forums. Some such initiatives are already in progress, but could be intensified. Others would be new. They include actions at the multilateral, regional and bilateral levels in the WTO, OECD/IEA, UNEP, North American Commission on the Environmental Cooperation, and EU–US discussions on climate issues.

Tariffs in other countries on imports of US goods as border measures are one way to offset relatively low-cost energy inputs in US manufacturing because of US non-participation is one way to deal with the US Kyoto Protocol free-rider problem, but would be politically and legally sensitive.

In the pluralistic US political system, there are many potential opportunities for engaging interested and influential actors. Consensus-building and coalition-building efforts could focus on groups other than the current national administration. These efforts would require unconventional transnational diplomacy that would focus on diverse groups and organizations in many areas of the US.

American audiences can be responsive to both practical and ethical aspects of climate change issues. A 'practical' theme can focus on the tangible economic benefits of technological innovation and the need to adapt to 21st-century realities of technology and globalization. An 'ethical' theme can focus attention on the responsibility to future generations – an issue with widespread resonance and appeal in the US. Americans are more likely to be responsive to this ethical issue than to issues of responsibility for past behaviour and its consequences for people in other countries.

Decisions about the future engagement of the US should take into account the following scenarios, which are not mutually exclusive:

- Increasing concern and activity in Congress, state and local governments, industry and the public will periodically make climate change issues salient items on the national agenda for the indefinite future.
- The national administration will do nothing substantive until the end of 2004, but it will periodically announce incremental measures intended to defuse domestic political pressures.
- Beginning in 2005, US engagement on climate change issues at the national level is likely to be much greater and attentive to a wide array of policy options, particularly in relation to other issues as noted above.

4. Framing future commitments

Many academic studies have now been published on options for structuring national emission commitments after the first Kyoto period, illustrating potentially a large 'toolbox' for use if and as the world moves towards negotiations on future commitments.³ The widespread assumption is that negotiations will rapidly extend to include quantified commitments for most, if not all, developing countries in the second period; indeed this is being more actively pursued by the Kyoto Annex I Parties as a way of trying to 'get the US back in'. However, progress is implausible until the US first re-enters the global negotiations, and the impasse at COP8 in Delhi – and the long history of attempts to discuss developing-country commitments before it – illustrates the need to explore the political process, and what lies beneath it, before ideas on the merits of different designs can find application in real negotiations. This study considers these more fundamental questions.

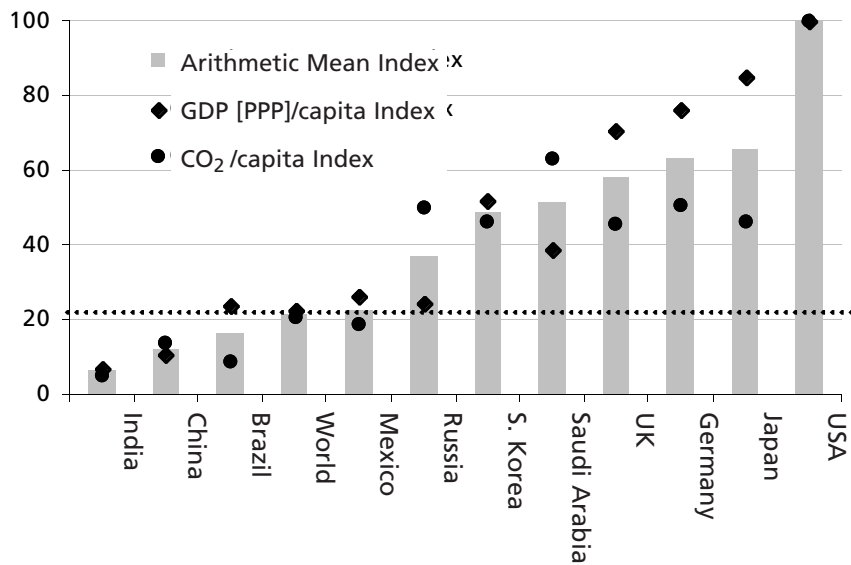
Principles

Three kinds of arguments underlie the pressure to extend future commitments to more (including most developing) countries: the *environmental* argument that the problem cannot be solved without this; the *economic* argument that it would be inefficient to curtail emissions without this; and the *moral* argument that it would be unfair to expect industrialized countries to bear burdens that other countries do not, and to lose competitive advantages.

While all three arguments have some validity and are quantifiable, none is absolute. The atmosphere cannot be stabilized without widespread participation ultimately including all significant emitters. However, the recent decline of Chinese emissions⁴ implies a somewhat reduced environmental urgency with regard to including major developing countries in immediate post-2012 commitments. Efficiency concerns can be at least partially addressed through instruments such as the CDM, which support abatement in developing countries without imposing costs on them. Other routes may address competitiveness issues between countries adopting emission caps and those that do not.

Certain basic principles indicate what might be both morally fair and politically realistic. The most relevant indices include per capita income (ability to pay) and per capita emissions (current contribution to the problem). Independent and joint indices of these measures (Figure 2) illustrate the basis for the existing agreed 'common but differentiated responsibilities' between industrialized and developing countries, while also illustrating the imperfect nature of the bloc division for some countries. The highest per capita

FIGURE 2: INDICES OF EQUITY



Sources: World Resources Institute, Earthtrends and Carbon Dioxide Information Analysis Centre (From Module 4, Figure 2.2)

emitters (the US, Canada and Australia) are also projected to have the biggest absolute increases in per capita emissions from now to 2020 according to International Energy Agency (IEA) projections. These countries bear the strongest responsibility to lead action and it is neither morally defensible nor politically realistic to expect most developing countries to act before these countries have committed to and started to deliver real reductions. However, expectations for commitments could reasonably increase as countries approach world average responsibility and capability levels.

Political realities in industrialized countries

Annex I countries face different problems. The situation in the United States has been described above. Canada, despite having ratified Kyoto, shares many of these problems, though moderated by its more internationalist outlook. The situation is exacerbated by Canada's intense trade relationship with the US, making Canadian industry deeply concerned about the competitiveness impacts of abatement policies.

Australia shares a similar economic basis, but its much weaker target and more diverse trade dependence have led debate there (including in industry) to focus increasingly on the risks of being shut out of the Kyoto system. The Australian government's position reflects political solidarity with the US rather than intrinsic national interests and may be unstable.

The EU is in a far easier position, and has now *de facto* acquired leadership responsibility for the global regime, but its contribution varies widely between the three different leadership 'modes'. The EU has increased its *structural* leadership effort (resources).

The success to date of the EU trading scheme offers a strong measure of *directional* leadership (leading by doing). But the ponderous internal complexities and ambiguities of the EU as an international actor cripple its ability to exert *instrumental* leadership. Its persistent inability to understand and negotiate effectively or efficiently with other Parties appears to be another geopolitical reality with which the regime will have to contend.

Japan finds itself under similar pressures from industry to those of its former Umbrella Group colleagues, with the particular features noted above, and it initially sought to link ratification with developing-country engagement. While the issue remains very important, Japan may take a more holistic view, considering how adaptation and technology transfer could help countries to move forward.

The Economies in Transition are a diverse set of countries that have shared the difficult and often traumatic transitions from centrally planned towards market economies. The ten EITs that are set to join the EU in 2004 will focus on European emissions trading, and their international stance is likely to be increasingly aligned with the current EU in support of the Kyoto process. However, Russia and Ukraine dominate the economic and emission allowances 'weight' of the EITs. The ongoing delay in Russia points to internal complexities and reflects a complex set of issues (its geopolitical status, ambiguous attitude to the UN, a sense of having been cheated by the US withdrawal and consequent scepticism about the ultimate benefits, as well as some continuing uncertainty, about the science and how severe a threat climate change really poses to a large, cold country like Russia). The final decision on Kyoto is likely to be a

top-level decision based on geopolitical calculations, but for the longer term Russia perceives the issue primarily in terms of potential economic gains and deals between major powers – attitudes which unavoidably make for tension with developing countries.

Political realities in developing countries

Given their economic and political limitations, developing countries have traditionally sought 'strength in numbers', through the Group of 77 (G77) and China coalition that now comprises 134 countries. The growth of membership since the group's formation (as 77) testifies to the attraction for its members of this grand coalition, but also amplifies its potential frailty, as the interests become ever more complex and diverse.

Distinct groups within the G77 comprise the Alliance of Small Island States (AOSIS), the Organization of Petroleum Exporting Countries (OPEC), the Least Developed Countries (LDCs), and some countries of the Environmental Integrity Group (EIG) which consists of countries at the margin of rich country groups. The EIG has clarified the likely preconditions for further action by advanced developing countries (ADCs), which include participation by all Annex I countries, and demonstrable progress towards emission reduction commitments.⁵

Repeated statements by the biggest developing countries (China, India, Brazil, Indonesia) reaffirm their well-known common basic stances towards future commitments. In terms of 'clout' within the G77, a simple index of economic and demographic weight (biased towards the former) suggests that China and OPEC could be expected to have the greatest influence, followed by Brazil, and then India, AOSIS and the LDC groups.

In addition to their far lower per capita emissions and wealth, most developing countries have much less negotiating capacity. Their numerical attendance at COP meetings roughly correlates with their wealth, and many developing countries have at least some enduring delegates, but their relatively small delegation size, as well as their institutional location (often from meteorological ministries) and potential to be financially supported from UN sources (up to two delegates for each LDC), suggest they can be somewhat disconnected from domestic political constituencies.

There are also some anomalies in participation. Nigeria and Indonesia are notable for their unexpectedly large delegations. So is the Gulf Cooperation Council, which tends to dictate the OPEC position, though the interests of OPEC countries themselves are much more diverse.⁶ The Saudi Arabian delegation is exceptional for its dominance by the Petroleum Ministry.

Brazil also has a disproportionately large delegation, but with a very high fraction of NGOs and academics.

As actors more generally, NGOs' participation is notably skewed between North and South: 82% of NGOs accredited with the UNFCCC Secretariat are from Annex I countries (about half from the EU), and only 2% are from LDCs. Distributional studies testify to the complexity of capacity-building, possibly because of the relatively short-term engagement of such projects.⁷

Despite these diverse perspectives there are common themes among developing-country concerns. There is fear and distrust about the agenda of 'new commitments' and a refusal at present even to open the door to anything that might lead in this direction. In contrast, Ministerial statements from developing countries persistently allude to the priority of concern about climate impacts and call on industrialized countries, seen as responsible, for assistance with adaptation and impacts management. Implicitly if not explicitly, there is a sense that industrialized countries should in some way be liable for helping developing countries to cope with current and accumulating climatic impacts. However, acknowledging this in industrialized countries is seen as something of a taboo, comparable with the developing-country taboo on discussing future commitments. Resentment about pressure on developing-country commitments – and the fear about future impacts – is vastly amplified by the non-participation of the US. The absence of the world's biggest emitter and richest country currently precludes any constructive discussion within developing countries about future commitments.

Ways forward

To move forward, the issue of addressing climate change needs to be approached in its entirety – issues related to vulnerability, impacts, development, trade, adaptation and mitigation will all have to be the subject of discussions.

By far the most important prerequisite to continue the multilateral climate change effort is to re-engage Annex I non-Parties in the Kyoto process, and specifically the US. Entry into force of the Kyoto Protocol is the surest way to address US claims that the whole framework is unworkable. It would also reinforce the signal (particularly to the US business sector) that the issue of greenhouse gas (GHG) reductions is here to stay and the rest of the world will undertake this under the framework of Kyoto. Coalitions and partnerships with the progressive forces in the US at local, state and federal level, in both government and the business sector, could play a key role both in changing the political landscape and starting to get US emissions under some control – an initial precondition for any realistic re-engagement of the US internationally. Adjustments to the Kyoto instruments could be considered to address some

specific US concerns, for example by considering formal emission allowance price caps.

To expand participation to new countries, the compromises for Turkey⁸ and Kazakhstan⁹ may help set precedents for integrating other advanced developing countries into second period commitments. ADCs will be as much in need of a special Annex I status as Turkey, and as has previously been granted to the EITs.

There are other ways to deepen the engagement of countries that do not take on quantified commitments. Options to address LDC emissions without imposing economic costs on them include market-driven 'technology spill-over' and subsidized 'technology transfer', and the CDM. The CDM could be extended to include sectoral programmes, and/or targets established for a 'minimum demand quota' as part of industrialized-country commitments. In short, there are various ways and means to address developing-country emissions in the near term without quantified commitments from them and the concomitant costs.

To be successful in the long term, these issues will have to be considered in parallel with the impacts issue which forms the current priority for developing countries. The Indian proposal for an 'Adaptation Protocol' bears consideration, but in the short term (concurrent with the upcoming second commitment period negotiations) less ambitious measures such as a reform of international natural disaster relief financing may be more promising.

Procedural progress

The current stand-off in the climate negotiations reflects not just substantive differences, but also a general Southern distrust of the North combined with a lack of negotiating and analytic capacity that would enable the Southern delegates to meet their Northern colleagues on a level playing field: if one is unable to evaluate a proposal and does not trust its proponent, the natural response is rejection. Industrialized-country parties will benefit (along with everyone else) if they help to close the North-South 'negotiating capacity gap'. Capacity-building in a wider context may similarly have beneficial effects – for example, enhancing the capacity to absorb (and generate) cleaner technologies.

Priorities for capacity-building include the LDCs (which as a group are likely to be most directly vulnerable and comprise major populations), and the ADCs (which will be instrumental in the negotiations on second period commitments). For other developing countries, the key capacity-building task is to help emergence of more effective – in the positive sense – negotiating coalitions, including the provision and growth of analytic capacity.

Where might the international system go from here?

On the basis of insights from the four modules, how might the international system develop from its current situation? The huge uncertainties about this can be considered under three different 'families' of scenarios.

Scenario family 1: Kyoto stillborn

In this scenario, the Kyoto system fails to come into operation as an effective international treaty. This could happen if Russia fails to ratify, or delays the decision for so long that the various participants – including private-sector investors – become unable to sustain their involvement on the diminishing expectation of such ratification. It is possible, however, that even if Russia ratifies, the Treaty could still, in an important sense, be stillborn as an effective international regime. Internal opposition in Canada to both domestic implementation policies and international trading, combined with a lack of flexibility internationally, could render it impossible for Canada to comply with its (relatively strong) commitments, and further severely depress demand in the international system, exacerbating resentment in both EITs and developing countries. This would also seriously undermine the Treaty's overall legitimacy.

'Kyoto stillborn' scenarios suggest, however, that important legacies of Kyoto would persist. The EU is now committed to its internal emissions trading system and to meeting its Kyoto target irrespective of whether the Treaty enters into force. A large infrastructure is already being created around Joint Implementation and the CDM, fostering expectations of foreign investment in low-carbon projects and the emergence of some kind of market in such credits. Significant international emissions trading (between major regions) might in effect be aborted, but the infrastructure needed for project activity and domestic cap-and-trade systems¹⁰ would remain. Regional cap-and-trade systems could well emerge.

Nevertheless, the consequences appear very serious. Not surprisingly, it is already apparent that there are far more Parties wanting to sell credits or allowances than seeking to buy them. If Kyoto collapses, the fundamental commitments that determine national efforts to constrain emissions, and the incentive to buy, largely disappear; in their place would be much-empowered lobbies arguing that action should not proceed further without other countries being similarly committed in the context of a global treaty. There might be some cap-and-trade systems, but with low prices and few buyers. Most crucially, in terms of industrialized-country action, it is likely that there would be a fundamental transatlantic split. The 'old

world' countries of Europe and perhaps Japan would continue to seek stronger action based upon binding commitments and absolute reductions; while North America and Australia would place far more emphasis upon voluntary actions in the context of non-binding intensity targets that allowed growing emissions. Given that the latter emit about twice as much as Europe and Japan per capita, and several times the level in developing countries, it is hard to see any way to reassemble a truly international effort when the biggest emitters are taking the least action and oppose the very principle of binding commitments.

This situation, combined with the lack of credible alternative ideas to the basic Kyoto structure, the bitterness of any such breakdown, and the loss of faith in the international system it would entail, suggests that ultimately 'Kyoto stillborn' scenarios are ones in which humanity would lose a decade or more in the struggle for collective state-based action to tackle climate change. New forms of action might emerge, but they might place far greater emphasis on non-state actors – NGOs and companies – than on governments. Given the dependence of corporate investment upon the expectation and indicators of government commitments in the field, it is hard to see such a situation as anything other than very weak in its practical impact on the problem.

Scenario family 2(a): US deferral + second period impasse

In these scenarios, Kyoto enters into force and the first period commitments 'work', in that all the ratifying countries comply with their commitments. For the reasons explained in module 1, this is technically easy in the absence of US participation, because any shortfall in domestic action can be made up by buying emission units from the international surplus. The overall legitimacy of the result will be affected by the extent to which, and terms by which, countries do so; but as indicated in module 1, the signs are that many countries are indeed focusing first upon domestic action and will use international trading as a supplementary compliance tool. There could also be some entry of US companies at the margin on the basis mainly of state-level action such as the New York state trading proposals.

The focus would then emerge upon negotiations for future, post-2012, commitments. Obviously, these can only start meaningfully if the US is willing to re-enter the global negotiations. Achieving this does not necessarily mean that such negotiations can be successfully concluded, or necessarily even meaningfully launched if the US insists on too many preconditions – and the equity analysis of module 4 illustrates just how far the present US position is from one that most countries consider morally reasonable. Thus, in one set

of sub-scenarios the Kyoto first period operates but the negotiations on subsequent commitments get nowhere.

The implications of this would to a very large degree depend upon the experience of implementing the first period commitments. Positive institutional and technological development could lead to lower costs and the emergence of major international low-carbon companies, helping to allay industrial concerns about further steps and helping to dissipate national fears of emission controls. In this circumstance, the constituency to continue action could be strong enough to carry the process forward on a 'coalition of the willing'. The aim, crudely, would be to leave the US economy stranded in outmoded higher-carbon and higher-cost technologies and policies, and shut out of the global carbon abatement system. In a variant of this scenario, the US administration could become increasingly irrelevant as US companies and individual states engaged internationally on a more realistic basis. Should the implementation experience prove more difficult and costly, however, the world could remain locked in impasse for many years, probably until a fundamental change of attitude in the US.

Scenario family 2(b): US deferral + second period breakthrough

The US assessment suggests that it is probably politically unsustainable for the US administration to maintain a fundamentalist opposition to negotiating post-2012 emission caps throughout the next presidency (2004–8). Most likely, if the basic future of Kyoto is secured, sometime during this period the US will seek to meaningfully re-engage in the context of possible post-2012 commitments. There will remain huge divergences in views, but it is likely that paths forward could be found through the acceptance by at least some additional countries (such as Kazakhstan, Mexico, Korea, Turkey) of the need to accept quantified obligations; the probable involvement of many others in the exploratory phase of negotiations; and the huge variety of technical options available for structuring future commitments.

Such negotiations would be immensely challenging and complex. Almost certainly, they would involve much more extended differentiation than the first round of commitments, potentially including differentiating the form of quantified commitments. Examples that might extend developing-country engagement include the possible use of non-binding or 'dual' targets, perhaps based on emission intensities; sectoral caps; and various kinds of agreements on specific policies and measures. Trying to establish intensity targets as the basis for binding cap-and-trade commitments by industrialized countries is problematic, but other potential adaptations include price-capping mechanisms, which could help in particular to address

the political problem of a vocal US minority that will inflate cost estimates to ludicrous degrees unless these are capped by design.

Paying more attention to developing countries' concerns about impacts, and the need for assistance with adaptation, could help both to increase their willingness to discuss extending their emission limitation commitments and to underline the urgency of action to limit emissions and future damage imposed by rich-country emissions. An obligation on industrialized countries to invest certain minimum amounts through the CDM could help to ensure a bigger global spread of the effort without imposing any costs on LDCs. However, the practical operation of such constraints – and indeed of other mechanisms such as price caps – might be problematic and does require further exploration. The huge carry-forward of allowances from the EIT first period allocations into the second period would further complicate the negotiations and exacerbate the inherent tensions between the 'East-West' and 'North-South' axes of the problem.

Despite the enormous complexities, the range of options suggests that solutions could be found given the political will to do so. Continuing accumulation of evidence – and direct experience – of climate change impacts may provide the impetus required. It would remain difficult, however; the most fundamental problem would be US attempts to abrogate the basic agreed principle of the need for developed countries to lead international action. It seems hard, if not impossible, to seek quantified action by the major developing countries in the period immediately after 2012 given the US withdrawal from the first period commitments.

Scenario family 3: First period restoration

The final set of scenarios, though less likely than the others, does highlight interesting possibilities. Clearly, there will be no radical action in the US sufficient to substantially reduce its emissions over the coming decade. However, the accumulating action documented in Module 3 combined with ongoing structural changes in the US economy will restrain emissions growth from current levels, and could lead to US emissions stabilizing – starting at least to fulfil the US's basic commitment under the UNFCCC. Under these circumstances US emissions by 2010 are likely to be 300–500MtC/yr above their original Kyoto target.

This gap is within the range of the overall surplus potentially available in the first period commitments. Thus, on the basis of actions beginning to accumulate and accelerate in US states and corporations – and given the additional flexibility available from an agreement on US allowed sink credits from managed forests – it would be technically feasible for the US to re-enter the Kyoto agreement on the basis of its original commitment if Russia and Ukraine, in

particular, agree to transfer the bulk of their surplus to the US. The terms of such a deal could be purely economic, but would be more likely to involve a significant geopolitical component.

Although such an outcome does not look likely at present, it would have two huge advantages. On the one hand, it would resolve the problems that the EIT surplus would otherwise create for first period implementation and second period negotiations. On the other hand, it would enable the industrialized world to claim that it – now including the US – was fulfilling the criteria for leadership by industrialized countries, as previously agreed in the UNFCCC (ratified under George H. Bush) as the precondition for expecting developing countries to become more engaged. In other words, it would vastly improve the prospects for including a wider range of countries in second commitment period negotiations. These advantages seem big enough for the possibilities to deserve further scrutiny.

Conclusions

The UNFCCC and its development under the Kyoto Protocol and Marrakech Accords remain the principal basis for international discourse on tackling climate change, but prospects are still uncertain and actions outside this domain will be crucial in the coming years. In the formal arena there can be little useful progress until the US administration changes its position; this will not happen during the current presidential term but is likely during the next one (2005–8), primarily owing to accumulating internal forces. In the interim, implementation of existing commitments, development of domestic emissions cap-and-trade systems and their links with the Kyoto mechanisms, greater attention to developing-country priorities including climate impacts, and global capacity-building are all important.

Continuing dialogue among governmental and corporate actors at many levels, including within the US, focusing upon implementation and technology-oriented efforts, can help to lay the basis for future commitments. All these efforts would be aided by entry into force of the Kyoto Protocol, reducing political and corporate uncertainty about the basic orientation of international efforts.

Future commitments under the UNFCCC are likely to be characterized by a multi-track approach, with

- an expanded core of countries taking on quantified commitments, supplemented by
- additional measures that would deepen the engagement of other countries, and
- negotiations to address other concerns including those surrounding the accumulating impacts of climate change.

Overarching all else is the need to extend the capacity to engage constructively in implementation and in international negotiations – capacity not only within

developing countries, but in the business and domestic political constituencies of all the countries expected to participate in the international effort.

Endnotes

- ¹ The former centrally planned economies of the former Soviet Union and central/eastern Europe.
- ² The unit of national emission allowances for the first period (2008–12) as agreed under the Protocol.
- ³ These include proposals for distribution of straightforward national emission caps (e.g. contraction-and-convergence, ‘Tryptique’ proposals for sector-based convergence, and various evolution proposals), and wider variations including the use of national intensity targets, sectoral caps, or proposals focusing on specific policies and measures.
- ⁴ As well as arguments recently advanced by economists suggesting that developing-country emissions may be lower than previously projected in scenarios compiled by the International Panel on Climate Change (IPCC).
- ⁵ Others include recognition for action already taken by developing countries, flexible approaches and timeframes, and technology transfers in all sectors through the CDM in the first period.
- ⁶ For example, North African OPEC countries have expressed considerable concern about climate change impacts, Iran is rich in gas but not oil, and Indonesia and Venezuela are also diverse in their interests. The fact that conventional oil reserves are fully used in almost all scenarios, irrespective of climate policies, also suggests scope for engaging OPEC countries more positively at least in principle (M.Grubb, ‘Who’s Afraid of Atmospheric Stabilisation?’, *Energy Policy*, September 2001).
- ⁷ Undertaken using the MARKAL energy model and disseminated under an IEA-led ‘Outreach’ programme. Of 21 non-Annex I MARKAL projects, only two (Taiwan and South Korea) remain ‘active’.
- ⁸ Removal from Annex II, but retention in Annex I with the proviso that Turkey is to be recognized as being ‘in a situation different from that of other Parties included in Annex I to the Convention’.
- ⁹ Annex I for Kyoto Protocol purposes only, with a target to be negotiated in the future.
- ¹⁰ Under a cap-and-trade system, each participant is subject to an allowed level of emissions. These allowances can be traded, so one participant may emit more if another agrees to emit less.

Further copies of this synthesis report are available on the following websites: www.riia.org, www.iisd.org, and www.climate-strategies.org.

The specific modules are as follows:

- 1) ‘Real Economics’ (Grubb): full module 1 text available at www.iccept.ic.ac.uk/a5-1.html and www.env.ic.ac.uk/lempg; the main results combined with research on carbon pricing for BP were also presented as a shorter written paper at an OECD / CATEP conference on emissions trading, March 2003 available from www.env.ic.ac.uk/lempg/research/michaelcv.html.
- 2) ‘Business Engagement’ (Hamilton, Brewer, Sugiyama, Aiba and Drexhage): full module 2 text available at www.iccept.ic.ac.uk/a5-1.html.
- 3) ‘US Prospects’ (Brewer): full module 3 text available at www.iccept.ic.ac.uk/a5-1.html.
- 4) ‘Framing Future Commitments’ (Müller, with contributions by Grubb, Drexhage and Sharma): to be published as a working paper of the Oxford Institute of Energy Studies, available on the website www.oxfordenergy.org, as well as www.iccept.ic.ac.uk/a5-1.html.

PDF copies of this synthesis report and each of the modules can also be requested from ian.pottinger@ic.ac.uk.

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