

May 2010

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Recommended Citation

Whalley, John and Walsh, Sean (2010) "Post-Copenhagen Negotiation Issues and the North-South Divide," *Seattle Journal for Social Justice*: Vol. 8 : Iss. 2 , Article 12.

Available at: <https://digitalcommons.law.seattleu.edu/sjsj/vol8/iss2/12>

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Post-Copenhagen Negotiation Issues and the North-South Divide¹

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INTRODUCTION

In this paper we discuss the negotiating issues that exist post-Copenhagen, both from the Copenhagen Accord and remaining from pre-Copenhagen in the current global negotiations aimed at achieving new climate change mitigation and other arrangements after 2012. These negotiations were initiated in Bali in December 2007 and are currently anticipated to conclude by the end of 2010 in Mexico under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC) and, following the Kyoto Protocol, are effectively the second round in ongoing global negotiations on climate change.

First, we describe these negotiations as matters stand post-Copenhagen and discuss some of the major negotiating issues. In so doing, we focus on the progress that is likely to be made in these negotiations, particularly relative to the Copenhagen Accord and what was agreed to in Kyoto. We highlight the imprecision of the negotiating mandate and also the relative lack of clear drivers moving negotiators towards a firm conclusion to the post-Kyoto negotiating process. In addition, we draw some comparisons to the case of trade negotiations.

We also identify a series of further obstacles to the negotiation that go beyond simply the imprecision of the mandate. One is the growing pressure for additional measures to accompany global climate change agreements, particularly in the area of trade. This is a central issue for large population, low-wage, rapidly growing countries, whose emissions are also increasing

in step with their economic growth (such as China, India, Brazil, and South Africa) and may tie in with their participation in the negotiating process.

Another difficulty to the negotiations is the inclusion of particularly vulnerable states such as southern states in Africa and small island nations. The current climate goals are a major point of contention for Africa's southern states who face the risk of desertification as well as for small island nations who face the prospect of being swallowed up by rising sea levels, as the global 2 degrees Celsius limit on temperature increase proposed still means 3.5 degrees Celsius to 5 degrees Celsius of temperature rise in particularly sensitive areas such as Africa or the Arctic.

For these matters, a more precise interpretation of "common yet differentiated responsibilities," the imprecise and vague principle which was agreed to in Kyoto, will be central to the post-Copenhagen negotiations if a substantive agreement based on the Copenhagen Accord is to come out of Mexico in November–December 2010. This principle is the single largest obstruction to a new climate change treaty and is, in broad terms, the focal point of the divide between the northern developed countries and the southern developing countries on the climate change issue.

We also look at the seemingly inevitable backlog in 2012 of unfulfilled commitments from the Kyoto negotiation⁴ and an effective absence of dispute resolution in Kyoto and hence the need for enforcement mechanisms, post-Kyoto, that are much more effective than those that currently exist within the Protocol. While these backlogs were seemingly dealt with in the recent Copenhagen Accord, the agreement is not legally binding and does not deal with enforcement in any substantive way; hence there is little incentive to comply. Dealing with both issues at once is a major unresolved issue.

Whether the obstacles we identify prove overwhelming, resulting in only a reworded Copenhagen Accord-type document, or whether substantial progress can be made in the current timeframe for the negotiation, depends upon a number of factors related to background issues. One is whether a

perception of growing severity of climate change (increased speed of melt of Arctic sea ice, glacial melt, and other such phenomena) adds enough momentum to existing political pressures to conclude the negotiation. Another is the strength of the collective desire by most of the parties to the negotiation to underpin international cooperation more broadly and in other areas (such as trade) with a successful environmental negotiation. There is also a likely perceived penalty that nonparticipant regions and countries may face in other areas such as trade, which will also add momentum. A further key factor is the negotiating positions of the United States and the coalition of China and India as the largest economies and global emitters for the developed and developing countries, respectively.

Our bottom line assessment is that the task of concluding the current climate change negotiating round—currently spanning from the Bali meeting of the Conference of the Parties 13 (COP 13) in 2007 to the Conference of the Parties 16 (COP 16) in Mexico, 2010—in any satisfactory way for both the climate and the key parties involved seems, at this stage, daunting. In addition, the mechanisms to be used to move negotiations forward, as well as the more precise negotiating issues involved, seem disturbingly ill-defined and vague for a negotiation of this scope. To compound the problem, these issues have not progressed any further with the recent Copenhagen Accord approach which allows for unilateral commitments to stand as international commitments—commitments which are myriad in form, thereby making progress difficult to measure.

We conclude with a discussion of what may be involved in negotiations beyond the current negotiating round and suggest that, *de facto*, sequential negotiating rounds—much as has occurred in General Agreement on Tariffs and Trades (GATT) and the World Trade Organization (WTO) since 1997—are underway. If past trade negotiations are any precedent, there will likely be a progressive broadening of coverage of negotiations sequentially from round to round. How to broaden beyond the current climate change

negotiating round will thus be a central issue, and the nature of countries' participation in current negotiations will be influenced by where they see the process going beyond 2012—whether there will be a binding post-Kyoto treaty or not, and various other factors.

Another set of issues will involve growing links to other negotiating areas including trade and finance. We suggest that, eventually, we may see the emergence of joint bargaining simultaneously on trade, finance, and the environment, linked within an overall regime structure. This may be a few negotiating rounds away but raises the question of the institutional forum in which such global bargaining might occur. For the moment, global policy bargaining has been concentrated in the WTO and limited to trade bargaining. With linked bargaining covering trade, finance, and the environment, some wider bargaining format going beyond the current structure of the WTO could emerge in the next few decades.

I. THE CURRENT STATE OF CLIMATE CHANGE NEGOTIATIONS

We begin a description here of the negotiations leading up to the Copenhagen Accord and a possible post-Kyoto treaty with the widely held belief that the Kyoto Protocol has performed unacceptably poorly. This conclusion came through strongly at the end of the COP 11 meeting in Montreal and in the Montreal Action Plan, which indicated a need to move onto a new and better treaty. Serious negotiations for a post-Kyoto treaty began formally in COP 13 in 2007, in Bali.

A. The Bali Roadmap and Its Four Pillars of Negotiation

Successful conclusion of the Bali meeting in December of 2007 seemed a forlorn hope for most of the meeting, but in the final hours of negotiation, several agreements were reached which effectively form what was named at the end of the negotiation the Bali Roadmap; it lays out a broad framework for what a post-Kyoto treaty should look like.⁵ One component of the roadmap is the creation of an Ad-hoc Working Group on Longterm

Cooperative Action under the Convention (AWG), which is to work on issues outlined in the roadmap outside of, but parallel to, the Kyoto process under the UNFCCC.⁶ Thus, there is both an official process and a designated group that work on the same problems.

Some key emitters, most notably the United States and China, did not commit to any emissions reductions under Kyoto. Thus, widening the scope of the negotiation to include as many countries as possible, and especially high emitters, was seen as a critical need for any post-Kyoto agreement. At the request of the United States, and as a prerequisite for their involvement, inclusion of developing countries (and China in particular as an emitter of carbon roughly on the same scale, year by year, as the United States) was also deemed to be necessary to moving forward in any significant way on the path defined by the roadmap. The United States and China would not break this impasse and step into the process until the recent Copenhagen Accord, two years later.

Country membership uncertainties aside, it was also alluded to in the roadmap that industry, and specifically industry-government collaboration, will likely play a major role in the potential success (or failure) of any negotiated plan. The view that a one-size-fits-all approach to climate change is inappropriate prevailed, and, hence the participation of industry leaders was also seen as important to help design the region-specific details of any new agreement.

The Bali Roadmap concentrates on four central pillars of future negotiation, which define four different goals and possible actions required for each to come about. These are (1) mitigation, (2) adaptation, (3) innovation and technology transference, and (4) finance and investment.⁷ The roadmap's design is intended to be such that activities under each pillar support activities in one or more of the others.⁸

Mitigation is essentially concerned with damage minimization from climate change. Thus, in essence, it involves balancing economic cost versus environmental gain. The conclusion made at Bali was that the Kyoto

Protocol was too simplistic in terms of country divisions for required action.⁹ A more nuanced approach to designing mitigation targets was recommended, which will likely go beyond emissions reduction and encompass other commitments such as energy consumption targets, renewables targets, and others.¹⁰ This broadening of targets is especially relevant for the developing countries whose economies are growing rapidly and in transition to industrialization, but this broadening of measures is also aimed at increasing compliance with agreed targets among all participants.

The **adaptation** pillar is largely about changing the way that development is viewed as a process, essentially incorporating knowledge of the likely effects of climate change into any development or preservation (land, biodiversity, etc.) decision. Some of this will have to do with planning for changing weather patterns and sea-level rise of up to ten feet by the end of this century, going by some of the more extreme estimates. Transfer of funds to compensate for the costs of adaptation is also a major component. At Bali, the major adaptation concern was for developing countries, as many of these will be among the most and earliest affected.¹¹ Country cooperation was emphasized, as necessary, to allow the emerging effects of climate change, both detrimental and otherwise, to be identified and dealt with.

Another set of concerns at Bali focused on **technology and innovation**. The development of new and “greener” technology was seen as the long-term solution to climate change.¹² At present, many diverse technologies are being developed around the world, but the problem remains how to pick and choose among them. Of even greater concern is how to diffuse those technologies quickly on a global scale, especially to developing countries. The Bali Roadmap calls for the creation of incentives to both innovate and transfer technology and also for the removal of obstacles within countries which retard further innovation internationally, giving specific attention to incentives for diffusion to developing countries. Issues surrounding intellectual property rights, technology transfer, infrastructure and the

absorptive capacity of developing countries, and other key issues were seemingly left for individual countries to deal with. Only recently with the Copenhagen Accord has significant progress been made in this area, with discussion being promised in Mexico on a new Technology Mechanism proposed by the G77 under paragraph eleven of the Accord.¹³

Finally, there is the role of **finance and investment**, which is central to the other three pillars, as heavy amounts of investment are required to undertake all the actions outlined above. As potentially one of the most vulnerable areas of climate change impacts, and also as a lynchpin for the financing of climate change-related projects in the other three pillars, protection of the finance and investment sector is critical. However, climate change falls well out of the area of expertise of the sector, in general, and hence, there is little going on within it to safeguard the sector's continued wellbeing from climate change effects. There is some financial innovation being done to adapt to green initiatives and protect against climate disasters, but the scale and progress of these efforts are almost certain to be insufficient. While the financial map of climate change-related investment is constantly changing, current investment levels after all international funds are figured in are, at best, still only hundreds of billions of United States dollars in value.¹⁴ A substantial sum, but to put that in perspective, the International Energy Agency (IEA), in one of their 2008 books,¹⁵ has estimated that roughly \$45 trillion (or 1.1 percent of global GDP annually out to 2050) worth of investment in new green technologies will be needed to reach the long term goal of 50 percent emission reduction by 2050. More recently, this has been amended to include an estimate that this figure will rise by \$500 billion for every year beyond 2010 that we do not have a global climate regime in place.¹⁶ And, although there will undoubtedly be beneficial spillovers if investment reaches these levels, this primarily concerns just one of the four pillars—technology and innovation. Given this distant goal, the primary conclusion at Bali was that, using CDMs, JI, the ETS, and by other such means, governments must support innovation in the

finance and investment sector and, where possible, help simplify the issues to allow them to be more easily incorporated. Few specifics were agreed to though, so most progress in line with these conclusions will be at the discretion of individual countries.

Institutionally, the four pillars have been provided for. The technology and innovation pillar has been given primarily to the Expert Group on Technology Transfer (EGTT), a subsidiary institution of the UNFCCC, to manage; financial matters pertaining to this pillar are handled primarily by the Global Environment Facility (GEF).¹⁷ The GEF has also been named as the temporary secretariat for the adaptation pillar, although several institutions, such as the World Bank, also contribute in this area through CDM project funding and other funds. Beyond this, the pillars of mitigation and finance and investment are much less localized by nature, with various institutions contributing in several ways but with no institute standing in as a lynchpin for the ongoing efforts.

Two international funds have perhaps contributed to the centralization of the efforts in the adaptation pillar and the technology and innovation pillar, relative to the mitigation pillar and finance and investment pillar. These two large funds are the Adaptation Fund, which was created under the Kyoto Protocol mandated by the roadmap, and is managed by the GEF (hence their current secretariat role for that pillar), and the Clean Technologies Fund (CTF), which was created independently by the World Bank. Comparatively, funds created for the mitigation pillar and finance and investment pillar have received much less attention and are almost all national or subnational in nature. These funds will be discussed in more detail in a later section.

As a final note, the main body of the United Nations has stated, as per its charter,¹⁸ that it will help to mediate the international conflicts that arise due to climate change effects, such as the ongoing conflict over ownership of the Arctic and the natural resources under the rapidly melting ice (using the UN Convention on the Law of the Sea¹⁹ in this instance). Also, while the

World Bank's role has been mentioned already, it has become evident that all of the Bretton-Woods institutions are already thoroughly enmeshed in these activities, with the IMF offering what expert advice it can to all parties, and within the WTO, talks are ongoing as to the possibility of integrating the international trade and environment regimes.

B. Beyond the Bali Roadmap: Poznań and the Copenhagen Accord

At Bali, it was understood that a final agreement was still out of reach by the end of the negotiation and the goal set was set to have a new post-Kyoto climate change treaty two years later at COP 15 in Copenhagen, set to happen December 7 to 18, 2009. In the months preceding Copenhagen though, this goal was again delayed twelve months by a tacit acknowledgement that concluding in Copenhagen itself was prohibitively difficult given the number of outstanding issues and recent developments (the financial crisis, in particular).

The four pillars laid out at Bali are just as stated: the main part of a roadmap, meant simply to encompass the general shape of what that final treaty may look like. The stated purpose of COP 14 at Poznań in December 2008 and at Copenhagen itself in late 2009 was to give better definition to what the final post-2012 agreement will ultimately be, to fill in the details within the general shape of the Bali Roadmap, and to garner as much support for a post-Kyoto climate change agreement as possible. However, there were a great many issues still left to be resolved. Thus, even before Poznań, interim discussions²⁰ were occurring frequently within all four pillars. General agreement to a post-Kyoto regime is high and there are still several outstanding issues before an agreement can feasibly be reached, with very few having been resolved.

Most of the largest issues have to do with redefining what "common yet differentiated responsibilities" means, which ultimately requires a resolution to the dispute on what each of the roles of the northern developed and southern developing countries should be in dealing with climate change.

In other words, to what extent does development towards economic, social, cultural, and other key goals within a country take precedence over environmental considerations for each country? A difficult ethical question to be sure, especially when the last few hundred years of any given country's history also weigh into any discussion on this question. It was not until the recent Copenhagen Accord that a tentative answer was agreed upon—that growth does indeed take precedence over environmental issues in developing countries.

A significant portion of upcoming discussion and negotiation post-Copenhagen will be dedicated to an ongoing attempt at resolving the differences between the current trade regime and environmental policy, as this is not even mentioned in the Copenhagen Accord. The differences between the two regimes are such that some have suggested that there will be significant challenges in integrating them.²¹ These differences reflect the fact that the current international framework, centered on the Bretton-Woods institutions, was not designed to take into account any possible physical linkages between countries. Only matters pertaining to political and economic linkages were considered key at the time of their creation in the 1940s.

As a result, and what alarms trade specialists, environmental aims almost inevitably seek to impose limits on trade entirely outside of the WTO process in order to control the flow of carbon and price products. These additional costs have no basis within the current WTO structure, save for those few under a recognized Emissions Trading System (ETS) framework, and tend to be classified as an unsanctioned tariff within it. Thus, trade specialists see the emerging environmental regime as a major threat to the continuation of the current trading regime under the WTO.

As such, to ward off a failure within one of these regimes when the pressure becomes too much, a measure of integration would be the obvious solution. Ultimately, this will involve a great deal of complex negotiation on such issues as international investment, border tax adjustments, and

embedded carbon, and thus potentially, a major shift in how the international system works. We could see, for example, a new World Environmental Organization emerge, which would change the dynamics of the global system.²² More drastically, we could see the emergence of an entirely new global order from this negotiating process depending on the course of global warming over time and, assuming significant progress,²³ there could be a greater call for action. On one hand, the negotiations have a great deal of progress to make and many obstacles to deal with in a limited timeframe in order to design even a single successor treaty to Kyoto, let alone solutions involving more drastic measures. But on the other hand, the possibility that such drastic actions may be necessary for any effective climate change treaty to work should not be discounted, particularly in terms of meshing the environmental and trade regimes.

Indeed, the inherent complexity and obstacles were much in evidence in the COP in Poznań, where some described the discussion as “treading water” in terms of the progress made.²⁴ Much of the discussion centered on finance and the funds created specifically for dealing with adaptation and mitigation efforts, with attention paid to Africa in particular, but little progress was made with the funds still mostly unavailable for national use, an issue impacting more strongly in the developing world than elsewhere due to their higher adaptive needs. Although, on a positive note, there was a seemingly large amount of support for the basic idea of climate change-related disaster insurance, which is indicative of the level of potential damage that negotiators currently feel climate change could cause—future talks may bring this proposal to fruition.

Another large area of concern in Poznań was the lack of agreement as to a “shared vision” of the type of cuts to be made under the post-Kyoto treaty. Ultimately, this includes a lack of agreement to the scale, depth, and type of carbon dioxide reductions needed to combat climate change and a lack of agreement on the unknown value placed on other types of actions. There was, however, a tentative agreement to draft a list of country-specific

acceptable mitigation actions for later interim meetings before COP 15 at Copenhagen. And, although there was commentary that the South seems to be talking with a more unified voice, the large divide between the bargaining positions of the developed and developing world remained a clear impediment to moving the negotiation forward.

In Copenhagen itself, these divides seemed more numerous and were the most visible obstruction to the talks. They initially became a focal point of discussion with the revealing of an informal backroom document (prepared by perhaps twenty to thirty developed countries), which has been dubbed the “Danish Text.” This text dictates a plan for a flow of funds of around \$10 billion per year to developing countries out to 2012 and a timeline for developed countries to peak their emissions. Several representatives from developing countries called this document insufficient and dangerous for developing country interests due to the implied control it gave the international institutions and developed countries over the flow of funds to developing countries and pace of climate mitigation efforts on a global scale. In addition, South Africa and the Alliance of Small Island States (AOSIS) bloc asserted early on the need to break away from Kyoto Protocol commitments and to start fresh with a new protocol aiming for no more than 1.5 degrees Celsius of warming. Naturally, all countries with a Kyoto backlog supported this idea, but most other developing countries found throwing out the Kyoto Protocol so objectionable that they walked out of the talks en masse for half a day—setting the precedent to allow developed nations to abandon unmet commitments and throwing away the only functioning international support mechanism for developing countries and the climate change within it.²⁵ Thus, there was little evident progress on closing the fundamental divides between the developed and developing countries or between the most and least affected by climate impacts during the talks.

The final text, the Copenhagen Accord,²⁶ committed Annex I parties with Kyoto backlogs to extend and deepen Kyoto commitments over an eight

year span to 2020 by an unspecified amount. For those not in this group, mitigation plans were whatever a given country felt inclined to commit to unilaterally, with some international oversight to guarantee sufficient effort was being put forth.²⁷ No country specific mitigation targets were agreed on, and there is no mention of enforcement in the text. At the same time, a new fund to be put in place by 2020 specifies an annual flow of \$100 billion from developed to developing countries for adaptation and mitigation purposes and discussion of a new Technology Mechanism under the UNFCCC to facilitate the transference of climate change adaptation/mitigation-related technology between countries.²⁸

Thus while much less was accomplished than some hoped, as nothing that came out of it is legally binding, the conference was not “treading water” again, as with the Poznań meeting. The pace of the progress is, however, beginning to call into question whether the UN is the proper venue for these negotiations. South Africa and the AOSIS bloc were particularly unhappy with the result, as the fund set out in the Accord only comes into effect in a decade and the Accord, for now,²⁹ maintained the status quo of a 2 degrees Celsius limit of warming, which translates to a 3.5 degrees Celsius increase in Africa, with assorted food, water, and desertification issues associated with that, and a slower, but still probable inundation of the small island states.

II. BROAD ISSUES FOR POST-COPENHAGEN NEGOTIATIONS

The current negotiations are the second round of global climate change negotiations following their first initiation in Kyoto in 1997. As such, they may be said to be parallel to the WTO negotiations that effectively began in 1947 with the creation of the GATT, with the GATT as the focal point of a series of successive negotiating rounds which followed. As such, these negotiations need to be seen both in their broader and more narrowly focused perspectives. In the section that follows, we discuss more detailed

negotiating issues needing resolution for this round to conclude with significant content that could be built upon in future rounds.

But a number of broader considerations follow first. First and foremost is a discussion of the driving forces behind the negotiation as they relate to its ability to conclude. Clearly, the central issue is the perceived severity of climate change and the potential damage associated with climate change effects as they escalate with temperature change.

The perception of damage is critical for a meaningful conclusion to the negotiations. In 2006, the Stern Review suggested that the business-as-usual scenario could, by 2050, involve global damage in the region of 20 percent of global product.³⁰ On the other hand, authors such as Mendelsohn have suggested that, on the basis of detailed analysis of farm-level data in the United States and elsewhere, a more realistic estimate of damages may be indistinguishable from zero, and Mendelsohn suggests a base-case estimate of damages at 0.1 percent of GDP.³¹ Clearly, if these latter damage estimates are taken as central estimates, the political momentum behind climate change negotiations for the next few decades effectively disappears. The perception of damage is therefore key to the conclusion of the negotiations. Those involved with the UNFCCC process, such as Yvo de Boer, have gone as far as to suggest that the weight of scientific evidence regarding the negative impacts from climate change is so clear that it would be “criminal” on the part of the politicians of the major countries of the world not to negotiate major climate change limitation.

These differences in perception, therefore, are central to the negotiation and, for now, negotiations are being driven by committed individuals in terms of their interpretation of the scientific evidence of climate change within the UNFCCC process, within environmental ministries, and more broadly, with a seemingly global political consensus of the increasing severity of climate change. As such, for now, the political momentum seems strong but that could change with a re-evaluation or debunking of scientific evidence.

Another persistent issue in the negotiations—such as those surrounding the North-South divide—is one of momentum. As stated before, the Poznań meeting was described as “treading water” and the progress made in Copenhagen, while very significant for being inclusive of both the North and South, is very fragile due to the fact that the Copenhagen Accord is not legally binding. If things fall apart in Mexico, the danger is that the process could be left open-ended and ultimately drag on for years, similar to the Doha Round under the WTO. Unlike trade, however, climate change negotiations have a definite, if unclear, window in which they may conclude if the worst climate change effects are to be avoided; thus, the Doha pattern is especially dangerous to follow in this case.

The other feature of broad background is the linkage between climate change regimes and other elements of policy regimes. Climate change negotiations, up till now, have been treated as separate, stand-alone negotiations designed to remedy a problem with an emerging climate regime, which can largely evolve independently of the rest of the policy regime. The reality, however, is that the form and scope of social engineering implied by the kinds of changes that were first brought up as part of the Bali mandate are such that every element of economic policy, both within and across countries, will be touched by it in ways that would greatly complicate climate change negotiation. The Copenhagen Accord covers this in very broad strokes: by only agreeing to the general principle that technology disbursement will play a big part and that funding will be provided for climate change-adaptive efforts in developing countries. But issues related to this are already arising centrally in the trade area. There are pressures which have been building in Europe to deal both with so-called “leakage”: that is, one group of countries reducing their emissions and this reduction thereby serving to facilitate increases in emissions elsewhere, but more centrally to deal with the anticompetitive effects and costs inflicted on domestic producers associated with significant carbon emissions limitation.³² In Europe, this has led to calls for border tax adjustments and

accompanying measures to supplement the climate change discussions, as well as calls to reduce the carbon emissions limitations themselves for key industries.³³ Climate change, however, reaches far and wide into every dimension of global policy.

It is implicit in the text of the Copenhagen Accord that there is much attention being paid to burden sharing and the distributional implications of climate change initiatives. However, the text remains vague and is mostly in terms of general support, through the creation of a new Copenhagen Green Climate Fund, rather than in terms of the specific potential climate disasters that may occur. For example, the forty-three AOSIS small island states who risk disappearance under major sea-level rise spoke in Copenhagen on their specific issue. In West Africa, there are a large number of small countries with borders running parallel to the ocean and with increased desertification. Thus, there would be need for major movement of individuals across borders. It has been argued that these are poor countries that would be unwilling and unable to accept such large influxes of refugees without major commitments of foreign aid committed to them in advance on a contingent basis. Such contingent negotiations could therefore involve a major realignment of global aid arrangements. And with aid flows currently running at 0.2 percent of GDP from the United States and other OECD countries, seemingly massive adjustments in global aid arrangements would necessarily follow, perhaps utilizing climate change funds as a channel. However, current funds do not target disaster management, only general mitigation and adaptation projects. This issue remains to be addressed, with South Africa being the obvious choice to lead the discussion on this issue in Mexico due to its vulnerability and stance in Copenhagen.

Trade arrangements would be central in terms of maintaining access to key export markets, particularly for rapidly growing emerging economies. China is a case in point, with 30 percent export growth and a development strategy focused centrally on integration into the global economy, growing industrialization, and trade. One major concern in China is with the world

going both “green” and “protectionist” at the same time. Climate change negotiations could involve a closing of global markets to them. Therefore, from China’s point of view, linking trade and climate change negotiations is central in the sense that China may be more willing to take on firmer climate change commitments in return for guarantees of market access. Also, since India formed a five-year coalition with China in 2009, India has officially taken up this stance.³⁴

Global financial markets and the global financial structure will also be altered by the reallocation of risk in light of growing climate change scenarios. Issues of creating climate change-specific financial mechanisms such as global warming or global flooding bonds and so on would inject a new element into global financial arrangements, which could rapidly overwhelm the structure of the financial system as it exists now.

In all these ways, the broadening of the focus of climate arrangements is therefore a large element of this negotiation process, both in terms of global efficiency and distributional impacts, as well as the allocation of risk and the linkage to other countries. How this broadening of focus is built into the Mexico negotiation and beyond will be key to the process.

The ability to conclude this negotiation, therefore, will be driven in part by the broader context in which the negotiation takes place. The momentum behind the negotiation will be such that it may force some form of conclusion if the current perception of the growing severity of climate change damage continues. With weaker perceptions that things will change, the complications and difficulties associated with linkage will come into play. Likewise, a clear timeline for the negotiation is also necessary due to the negotiation’s complexity.

III. SUBSTANTIVE NEGOTIATING ISSUES POST-COPENHAGEN

In this section, we set out our sense of some of the key negotiating issues that will arise for the Mexico negotiation. We discuss this through a series of topic subheadings.

A. Defining a Possible Agreement

Several issues remain surrounding the basic characteristics of what the agreement could be. One of these issues concerns the timeframe and the base date for the negotiation and the commitments which would be undertaken as a result of the negotiation.

In terms of the timeframe, at the moment it is only tentatively specified how long commitments undertaken in 2012 will apply—out to 2020—and only for countries in noncompliance with Kyoto. However, those countries in compliance or those that did not take on commitments in Kyoto will likely follow suit. But the actual timeframe decided on makes a big difference, particularly for the rapidly growing economies. Whether this is ten, fifteen, twenty years or even longer could impact greatly on their plans for economic growth and other goals.

A central issue related to this discussion is deciding on the base date for the calculation of commitments. In Kyoto, Russia's agreement to participate gave the negotiations the momentum to conclude, and this Russian agreement was heavily influenced by the decision to make 1990 the base date. Fixing 1990 as the base date allowed Russia to trivially meet its agreed Kyoto commitments since between 1990 and 1997 there had been an implosion of the Russian economy. Even today, Russia is still significantly below its 1990 emissions levels.

As a result, in the current negotiation, the Russian position has been one of emphasizing how central it is to Russian participation that these negotiations maintain a base date as close to 1990 as possible for any emissions calculations. The choice of the base date may be more important for Russia than the choice of negotiating instrument.

On the other hand, for an economy such as China which is rapidly growing, the use of a base date of 1990 would be disastrous, due to the growth which has occurred since that time. The Chinese incentive is to have as recent a base date as possible. The conflict over these base dates and timeframes, therefore, remains a central unresolved issue in the negotiations.

The concept of multiple base dates has been suggested as a solution; however, this would make comparisons on progress in emissions reduction more difficult.

Paired with the issue of the base date is the issue of the depth of the commitments for carbon dioxide emissions within a post-Kyoto agreement. With the levels of carbon dioxide in the atmosphere still on the rise, the required cuts to stay within the threshold of a 2 degrees temperature increase from 1990 levels, as indicated by the reports of the IPCC, are constantly increasing. Even a year ago, the limit for carbon reduction that governments were willing to consider was a 50 percent cut by 2050. In most places this has been discarded as too weak now, and it is fairly common for declarations of 80 percent (or more) reduction targets by 2050 to be made by various countries. The Waxman-Markey Bill in the United States, for example, sets out an 83 percent reduction target for 2050. Largely, this is largely a reflection of the direness of the problem as perceived through the lens of the IPCC reports, the 2006 Stern Review, and other widely read sources supporting the science of climate change. As time goes on, if the viewpoint in these reports continues to hold sway, the range of cuts under consideration will likely continue to remain high and possibly even rise further. Thus, the depth and time frame for such cuts that will be agreed to in the post-Kyoto negotiating process will depend on the perceived severity of climate change at the time and whether the science behind such reports continues to hold up against scrutiny.

On the other hand, there is the feasibility of actually reaching such targets. IEA projections, as stated before, put the price of the necessary innovation and technological diffusion (primarily through investment in the energy sector) at \$45 trillion, with yearly delays on a global treaty beyond 2010 increasing that amount by another \$500 billion. Eventually, there may even come a point at which the cost of acting does indeed outweigh the cost of inaction, although such a scenario is hardly desirable. To an extent, this line of thought also underlies the political will towards reaching an agreement as

soon as possible. The science states clearly that there is a limited window of opportunity in which an effective and feasible global climate change agreement can be made and realized by 2050, although the bounds of which remain uncertain.

Another issue is the form of the commitments within the agreement. If an agreement is to be reached by the Mexico meeting of the COP at the end of 2010, how much emphasis should be placed on emissions reduction, and how much on other possible actions? The REDD plus plan³⁵ for forestry is already included in the Copenhagen Accord. Similar policies focused on biodiversity and several others that go beyond the central carbon dioxide reduction issue also exist and could potentially be created to be more effective in the long term. The four key pillars defined earlier in the Bali Roadmap remain a good blueprint for a post-Kyoto treaty, and ideally, each should receive a significant amount of attention in any final agreement.

In addition, complications are arising in the negotiating process due to the fact that countless countries have already been engaged in unilateral projects to combat and prepare for climate change outside of their Kyoto Protocol commitments. For example, a number of economies, such as the European Union (EU) and China, have unilaterally committed themselves to significant emissions reductions relative to trend (instead of absolute levels) by 2020. The EU has committed itself to a 20–20–20 program—to achieve a 20 percent reduction in emissions and a 20 percent use of renewables by 2020. In the case of China, there is a 20 percent reduction in energy consumption relative to GDP, a 20 percent use of renewables, and a 45 percent reduction of emissions relative to GDP, also by 2020. This issue arose centrally in the Copenhagen negotiation and, at the moment, the Copenhagen Accord states, at least for those without unfulfilled Kyoto commitments, that these unilateral actions are, *de facto*, being treated as the multilateral commitments of these countries.³⁶ How effective this sort of approach is over a less ad hoc approach remains to be seen.

B. Common Yet Differentiated Responsibility

The first issue for the ongoing negotiating round is the participation, as well as the terms for participation, of large, rapidly growing, low-wage economies—especially China, but also India and Brazil. These countries did not participate in the Kyoto negotiations, and now the pressure is on for them to be included, especially China since it is now the largest emitter of carbon globally on an annual basis.³⁷ History was made in the Copenhagen Accord in that it includes both developed and developing countries; however, their inclusion is only in a sort of de facto way since the accord is not legally binding, allowing them to set their own targets using whatever instruments they want. Ideally, these countries should have a deeper involvement given the emissions levels and mitigation potential embodied in them. But deeper involvement in the form of a legally binding treaty may prove more troublesome in trying to achieve such a wide membership.

China, India, and Brazil have a special situation to deal with in terms of their negotiating positions. First of all, they are rapidly growing and have aspirations of growth and development both for the purposes of poverty alleviation as well as for significant improvement in the level of wellbeing within their economies. In order to achieve this, any negotiated commitments by them in the climate change area have to allow them room to grow, as agreed to in the accord.³⁸ In the Kyoto negotiations, this was implicitly recognized with the adoption of the ill-defined principle of “common yet differentiated responsibilities,” originating from the UNFCCC mandate.

In Kyoto, this phrase was widely interpreted to imply that developing countries would not be subject to any commitments in terms of emissions reductions within the Kyoto negotiation and all emissions reductions would be made by OECD economies. “Common yet differentiated,” therefore, meant nonparticipation by developing countries. In the current negotiation process, this interpretation seems no longer capable of prevailing, both because of the current emissions from these economies and their rapid

growth. Hence, major debate and discussion took place in Copenhagen over the interpretation of this term and what its significance is for these economies. For the moment, the Copenhagen Accord states that developing nation responsibility is whatever the developing nations feel unilaterally inclined to implement—not so far a stretch from what was already occurring under the Kyoto Protocol.³⁹

As far as “common yet differentiated responsibilities” go, two different interpretations circulate, each of which has major implications for the negotiation. One is the definition embodied in the Copenhagen Accord, that developing countries, and rapidly growing economies in particular, should not be expected to take on commitments in terms of climate change and emissions reductions which impinge adversely on their growth and development (until they achieve developmental levels comparable to those in the OECD economies), save in the case that they are financially compensated for doing so. The magnitude of financial compensation that was discussed in Copenhagen went far beyond any previous climate change funds. Previous funds, such as the Clean Technology Fund, sized at \$30 billion, and the Adaptation Fund, which provides an annual flow of funds only in the hundreds of millions, pale beside the size of funds embodied in the accord. This proposed fund, the Copenhagen Green Climate Fund, if implemented, would provide \$100 billion annually starting in 2020 to developing countries for general climate related project funding.

The second interpretation is one where “common yet differentiated responsibilities” refers to the form of commitment which is undertaken. China, India, and Brazil have all suggested that the post-Kyoto negotiating process should focus on reductions in emissions intensity rather than reductions in emissions levels for developing countries, as this would allow more room for them to grow. Therefore, one possible interpretation of “common yet differentiated responsibilities” is China, India, and Brazil would take on commitments in terms of emissions intensity, whereas the OECD would take on commitments in terms of emissions levels—i.e., the

“common yet differentiated responsibility” translates to differential commitments undertaken by different groups of countries.

The treatment of unilateral measures as international measures in the accord will likely facilitate the use of these different measurements by different countries. However, whether this approach will continue to prevail at the Mexico negotiation, and whether or not it is found to produce sufficient reduction in emissions, is an open question. This is a very central issue for the participation of these large entities as well as climate-sensitive countries such as South Africa in climate change negotiations beyond Copenhagen.

C. Choice of Negotiating Instruments

A second set of issues for the negotiation focus on negotiating instruments. The negotiations which concluded in Kyoto involved commitments to reductions in emissions relative to a specified base date. Almost certainly, the rapidly growing economies of China, India, and Brazil would be unwilling to take on commitments on this basis. This is simply because of their rapidly growing economies; to leave room for their growth, commitments of this sort are inconsistent with their growth aspirations. In the eleventh five-year plan in China in 2005, China set out their clear objective to quadruple real GDP per capita between 2000 and 2020. A restatement of that objective between 2020 and 2040 and then continued growth after 2050 would apply a thirty-fold increase in GDP per capita, with concurrent large increases in emissions (independent of the adoption of more emissions-compatible technologies in that span that could mitigate some consequences).

Such growth profiles will clearly continue to argue that any negotiations should take place on the basis of emissions *intensity* rather than emissions levels. Thus, one central issue in the negotiations is the choice of instrument, along with the issue of whether a common instrument will be used for all parties to the negotiation. These details remain to be worked out in Mexico.

Another related issue, and one not explicitly covered in the Copenhagen Accord, concerns the calculation of liability for emissions reduction and whether it should be related to the use of fossil fuels on a geographical or territorial basis, effectively looking at emissions associated with an economy's production, or whether it should be the consumption within the economy. China, for instance, has argued that approximately 35 percent of China's carbon emissions are related to exports. These exports represent the consumption of entities outside China, both in the OECD and elsewhere, and these emissions should therefore be the liability of the entities which enjoy consumption of the goods which are produced, not the liability of China simply because of the geography involved in their production. This is an especially large issue for China since China is rapidly becoming the manufacturing center for the world with nearly 60 percent of Chinese GDP now originating in the manufacturing sector.

The calculation of liability for emissions reduction also raises complex issues of administration and implementation. Were agreements to be made in terms of consumption rather than production as a basis for the calculation of emissions reduction, there would have to be agreements on the calculation of the carbon content and the administration of any carbon content rules. These rules, in turn, would be very complex since they would relate not only to the amount of carbon directly embodied in the production of goods, but also the carbon involved indirectly, and components for production would originate in third countries, with multiple shipments between different pairs of countries in the production process. Current estimates calculate the manufacturing sector in China at around 55–60 percent of the total value of production of foreign direct investment (FDI)-related activities for export as related to import; that is, the processing trade in these economies is very large and would have to be reflected in these carbon basis calculations. Hence, a further issue arising with embedment is the basis for the calculation of carbon content.⁴⁰

D. A Backlog of Unfulfilled Commitments

Yet another issue central to the negotiation process is the backlog of unfulfilled commitments under the Kyoto Protocol, which apply to a significant number of OECD economies. Arguably, the most severe case is Canada, where some current projections insist that Canada could be 30 percent (over 150 million tons of carbon dioxide) beyond their Kyoto commitment targets by 2012.⁴¹

One issue presented by these backlogs is the credibility of any future negotiating arrangement. It also raises the issue of the enforcement and dispute settlement mechanisms within negotiated arrangements. In Kyoto and in Copenhagen, only a marginal amount of time was devoted to crafting enforcement mechanisms (which have proved to be largely insufficient), and several parties in the negotiation process are insistent that much more effective dispute settlement mechanisms be applied. Finally, it has also had the effect of dividing the negotiating parties effectively into two groups. The first group includes those parties that did not participate in the first negotiating round (China, India, Brazil), did not ratify their commitments (United States), or trivially met their commitments (Russia). These countries will be pitted in a coalition against the second group: countries that are significantly in violation of their compliance to Kyoto commitments. In Copenhagen itself, the pressure was on countries to honor their unfulfilled Kyoto pledges as part of the negotiating process going forward beyond 2012, and they were included in the Copenhagen Accord as being carried forward. Hence, the prospect is for a group of countries, of whom Canada is the most severe, to carry forward with them their unfulfilled commitments from Kyoto as well as any further negotiated cuts which they undertake as part of a final post-Kyoto deal.

Should a final agreement be reached, a modified Kyoto Protocol will likely play a large part, as developed countries would not accept a waiver of Kyoto commitments as part of a post-Kyoto agreement in Copenhagen. This is a central issue particularly as it relates to the issue of dispute settlement.

While countries agreed to carry unfulfilled commitments forward in the Copenhagen Accord, this is not legally binding. When the issue arises again in Mexico, should the push be for a legally binding treaty, many non-Kyoto compliant countries will likely argue against the prospect of carrying these forward.

E. Accompanying Measures and Spillovers Beyond the Environmental Regime

While not explicitly stated in the official documents, there are growing pressures in the discussion for there to be accompanying measures which would be introduced alongside the new set of commitments reached so as to allow easier implementation of the commitments. These pressures arise explicitly in the area of trade. For now, these issues have most centrally been debated with respect to Europe, but the discussions are beginning to spread. The catalyst behind them in the European case is not only the prospect of a new international regime in 2012 beyond Kyoto, but also the impending changes in the European emissions trading system. From 2012, the EU system will move from a partial cap-and-trade system, where existing producers receive an allocation of rights to emit carbon comparable to their current use, with a requirement to buy additional permits, to one in which there is significantly more auctioning of permits so that producers will have to buy permits for most carbon emissions.⁴² This potentially generates significant new cost pressures for European producers and has been the source of much discussion over proposed border tax adjustments in Europe, which will accompany these new arrangements. In addition, the pressures are building for the same border tax adjustment issues to be debated as part of the post-Kyoto negotiating process.

In essence, the argument is that if certain economies view themselves as going farther and faster in terms of environmental commitments than others, this imposes a cost disadvantage on their domestic producers. In order to implement these carbon emissions reductions measures, it will be necessary

to offset the competitive disadvantages to domestic producers and this will be done through accompanying trade measures. Current proposals in the EU call for systems of tariffs and exports subsidies to compensate both domestic competition and exporters for these border adjustments.

Many issues are raised by these border adjustments including, as in the recent paper by Lockwood and Whalley, the issue of the effectiveness of such measures and whether they will indeed offset the competitive disadvantages.⁴³ The pressure in the negotiation process, however, will be for these types of accompanying measures to be allowed. These, in turn, will likely involve measures not in compliance with WTO tariff bindings, and hence build conflict between the environmental regime and the trade regime.

There are also fledgling discussions of various arrangements in the trade area in the form of new regional arrangements. Proposals are beginning to come forward for carbon-free trade areas, which might involve tariff and other reductions for the trade of low-carbon products and also the use of accompanying measures along the lines of border tax adjustments for groupings of countries.

All of these proposals and accompanying measures in the financial area may well arise. They reflect the pressures that will inevitably build for the crossovers between the new emerging environmental regime, the trade regime in the WTO, and the financial regime implicitly underwritten by the International Monetary Fund (IMF) to be considered as one single-linked entity. In essence, the global policy regime, in terms of policy coordination linking economies which, coming out of the Bretton-Woods Conference of the 1940s, was seen as only involving trade in goods and links in finance, will inevitably be broadened to also include physical interaction between economies. The discussion of regimes for their physical interaction cannot logically take place independently of the trade and finance regimes and this is now reflected in the pressures occurring in the accompanying measures. No mention of accompanying measures (or indeed, any trade related

matters) is made in the Copenhagen Accord, and it remains as a further unresolved issue.

F. The Size and Administration of Accompanying Funds

Here we outline the climate change related funds already put into operation and the current plans for a new fund within the Copenhagen Accord. As we note above, the post-Bali Roadmap calls for explicit negotiations on both adaptation and innovation funds. The Adaptation Fund⁴⁴ was mandated in the Bali Roadmap, and funds for the other three pillars—mitigation, innovation and technology transference, and finance and investment—have rapidly emerged from various sources, notably the World Bank's relatively new Clean Technology Fund (CTF)⁴⁵ and Strategic Climate Fund (SCF).⁴⁶ These two, in addition to the other World Bank administrated climate change funds, currently amount to a flow of roughly \$20 billion annually, which constitutes the majority of fully operational international climate change investment funds (although much of it is already dedicated to ongoing projects).

In comparison, the next two largest sources—the officially mandated Adaptation Fund and the climate change investment program of the Inter-American Development Bank—are relatively small. The Adaptation Fund's value, while somewhat uncertain (since it is based on the successes of CDM projects), is worth at least \$160 million annually and at best \$960 million annually.⁴⁷ The climate change investment program of the Inter-American Development Bank, on the other hand, accounts for funds of roughly \$6.6 billion annually for various climate change projects.⁴⁸

These funds are seen as facilitating individual countries' and economies' adaptation to predicted climate change effects as well as financing the emergence of new technologies to deal with these effects and mitigate carbon emissions. Inevitably however, this means that the climate change negotiating process is, in effect, a negotiation on simultaneous emissions reductions, requiring instruments and depth of commitments to be

negotiated alongside financial arrangements. This negotiation will likely involve significant financial transfers between countries and will be critical to maintaining the participation of the developing countries in the post-Kyoto negotiating process due to the costs involved and their stated priority on growth and poverty alleviation over environmental protectionism.

As we note above, for the low-wage, rapidly growing economies, “common yet differentiated responsibilities” suggests financial compensation for environmental restraint should be part of the negotiations. Furthermore, these parties see the funds that are specified as part of the Copenhagen Accord to be the most in accordance with their sense of how much extra cost environmental action will impose on their economies. Therefore, both the size and use of the funds, the proposed \$100 billion per year, and the Copenhagen Green Climate Fund in particular, will therefore be a central element in the negotiation going forward.

G. Other Issues in the Negotiation

Along with the issues we note above, other more peripheral issues will likely arise in the negotiation. Two issues of particular interest are enforcement/dispute settlement and the coalitional structure that will likely emerge throughout the negotiating process. While individually these issues are perhaps less central than those we discuss above, they will take on special significance as they interact with the major negotiating issues identified.

1. Enforcement and Dispute Settlement

The first significant issue that is likely to arise is enforcement and dispute settlement. Kyoto’s enforcement mechanisms have proven largely inadequate; and the need for more effective enforcement mechanisms will undoubtedly motivate research as to what these mechanisms could involve, particularly if Kyoto is largely carried forward intact past 2012 as proposed by the developing countries in Copenhagen itself.⁴⁹ One mechanism could

be a precommitment by negotiating parties to give funds to a central entity, such as an international agency, where they would be held in escrow pending compliance with negotiated commitments. This could include an arrangement where countries in noncompliance would not receive a return of funds, and their contribution would be distributed among compliant countries in a manner proportionate to GDP or geographic size. The size of such a fund would have to be large in order to have an effective dispute settlement mechanism. Also, procedures would have to be specified to determine country compliance at the end of the agreement period. Such a mechanism, however, would seemingly (and inevitably) be a part of both the negotiation and an implementable scheme.

2. Coalitions in the Climate Change Negotiation Process

A final issue concerns the evolution of coalitions, the negotiating form, and how coalitions can evolve and negotiate within this structure. The typical GATT/WTO trade negotiations have been dominated by large entities. Typically, outcomes are communicated to small entities later on in the negotiating process, and their negotiating commitments are extended through the Most Favored Nation principle (MFN) to the smaller parties. This has effectively allowed a structure to evolve in the trade area where the larger countries, through negotiating rounds, have undertaken more significant commitments. These are then extended by MFN to the smaller parties who, to a large degree, free ride on the multilateral commitment.

In the environmental area, the emerging coalitional structure is quite different and will come into play in a central way. What remains to be seen is how it will operate in terms of modalities of negotiation and whether it will significantly affect the outcomes of the negotiations. There is already a coalition of forty-three small, independent island states—the Alliance of Small Island States (AOSIS)—who negotiate together, with South Africa commonly taking their side informally. A smaller but potentially much more significant coalition consisting of India and China has also emerged,

where both of these countries have agreed to take identical negotiating positions in climate negotiations out to 2014. The negotiating interests of Russia and Brazil are also clearly aligned with India and China, and a broadening of this latter coalition may be likely, which, as a group of developing countries accounting for a significant amount of annual global carbon dioxide emissions, would give it considerable leverage in the negotiation.

The ultimate coalitional structure that emerges throughout this process may or may not aid the conclusion of the negotiations. In theory, more coalitions would equate to fewer parties with opposing positions in the negotiations, which in turn, should lead to a faster resolution and conclusion. This basic assessment, however, fails to factor in the relative inexperience of all parties to the negotiation in environmental issues. Furthermore, as scientific facts emerge and are reassessed, the stability of some of these coalitions may come into question, especially as the perception of an increasing (or decreasing) threat posed by climate change to any specific geographic region changes over time (AOSIS countries versus mainland countries, for example). On the other hand, this may be partially mitigated if such coalitions are also tied to some other less mercurial and more familiar international areas that will play a central role in the negotiation, such as trade.

Negotiations may be facilitated if these key negotiating coalitions emerge and if negotiations take place between groups of countries, such as between the OECD and between India and China or between the OECD and the G77. However, these developments may also complicate negotiations due to the difficulty of obtaining and retaining common coalitional positions. On the other hand, it could also be the case that the negotiations are far too complex to conclude in a timely manner without an established coalitional structure.

IV. CAN THE POST-KYOTO NEGOTIATING ROUND CONCLUDE WITH SIGNIFICANT CONTENT?

In this section, we discuss potential scenarios for the conclusion of the current climate change negotiating round and identify both obstacles to and facilitators for successful negotiations. This negotiation has a very short timeframe and is currently operating under a twelve-month extension from its originally planned conclusion in Copenhagen 2009. Further, its current negotiating mandate remains somewhat imprecise.⁵⁰ The negotiation is being conducted largely within UN agencies, which have limited experience in international negotiation and whose reach into international bureaucracies is largely with environmental agencies, rather than trade, where there is an accumulated reservoir of negotiating talent and experience. For all of these reasons, there has been substantial skepticism in many of the circles close to the negotiations in terms of its potential to conclude.

A. Obstacles to Negotiation

Undoubtedly, the political pressures on the negotiation will be such that there will be some kind of an agreement with a declared outcome. Some have suggested that any significant progress on climate change, if it occurs, is likely to happen not within the current UN-hosted negotiation process but within the G20 process, since the highest global emitters (on a level basis) are concentrated within this group of twenty countries. But the obstacles to the negotiation are still, unfortunately, many. These obstacles are the result of a negotiating mandate that is still laid out in broad strokes and lacking in precision, from backlogs from the previous agreement to a global architecture not designed to include climate change issues within its framework.

1. Imprecise Negotiating Mandate

First, the negotiating mandate is imprecise. While there is a mandate to negotiate on emissions reductions, the instruments to be used in the

negotiation are unclear and unresolved. This issue was put off to COP 16 in Mexico due to the treatment of existing unilateral initiatives as a fill-in for multilateral commitments in Copenhagen. The timeframe for the mandate is still only tentatively decided, and only for countries carrying Kyoto backlogs. Another issue is the interpretation of “common yet differentiated responsibilities.”⁵¹ There are two main interpretations of this principle. The first involves financial compensation to developing countries for environmental restraint, and the second focuses on differing forms and bases of commitment for reducing emissions depending on a country’s developmental level. Obtaining agreement on this matter represents a substantial obstacle. All of this lack of precision inevitably means that these matters have to be resolved before a negotiation can conclude, decreasing the chance of any significant progress in Mexico.

2. The Collective Action Problem

Second, this negotiation is, by nature, a collective action problem and the incentive for any one individual country to participate, particularly in the case of small countries, is minimal. That is, unless all (or most) countries participate in the negotiation and agreement, the costs to any individual participating country incurred by internalizing greenhouse gas emissions and other climate change causing activities may outweigh the actual environmental gains from doing so. Thus, any agreement reached may have to focus more on other aspects of the four pillars set out in the Bali Roadmap, such as the new Technology Mechanism proposed at Copenhagen or other resources that could provide an incentive to participate, even for smaller countries.

3. Lack of a Clear Deadline

In the trade area, negotiations typically come down to the wire, with decisions being made in the last few days and hours. For many years, states maneuver for position and then a last minute, frantic posturing occurs

before deals conclude. As such, the imprecision of the mandate and the resulting ambiguity of the subject matter of negotiation can be major factors in preventing a successful conclusion to the negotiation. This was arguably the case in Copenhagen. If negotiations going forward into Mexico (and possibly beyond) continue to mimic past trade negotiations by starting from an imprecise mandate, the end result will be similarly imprecise and unworkable.

4. Unfulfilled Commitments

Next, if we assume a legally binding framework for a post-2012 treaty, the backlog of unfulfilled commitments⁵² presents a major difficulty and obstacle to the negotiation because those countries and economies with a backlog will be reluctant to take on any new commitments if any new treaty indicates that they must still clear away their backlog as well. On the other hand, those parties to the negotiation without backlogs will continually use this as a major source of pressure on those economies, as seen recently in Copenhagen.⁵³ The choice for some of the OECD countries, such as Canada, in accepting the backlog or not in a legally binding framework could be more important than the commitments they take on as part of the negotiation process itself. It is not just the presence of a backlog, but the quantitative size of these backlogs which will further complicate the negotiation. This has had the effect of splitting the countries in the negotiation into those with and without backlogs, a split which is roughly analogous to the divisions over time frames and base dates for the emissions reduction commitments.

5. Constraints from Non-Climate Change Issues

A final difficulty is the emerging issue of accompanying measures, particularly in the trade area such as carbon-motivated border tax adjustments and emissions trading systems. These measures reflect the natural and logical evolution of an emerging global policy regime, which

not only concerns the environmental area, but explicitly links the environment with trade. Whether or not the negotiations formally acknowledge the linkage, it will be there, will continue to be central to negotiations, and will grow. This linkage is such that, effectively, trade and the environment must be linked in order to achieve a satisfactory outcome to both negotiating processes over the long term. The impact of one negotiation on the other will be pivotal in achieving global environmental improvements. What these accompanying measures would be, how they would operate, and so on, would therefore become an increasingly central part of the post-Kyoto negotiation process going forward and would deflect attention from the direct negotiation on emissions reduction and the use of funds. However, the Copenhagen Accord does not mention trade at all. Should this linkage continue to go unacknowledged, we face the prospect of a world that could go both green and protectionist at the same time and the accompanying difficulties associated with that.

B. Factors Driving a Successful Conclusion

In addition to the obstacles, there are significant pressures that point towards a conclusion of the round, and it is possible that these pressures could overcome the many obstacles identified above. These pressures are detailed in the section that follows. Whether these pressures will force the conclusion of the current round and produce a post-Kyoto agreement depends upon the ability of these pressures to force outcomes on the key issues in the negotiation highlighted previously.

1. Perception of the Severity of Climate Change

The first, and absolutely vital, factor in the negotiations is the perception of the severity of the issue of climate change. There is a perception now, which is widely shared in some circles, that climate change is not only a significant problem, but that it is also growing in severity much more rapidly than many people understand or appreciate.⁵⁴ This perception is

based on facts and observations, such as the fact that the melting rate of Arctic sea ice is much more dramatic than is indicated in the latest IPCC report, and the melting rate of Arctic glaciers may now be occurring at up to eight times the rate it was occurring ten years ago.⁵⁵

These reports are indications of the popular perception of the rapidly escalating severity of climate change issues. To the extent that this is true, the pressure on politicians toward a successful negotiation would grow and could lead to a more positive outcome from the current round of negotiations. A common perception on the level of mitigation needed is the key; and, for the most part, the world has agreed that 2 degrees of warming is a borderline we do not want to cross, although there is some discussion of changing this to a 1.5 degrees target following the Copenhagen meeting.⁵⁶

On the other hand, if the perspectives of those who have called themselves “climate change rationalists,” (often labeled in the media as climate change skeptics or deniers) gain traction, there will be a disincentive to conclude negotiations. This group of scientists exists to dissect and analyze popular climate change works such as the IPCC reports and the Stern Review. For the most part, they have found huge inconsistencies between their empirical science and what the computer-generated forecasting models highlighted in these internationally renowned reports indicate. Depending on who you ask from this group, they argue that either we are slowly cooling or that we are currently warming, but we have not warmed enough or over a long enough period of time for it to be a statistically significant event and that both the level of warming and the rate of temperature change are still within the bounds of natural variability, as seen by the temperature record for the past 12,000 years (since the last ice age). If this view of climate change emerges within the current negotiating round, then the incentives to move the negotiation to a conclusion may decrease, especially in the area of carbon dioxide reduction initiatives, despite indicative events to the contrary such as accelerating Arctic melt.

2. International Policy Cooperation Outside of the Environment

A second issue moving the negotiations toward a conclusion is the clear and growing desire on the part of many countries involved to use their participation to underpin their global cooperational policy in terms of national relations, trade, involvement in international institutions, development strategy, etc. Hence, along with this arises a perceived penalty that many countries would incur from their nonparticipation in these international negotiations, were there to be an outcome. This seems especially clear in China's case. China has been following a growth and development path since the 1990s that is fundamentally trade oriented with a rapid export growth of 30 percent per year in recent years and large growth of inward foreign direct investment to fuel the export growth. China's integration into the global economy has become the central plank of Chinese growth. In order to maintain openness to markets abroad and facilitate Chinese growth and development, China therefore sees it central in her interest to be a significant and active partner in international cooperation, including in the environmental area. Hence, China's objectives in the environmental area are not only environmental; they are to maintain the openness of the trade regime. This argument applies, albeit perhaps more weakly so, in the case of India, Brazil, and other developing economies, and even in the case of the higher income OECD economies. The central interest in maintaining an open policy regime in areas outside of the environment can therefore act as a significant incentive to achieve compliance in the environmental area.

Hence, the conclusion of the post-Kyoto negotiation round faces a whole series of more narrowly focused and more problematic matters concerning the imprecision of the mandate, the basic science, the backlog of commitments, the use of accompanying measures, and the interpretation of "common yet differentiated responsibilities" along with a host of more positive factors, including the growing severity of the issues, the desire in

many circles to achieve international policy cooperation in areas outside of the environment, and the changing political landscape in the United States.

V. THE FUTURE OF CLIMATE CHANGE NEGOTIATIONS AND CONCLUDING REMARKS

The conclusion of the post-Kyoto round of negotiations not only depends on what happens in the actual negotiation itself but will also reflect the expectation of future negotiations. The presumption, much as in the trade regime and the GATT/WTO process, is that, through a sequence of international negotiations stretching out over many decades, there will be a progressive move towards a global environmental regime which will reflect policy cooperation and coordination to deal centrally with the internalization of externalities associated with global warming. As a result, the post-Kyoto negotiations may rightly be viewed as only one step in a series of sequential rounds, such as exists in the trade case. Thus, the negotiations will depend on whether the involved parties view their participation in the current round of negotiation as similar to participation in trade processes. The experience in the trade arena has been that countries that withdrew from negotiation at an early stage in the sequence then found it difficult and problematic to re-enter this negotiating sequence—the classic case being China, who withdrew from the GATT in 1949 and had to undergo complex negotiations on resumption of a WTO membership through accession concluding in 2001.

As a result, the scenarios hypothesized after the conclusion of the current round will affect the outcome of the negotiation, especially in regard to the timeframe of any post-2012 agreements made. This is particularly central to the involvement of the low-wage, high-population, rapidly growing economies such as India and China, and perhaps developing countries in general. On the one hand, environmental restraint (through participation in the process) will impact their growth performance and ability to achieve their growth aspirations and millennium goals, primarily poverty reduction.

On the other hand, noninvolvement in an international climate change treaty could lead to environmentally motivated protectionist measures being levied against them. The difficulty lies in finding enough common ground with developed countries on the climate change issue that meshes with the growth aspirations of developing countries. In other words, the “common but differentiated responsibilities” principle remains the central point of division between these two sets of countries. The resolution to this issue will most likely require joint handling of environmental and trade issues, something not seen in the recent Copenhagen Accord document. The resolution of this issue represents the bridging of the North-South divide on climate change, which was seen most visibly in Copenhagen, but has existed since the inception of the “common but differentiated responsibilities” principle. Should it be resolved, a great many possibilities will open up.

The most likely future scenarios, using the trade experience as a precedent, would seem to involve three central elements. The first element is the broadening of negotiations sequentially across rounds. In the trade area, the broadenings occurred initially from tariffs into other trade-related instruments such as subsidies, and then, in the Uruguay Round, into a whole series of further issues including intellectual property, agriculture, textiles, and others. A similar broadening seems likely to occur in the global environmental area, with other environmental issues being added to the climate change agenda. This could include international codes on the disposal of nuclear waste, as in the Basel Convention,⁵⁷ or the linking of the patchwork quilt of international conventions which have emerged in the international area over the years, as identified by Whalley and Zissimos,⁵⁸ and would involve perhaps 150 ad hoc treaties. Whether this would lead to a broadened form of world environmental organizations remains to be seen.

The second element in future rounds would seemingly involve the growing links to other elements of the international policy regime, particularly in the trade and finance areas. The current global situation still

reflects an institutional form in a time warp of the 1940s, because it is based on arrangements underpinning trade and finance as linkages between economies, but it ignores their physical interaction in the environmental area. Now, with the growth of global negotiations on climate change, an environmental regime is emerging, which raises the issue of how it will be linked to trade and finance. But in turn, the negotiations in trade and finance will have to be linked in terms of their potential impact on climate change. Eventually, these two separate sets of negotiations would seemingly need to be jointly linked, with joint bargaining across trade, finance, and global environment. How this joint bargaining would occur, whether it would evolve out of the WTO or by some other means, would also be a central issue. So far, this sort of joint bargaining is not commonplace, even on a small scale, with discussions on the national and international scale being largely unsuccessful. The impact of the environment on matters of trade is limited largely to emissions trading systems and the emergence of the green industry. Outside of the established climate change funds, the impact on finance is likewise limited to small scale investment mechanisms similar to a rural farmer's weather insurance.⁵⁹

Finally, we have the issue of the institutional form for such negotiations. The current round for climate change negotiations has taken place under the UN and the UNFCCC, which in turn, has involved three central entities: United Nations Environment Programme (UNEP), World Meteorological Organization (WMO), and the Intergovernmental Panel on Climate Change (IPCC). There are many deficiencies in these institutional arrangements, as has been widely noted in literature and more recently at the negotiating table in Copenhagen. The WMO is not an organization centrally designed to achieve internalization of externalities. The IPCC is a body whose legitimacy, in terms of national membership, has been questioned and, generally, the use of UN agencies in relatively remote geographical areas with relatively small numbers of employees and limited expertise in international negotiation (such as UNEP) is something that has been queried

in terms of its satisfactory nature relative to the scale and importance of the task at hand.

In turn, the issue arises as to whether the WTO itself will transform and change from a world trade organization to, effectively, a world bargaining organization. By building on its prior experience and involvement in trade bargaining, it could become a form of world bargaining organization into which environmental issues will be inserted in bargaining format, with the transference of the bargaining we see in the current post-Kyoto negotiating round being the first step. Whether these developments will occur remains to be seen, but such options and prospects will also affect the outcome in the post-Kyoto negotiating round, particularly if the reason for the slow pace of progress seen in Copenhagen is decided to be the institutional format these discussions are being conducted under.

¹ An earlier version of this paper was presented at the CESifo Venice Summer Institute as part of a session on “Europe and Global Environmental Negotiations.” We are grateful to the Liebnitz Foundation for support, and to Ray Riezman, Carlo Carrero, Yuezhou Cai, Yan Dong, and Hui Fang Tian for comments.

² Centre for International Governance Innovation (CIGI); University of Western Ontario; CESifo.

³ Centre for International Governance Innovation (CIGI).

⁴ See generally United Nations, *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (Dec. 11, 1997), <http://unfccc.int/resource/docs/convkp/kpeng.pdf>.

⁵ See generally UNFCCC, *The United Nations Climate Change Conference in Bali* (2007), http://unfccc.int/meetings/cop_13/items/4049.php.

⁶ See generally UNFCC Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol, *Report of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol on its second session*, at 6, FCCC/KP/AWG/2006/4 (Dec. 14, 2006), available at <http://unfccc.int/resource/docs/2006/awg2/eng/04.pdf>.

⁷ See UNFCC Conference of the Parties, *Report of the Conference of the Parties on its Thirteenth Session*, at 3–5, FCCC/CP/2007/6/Add.1 (March 14, 2008), available at <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>.

⁸ The text for all the agreements reached at Bali may be found at <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>.

⁹ UNFCC Conference of the Parties, *supra* note 7, at 3–6.

¹⁰ *Id.* at 3–4.

¹¹ See generally INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, A REPORT OF WORKING GROUP I OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE: SUMMARY FOR POLICY MAKERS (Solomon et. al. eds., 2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>.

¹² UNFCCC Conference of the Parties, *supra* note 7, at 12–28.

¹³ Copenhagen Accord, para. 11, Dec. 18, 2009, available at <http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf>.

¹⁴ See *infra* Part III.F. (Part III.F. will briefly examine the largest funds).

¹⁵ INTERNATIONAL ENERGY AGENCY, ENERGY TECHNOLOGY PERSPECTIVES 224 (2008) (specifically, the BLUE scenario is estimated to cost \$45 trillion to cut the 2005 emissions 50 percent).

¹⁶ INTERNATIONAL ENERGY AGENCY, WORLD ENERGY OUTLOOK 194 (2009).

¹⁷ For more information, see Global Environment Facility, <http://www.gefweb.org> (last visited Mar. 28, 2010) or GLOBAL ENVIRONMENT FACILITY, FOCAL AREA: CLIMATE CHANGE (2009), <http://www.gefweb.org/uploadedFiles/Publications/ClimateChange-FS-June2009.pdf>.

¹⁸ See U.N. Charter, June 26, 1945, 59 Stat. 1031, T.S. No. 993.

¹⁹ See U.N. Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 3.

²⁰ See United Nations, <http://www.un.org/en/> (last visited Mar. 28, 2010) (detailing official UN talks in Bangkok, Bonn, and Accra, and numerous other talks that were focused on more specific issues, such as details of funding arrangements, specific special needs of particular developing countries, and discussion on how to mesh climate change-related measures with existing international architecture, trade, and the WTO in particular).

²¹ See generally LUDIVINE TAMIOTTI, ET AL., WTO-UNEP REPORT ON TRADE AND CLIMATE CHANGE (2009). See the joint WTO-UNEP report on this issue for more in-depth analysis, available at http://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf.

²² John Whalley & Ben Zissimos, *Trade and Environment Linkage and a Possible World Environmental Organisation*, 5 ENV'T & DEV. ECON. 483, 510–16 (2000); see generally John Whalley & Ben Zissimos, *What Could a World Environmental Organization Do?*, 1 GLOBAL ENVTL. POLITICS 29 (2001).

²³ One event that would cause a sufficient amount of worry and spur this type of action is an ice-free Arctic. Depending on whom one asks, an ice-free Arctic is predicted to occur anywhere between 2013 and 2050. Any climactic event of sufficient proportions to worry people on a global scale may also spur action of some sort.

²⁴ Elizabeth May, *Yes We Can! Goes Global*, GREEN PARTY OF CANADA, Dec. 12, 2008, <http://www.greenparty.ca/en/node/8755>.

²⁵ Nitin Sethi, *Small Islands Group Force Break in Climate Talks*, THE TIMES OF INDIA, Dec. 10, 2009, available at <http://timesofindia.indiatimes.com/india/Small-islands-group-force-break-in-climate-talks/articleshow/5320031.cms>; John Vidal & Suzanne Goldenberg, *Copenhagen Talks Stall as African Bloc Accuses UN of Trying to Kill Kyoto*, THE GUARDIAN, Dec. 14, 2009, <http://www.guardian.co.uk/environment/2009/dec/14/copenhagen-g77-africa-kyoto-suspended>.

²⁶ For the full text of the Accord, see <http://unfccc.int/resource/docs/2009/cop15/eng/107.pdf>.

²⁷ Copenhagen Accord, *supra* note 13, at para. 4.

²⁸ *Id.* at para. 5.

²⁹ This issue has been agreed to be discussed again in Mexico, as lowering the threshold of acceptable warming is an idea that caught many by surprise in Copenhagen. *See id.* at para. 12.

³⁰ *See generally* NICHOLAS HERBERT STERN, STERN REVIEW ON THE ECONOMICS OF CLIMATE CHANGE (2006).

³¹ *See generally* Robert O. Mendelsohn, *A Critique of the Stern Report*, 29 REGULATION 42 (2006–2007); *see also* Francesco Bosello et al., *Economy-Wide Estimates of the Implications of Climate Change: Sea Level Rise*, 37 ENVTL. AND RESOURCE ECON. 549 (2006) (stating that similar estimates have been produced on a more global scale concerning the effects of an increase in sea level).

³² *See generally* Ben Lockwood & John Whalley, *Carbon Motivated Border Tax Adjustments: Old Wine in Green Bottles?* (Nat'l Bureau of Econ. Research, Working Paper No. 14025, 2008).

³³ David Cronin, *Climate Change: EU Gives Polluters a Christmas Gift*, IPS, Dec. 12, 2009, <http://www.ipsnews.net/news.asp?idnews=45095>.

³⁴ *See generally* China.org.cn, China, India Sign Climate Pact, http://www.china.org.cn/environment/2009-10/22/content_18745060.htm.

³⁵ Copenhagen Accord, *supra* note 13, at para. 6; *see generally* CHARLIE PARKER, ET AL., THE LITTLE REDD BOOK (2009), http://www.globalcanopy.org/themedia/file/PDFs/LRB_lowres/lrb_en.pdf.

³⁶ Copenhagen Accord, *supra* note 13, at paras. 4 & 5.

³⁷ Reuters, *Asia: China Tops U.S. In Greenhouse Gas, Group Finds*, N.Y. TIMES, June 21, 2007, at A12.

³⁸ Copenhagen Accord, *supra* note 13, at para. 5.

³⁹ While the Kyoto Protocol did not require developing countries to act, many in fact did so. This was largely through the Clean Development Mechanism, which allocated funding for green projects in developing countries. The reasons for this were varied. One primary reason is that it provided an extra source of funds for infrastructure projects. Another, particularly for China, was the political leverage of visibly acting to mitigate their carbon, which is useful for any future negotiations. Another large reason was access to new technology and the boost such technology could give to their development. And, of course, there are also environmentally based motives.

⁴⁰ *See generally* Sean Walsh & John Whalley, *The Global Negotiating Framework for Climate Change Mitigation* (CESifo, Working Paper No. 2458, 2008). Note also that this is not as advantageous to China as it may seem. As a developing nation, China is a large importer of carbon-intensive goods, most notably building materials such as steel and concrete, as well as a large exporter in various manufactured goods. The net effect would thus be much less than simply writing off the 35 percent of Chinese emissions attributable to exports and could potentially even increase the net level of emissions China is accountable for.

⁴¹ UNFCCC, Changes in GHG emissions from 1990 to 2004 for Annex I Parties, http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/ghg_table_06.pdf (last visited Apr. 2, 2010) [hereinafter UNFCCC Table on Changes in GHG Emissions].

⁴² Information on the changes upcoming in Phase 3 of the EU ETS may be found in several EU government sites, including the United Kingdom, http://www.decc.gov.uk/en/content/cms/what_we_do/change_energy/tackling_climate/emissions/eu_ets/phase_iii/phase_iii.aspx (last visited Mar. 28, 2010).

⁴³ Lockwood & Whalley *supra* note 32.

⁴⁴ The Adaptation Fund is largely intended for projects in areas of the world where climate change will first be felt, in order to lessen the impact of climate change over time. Also, within those areas of the world, primary attention is given to developing countries. Thus, in practice, much of the resources for the fund come from CDM projects.

⁴⁵ The CTF is largely for research in green technologies and energy. However, in keeping with the World Bank's strengths, the main crux of the fund is that it offers both a short-term action plan for carbon reduction that largely focuses on energy efficiency and a longer-term green development plan based on deploying green energy technologies. As previously stated, the estimated eventual size of the CTF is roughly \$30 billion, with \$5 billion initially used to get it moving.

⁴⁶ The SCF is a pool of funds meant to fund some specific WB sanctioned projects such as a developing country adaptation program as well as a project aimed at forest preservation and renewal. Otherwise, its primary purpose is to serve as a source of financing tools such as loans, credits, grants, etc., for the needs of developing countries. Climate Investment Funds, Strategic Climate Fund, <http://www.climateinvestmentfunds.org/cif/node/3> (last visited Apr. 3, 2010).

⁴⁷ Benito Müller, *The Nairobi Climate Change Conference: A Breakthrough for Adaptation Funding*, Jan. 2007, at 2, available at http://www.oxfordenergy.org/pdfs/comment_0107-1.pdf.

⁴⁸ See generally GLOBAL ENVIRONMENT FACILITY, STATUS REPORT ON THE CLIMATE CHANGE FUNDS (2008) (indicating that many smaller international funds are managed by GEF).

⁴⁹ This was more in the nature of a demand than a proposal due to the 'Danish Text' incident in Copenhagen, the proposal that would have abolished the current Kyoto Protocol commitments. This was so objectionable that it caused a lengthy walkout en masse by the developing countries. While the incident itself was highly covered in the media, unfortunately the Danish Text itself is no longer public. Juliet Eilperin, *Poor Nations Stall Talks on Global Warming*, THE WASHINGTON POST, Dec. 15, 2009, at A08.

⁵⁰ The nature of climate science does not aid to clarify this, as it is difficult to progress by any means but consensus, which may alter or be broken by any party as they see fit. This was seen in the Copenhagen talks with the proposal to shift the target warming threshold down to 1.5 degrees Celsius from 2 degrees Celsius, an issue thought to be settled. See Copenhagen Accord, *supra* note 13, at para. 12.

⁵¹ See *supra* Part III.B.

⁵² UNFCCC Table on Changes in GHG Emissions, *supra* note 41.

⁵³ After developing countries returned from their walkout over the “Danish Text,” which stipulated the pardoning of all Kyoto Commitments, all Annex I parties reaccepted their Kyoto backlog in the Copenhagen Accord on top of an unspecified “deepening” of commitments. However, this text is not legally binding in any way and getting Annex I countries to take responsibility for their Kyoto backlog in a legally binding agreement may prove to be a major source of contention in future negotiation. Developing countries have more political capital on this issue since countries with a backlog are essentially going back on their agreed and ratified international commitments, while countries with a backlog are so far behind in some cases that it would be potentially economically ruinous to meet their original Kyoto target. See Eilperin, *supra* note 49.

⁵⁴ STERN, *supra* note 30.

⁵⁵ Maggie Fox, *Antarctic Glaciers Melting Faster-Study*, REUTERS, Sept. 24, 2004, <http://www.planetark.com/dailynewsstory.cfm/newsid/27332/newsDate/24-Sep-2004/story.htm>.

⁵⁶ Copenhagen Accord, *supra* note 13, at para. 12.

⁵⁷ For more information, see the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Mar. 22, 1989, 28 I.L.M. 657.

⁵⁸ See generally Whalley & Zissimos, *supra* note 22, at 29–34.

⁵⁹ It should be noted that the timescales of most of the events and consequences surrounding climate change are fairly long. Thus, most climate-related financial mechanisms that could work would be risky (due to uncertain effects or new revelations in science) in the very long term—out to 2050 or further. Notably, the demand for this sort of investment is small.