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Climate Change after the  
Kyoto Protocol  
*A New Architecture for  
Global Policy*



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## EXECUTIVE SUMMARY

*The global response to greenhouse gas emissions will capture the world's attention in Copenhagen in December 2009, when the United Nations convenes its annual meeting on climate change. Although Copenhagen will not provide a successor agreement to the aging Kyoto Protocol, negotiators are expected to come to some broad agreements about the substance of the next climate treaty and the process for getting to it.*

*Among the matters to be discussed are stringent new emissions targets for the 37 most-advanced economies; mechanisms to increase contribution levels from developing or emerging economies; and international sources of funding for emissions reductions in less-advanced countries. Officials will also be discussing ways to improve the functioning of carbon markets, which are increasingly becoming a critical element of the world's efforts to reduce emissions.*

*The Copenhagen conference comes at a time when the dangers of climate change—economic, social, and political—are widely acknowledged and when the risks of inaction are growing. Nations and companies everywhere should seek a voice in the negotiations in Copenhagen and beyond.*

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## KEY HIGHLIGHTS

- The new global framework on climate change policy will build on the Kyoto Protocol but will need to address critical gaps in flexibility, compliance, land management, clean technology, and carbon markets and finance.
- The use of nationally appropriate mitigation actions (NAMAs)—self-funded, co-funded, or funded by carbon markets—provides a consistent global platform for commitments while allowing flexibility for individual countries.
- Greater use of carbon markets and carbon finance will be critical to achieving the required emissions reductions.
- Nations at all levels of development will need to ensure that they have input in the formulation of a new architecture on climate change policy.

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## CLIMATE CHANGE POLICY: FROM KYOTO TO COPENHAGEN

The thousands of political, business, and environmental leaders who will descend on Copenhagen in December 2009 for the United Nations' annual conference on climate change have a huge task ahead of them. They will be trying to create the momentum needed to forge a comprehensive and enduring global agreement to control the level of greenhouse gases in the atmosphere. This effort has been unfolding over the last 17 years, and Copenhagen is unlikely to provide any breakthrough answers. But coming at a time when the limitations of previous climate change initiatives have become clear, Copenhagen will set the stage for a more comprehensive and enduring treaty. Governments and businesses all over the world need to pay attention.

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Participants in Copenhagen will discuss a new architecture for a climate change agreement—one that builds on the 12-year-old Kyoto Protocol but that also diverges from it in significant ways that have important implications for the roles of individual nations.

The creators of the Kyoto Protocol, in 1997, never envisioned it as a comprehensive, long-term answer to the dangers of climate change. Rather, they saw it as a starting point. The commitment period—when 37 advanced-economy nations needed to begin reducing their greenhouse gas emissions, relative to their 1990 baseline levels—didn't even start until 2008, a decade after the treaty was created. The reductions cover just five years (through 2012), and

the Protocol itself didn't tackle some issues deemed to be too difficult, such as forests and agriculture.

Still, a lot of ideas with enduring value were born of the Kyoto Protocol, chief among them the clean development mechanism (CDM). The CDM allows for nations that do not qualify as economically advanced to get credits in the form of certified emission reductions (CERs) for any projects that lower the level of greenhouse gas emissions. These credits have economic value and can be sold to companies in advanced nations, which can use them to satisfy their own emissions obligations. The creation and trading of these certificates has spurred the development of a global carbon market, which is drawing financial institutions into the area,

creating backing for low-carbon technologies, such as solar, wind power, and energy efficiency.

Kyoto provides the foundation that global climate change officials will be building on. Copenhagen is the 15th session of the Conference of the Parties (COP) that the 192 member states of the United Nations have held since forming the UN Framework Convention on Climate Change (UNFCCC) in 1992. To be sure, some COPs have been more momentous than others. Kyoto was the site of COP3—obviously a pivotal meeting. COP13 in Bali, on the eve of the Kyoto Protocol's first effective year, produced an action plan that called for two years of negotiations toward a new framework for global climate policy.

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# SETTING THE AGENDA FOR COPENHAGEN

COP15 in Copenhagen comes at a time of heightened concern about what runaway climate change might mean for the world's economies and people. Scientists who once doubted that they would see the effects of climate change before 2020 now say those effects are already becoming visible. Although the doomsday scenarios have rightly been discounted, climate change poses very real risks to the world's drinking water, food supply, and to the habitability of coastal areas. Indirectly—because of the desperation people feel when they don't have food and water—climate change also creates some long-term security risks.

As these are global threats, the answers likewise must be coordinated globally. No single country can solve the problem of greenhouse gas emissions by itself. Against this backdrop of growing awareness, there are some key problems and opportunities that will drive the discussion in Copenhagen:

**Need for a more flexible treaty.** As good a start as the Kyoto Protocol was, it is now clear that some aspects of it were too inflexible. For instance, the Protocol separated national

governments into just two categories. The first consisted of 37 advanced-economy nations, which were listed in a section of the Protocol called Annex 1 and were asked to commit to binding limits on their net emissions. The second category covered every other nation; these nations weren't listed in Annex 1 and were encouraged to voluntarily implement policies and measures to reduce their emissions growth. A successor agreement needs to identify more points along the commitment continuum, and to facilitate this there must be more clarity on the criteria associated with different points on the economic spectrum—whether a nation's status is “Advanced,” “Emerging,” “Developing,” or “Least Developed.” It needs to lay out the path by which countries attain each successive economic category, and establish realistic expectations for each category. Different nations are at very different points in terms of their economic, political, and social maturity. A developing country, for instance, likely cannot shoulder the same commitments as an emerging one.

**Compliance challenges.** Although the Kyoto Protocol included a compliance framework, it hasn't been effective. That became obvious after Canadian delegates said their country would face “economic disaster” if it honored its commitments under the Kyoto Protocol, and announced it would not do so. If commitments under the new architecture are more closely aligned with nations' ability to reduce their emissions, compliance will become

less of an issue. Certainly, some enforcement mechanism will still be necessary, but it is extremely unclear at this point what that will be.

**Failure to address land management.** Forests and other land-management activities were not fully addressed in the Kyoto Protocol. They must play a more central role in the next treaty. These sectors simply have too much to contribute to mitigation and adaptation to be left out again. It's imperative that land managers and decision makers be given incentives to adopt new behaviors that realize the land's potential for removing greenhouse gases from the atmosphere.

**Accelerated adoption of low-carbon technologies.** Alternative energy sources, such as wind turbines, and energy efficient equipment need to be encouraged. The CDM or other market tools can provide valuable assistance in this regard. Carbon markets and carbon finance are the primary means of mobilizing the vast amounts of private-sector capital that will be needed over the coming decades.

**Broader scope for carbon markets and carbon finance.** There needs to be a viable transition from purely project-based positive incentives (such as the CDM) through to multisector trading mechanisms (such as the European Union Emission Trading System, or EU ETS) so that nations can map out how they will use carbon markets and carbon finance to effect change within their borders and across the globe.

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## COPENHAGEN AND BEYOND: TOWARD A NEW GLOBAL ARCHITECTURE

*What is the likely architecture of a comprehensive and enduring global agreement?*

*What sort of commitments can national governments make so that the whole agreement doesn't dissolve in the ebb and flow of inevitable political priorities?*

*How can the global community create an architecture that is sufficiently robust to drive real change, while also being flexible enough to accommodate the vast array of nations and their abilities to contribute?*

*What do these developments mean for governments, businesses, and communities around the globe?*

It will take months, even years, for all the changes that are discussed in Copenhagen to take final shape and become part of the world's battle plan for reducing the effects of climate change. Nevertheless, the negotiations that have taken place over the last two years make certain elements of the Copenhagen discussion clear—and pave the way for a full-blown treaty to be inked, possibly as soon as COP16 in Mexico.

A post-Kyoto Protocol architecture will contain four key pillars.

First, there will be ambitious national-level emissions targets for advanced-economy nations. These are likely to take the form of commitments to limit

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national emissions (on a net basis) by defining annual quantified emissions limits, probably expressed as a percentage reduction from a historical reference point (e.g., an 80 percent reduction from 2000 levels).

Second, there will be a wide variety of nationally appropriate mitigation actions (NAMAs) for all other nations. These will form the basis of national commitments made by least-developed, developing, and emerging nations.

Third, substantial amounts of financial and technological support for both mitigation and adaptation will be an integral part of any agreement.

The details of these support mechanisms remain to be determined, but negotiators are looking to establish a global climate fund with a number of funding “windows.” These windows will likely be for capacity building, planning, research, technology transfer, sharing of best practices, direct funding of adaptation activities, and direct funding of mitigation actions. The money for the global fund will come from advanced nations, through levies, and possibly through contributions from emerging nations.

Fourth, there will need to be an institutional framework to support

the next global agreement. The shape that this framework will take is currently unclear, though it is expected to be much less centralized than the current framework, under which the UNFCCC coordinates activities, the Global Environment Facility provides some funding, and the CDM Executive Board regulates the credits that form the basis of global carbon trading markets. Although these organizations will remain in place and continue to play a role, a lot of what will happen institutionally in terms of countries’ activities and commitments will occur at the national level, based on countries’ individual circumstances.

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## COMMITMENTS FOR ECONOMIES AT ALL LEVELS OF DEVELOPMENT

In the next agreement, countries will likely have much more flexibility in terms of their commitment options. Advanced-economy nations will continue to face a quantifiable limit on their national emissions—with the main question at COP15 being what those limits are and how they relate to historical emissions levels. National governments will find different ways to meet their emissions reductions obligations (e.g., via regulations, carbon taxes, emissions trading, or international emissions reductions) depending on what they think will work best in their countries. This will vary based on a wide range of considerations, including not only a country's dominant economic sectors and its domestic energy resources, but also its governance structure, political situation, culture, attitudes toward taxation, and usual pace of change.

For all other nations—least developed, developing, and emerging—there will likely be a qualitative commitment that aims to produce a quantitative outcome. In practice, this means these nations will commit to investigate, design, and implement a range of policies and initiatives that will contribute to mitigation of emissions. These policies and initiatives will likely result in a reduction in national emissions compared to a forecasted trend, or business-as-usual (BAU) baseline, but there will not

be an explicit commitment to reduce emissions by that amount.

As an example, Brazil recently announced a commitment to implement a package of initiatives including reducing deforestation in the Amazon, improving the use of integrated land management systems in its agriculture sector, and promoting the use of “green steel.” This package is expected to result in national emissions that range from 38 percent to 42 percent lower when compared to BAU projections by 2020. However, this is not a binding commitment to reduce national emissions by that amount.

The basis for this form of commitment is a national low-carbon development strategy. This is essentially an integrated plan that will allow a country to continue with its economic development while reducing the carbon intensity of that development. Each national strategy includes an assessment of the nation's current situation in terms of energy resources, industrial activities, transport systems, and agricultural practices as well as an analysis of how emissions from each of those sectors can be reduced. These low-carbon development strategies will identify and spell out a series of nationally appropriate mitigation actions, which the government will pursue and for which it will receive some outside financial support.

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## NAMAs: A WAY FOR COUNTRIES TO FORMULATE THEIR COMMITMENTS

The use of nationally appropriate mitigation actions as a basis for countries' commitments provides a consistent global platform while allowing flexibility for individual countries. Some examples of NAMAs include:

- *Specific activities* such as the introduction of feed-in tariffs, the liberalization of energy markets, R&D related to carbon capture and storage, waste and recycling regulations, and minimum efficiency performance standards for appliances
- *Projects and programs* that have a direct bearing on emissions reductions and could perhaps be registered under the CDM, including the upgrade of industrial

facilities or the distribution of energy-efficient lightbulbs

- *Broad-scale initiatives* such as the implementation of an energy-efficiency crediting program or the introduction of a sector-specific emissions trading system—for instance, for cement or steel production

An important aspect of NAMAs is their funding sources. Each country, as it develops its low-carbon development strategy, will identify the incremental costs associated with implementing each NAMA and divide its NAMAs into three groups:

- *Self-funded NAMAs*, which a country will implement with only minor assistance from international

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## Taking the Waste Out of Waste Management

To understand how NAMAs can work in practice, take the hypothetical example of a least-developed economy that wants to improve the sustainability of its waste sector, including the reduction of emissions from waste-related activity. The waste sector in these economies is generally economically inefficient and environmentally unsound, offering ample opportunity for improvement. Unsorted trash is collected by diesel trucks that move around the city, releasing carbon dioxide into the air on their way to dumps that are scavenged by the poorest of the poor. NAMAs can help such economies reach their ideals: programs to have citizens and businesses sort their recyclables from their organic garbage, a modern truck fleet to collect trash, and workers and facilities to do additional sorting. The sorted waste can then be moved to landfills, turned into compost, or returned to the industrial cycle.

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sources, primarily in the form of enabling activities such as capacity-building or sharing of best practices

- *Co-funded NAMAs*, which will be implemented with international assistance, in the form of financing, technology transfer, or capacity building
- *Carbon market NAMAs*, which are eligible for support in the form of credits for emission reductions achieved and are likely to be funded by the private sector. These credits are used by companies and advanced economies to meet their emissions compliance obligations. The credits have a financial value that will be determined by trading in international carbon markets.

The three types of NAMAs should work in an integrated fashion to build a sustainable waste sector. In this particular example, the country has a strong regulatory system in place but limited financial resources—circumstances that will affect how it develops its NAMAs.

For instance, one NAMA could be the establishment of regulations that mandate appropriate waste management at landfill sites, as well as other environmental controls such as emissions standards for truck fleets. Because regulatory measures do not cost much to put in place in a country that already has a strong regulatory framework, this would be a self-funded NAMA: The country would internally finance the implementation and enforcement of those new regulations, though it may seek assistance in terms of international best practices in monitoring and compliance systems.

Such regulations would necessitate upgrades to the country's infrastructure for waste collection and sorting—such as new facilities and trucks. Given the country's limited financial resources, the development of new infrastructure would likely be a co-funded NAMA: The country would request international assistance in the form of direct funding, technology transfer, and training on new technology.

Finally, if the country encourages and facilitates the development of CDM projects in the waste sector that go beyond the new regulations—recovering methane from landfills, for instance, or producing organic fertilizer—participating companies may be eligible for credits that can be sold into the carbon markets.

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## THE ROLE OF CARBON MARKETS AND CARBON FINANCE

There are two types of carbon markets, which interact with each other. In the first, known as carbon compliance markets, companies buy and sell units associated with their compliance obligations at the country level and occasionally the regional level. The second type, known as carbon credit markets, are international and involve the buying and selling of carbon credits that companies in less-advanced nations earn by undertaking projects that reduce their greenhouse gas emissions.

For instance, a company in Thailand may earn credits by using crop waste

instead of fossil fuels to generate heat and power for a manufacturing plant. The Thai company can then sell those credits to a Spanish company (Spain being part of Europe's carbon compliance market, the EU ETS), and the Spanish company can use the credits to meet its own emissions obligation under Spanish law.

Pure economic theory suggests it would be most efficient if there were a single global carbon market. However, such a market is unlikely to develop. The problem is that companies face enforcement with respect to compliance obligations

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only on a national basis. There is no existing international framework that provides adequate enforcement of compliance obligations on either companies or government agencies, and no practical chance in the near term of setting one up.

Thus, carbon compliance markets will continue to operate only on a national or regional basis. The EU ETS (the biggest carbon compliance market in operation) will be followed by a Japanese system, the New Zealand Emissions Trading Scheme, the Australian Carbon Pollution Reduction Scheme, and some form

of cap and trade in the U.S. Each of these markets will define how its participants can use international credits (such as CERs from the CDM) and will specify other units that may be eligible for compliance purposes.

Unquestionably, cross-recognition of compliance units between domestic and regional systems will help the development of carbon markets and carbon finance. And there may be deeper integration between specific markets (such as between Australia and New Zealand), though the level of integration will be limited by the political realities

of national government autonomy. The emergence of sector-specific carbon markets, either within nations or across inherently multinational activities such as aviation, could also provide a boost to carbon finance.

The role of carbon markets and carbon finance cannot be understated. A major portion of the financial backing necessary to tackle climate change will need to come from the private sector: There is not enough public funding available for governments to pay for the required volume of emissions reductions.

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## MANAGING EXPECTATIONS FOR COPENHAGEN AND BEYOND

Despite the urgency surrounding climate change as this decade comes to a close, COP15 will not produce a new treaty. In some of the most influential nations (which are also some of the biggest emitters), the politics still lag behind the science. U.S. President Barack Obama acknowledged as much in a statement in November 2009, but that was not news to those inside the negotiations and it will not lessen the importance of the discussions taking place in Copenhagen.

Negotiators at COP15 will still be trying to forge a political deal, one they hope will result in a broad approach that the international community can endorse and that will lay out in general terms the future

architecture for global climate policy. If this happens in Copenhagen, the next step will be to produce a successor treaty to the Kyoto Protocol, possibly at COP16 in Mexico. And the step after that—probably two years later, at COP18, perhaps to be held in Australia—will be the creation of an operational document specifying how the new treaty will work in practice.

There is a long list of issues to be examined, investigated, elaborated on, and negotiated at COP15. But if a preliminary deal is forged, it will begin a process and propose an initial vision for global climate policy in the decades to come. That is why what happens in Copenhagen is so important.

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