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+ **Beyond Kyoto**

Advancing the **international effort**  
against **climate change**

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## Engaging developing countries

Thomas C. Heller and P.R. Shukla

### I. Introduction

*In the decade since its launch, the international effort to address climate change has centered primarily on the most immediate challenge: establishing a multilateral framework to control greenhouse gas (GHG) emissions from industrialized countries, historically and currently the largest emitters.* In the near term, mitigating developed country emissions remains the fundamental priority of any effort to strengthen the international response. Increasingly, however, the focus will turn as well to a second central challenge: devising and implementing effective strategies to achieve climate-friendly actions in developing countries. This paper examines this second critical challenge. While much of the underlying analysis could apply as well to developed countries, the focus here is integrating climate and development objectives in the developing world.

Climate is not an arcane or peripheral question for development. Both concern fundamental issues of energy, transport, land use, and food security that are priorities for developing countries. Development and climate intersect across two broad dimensions. First, the localized impacts of climate change—including water shortages, agricultural disruption, and coastal flooding—pose serious long-term threats to development. These impacts will be felt disproportionately in developing countries. At the same time, development is itself the driving force behind climate change. In the long run, achieving the deep reductions in global emissions necessary to stabilize the climate will require fundamental shifts in development pathways. Vulnerability to climate impacts has been a common concern of all developing countries since the start of the climate effort. Particularly for the least developed countries, assistance in reducing their vulnerability to climate-induced damages will remain a central focus of development policy and an overriding objective in multilateral negotiations. The analysis here, however, concentrates on the mitigation side of the development-climate interaction. Consequently, the issues it examines concern primarily advanced developing countries with large and growing emissions and, therefore, the most to contribute to the mitigation effort.

Greenhouse gas emissions from developing countries are rising rapidly. On a per capita basis, they will remain far below those of the developed countries well into the future. However, total emissions from developing countries are projected to surpass those of the developed countries within a decade or two (see Figure 1). Most plausible emission scenarios suggest that, even with strong efforts in developed

countries, developing country emissions must fall below business-as-usual projections if atmospheric GHG concentrations are to be stabilized by 2100.<sup>1</sup>

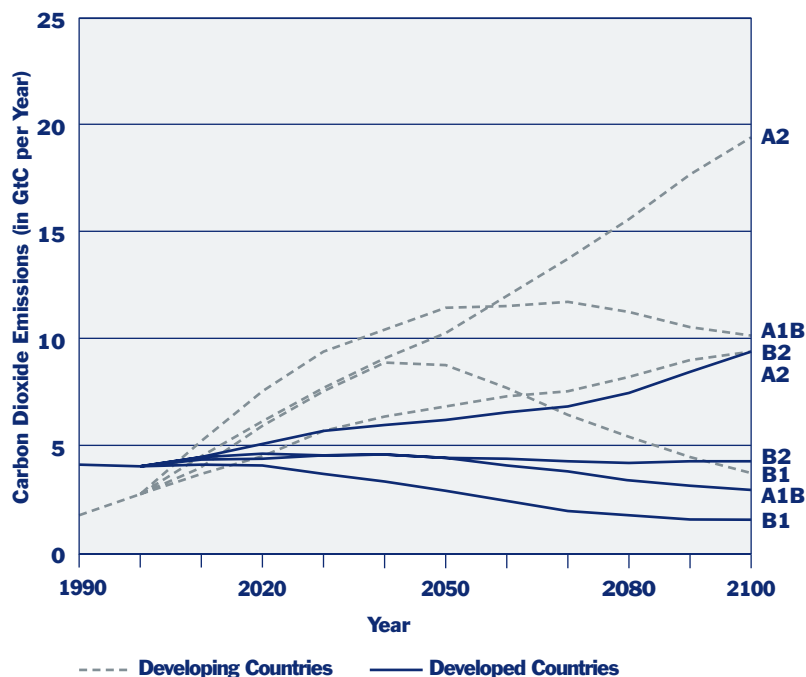
The rapid rise in developing country emissions is driven by development imperatives—in particular, the need for energy and economic growth—and is encouraged by flows of investment and technology that support conventional paths of development. Future climate strategies must explicitly address these fundamental needs of developing countries if they are to be constructively and seriously engaged in common efforts toward climate protection.

There is strong evidence that strategies driven by core development priorities can at the same time produce climate benefits. For instance, China's rapid improvements in energy efficiency, while motivated principally by economic goals, have significantly slowed the growth of its GHG emissions.<sup>2</sup> Recent analyses identify similar experiences and opportunities in major developing countries.<sup>3</sup> However, to the extent that developing nations regard climate concerns as no more than potential barriers to their ability to reduce poverty and increase income levels, climate issues will not command the attention of core political actors. Since constraining economic growth is not an option for these policy makers, the only politically viable approach to climate mitigation is to devise development strategies that can produce climate benefits ancillary to sustained economic expansion. A principal aim of climate policy must be to influence and facilitate the capacities of developing nations to recognize and meet this challenge.

Economic growth has a dual relationship to emissions. Globally, economic growth, energy use, and GHG emissions

**Figure 1**

### Projected CO<sub>2</sub> Emissions for Developed and Developing Countries



Note: The projected trends correspond to a set of emission scenarios developed by the Intergovernmental Panel on Climate Change and described in its Special Report on Emissions Scenarios (SRES).

Source: IPCC (2000).

have remained coupled through modern history.<sup>4</sup> In developing countries, particularly those with low per capita energy use, sustained growth will require an absolute increase in total energy production and consumption. However, growth also raises the demand for environmental quality and, through improved technology, creates new opportunities to produce and use energy more cleanly and efficiently. The emission scenarios of the Intergovernmental Panel on Climate Change (IPCC) highlight the potential importance of technology innovation and diffusion in weakening the historical linkages between growth, energy intensity, and carbon output. In the Special Report on Emissions Scenarios (SRES),<sup>5</sup> certain scenarios project both lower emissions and higher economic growth relative to alternative scenarios, with technology choice among the critical underlying variables. Technology patterns, and the organizational and institutional arrangements that encourage and maintain them, emerge as key determinants of future emissions paths—regardless of the rate of economic growth.

To date, however, the international climate regime has been largely ineffective in de-linking economic, energy, and emissions growth, providing neither the incentive nor the means for developing countries to pursue alternative paths. If future mitigation efforts are to succeed, they must align with the overriding development priorities of developing countries, and must provide incentives and mechanisms to redirect investment and technology flows from conventional to more climate-friendly pathways. Put simply, effective climate action must be “mainstreamed” to re-orient development toward those paths that are most climate-friendly.<sup>6</sup> This paper explores how this challenge is best met:

- Section II examines the current climate regime and shows how, by virtue of its orientation and architecture, it is unlikely to induce stronger mitigation efforts by developing countries.
- Section III describes important transformations underway in advanced developing countries. Any future mitigation effort must be grounded in a clearer understanding of the economic and governance context within which development choices are made, and how that context—now the subject of far-reaching reform efforts in many developing countries—is evolving. It is within this shifting context that incentives for climate-favoring development choices must be made salient to public and private actors who will chart their countries’ future development paths.
- Section IV suggests principles to guide a reformed climate strategy. It envisions a multi-faceted approach that would seek to accelerate climate-favoring energy and transport systems by linking climate-specific national and international efforts with non-climate programs supporting development paths with less climate impact. Such a strategy also would explicitly differentiate between those developing nations where reducing climate vulnerability is the overriding concern and those where rapid growth generates rising emissions and, hence, greater mitigation potential.

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- Finally, section V presents specific policy options to simultaneously promote development and climate mitigation within or alongside an evolving climate regime. It suggests mechanisms flexible enough to link national and transnational, climate and non-climate, mandatory and voluntary, and public and private efforts.

## II. The Climate Effort to Date

*As presently constituted, the international climate effort is unlikely to significantly alter the development pathways of developing countries.*

This stems both from the basic architecture of the climate regime and from inherent weaknesses in the means it has established to deliver technology and resources to developing countries: the Clean Development Mechanism (CDM) and the various funds meant to channel government assistance from developed countries.

### Regime Architecture

*The UN Framework Convention on Climate Change (UNFCCC) establishes a broad foundation for multilateral action on climate change, one flexible enough to accommodate a wide variety of approaches.* At this stage, however, the architecture of the climate regime is defined far more concretely by the subsequent Kyoto Protocol.

The regime's design flows from theoretically sound central tenets. First, it is climate-centric: all of its provisions are driven by the core objective of achieving and maintaining a tolerable level of GHG concentrations in the atmosphere. Second, it assumes universal accession and adherence to a single set of implementing principles and rules. Third, it prescribes a property rights model in which the permitted global quota of emissions is divided among parties according to some equitable or practical formula. Fourth, it seeks to foster efficient markets in which property rights will be traded to yield emission reductions at the lowest total cost. Fifth, it contemplates a "hard law" system in which compliance is enforced with defined sanctions by a body internal to the regime.

In broad terms, the logic of the regime's design so far might be characterized as flowing from output to input. Aiming for an as yet undetermined cap on concentrations, the regime imposes limits on emissions "output." Governments are charged to move back from that output to place constraints on the various "inputs"—namely, major energy-consuming activities. The fundamental regime program thus proceeds from climate to all other variables. Although the abstract logic of this architecture has clear advantages,<sup>7</sup> the problematic politics of this program are already apparent. Even among the developed countries, this architecture has failed to induce full participation, with the United States unwilling to assume the uncertain costs of meeting a fixed level of emissions output. And in the preliminary skirmishes over the question of future commitments at the 8th Conference of the Parties in New Delhi, developing countries again strongly resisted any hint of their potential inclusion in a global cap-and-trade system.

Despite the possible entry into force of the Kyoto Protocol, and emerging national efforts to meet emission targets, there is little evidence in the first decade of climate action that nation states have been willing through the medium of collective action to assume significantly higher constraints or costs than they would acting independently.<sup>8</sup> This calls into question a regime design that treats sensitive national inputs as functions of less immediate global outputs. Particularly with respect to developing countries, it remains unclear that climate outputs have sufficient salience as a political driver to motivate the implied constraints on inputs that are presumed essential to achieving overriding development objectives.

## The Clean Development Mechanism

*The regime relies on the Kyoto Protocol's Clean Development Mechanism as the principal instrument to encourage climate-friendly technology and resource flows to developing countries.* The CDM's design is ambitious and innovative. In theory, the CDM provides incentives to developed countries and their firms to invest in climate-friendly projects in developing countries because they generate emission reduction credits that can be applied toward developed country emission targets.

At least in the near term, however, there appears to be only marginal potential for development assistance through the CDM. First, there remain uncertainties about the rules and practices governing the certification of projects other than small-scale, end-use efficiency and renewables. For example, initial proposals include hydroelectricity generation and reforestation for charcoal production that will be highly controversial.<sup>9</sup> More significantly, the removal of U.S. demand for mitigation has depressed prices for all emissions trading programs, including the CDM. Projections of the annual mitigation market in 2008-2012 have dropped from 300-700 million tons of carbon equivalent (Mtce) to 0-300 Mtce. Carbon price estimates for 2010 have dropped from a range of \$60 to \$160 per tce with U.S. participation in the Kyoto regime to \$3 to \$87 per tce without U.S. participation.<sup>10</sup>

Even apart from these concerns, however, the CDM as now constituted may hold only limited prospect of increased or redirected flows. To earn offset credit, the CDM requires that investment be “additional” in the sense that the reduction would not have occurred but for the incremental value of the resulting credit to the investor. This rule would seem to work well for small projects, especially in renewable energy, that have no commercial market counterparts. However, it is much less likely to function credibly with investments of substantial size—particularly in the incompletely reformed markets of developing countries—for at least two reasons. First, where future development paths hinge on a range of policy decisions that are not yet sufficiently settled to determine what constitutes business-as-usual, apolitical baselines cannot credibly be defined. Second, the additionality rule does not align adequately with the practical realities of business decision-making. For many multinational investors, it is unlikely that the value of CDM credits will be sufficient to offset the commercial, political, legal, and social risks associated with infrastructure investments of a scale large enough to significantly alter emission pathways

(see discussion below). For firms willing to adopt a more aggressive investment strategy to build market share in the longer run, it is more likely that CDM might induce a shift in the rank order of particular projects within a portfolio of financially plausible investments. However, it will be difficult for a firm to prove that it has actually reordered its portfolio to favor those investments whose expected returns are increased by the value of the climate credits but otherwise would not be undertaken. In these circumstances, even if the still undefined rules for setting baselines ultimately credit such projects, the environmental credibility of CDM will be subject to both political disrepute and legal challenges that will deter its easy use.<sup>11</sup>

## Assistance to Developing Countries

*Under the UNFCCC, developed countries pledged to provide “new and additional” resources and to promote technology transfer to support climate action in developing countries.* They also pledged adaptation assistance to developing countries particularly vulnerable to climate impacts. These are general commitments with no specific formula or schedule for flows. The adequacy of the assistance provided has been a chronic source of friction between developed and developing countries in the climate negotiations.

In their national communications to the UNFCCC Secretariat, developed countries report a wide assortment of bilateral and multilateral projects and contributions. The level of support varies from donor to donor and from year to year. Some funding covers the cost to developing countries of fulfilling Convention commitments such as preparing emission inventories and national communications. Some reported flows are for projects such as forest protection, in which climate is one among many benefits. From 1997 to 2000, the combined flows reported by developed countries were in excess of \$12 billion.<sup>12</sup>

Some of the funding reported by developed countries flows through the Global Environment Facility (GEF), which was established in 1992 to fund projects in areas of global environmental concern (these also include biodiversity, international waters, ozone depletion, land degradation, and persistent organic pollutants). From 1991 to 2001, GEF funding for climate projects amounted to \$3 billion, or 37 percent of the GEF disbursement. In 2001, GEF disbursed \$472 million in climate funds, with nearly 80 percent directed to renewable energy and energy efficiency projects.

GEF funding follows the “incremental cost” principle established in the UNFCCC: developed countries are to pay the “agreed full incremental costs” of developing country efforts under the Convention. Incremental funding has helped push advanced technologies, such as solar photovoltaics, fuel cells, biomass gasifier engines, and electrical vehicles, which may face high initial costs or other barriers. However, while GEF programs are often input-based, there is no stipulated or evident tie between



the environmental goals of the GEF and leading political priorities in developing nations.<sup>13</sup> In addition, concerns have been raised about GEF program implementation, including its weak incentives for discovering least-cost mitigation options and inadequate replication of successful projects.<sup>14</sup>

UNFCCC parties agreed in 2001 to establish three new funds to support technology transfer, capacity building, adaptation planning, and other needs in developing countries. They are the Special Climate Change Fund, which also aims to assist countries whose economies are highly dependent on income generated from fossil fuels; the Least Developed Countries Fund; and the Adaptation Fund, to be financed in part by a charge of 2 percent of the certified emission reductions issued for CDM projects. Developed countries, however, have not committed to particular levels of funding. Apart from the CDM surcharge for the Adaptation Fund, the funds are supported entirely by discretionary contributions. To date, developed countries have announced commitments of 450 million Euro per year by 2005. However, the funds are not yet operational and no disbursements have taken place.

In summary, the present climate regime adopts an architecture centered on emission outputs, with little consideration of inputs closely tied with fundamental development needs; creates a market-based mechanism with only limited potential to channel private investment toward large-scale, climate-friendly endeavors; and provides no assurance of significant or stable assistance from developed country governments. In these circumstances, it is understandable if there is only limited interest among developing countries in exploring the road beyond Kyoto.

### III. The Shifting Context

*Any effort to more fully engage developing countries in the international climate regime, or to steer investment and technology flows toward climate-friendly development, must take account of circumstances and trends that shape present development patterns and condition possibilities for the future.*

The most important of these are:

- The far-reaching but incomplete structural and economic transitions underway, especially in advanced developing countries;
- The growing contribution of foreign direct investment to overall North-South flows and the evolving business strategies that allocate this private capital; and
- New forms of selective development assistance that focus increasingly on governance reform, public-private cooperation, and performance commitments.

## New “Hybrid” States

*The rapid growth of many developing countries—and the concomitant rise in energy use and emissions—take place in the context of fundamental economic transformation and reform.* Each of the major developing economies, to one degree or another, is in the midst of transition from a largely state-centered to a more market-centered system. Even where important political forces are committed to fundamental structural change, this transition is contested and prolonged, and its likely endpoint difficult to discern. In reality, the process of transition itself has become a semi-permanent state that is likely to persist for several decades. These countries are in a sense “hybrid” states caught between market- and state-centered regimes.

Prior to transition, these economies were most often directed by state-owned enterprises (SOEs) operating under the guidance of sector-specific ministries. These SOEs and the supervising agencies normally determined policy in their fields relatively free from central control or systematic coordination. State firms directly implemented economic, social, and limited environmental policies through internal decisions about production, wages, investment, technology, or social services provision. Financing to support these enterprises was channeled through a state banking system, and limitations were placed on the competition that state enterprises confronted. In effect, a social contract—with administered prices and employment security—was built into the fabric of the pre-transition political economy.

During transition, the old contract has eroded but a new one has yet to fully form. On the surface, reforms are motivated by concern for improved efficiency and usually guided by a standard program of privatization, decentralization, deregulation, and independent regulation that substitutes markets for political administration. Below the surface, the driver of change is more often the need to attract new development capital from sources other than state banks, themselves often in financial distress. Established state firms and agencies frequently do not accept internally the external faith in competitive markets even as their governments announce their conversions. Reform is uneven, with lags especially prominent in the development of new legal and regulatory institutions and the emergence of markets with effective competition. The result is an irregular patchwork of reformed and residual practices as new spheres of market-dominated activity emerge alongside the defended offices, routines, and cultures of the previous socialist, corporatist, or colonial systems.

In the hybrid state, political and economic institutions face new incentives and engage in new behaviors. The overlapping established and reformed agencies produce contradictory incentives, inducing complex adaptive strategies by private and public actors unsure which system will ultimately take hold. Corporatized state enterprises, increasingly free of central administrative influence, make use of their

established political connections to consolidate their inherited national market power, even as they reorganize themselves for international competition. Simultaneously, the reduction and decentralization of governmental authority results in the dissipation of policymaking and implementing capacity, pushing bureaucrats into greater dependence on the former state firms they used to control. Political tensions, often fueled by invigorated democratic competition, are inflamed by the threatened abandonment of familiar social commitments in new markets popularly perceived as non-competitive and corrupt. Consequently, the normal state of societies undergoing market reform includes political backlash and nostalgia that reinforce the strength of the institutional and cultural residues of the past, and, in turn, prolong the term of the hybrid political economy.<sup>15</sup>

Within this fractured and evolving decision-making context, development politics continue to focus overwhelmingly on a few priority concerns. These include food security and agriculture—which are threatened by many factors including, at the margin, climate change—and increased capacity and efficiency in the energy and transport services that underpin economic growth. However, in this hybrid context, coordinating authorities that are motivated or able to optimize across policy goals or economic activities are scarce. Instead, choices among development paths flow largely from incentives salient to particular interests. Even in priority areas, organizational fragmentation and self-interest continue to determine favored projects and outcomes. For example, in energy policy, separate agencies and associated firms frequently compete for financing and commissions with scant coordination between oil and gas, nuclear, and coal projects. In the transport sector, auto, rail, and urban mass transit authorities propose and develop investment projects in the absence of encompassing and compelling land use planning. In these different sectors, policy and business decisions are dominated by public-private coalitions of newly autonomous state enterprises and their newly dependent allies in government administration. Both favor, and are favored by, sectoral prosperity and expansion. Policy, including environmental policy, becomes an instrument to support the claims of sponsoring coalitions to resources, market position, or other means of industrial growth. Policy outcomes are the products of negotiations between these quasi-autonomous sectoral coalitions.

To the degree that environmental needs become priorities, climate change is rarely among them. The political capital and mandate of environmental regulators, particularly at the central state level, runs thin compared to finance or line ministries and their industrial partners. Even though the threat of climate-induced damage is most severe in developing nations, political actors concentrate on immediate issues like local air and water pollution that may help them claim public resources and satisfy popular expectations, rather than on long-term, invisible concerns like climate change.

## The Rise (and Instability) of Private Flows

*Increasingly, private markets have become the primary mode for technology and resource flows from developed to developing countries.*

As official development assistance stagnated over the past decade, private flows increased roughly five-fold (see Figure 2). The share of flows represented by private capital peaked in 1996 at 90 percent and has declined only slightly since, despite the East Asian crisis, the resultant volatility in capital markets, and a global economic slowdown.

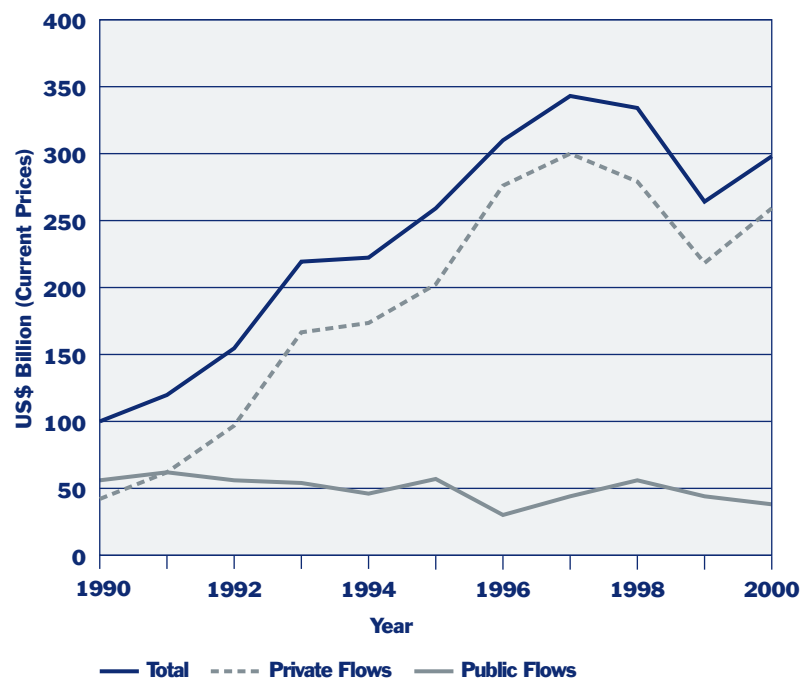
Prior to 1990, international capital came primarily as bank lending to governments or the private sector. In the 1990s, capital flows increasingly took the form of foreign direct investment (FDI) and portfolio investments, including bond and equity flows. Foreign direct investment is now by far the largest component of external financing to developing countries. However, FDI flows disproportionately to a small number of developing countries, with just 10 countries receiving 70 percent.<sup>16</sup>

Along with the rise in private flows has come a substantial shift in the nature of cross-border business transactions. In qualitative terms, the proportion of business operations conducted through investment in joint ventures and subsidiary corporations expanded relative to independent trade in goods and international technology licensing. Multinational investment has also become less associated with the exploitation of natural resources or low-wage manufacturing, expanding widely into the provision of commodities and services in host country and regional markets.

The rise in private flows is closely tied to the ongoing transformation of advanced developing economies. For instance, between 1970 and 1990, investment in state-controlled power sectors came regularly in the form of (soft) loans from state development

**Figure 2**

### Resource Flows to Developing Countries



Sources: *Global Development Finance Country Tables* and sources cited therein; World Bank Global Economic Model; OECD Development Assistance Committee's *Geographic Distribution of Flows*.

banks and from multilateral concessionary financing. However, those sources began drying up in the 1990s because of mounting national debt burdens, bank insolvencies due to non-performing financial assets, and greater attention to environmental and institutional considerations in multilateral lending. With the demand for power continuing to rise, countries like Brazil, China, India, and Mexico looked increasingly to foreign investors and initiated energy sector reforms to attract them. From 1990 to 2000, more than \$680 billion was invested in infrastructure in more than 120 developing countries. These investments peaked in 1997 at \$123.3 billion, declined in the crisis years of 1998-99, and began to climb again in 2000. Electricity and natural gas investment accounted for \$229.6 billion, second only to telecom investments of \$292 billion over the same period.<sup>17</sup> Investment took place in both greenfield projects, overwhelmingly in generation by independent power producers (IPPs), and in the privatization of existing assets, more heavily in distribution systems.<sup>18</sup> Asia attracted the largest share of contracted IPPs, with \$54 billion in projects concentrated in China, India, Pakistan, Indonesia, Malaysia, the Philippines, and Thailand. Latin America was second at \$28 billion.

Ironically, as the importance of multinational business to development finance and technology transfer exploded, so did the transaction costs and business risks of investing in nations experiencing incomplete market reform. In the energy sector, the negotiating and financial carrying costs of licensing and contracting have been high, with median elapsed times of four to six years between initiating a project and being ready to begin construction.<sup>19</sup> Efficiency gains and technology transfer have been limited by legal requirements for local participation in the construction, equipping and operation of plants. Power purchase agreements (PPAs), the standard contracts that define risks for international equity investors and bank lenders by fixing the prices and quantities of output to be purchased, have provided few incentives to look for cost savings or efficiency improvements. Regulatory rules and the direction of market reform have often been unclear and irregular, while political reluctance to raise retail electricity rates has compromised the ability of utilities to comply with contracts in the wholesale market for new and more expensive power. Especially when extraordinary events occurred, such as the Asian downturn after 1998 or the drought that curtailed Brazil's hydroelectric supplies in 2001, foreign investors found agreements were abrogated by state-owned utilities or public regulators who expected them to share risks they thought had been assigned through contracts to other parties.<sup>20</sup>

It is too early to discern the significance of these recent events for private markets as the primary mode of technology and resource flows. But in 2003 there is effectively a standstill in foreign greenfield investment in Chinese or Indian power; Brazil has not found international bidders for the sale of relatively well-run utilities in Parana and Goias states; and IPP formation in Mexico is paralyzed by judicial ambiguity about the constitutionality of private power.<sup>21</sup> As growth and electricity demand in emerging markets rekindle, it is likely there will be new pressures for foreign flows into infrastructure investments important to climate action. What is less clear is whether these flows will take forms that accommodate to, or anticipate the passing of, the hybrid state.

## Evolving Business Strategies

*Foreign investors operating within this evolving context face new risk profiles and respond with new business strategies.* In the 1970s and 1980s multinational firms had adapted to managing the commercial risk of uncertainties in developing markets and the political risks of wholesale expropriations (principally in the natural resource sector). However, a multi-country portfolio of direct infrastructure investment presents an expanded set of risks arising from more intimate involvement with host country laws and regulations, judicial failures to enforce contracts and judgments, and weak corporate governance.<sup>22</sup> Multinational firms continue to confront incomplete market reforms, immature regulatory institutions, and residual expectations about the social allocation of risk. To mitigate these risks, direct foreign investors increasingly adopt business strategies that ally them with national enterprises emerging from state control, which have the experience and political assets to flourish in hybrid political economies.

Foreign investors following a conservative business strategy that bets on the stability of existing institutions, policies, and firms may hedge against risk by acquiring local partners in a position to influence government decision-making to structure markets, financing, and contracts along favorable paths. This strategy underlies the current trend to acquire important share interests in brownfield assets like older power plants. Such ventures have an established history of tariff determination and proven record of power off-take (sales). Moreover, national co-owners often have a background in and personal ties with the government departments that regulate the industry involved. The firm in effect prefers to trade the corporate governance risks of unfair behavior by their joint venture partners for the political risks it would run without it. The state, in turn, acquires a source of fresh capital for new investment and reinforces existing political networks whose value as a form of risk insurance can now be marketed internationally.

More aggressively, multinational investors in partially reformed markets may bet on continuing institutional change creating conditions that will benefit the lines of business in which they specialize. Where the development of new production processes and markets depends on the creation of complementary infrastructures and policies, the radical openness of reform may encourage firms to invest resources in shaping future markets that will enhance their long-term returns. Pragmatic new business strategies that link risk-tolerant foreign investors with national, industry-specific coalitions of firms and agencies with political associations rooted in the pre-reform regime, but positioned to increase (market) power through prospective market-making, may present exceptional opportunities for climate action.

For example, the proportion of natural gas that will be used in a fast-growing developing nation probably depends more on the capacity of sectoral groups to acquire political sponsorship, financing, and tailored rules favoring the placement of pipelines, LNG terminals, and urban distribution than on an integrated assessment of relative fuel prices (and environmental shadow values). Once infrastructure is built, the marginal costs and administrative dynamics of gas-fired power lead development down an

alternative path. Multinational businesses with particular gas expertise, upstream resources, and financial credibility are obvious entrepreneurs for such market-making, supplying offshore technology and resources that complement the political and institution-shaping assets of onshore groups. While individual projects early in the process of market development may not appear as attractive as other near-term investments, the long-term prospects of market-making in a field that matches the firm's organizational expertise and profitability can redefine investment choices.<sup>23</sup>

Finally, coalitions of multinational and empowered national firms may help diffuse climate-friendly technologies and practices throughout the larger regional market. For instance, other nations in southern Africa are more likely to emulate the development pathways demonstrated by successful South African firms with local knowledge and concentrated organizational interests than by firms with headquarters in Europe or America.

## New Directions in Development Assistance

*While private flows rose through the 1990s, flows of official development assistance (ODA)<sup>24</sup> declined in nominal and in real terms.* At the same time, donor countries have begun to emphasize new forms of assistance and new conditions on its receipt.

To many developing countries, an important benchmark remains the commitment by developed countries to increase their level of assistance to 0.7 percent of their gross national incomes.<sup>25</sup> The trend, however, has moved in the opposite direction. Despite a modest increase in the late 1990s, ODA was 10 percent lower in 2000 than a decade earlier.<sup>26</sup> As a share of donor countries' GNP, aid has leveled off in nominal terms and declined in real terms from 0.33 percent in 1991 to 0.22 percent in 2000.<sup>27</sup> This decline is attributed in part to the diminished importance of strategic and military aid since the end of the cold war.<sup>28</sup> While total flows have declined, aid for social programs (such as education and health) and environmental investments has increased, reaching about 5 percent of total ODA.

From the perspective of developing countries, the shifts from public to private funds and the declining quantity of ODA flows over the past decade have in some respects supported, but in other respects undermined, their overriding development objectives. On one hand, priorities such as accelerated growth and trade have clearly benefited from increased private investment and technology flows from developed countries. However, this shift in private flows driven by global and regional markets remains alien to other development priorities such as poverty relief, health, and education, particularly in smaller and poorer recipient countries more favored by ODA than FDI.

Also of concern to many developing countries is the disproportionate distribution of development assistance. For instance, ODA to the Sub-Saharan African and the South Asian countries has declined, while flows to relatively more affluent nations in East and Central Asia and the Pacific, and to Europe's transitioning economies, have increased markedly. As often in the past, state aid appears to move where

the political bargaining power or strategic importance of recipients is greatest, rather than where poverty reduction or marginal development gains may, in theory, be maximized. (A similar pattern can be seen with respect to private flows, which are moving towards countries with sound investment climates, usually the middle-income countries, leaving aside least developed countries where development gains can be larger.)

In broad terms, private and public flows from developed countries have done more to exacerbate than reduce disparities between fast- and slow-growing nations within the developing world. In both their size and their distribution, they are perceived by developing countries as poorly matched with their paramount development needs.

To help correct these widely acknowledged failures, a new round of development-focused summits has brought renewed but softer pledges of assistance and new emphases by donor countries. At the International Conference on Financing for Development in Monterrey in 2002, donors pledged an additional \$25 billion through 2006.<sup>29</sup> They pledged further assistance, not readily quantifiable, later that year at the World Summit on Sustainable Development (WSSD) in Johannesburg. In many instances, these new pledges aim to reform assistance flows in several dimensions. First, a new emphasis on public-private partnerships attempts to coordinate complementary public and private efforts supporting public goods like water, health, and education. Second, there is enhanced concentration on the impact of ODA on the income and quality of life of the poorest populations as a criterion for evaluating aid programs. Third, there is increased focus on expanding the governance capacity of recipient nations to ensure that assistance will be not be wasted or stolen.<sup>30</sup>

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The type of assistance donors now favor has shifted in quality from hard, technological, and unconstrained to soft, institutional, and selective as to both which nations (those most committed to governance reform) and which populations (those most in poverty) qualify for aid.<sup>31</sup> There is increasing insistence that aid promote institutional reform to encourage governance that is transparent, non-corrupt, and respectful of civil and political rights, and able to provide an effective legal framework for competitive markets. This selective assistance, coupling economic support with commitments to reform and performance monitoring, is best developed in the various partnership and association agreements the European Union offers to nations on its eastern and southern peripheries. It is also reflected in the incipient Millennium Challenge Account unveiled by the United States at Monterrey, which would rank potential recipient nations according to their accomplishments in reforming the rule of law, fighting corruption, and strengthening democratic institutions. New and additional funding will be selectively available only to those countries with high compiled scores on these indices. In addition, continued flows will be subject to contracts in which recipient nations promise further progress on reforms.

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Another characteristic of the emerging shape of aid may be foreshadowed in the emphasis in Johannesburg on public-private partnerships. Within a context of less assertive and well-endowed states, and concurrent reluctance to transfer powers to international bodies, there has been a surge of interest in



collaboration by intergovernmental bodies, private firms, and non-governmental organizations (NGOs). While the exact nature of governance powers, financing responsibilities, and monitoring and evaluation in these partnerships remains quite unclear, it is increasingly likely that aid will be packaged in task-specific public-private coalitions. Illustrations include incipient efforts like the Global AIDS partnership or the public-private consortium that designed the new Chad-Cameroon pipeline project. In the latter case, the partners agreed to divert the greater portion of royalties into an offshore trust account, with public and NGO stewards and carefully defined fund allocations, to ensure local poverty reduction, create equitable regional distributions, and fight national corruption.<sup>32</sup>

#### IV. Principles Going Forward

*The challenge of climate protection might well be understood as one of establishing climate-favoring markets—self-sustaining markets that support the adoption and diffusion of climate-friendly technologies and practices.*

In “hybrid” economies in transition from state- to market-centered systems, this requires simultaneous mobilization of resources and reform of key institutions that are concerned overwhelmingly with non-climate rather than with climate policies. The foregoing analysis of the international climate effort to date, and of the context within which any future efforts must be undertaken, suggests several broad principles to establish and strengthen climate-favoring markets in developing countries. These principles concern the nature of the commitments or goals that advanced developing countries might undertake in a new or modified climate regime; the alignment of interests necessary to promote climate-favoring development choices and mobilize private capital in support of them; and the focusing of direct assistance from developed countries primarily on reducing climate vulnerability in the least developed countries, and supporting public and private initiatives that build climate-friendly markets in the more advanced countries.

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#### From Output to Input

*The continued resistance of developing countries to even discussing an evolution of commitments within the existing climate framework suggests the need for alternative approaches.* Rather than proceeding exclusively from output (emissions) back to input (energy use and other emissions-generating activities), as at present, a future or modified regime might better match the overriding needs and priorities of developing countries, and thereby more directly engage them in international climate efforts, if it allows approaches that proceed instead from input to output. Further, the regime might more effectively channel investment toward climate-friendly development if, rather than focusing on discrete improvements relative to predicted business-as-usual baselines, it aims instead to fundamentally shift those baselines in a lower-carbon direction.

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Developing countries care deeply about a core set of development priorities, including food security, water, energy, transportation, and urbanization. Frequently, the activities undertaken to meet these priorities are, in turn, the inputs driving emissions output. For some time to come, developing country emissions will continue to be derivatives of other development choices, and can be better managed if recognized as such.

Climate-related policies, then, are most likely to draw political support within developing countries when they piggyback on and enhance more salient development priorities. A climate strategy that takes these priorities as its starting point reverses the focus of decision analysis and cooperative action from the long-range and constraining to the immediate and enabling. This can serve to deescalate the debate over global burden sharing, reduce the perception that climate protection is a constraint on development, and increase the political salience of climate concerns among empowered development elites. Further, it can allow for recognition of mitigation benefits resulting from efforts not driven primarily by climate concerns, in the same way that under Kyoto industrialized countries are credited for domestic emission reductions regardless of their source.

+ A climate policy focused on inputs should seek opportunities to shift those fundamental drivers in climate-favoring directions. As developing countries weigh options for meeting a given development priority—for instance, increased energy supply—climate policy should provide incentive to tilt the choice toward that option most likely to avoid or reduce GHG emissions. The policy, however, must bear on decision-making at a scale large enough to significantly affect emissions trajectories. Focusing exclusively on discrete projects, such as a retrofitted power plant or small-scale renewables, though beneficial and symbolic, affects emissions only marginally.<sup>33</sup> Further, as presently constituted, a project-based approach to mitigation requires the tedious and contentious calculation of a presumed business-as-usual baseline—an exercise which, especially in countries undergoing transformation and reform, may hinge more on conjecture than fact. An alternative approach will pay far greater climate dividends if it seeks to transform the very baseline itself by, for instance, promoting actions and reforms across the entire energy sector. The same broad logic can apply as well in other sectors, such as agriculture and forestry, where practices that sequester carbon can simultaneously conserve soil and promote sustainable production. Climate policies that focus on inputs and motivate action at the sectoral, rather than project, level also conform better to the investment behavior of the developed country firms whose resources are key to achieving climate-friendly development.

+ There are tradeoffs between input- and output-based approaches. Theoretically, at least, an output target allows countries and emitters greater flexibility in their choice of mitigation strategies and, hence, greater cost-effectiveness.<sup>34</sup> In practice, an input-based approach may be more likely to induce participation in, and compliance with, an agreement, two fundamental conditions for its success.<sup>35</sup>

## Aligning Interests

*The success of any policy depends in part on its ability to align the interests of multiple parties that, in combination, have the capacity to deliver the desired outcome.* In the case of climate action, this requires broadening the range of interests and actors involved. Within governments, for instance, mainstream development and economic ministries must be more fully engaged.<sup>36</sup> In developing countries, particular attention should also be paid to the incomplete nature of the transition of “hybrid” states and, consequently, to the residual importance of organizations and agencies with roots in the older political-economic order.

To promote climate-favoring markets, the climate regime should favor stable alliances between three key sets of actors: domestic firms and state agencies in a position to bring about the reforms and mobilize the institutions needed for the markets to evolve; foreign investors who, whether motivated by commercial interest or by their own climate constraints, have incentive to invest technology and capital in market-making; and international ODA providers that can enhance the technical and financial capacities of host nations to undertake institutional reforms. Most prominent in the first category are host nation government agencies and corporatized or semi-privatized state enterprises in a position to pledge political assets toward the institutional reforms needed to make these new markets operate efficiently and free from extraordinary regulatory or legal risks.

The international climate regime cannot alone motivate mainstream national decisions with positive climate impacts. However, it can provide means and incentive at the margin for coalitions of public, private, and semi-privatized actors with the necessary expertise, resources, and political assets to enact climate-favoring development. Although the entrepreneurial initiative to organize such coalitions may come from government agencies or NGOs, experience with the multilateral banks and the GEF suggests that projects instead be designed to encourage private and quasi-private firms to play the coordinating role. The business interests of companies with a stake in new baseline-shifting markets are more likely to yield replicable results than are the political influences that often motivate government-sponsored efforts.

## Targeting Assistance

*It is likely that some commitment of additional aid under a modified climate regime will be necessary if it is to be politically viable with developing countries.* From both a political and a policy perspective, it seems appropriate to suggest a crude division between private and public flows according to the types of “need” to be met.

For a variety of reasons, mitigation needs within developing countries are better addressed largely through private flows. Private investment will continue dwarfing public flows in any case, and the market-making activities most likely to deliver substantial emission reductions are also those most likely to draw the interest of foreign investors, particularly if those activities generate emissions credits or otherwise can

help investors meet carbon obligations in other jurisdictions. However, it is likely that private investment will continue to flow primarily to the relatively more advanced developing countries where the growth in energy use and other climate inputs makes such investment economic. The less advanced developing countries present fewer mitigation opportunities—and hence, can expect less private investment.

At the same time, however, the least developed countries will be forced to cope increasingly with climate impacts generated elsewhere. To the degree that public flows are made available, they might be better dedicated to the two broad categories of need that are more relevant in these poorer nations: expenditures for adaptation and building of adaptive capacity.<sup>37</sup>

The experience thus far suggests that any future public flows will fall well below the needs identified, and may be more episodic than regular. In addition, given the growing emphasis by donor countries on selectivity in ODA, future climate flows may be contingent on meeting some type of performance-based criteria. Finally, negotiation over adaptation funding is likely to be difficult as it is inherently suffused with sensitive questions of responsibility, compensation, and equity. Beyond stipulating that some form of accommodation on adaptation is probably necessary—from both an ethical and a negotiating standpoint—how this is best achieved is outside the scope of this paper. (Nor does this paper address the claims of fossil fuel exporters for compensation for the adverse economic effects of climate-related measures.)

In more advanced developing countries with large mitigation potential, the principal need to be addressed through public flows is the facilitation of technical and institutional capacity to undertake the kinds of climate-favoring development that can be supported by private flows. An input-focused approach requires different funding priorities. Rather than devoting resources, for instance, to detailed accounting of emission sources and sinks to monitor progress against presumed baselines, aid could be more strategically invested in building linkages with investors and mobilizing the political capital necessary to forge climate-friendly development pathways. In part this entails crosscutting reforms aimed at greater transparency and rule of law that extend well beyond the purview of the climate regime. Apart from any climate-specific aid, then, ODA agencies, multilateral banks, and national export-import agencies might also coordinate specific initiatives to tie together policy change and market-making investments that enhance climate objectives. It will be imperative to developing countries, however, that climate-related aid be “new and additional,” as specified in the Framework Convention, and that ODA not be diverted from existing priorities such as health and poverty reduction.

In brief, private investment will remain the most likely source of flows directly supporting mitigation activities in developing countries, while public flows would be most productively dedicated to building mitigation capacity in the more advanced developing countries, and to meeting adaptation needs in the least developed countries.

## Creating Regional Models

*Climate strategies should complement and capitalize on natural patterns of diffusion of technology and know-how from developed to developing nations.*

Increasingly, initial diffusion into the advanced regions of advanced developing states can take place through market operations without much resistance or delay. However, there are significant lags in the diffusion of these innovations and routines into the slower growing provinces of leading developing states and into the other countries in the regions that they dominate.

Selective targeting of climate-favoring technologies into the more advanced areas of leading developing nations can produce important multiplier effects throughout their regions. First, there is often a strong tendency to mimic the most modern forms of architecture, law, or technology because they are seen as defining the recognized path of development.<sup>38</sup> If Shanghai has an opera, an LNG plant, or a subway system, then so should a number of other Chinese and regional cities that aspire to high status. Second, development in transnational regions is often more easily led by firms from the lead regional nation. For example, South African firms (alone or in coalition with global allies) diffuse technology in southern Africa. If new standards or initiatives for emissions mitigation take root initially in the more advanced developing countries, these nations will become the probable bases for technology and organization diffusion in their regions. Enhanced emphasis on regionalization in climate action will improve access to more climate-friendly development (e.g., substituting gas for coal in South and East Asia), introduce regional actors with more capacity and credibility to carry it forward, and, perhaps, induce advanced developing countries to become more comfortable with differentiated roles in the future climate architecture that are more commensurate with their power and interests.

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## V. Options for a Future Architecture

*Drawing on these broad principles, it is possible to begin exploring specific options for international policy that can better engage developing countries in climate protection by more directly linking it to their overriding development objectives.* The UNFCCC is broad and flexible enough to serve as a framework for such approaches. Yet even if the goal of a climate regime is an inclusive and integrated system of commitments and instruments that binds all major emitting countries, the reality for some time may instead be parallel and differentiated regimes that encompass smaller groups of like-minded countries.<sup>39</sup> Similarly, even if the ideal form of the climate regime is a legal order with certain obligations and credible sanctions for non-compliance, the near-term integration of leading developing countries may suggest starting with looser forms of engagement.

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Willingness to participate in inclusive multinational regimes has frequently begun with less than binding commitments monitored by networks of interested public and private actors from the cooperating states that rely principally on transparent reporting (reputation) and positive assistance (conditional incentives).<sup>40</sup> Just as the path to an inclusive international regime may lie through the competition and learning associated with parallel approaches, so a strong legal order may be the capstone of a process of experimentation, trust-building, and extended deliberation over norms, rather than the foundation of multinational collaboration.

While alternative approaches may help promote climate action in developing countries, their degree of participation in any future effort will hinge heavily on other conditions as well. These include demonstrable progress by developed countries to fulfill their agreed climate commitments; the adoption of a serious, even if distinct, climate program by the United States; and expanded assistance in meeting adaptation needs. From a practical standpoint, stronger emission constraints in developed countries also can help create the necessary incentives for private investment facilitating climate-friendly development in developing countries.

This section explores policy options in four areas:

- Flexible input-based programs, goals, or commitments that could be elaborated by leading developing countries as part of an evolving international climate regime;
- Mechanisms internal to the climate regime to channel technology and resources—and, in particular, private investment flows—to climate-friendly development;
- Approaches to foster regional cooperation on non-climate-specific development programs with associated climate benefits; and
- Targeted use of ODA by agencies outside the climate regime to facilitate non-climate policies and investments that enhance both development and climate objectives.

## Input-Based Goals

*One approach might be a regime structure allowing different types of goals, commitments, instruments, and compliance rules for developed countries and for rapidly growing developing countries whose conduct is most consequential for medium-term climate effects.* For the latter, in particular, climate action could take the form of input-based standards that correspond to development priorities of these states. Given the resistance of developing countries to mandatory commitments, more flexible measures may be more likely to induce near-term engagement. These measures could fall anywhere along the continuum from strictly voluntary goals on a transparent pledge-and-review model to performance commitments tied either to specific incentives or to qualification for membership in transnational institutions.

Input-based programs might relate directly to national development plans like energy or transport that influence climate or could relate indirectly to other high-priority areas like water or land use with substantial impacts on energy demand. Developing countries have in the past been more apt to participate actively in international regimes in which their engagement has evolved from reporting to voluntary measures to mandatory obligations. Such progressive regime evolution has also been generally more successful in promoting ambitious behavioral changes than have been regimes demanding hard commitments and sanctioned compliance.<sup>41</sup>

Specific approaches to more closely link climate action to inputs are the use of sectoral and/or intensity goals and the systematic reform of domestic policies and measures consistent with these objectives.

### *Sectoral Goals*

Unlike a national target, which requires detailed accounting across sectors, a sectoral goal focuses attention and resources on the predominant inputs and options for steering them in climate-favoring directions. The goal could take the form of a numerical target, or could entail a suite of measures that, while not guaranteeing a given impact on emissions output, can reasonably be expected to produce a lower emissions trajectory while also meeting a development priority. The recent conversion of Delhi's public bus and taxi system to compressed natural gas indicates that developing countries have already undertaken input-based actions of this character that could be better recognized and multiplied.<sup>42</sup> Additional programs might include the adoption and implementation of a national energy policy promoting lower- or non-carbon fuel sources or the introduction of less water-intensive agricultural patterns that reduce the need for irrigation pumping sustained by subsidized electricity rates.

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### *Indexed Goals*

An emissions goal set relative to an indicator such as GDP is neither a pure "output" nor a pure "input" approach but, in a sense, a hybrid of the two. By its very form, an indexed or intensity goal expressly links climate and development objectives. It aims for *emissions reduction* relative to *economic growth*. A goal of declining energy (or carbon) intensity focuses directly on the two most critical inputs: energy use and economic growth. For developing countries, this approach can provide assurance that development priorities are not subservient to climate objectives. The major drawback of an intensity approach is that it does not ensure a given level of emissions output. However, in rapidly evolving economies, the difficulty of accurately forecasting future baseline emissions makes nations reluctant to commit to specific emission levels.

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### *Policies and Measures*

Another approach is to invite developing countries to pledge to undertake specific policies and measures, either sector-based or economy-wide. Policy changes merit particular attention when they have

the capacity to alter the baseline of expected emissions pathways. Policy reforms as disparate as improved enforcement of coal mining safety regulations, increased collaboration on regional gas infrastructure and security, relaxed foreign exchange or tariff restrictions for imported high-efficiency turbines, or carbon-differentiated fuel taxes could all cause permanent shifts in the relative economics of many discrete climate-related projects. Such policies could be complemented by supportive ODA and private commitments to invest and participate in the emergent markets facilitated by reformed institutions. Either through programs tailored to their specific development goals and policy cultures or through multi-party negotiations that produce lists of pre-qualified measures, developing countries could certify how they have modified policies in accordance with the criteria of the climate regimes to which they associate themselves.

## Programmatic Climate Cooperation

*Climate goals or commitments will be more attractive to developing countries if linked to mechanisms generating resource and technology flows that will help meet them.* Input-based goals could be complemented by CDM-like mechanisms that move away from an emphasis on stand-alone projects and promote investment in broader strategies that shift what constitutes business-as-usual for whole classes of projects.<sup>43</sup> This programmatic approach could avoid many of the technical and procedural complications of the project-based approach and spur investment for initiatives with far larger emission reduction potential. Rather than basing emission offsets on discrete reductions from projected emission baselines, the programmatic approach credits the transformation of policies and institutions. For example, as noted above, a coalition of organizations—both public and private, foreign and national—could unite to put forward a program to develop a gas pipeline infrastructure necessary to substitute gas for coal in electric power production. Public authorities (regulators or grid operators) associated with this coalition may agree to reform the rules establishing the order in which electricity is sold by imposing a shadow charge for carbon pollution to the prices bid by existing coal-fired plants. The combination of the investment pledges and policy change will shift the profitability of subsequent power projects toward gas and thereby generate a continuing stream of carbon benefits.

Programmatic climate cooperation intended to make new markets for climate-favoring investments may seem less amenable to credible evaluation or to the proper calculation of realized climate benefits. How much of the long-term emission reduction resulting from a reformed baseline should be attributed to a change in the law or new investment in infrastructure? These uncertainties are real and can be settled only by the political negotiation of the volume of credits granted. However, making explicit the negotiation of credit volume does not exacerbate, and may improve, the problem of defining additionality now encountered project by project within the CDM. More fundamentally, politics cannot be eliminated from any process to determine offsets that begins with a hypothetical business-as-usual



baseline. Every definition of business-as-usual assumes some set of regulatory policies and infrastructures, so to accept any baseline is to accept the political choices embedded in it. Negotiating exactly how large a transfer of credits or other resources is to go with each certification of programmatic cooperation makes transparent what is hidden within the baselines of all project-based mechanisms. Once it is understood that this determination is ultimately a matter of political judgment, the question for mechanism design is how to elicit the best possible set of proposals for comparison by an independent body subject to open comment and a continuing critical review.<sup>44</sup>

One way to think about managing programmatic cooperation is through competitive bidding processes. Funds of cash or carbon permits contributed by governments (or by private subscribers) might be allocated by a new financial institution like a climate bank, operating through auctions similar to those conducted by the United Kingdom for subsidies for credible and cost-effective GHG reductions. Beginning with a fixed annual stock of money or credits, the bank could accept proposals from competing coalitions of public and private actors across or within different countries who promise investment commitments and supportive policy reforms at a stated price. The bank might tie the release of assets to contracted performance, as do other security arrangements common in financial markets. Bank conduct would be periodically appraised by regime authorities or their delegates. Alternatively, the stock of credits or monies could be distributed by the regime to one or more funds that would themselves compete on the basis of the success of the several assistance programs in which they had invested their assets. Finally, competing proposals for programmatic climate-favoring assistance could be concurrently submitted for evaluation to non-climate development assistance organizations, multilateral financial institutions, or export-import banks. Although these proposals would have to qualify under the normal organizational criteria, the centrality of energy, transport, and other key carbon inputs to development more generally could make the consideration of relative environmental benefits in determining investment profiles only a marginal departure from established practice.<sup>45</sup>

## Regional Cooperation

*Climate-friendly development could be encouraged by providing incentives for, and removing barriers to, regional cooperation on energy.*

Such efforts could be undertaken through existing regional organizations promoting economic cooperation, such as the South Asian Association for Regional Cooperation and the Association of Southeast Asian Nations. The technology and investment flows that would benefit the climate would also contribute to the principal aims of these organizations, such as enhanced regional trade and more competitive regional economies. Regional cooperation on water, including hydropower, would help address both climate mitigation and adaptation.

Stronger regional cooperation could yield significant climate benefits. In South Asia, for instance, there is little intra-regional energy trade even though countries have diverse energy endowments and the region as a whole is a net energy importer. Obstacles to regional energy and electricity trade include the lack of a regional energy agency, cross-border regulations, protocols and policies; the absence of a regional grid and infrastructure; and, more importantly, myriad political barriers. An analysis of the potential for integrated energy and electricity markets in South Asia shows significant direct, indirect, and spillover benefits in terms of economic efficiency, energy security, water security, and the environment. From 2010 to 2030, regional energy cooperation could reduce cumulative carbon emissions growth by 1.4 billion tons.<sup>46</sup>

Regional initiatives by public-private coalitions could be structured outside any climate regime or could qualify as programmatic measures within a regime, as discussed above.

## Recasting ODA

*As noted earlier, future flows of climate ODA should be directed toward adaptation needs in the poorer developing countries and, in the more advanced countries, serve as a complement to private funds targeted to mitigation.* The question of adaptation assistance is likely to figure prominently in future climate negotiations and, consequently, any resulting flows would likely be provided through the climate regime. Mitigation-related assistance, however, could flow not only through the climate regime but also through existing aid channels if climate benefits are more routinely recognized as contributing to other development and reform goals. While such synergies could generate stronger climate-related flows, any recasting of ODA may be resisted by developing countries if it comes at the expense of traditional aid priorities.

The question of how ODA agencies or multilateral lenders should take environmental quality into account in appraising potential recipients or investments has been a subject of intensive consideration. At least three levels of response have emerged, each postulating a more assertive and active stance by international agencies. First, multilateral banks in particular have developed comprehensive policies to veto projects that have negative environmental consequences. Second, ODA may adapt selective mechanisms with positive incentives for, and monitoring of, performance commitments to create incentives for improved environmental governance. Similarly, project finance insurers such as the U.S. Overseas Private Investment Corporation, national export-import banks, or other financiers of infrastructure could favor proposals that surpass business-as-usual technologies or standards, conditioned on security guarantees for non-compliance. Third, beyond positive incentives, ODA agencies or lenders might augment their environmental agenda by becoming entrepreneurs coordinating the provision and financing of public goods, especially at the trans-national level, that enhance environmental benefits. For example, the Asian Development Bank proposes its own active role in leading the evaluation, and potential financing, of options for a gas pipeline network in Central and Southwest Asia that could extend the regional cooperation discussed above to reduce

reliance on coal and fuel oil in South Asia. Such transnational public goods with potentially enormous impact on climate trajectories are at a scale that demands entrepreneurial initiative unlikely to come from either private firms or individual nations, but could serve as a point of attraction for their cooperation.

## VI. Conclusions

*Since the constitution of the Framework Convention on Climate Change in 1992, perhaps more acrimony than cooperation has been generated in the North-South dimensions of climate change.* A principal reason for this lack of cooperation between developed and developing countries is that climate change is not yet a salient political concern of development policy. It remains too marginal to the pressing issues of food security, poverty relief, energy growth and access, urban transport, and land use to capture the sustained attention of developing countries. A second barrier to cooperation is the framework of burden sharing in which climate policy has been framed. Although the logic of a cap-and-trade system at some point requires an inclusive allocation of obligations, the distribution of this “burden” is just one more obligation seen as unwanted and undesired by developing countries. A third obstacle is the perceived failure of the developed countries to fulfill commitments to transfer resources with the scale or effect expected through the climate regime.

Two observations may help us move beyond the present difficulties of North-South collaboration. First, we should note that up to now the search for cooperative solutions has been rooted in climate change science and policy. At best, high-priority development goals might be served by the ancillary benefits of climate actions. An alternative strategy is to ground analyses and programs in priority development objectives and to work up from this foundation to climate objectives. Second, in many developing countries climate-favoring activities are emerging as ancillary benefits of sound development programs. This suggests that it may often be possible to build environmental policy upon development priorities and interests that are of central concern to responsible public and private actors in the still evolving political economies of developing nations.

As such strategies promise multiple benefits internal to developing countries, their acceptability and success need not hinge on the emergence of a truly effective global climate effort. However, an intensified, sustained multilateral effort that drives down developed country emissions and addresses itself to core development imperatives could substantially reinforce the incentives and abilities to select development paths that yield lower emissions in developing countries. Ultimately, then, integrating climate and development objectives calls for a new political bargain with new political actors to redefine collective responsibilities to address climate change.

## Endnotes

1. A preliminary finding of the Intergovernmental Panel on Climate Change's most recent emissions scenarios is that, "assuming CO<sub>2</sub> emission reduction needed for stabilization occurs in Annex I countries only, per capita CO<sub>2</sub> emissions in Annex I countries will fall below per capita emissions in non-Annex I countries during the 21<sup>st</sup> century... This suggests that, especially for more stringent stabilization targets and/or worlds with relatively high baseline emissions, there is a need for emissions to diverge from baseline levels in developing countries." IPCC (2001a).

2. Sathaye et al. (1999)

3. Chandler et al. (2002); Munasinghe (2001).

4. In the first half of the 1990s, global commercial energy use grew at roughly the same rate as the economy; however, in the OECD, energy demand grew at roughly the same rate as GDP. In transition economies, energy intensity increased due to a fall in outputs; and in developing countries, energy intensity improved but energy demand followed the high economic growth. Nakicenovic et al. (1998) at 21-22.

5. IPCC (2000).

6. Understanding climate benefits as a by-product of mainstream policies is not unique to developing countries. For example, the carbon intensity of the U.S., Japan, and France were similar in 1970. Intensities have declined in all three countries, though at different rates. By 2000, French intensity (following the growth of nuclear electricity and high-speed rail) was 60 percent and Japanese intensity (via efficiency and structural investments) was 80 percent of U.S. intensity.

7. A universal property rights regime with trading based on output targets is desirable in theory because, among other advantages, it provides flexibility to each country to select the least-cost portfolio of inputs to reduce its GHG emissions. The political imperative to postpone emission commitments for developing countries raises questions about the ultimate credibility of the international system and requires problematic compensatory adjustments like the CDM to try to recapture efficient global solutions. Adjusting climate policy to the necessary tradeoffs between the logic of an ideal regime and less explicit political economic realities that affect capacity to reduce emissions is central to the authors' argument.

8. Barrett (2003).

9. See Decision 15/CP.7, clauses 6 (ci, cii, ciii) at [www.unfccc.int/cdm/cop.html](http://www.unfccc.int/cdm/cop.html). Baseline calculation and additionality criteria may be particularly controversial. For examples of carefully analyzed projects that illustrate these difficulties, see the Brazil Plantar (afforestation and fuel switching) project and the Chacabuquito hydro (Chile) project and baseline documents on the World Bank Prototype Carbon Fund website: <http://prototypecarbonfund.org/router.cfm?Page=Doclib&Dtype=1>. Other problems with project-based mechanisms like the CDM include uncertainties for investors arising from ex-post verification of the emission credits generated by a project; validation, monitoring and verification costs; and lack of clarity about the reviewing practices of the CDM Executive Board.

10. IEA (2001); see also Grubb (2003).

11. See discussion of additionality in Rosensweig et al. (2002). It may be noted that at the June 2003 meeting of the CDM Executive Board, six of the first fourteen proposals for baseline and monitoring methodologies were held "sufficiently elaborated" and could be reconsidered expeditiously if the proponents made the required changes. The other eight proposals, including all the larger projects put forward, would require more extensive work and revisions. See Press Release, June 10, 2003 at <http://unfccc.int/cdm>.

12. The \$12 billion estimate is based on tables in UNFCCC (2003). Available on-line at <http://unfccc.int/resource/docs/2003/sbi/07a01.pdf>

13. These shared features, beyond input-based interventions, are support for either project or programmatic (policy) measures, an emphasis on regional cooperation, and the use of public resources as seed money for public-private collaboration.

14. The GEF process requires proposal submissions by national governments, which may correspond poorly to lower-cost options that lack domestic political sponsorship. Proposals to input-based ODA or other international support programs may suffer from the requirement for entrepreneurial sponsorship that rarely results from integrated least cost planning. The lack of an evident connection between development and environment in GEF programs tends to consign focus on its opportunities to more marginal national political agencies and engender a lukewarm response from actors with operational responsibilities for key inputs. Finally, while GEF formal criteria insist on replicability, empirical outcomes may prove disappointing. Proposals that suggest commercial replication will follow from learning and scale advantages achieved by a project frequently overlook the lack of a complementary policy and organizational context needed for success. Nevertheless, the GEF experience does provide a platform from which to investigate related input-based assistance mechanisms that counter the implementation concerns that have been noted.

15. While organizational fragmentation can be found in all governments, its intensity in developing countries undergoing reform is enhanced by their disenchantment with central planning agencies that claimed to optimize across sectors; the concentrated market power of state firms that are only partially insulated from political agencies; and the inherited disproportionate strength of finance and other key ministries.

16. Brazil, China, and Mexico accounted for more than half of the developing countries' FDI. World Bank (2002).

17. Grey (2001).

18. Electricity sector reform was pursued differently across regions. In Latin America (and later in India), the privatization of existing generation and distribution assets dominated FDI. In Mexico, and across Asia, IPPs were expected to provide incremental generation assets while distribution remained in state hands. Of \$131 billion contracted in 1990-97, 56% was investment in greenfield or newly developed infrastructure projects. Financial closures involving large greenfield IPPs from 1991 to 1997 included 137 projects for 67GW of new capacity worth \$65 billion. Albouy (1998).

19. Albouy (1998).

20. Expected returns for foreign investors were lower both in privatizations of existing assets and in additions to infrastructure. For examples, see analysis of the renegotiation of PPA tariffs in the Meizhouwan Power Project in China, in Woo (2003) at 208-217; and investors' problems with currency and rationing risks in Brazil, in Brown (2001) at 22-24.

21. Ruffin (2002); Sanchez-Galindo (2003). Note national IPPs may still form as with the National Thermal Power Corporation in India or the Huaneng Corporation in China.

22. These risks are derived principally from national tax, customs, and labor law, the absence of enforced intellectual property rules, fluctuating exchange controls, and cost increases in state-supplied inputs.

23. Market-making investments may produce ancillary climate benefits even if there are no specific incentives or aid programs from developed countries to subsidize them. The primary motivations are commercial, although the prospects for acceptable returns in the longer run demand coalitions with empowered national interests to take advantage of local political connections and the development of an appropriate policy environment. The indeterminate state of the legal rules and business practices that constitute business-as-usual in partially reformed political economies opens these commercial opportunities. It also suggests that directing international aid or other incentive measures such as credits to the support of such projects would merit consideration.

24. Concessional aid flows are referred to as Official Development Assistance. The principal donors are the 22 country members of the OECD Development Assistance Committee.

25. The 0.7 percent of gross national income figure was first agreed at a 1970 UN General Assembly meeting.

26. World Bank (2002).

27. The UN target of ODA at 0.7% of donors' gross national income has been achieved by only Denmark, Norway, Sweden, Luxembourg, and the Netherlands.

28. Much of the bilateral aid has strategic and political considerations, though the multilateral aid generally favors countries with sound policies.

29. UN General Assembly (2002); European Union (2002); and White House (2002).

30. Easterly (2001) offers a broad critique of the effectiveness of international development assistance.

31. Direct arguments for institutional reform as the missing ingredient in aid are made in Easterly (2001) at 217-252, and Stiglitz (2002). Stiglitz charges that the IMF in particular remains locked into an inadequate theory of development with its continuing focus on macroeconomic stability, fiscal balance, trade openness, and financial liberalization despite inadequate regulatory agencies and pervasive unemployment. The importance of institutions especially related to climate action is notable in the large assistance flows that have always gone into energy, transport, and water infrastructure in the developing world. However, these subsidies until recent years have been directed into state monopoly utilities subject to charges of operating inefficiency and investment misallocation. See Speth (2002) at 10,486.

32. The consortium sponsoring the Chad-Cameroon Petroleum Development and Pipeline Project includes the World Bank, ExxonMobil, Chevron, and Petronas. For a description of the stewardship arrangements, see <http://www.worldbank.org/afr/ccproj/>. It should be noted that this project has been controversial because of its implications for traditional notions of national sovereignty and that the first test of the arrangements will not occur before late 2003 when the pipeline revenues are first generated and paid.

33. For example, of the first 30 projects proposed for CDM validation one year after the Marrakech Accords had adopted the initial CDM certification guidelines, 18 were in renewables, one in plantation afforestation, one in energy efficiency, four in fuel switching and waste incineration, and seven in hydropower projects that ranged from 6.6 megawatts to 200 megawatts. Only 27 percent of the proposed carbon credits would be generated by the 18 renewable projects while 38 percent would come from the hydroelectricity projects. However, it is clear the certification of hydro projects will be contested as non-additional, reflecting the difficulties with project-based CDM. Haya et al. (2002).

34. Input-based climate approaches need not abandon these important benefits. Output measures derived from long-term stabilization scenarios can be used as guidelines to evaluate climate performance. In addition, there is no reason why sectoral or other input policies should not be implemented through market instruments such as taxes. Finally, as discussed below, competitive mechanisms such as auctions may be employed in pursuit of more cost-effective subsidization of input-based measures.

35. From the standpoint of ideal regime design, the political-economic factors that impede “first-best” solutions are barriers to be removed. However, renaming politics a barrier that one assumes can then be removed does not reduce the operational power or vitality of political interests.

36. There are several scenarios that would suggest that, in spite of the record so far, mainstream development agencies might adopt policies that favor both their development goals and climate mitigation. In states transitioning from planning to markets, there is often potential to pursue less-polluting market efficiencies politically disfavored in prior regimes. Munasinghe (2001). More broadly, hybrid states are typically characterized by protracted struggles about how markets will be configured by policy and organizations. Because different firms and agencies will disproportionately gain market share and regulatory authority depending on how hybrid markets are configured, alternative development paths attract self-interested advocates in emergent markets.

37. The particular weakness of adaptive capacity in the least developed countries is defined and discussed in IPCC (2001), Technical Summary 6.1.

38. Meyer et al. (1997).

39. The outstanding recent example of the evolutionary approach to regime building is the gradual expansion of the European Union. Linking like-minded national groups in a variety of differentiated schemes including sectoral coordination (e.g., the Coal and Steel Community), close functional integration (the European Economic Community), and a series of agreements that depict a range of looser ties (the European Free Trade Association; Mediterranean and Eastern European Accession pacts), the process has led toward a more unitary legal order that has constructed both normative and institutional confidence over four decades of cooperation.

40. Victor et al. (1998).

41. Pledge-and-review mechanisms combine standards or goals with international monitoring of achievements. They imply no material sanctions for failing to reach the pledged standards, but good-faith failures may trigger international assistance to understand and fix what went wrong. Performance standards may be associated with benchmarking, mechanisms for learning, and conditional positive recognition and reward. For discussion of the effectiveness of these soft, often aspirational, measures, see Victor et al. (1998).

42. The example of CNG buses in Delhi illustrates the fundamental dilemma of compromising analytical exercises with political realities. Critics have noted that using low-sulfur diesel would have been less disruptive and cheaper than using CNG, and avoided the risk of increasing GHG emissions due to a gas leak. However, diesel use would have required imports and foreign exchange expenditures, while gas interests within the Indian government and leading Indian firms engaged in domestic (offshore) gas exploration were in a position to back expanded gas use.

43. Related proposals to programmatic cooperation have been made under the rubric of sectoral CDM by Samaniego and Figueres; see Baumert et al. (2002). It is possible to imagine an amendment of the current project-based CDM as the basis for programmatic cooperation. However, using the CDM structure would import debate over additionality and force programmatic assistance into a legal and conceptual framework that would not fit easily. Moreover, programmatic cooperation could also be developed in bilateral or multinational cooperation programs outside the Kyoto Protocol.

44. This recognition has been termed “regulatory additionality” and suggested as another criterion to be applied to CDM projects. What constitutes the business-as-usual state of regulation is fundamentally political, and has more often been noted as a moral hazard risk that states would lower policy standards or implementation to increase emissions available for international sale. Whatever this risk, some division of responsibility between governments about what national governments are expected to do (and pay for) in terms of global collective goods cannot be avoided.

45. Auctions have become commonplace in areas like electricity that were once the province of non-competitive state supply, but have also been developed in areas like government procurement. The theory of auction design has advanced rapidly as their use has spread. See Klemperer (1999).

46. Indian Institute of Management (2003).

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