Incentivizing Climate Mitigation

Engaging Developing Countries

RICHARD PERKINS

RICHARD PERKINS is a lecturer at the Department of Geography and Environment and the Economic and Social Research Council (ESRC) Centre for Climate Change Economics and Policy at the London School of Economics.

The challenge of tackling human-derived climate change has emerged over the past two decades to become one of the most important, yet divisive, issues on the agenda of the international political community. Within international debates, developing countries have historically portrayed themselves as innocent victims of profligate greenhouse gas (GHG) emissions in the industrialized "North." States from the "South" have successfully argued that a combination of low emissions, widespread poverty, and limited capabilities means that they should be exempted from quantified mitigation (i.e. emission reduction) targets.

More recently, the special status of developing countries has come under growing scrutiny. Against a backdrop of rapid urban industrialization in a number of the largest developing countries, the developing world will soon overtake the developed one as the leading source of GHG emissions. These shifts in the dominant sources of emissions are forcing the domestic GHG-related choices of developing countries into the spotlight of the international community, and they are creating pressures for high-emitting industrializing countries to commit to mitigation targets. At the same time, the ability and willingness of developing countries to contribute to global efforts in mitigating emissions will depend profoundly on leadership from, cooperation with, and assistance from developed countries.

Too Poor to Care?

A popular view of developing countries is that they are too poor to care about environmental protection. The environment, the argument goes, is a luxury good. Only when developing countries have satisfied their basic development goals will they become actively engaged in environmental

protection. Although not without foundation, this caricature of developing countries is an oversimplification of reality. True, the immediate and most important task for low-income countries remains economic growth, poverty alleviation, and social development, which is hardly surprising. Yet countries' core commitment to economic development should not be conflated with a complete disregard for environmental sustainability. Beginning in the 1970s, governments in the vast majority of developing countries have taken steps to protect the environment. Among others, they have adopted various environmental policies and standards and established regulatory agencies. Many have created high-level environmental departments and ministries, as evident in India's 1974 national water pollution control legislation and its establishment of a Department for the Environment in 1980. The government has subsequently introduced a wide range of environmental policies covering areas as diverse as vehicular emissions, forestry management, and environmental impact assessment.

As evidenced by ongoing and often serious environmental degradation across large parts of Africa, Asia, and Latin America, environmental policies have generally been poorly implemented. To take one example: the much-publicized air and water pollution experienced in China over the past decade is not simply a reflection of inadequate policy, but also of weak enforcement on the part of provincial administrations. Indeed, in many developing countries, state environmental protection remains more of a ceremonial activity than a substantive one. Yet the very fact that the majority of developing-country governments have been willing to begin to address environmental issues indicates that norms of environmentalism—which prescribe environmental protection as a legitimate and worthy state goal—are not simply the preserve of rich, industrialized economies.

Similarly revealing about the existence of environmental concern in developing countries are non-state forms of environmentalism. A large body of work has demonstrated that, contrary to neo-Malthusian narratives, low-income groups may assume the role of active environmentalists. In particular, where degradation threatens the natural resource base upon which their livelihoods depend, poor communities have been known to protect, conserve, or otherwise defend their environments from destructive forces. Over recent decades, for example, indigenous rural groups in countries such as Bolivia, Columbia, and Ecuador have frequently mobilized against large-scale commercial agriculture, mining, and road building projects. Among the growing and politically influential urban middle-classes in rapidly industrializing countries such as Brazil, India, and Malaysia, there is also evidence of rising environmental concern—sometimes over the very same issues that have attracted the attention of environmentalists in developed economies.

Another noteworthy trend in many developing countries is the emergence of corporate environmentalism. Foreign transnational corporations and larger, outward-oriented domestic firms are beginning to make significant investments in environmental protection. Although some of these actions have been driven by government environmental regulations, there is also evidence of voluntary, beyond-compliance investments by corporations. Telling in this respect is the large and growing number of firms in rapidly industrializing countries that are certified to ISO14001, the internationally recognized standard for environmental management systems.

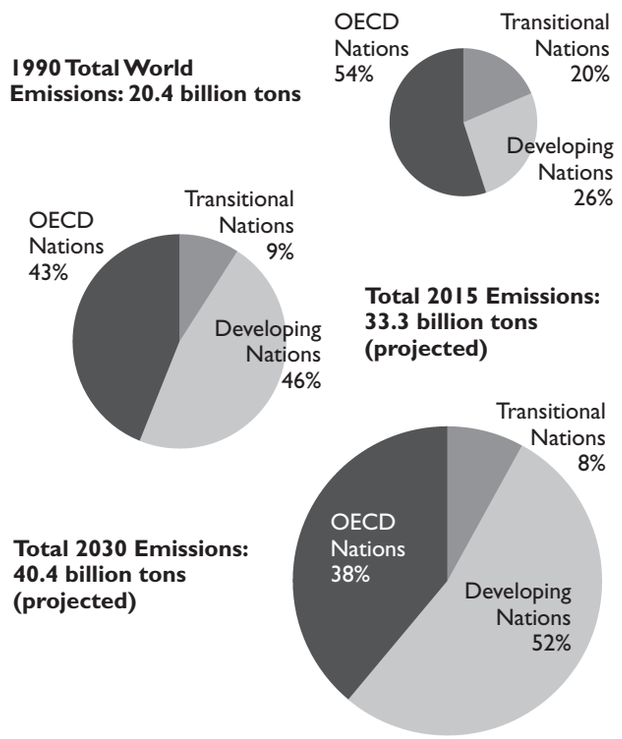
The important point is that it is wrong to assume that actors in developing countries do not care about environmental protection. True, awareness of certain environmental issues may be lower, and popular conceptions of what constitutes relevant environmental "problems" may often be different. Yet environmental degradation cannot simply be blamed on a complete absence of concern. Just as important are a basic lack of financial resources to translate concerns into substantive policy action and the immediate need to feed, house, and raise incomes among growing populations and politically unresponsive public institutions.

An Emerging Climate of Concern

Unlike many other environmental issues that have provoked environmentalism in developing countries, the major effects of human-derived climate change are likely

Predicting Pollution Patterns

Current and Projected CO_2 Emissions



International Energy Agency

to be felt only in the future. Yet this lack of urgency has not prevented climate change from becoming an issue of growing salience in developing countries. Underlying emerging concern is the recognition that shifts in climatic means (temperature and precipitation) and the frequency and magnitude of extremes (drought, storm events, heat waves, etc.) are likely to have far-reaching domestic consequences. These include the increased risk of flooding, inundation of low lying areas, decreases in the availability of water resources, lower crop yields, and increases in the prevalence of diseases.

In fact, there is general consensus among the scientific community that developing countries will suffer disproportionately from the future impacts of climate change and will face comparatively higher adaptation costs. Many low-income countries are located in regions that are likely to be exposed to damaging shifts in average climatic conditions, extreme weather events, and sea level. More importantly, developing countries are more sensitive to these changes than developed ones due to high levels of dependence on agriculture and natural resources, widespread poverty, and limited responsive capabilities. Across large parts of Africa, Asia, and Latin America, climate change is predicted to negatively impact the livelihoods, food security, and health of precisely those individuals who are currently most impoverished and least able to adjust to new or accentuated pressures. For example, according to the Intergovernmental Panel on Climate Change (IPCC), climate change is likely to be accompanied by falling crop yields in many areas of Africa where communities' traditional coping and adaptation strategies are already facing multiple stresses. Over the coming century, climate change might well undermine economic growth and reverse many of the developmental gains made in recent decades. Abrupt, large-scale shifts in the climate system could have truly devastating consequences.

Brazilian farmers slash and burn Amazonian forest in order to make room for cattle pastures. Clearing forests accounts for the vast majority of Brazil's greenhouse emissions.

In view of these vulnerabilities, it is perhaps unsurprising that a growing number of political leaders in developing countries have voiced their concerns about climate change and that global warming is becoming a matter of public debate. It is also unsurprising that governments have begun to take steps to address climate change. Most of their efforts so far have focused on adaptation, namely measures to minimize anticipated adverse impacts. More recently, a number of developing countries have begun to consider the challenge of mitigation. All of the major GHG-emitting states from among the ranks of the developing world—Brazil, China, India, and South Africa—have adopted national policies which include measures ostensibly designed to reduce domestic GHG emissions. For example, China's recently announced climate change plan involves initiatives to accelerate the deployment of renewable and nuclear energy, support the development of clean coal technology, improve energy efficiency, and increase afforestation. In reality, however, few of these policies in their current form are likely to have a major impact in slowing the growth of emissions from rapidly industrializing developing countries. Indeed, despite growing recognition that climate change represents a critical strategic issue, governments have proved remarkably reluctant to make large investments in mitigation.

Understanding the Logic of Reluctance

If developing countries are genuinely concerned about the future impacts of climate change, why have they not shown more ambition to mitigate their own emissions? One reason is equity. Developing countries have been reluctant to take on the burden for mitigation, as they believe it is "unfair" for them to do so. On this point, developing countries have argued that the problem of climate change is largely not of their making, and it is therefore unjust that they should be expected to contribute to the solution. Rather, this should be the responsibility of developed countries, which have collectively been responsible for approximately 75 percent of energy-related carbon dioxide (CO_2, the main greenhouse gas) emissions since 1840.

Developing countries have also emphasized that their per capita emissions remain significantly below those of industrialized economies. Across the developing world as a whole, per capita CO_2 emissions are 2.4 tons, compared to an average figure of 11.5 tons for developed countries. The disparities between individual countries are even more striking. India's per capita CO_2 emissions of 0.8 tons, for example, are dwarfed by the US 20.9 tons per capita. As such, developing countries claim that it is wrong for them to curtail their GHG emissions, particularly when

doing so is likely to negatively impact their development prospects. Instead, they should be allowed to expand their per capita emissions, so as to allow them to enjoy the benefits of energy-based development experienced by rich, industrialized countries.

These equity concerns have not gone unnoticed by the international political community. They were explicitly recognized in the text of the 1992 United Nations Framework Convention on Climate Change via the principle of "common but differentiated responsibilities." Under this principle, all countries have an obligation to protect the climate system, but this obligation should vary according to individual countries' responsibilities and capabilities. Accordingly, the international community has so far exempted developing countries from making any formal commitments to mitigate emissions. Conversely, under the 1997 Kyoto Protocol, developed economies have been obliged to commit to binding emission targets for greenhouse gases of least 5 percent below 1990 levels.

Are developing countries right to assert that mitigating change is somehow a "burden"? After all, the highly influential *Stern Review on the Economics of Climate Change* concluded that avoiding dangerous climate change need only cost 1 percent of global GDP, provided that a flexible international framework is adopted. This estimation may be true. Yet the blunt reality is that the immediate costs of achieving low-carbon development in developing countries are likely to be far from trivial. Above all, it is these outlays and the assumed opportunity costs of diverting resources from other pressing development goals that underpin developing countries' resistance to mitigation.

Commercially available, low-carbon technologies exist that are equally or more cost competitive with existing higher carbon substitutes. Recent work by the World Bank has identified a number of renewable energy technologies which are more economical than conventional. Unfortunately, the low-carbon option is not always the most cost-competitive one. In developing countries with abundant domestic coal reserves, for example, the economics of conventional, carbon-intensive coal-fired technology makes it a hugely attractive means to expand generation capacity. Equally important, perhaps, is the fact that many low-carbon technologies are characterized by higher upfront capital costs and are not always fully commercially proven in developing-country contexts. Together, these characteristics increase the reluctance of private actors to finance such technologies, thus tilting technological choice in the direction of conventional, GHG-intensive technologies.

No doubt, one could argue that developing countries are short-sighted in their reluctance to bridge the investment gap needed to move to low-GHG technologies. And in view of the potential economic costs of damage from future climate change, there is certainly an element of short-sightedness in the current acceptance of a largely business-as-usual, industrialization trajectory. Before rushing to condemn political leaders in developing countries, however, two points ought to be noted. First, developing countries are already struggling with the huge capital requirements of meeting basic development goals and will find it difficult to raise the additional US$20-50 billion per annum necessary to achieve climate-friendly development. Without outside assistance, there is a risk that imposing mitigation commitments on developing countries could divert resources from other important priorities, potentially harming overall development prospects. Second, even if individual developing countries were to aggressively invest in mitigation, there is no guarantee that their efforts will benefit them. The transboundary, open-access nature of the climate system means that all major GHG producing countries need to take collective action to reduce domestic emissions if stabilization is to be realized. In the absence of a truly multilateral solution, it is perhaps understandable that individual developing countries should be unwilling to take action for fear of other free-riding countries.

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Emerging Realities and Pressures

While developing countries have until now proved reluctant to take aggressive measures to tackle GHG emissions, two trends are likely to raise the low profile of mitigation and potentially accelerate investments in low-carbon development. The first is the difficulty encountered by rich, industrialized economies in complying with their legally-binding quantified mitigation commitments. A combination of institutional inertia, high marginal abatement costs, and domestic political considerations has led developed economies to pursue extra-territorial routes to meeting their obligations under the Kyoto Protocol. Most important of all has been the Clean Development Mechanism (CDM)—one of the so-called "flexibility mechanisms" under the Kyoto Protocol—whereby developed countries are allowed to offset their domestic commitments through investments in projects in developing countries that reduce GHG emissions or augment carbon sinks. Already, 1033 projects have been registered under the CDM, generating close to 140 million certified

emission reduction credits. Although these investments currently remain miniscule in relation to overall capacity addition and have been criticized for failing to advance wider sustainable development goals, many observers expect North-South flows of finance via carbon markets to increase dramatically over coming decades.

A second, arguably more important reality concerns the rapid growth of emissions. Rapidly expanding energy demands associated with urban industrialization and population growth has meant that energy-related GHG emissions are growing dramatically from certain developing countries. Across the developing world as a whole, energy-related CO_2 emissions rose by 86 percent between 1990 and 2005, far outpacing the 16 percent growth in developed economies. Looking ahead, the International Energy Agency (IEA) predicts that energy-related CO_2 emissions from all developing countries will overtake those of developed economies by 2012. What is more, under its "reference" (business-as-usual) scenario, the IEA estimates that approximately three-quarters of the increase in global CO_2 emissions up to 2030 will take place in developing countries. Importantly, the predicted rapid growth of greenhouse gases from developing countries means that, even if developed countries were to make deep emission cuts (60 to 80 percent by 2050), the goal of avoiding dangerous climate may still elude the international community.

What this assessment suggests is that the energy-related choices of developing countries are likely to become a matter of growing concern for the global community in the 21st century. It will be increasingly difficult to exclude emissions originating in developing countries from international political negotiations. Already, rapidly industrializing developing countries, and particularly India and China, are coming under growing pressure to commit to binding mitigation targets. Originally, these pressures largely came from the United States, but various EU states are also starting to turn up the diplomatic heat on the largest developing countries. These pressures are only likely to intensify as discussions for a post-Kyoto (2012) global agreement gather pace.

Engaging Developing Countries

Given the growing importance of developing countries in global climate change discussions, how can developing countries be brought on board as participants in a deal that would help to avoid dangerous climate change? First, there is a need for developed economies to demonstrate their willingness to take action in making deep cuts in domestic emissions. Quite appropriately, developing countries have viewed rich countries' rhetorical outpourings about the importance of climate mitigation with a degree of suspicion. For example, 7 of the 15 pre-2004 EU member states look set to miss their Kyoto targets, a record which is hardly consistent with the EU's often self-righteous leadership role in international debates over climate change. As well as missing their targets, a handful of developed economies, including the United States, have also refused outright to ratify the Kyoto Protocol. Developed economies can and should do more. Without meaningful commitment and action on their part, it is hardly surprising that developing economies prove reluctant to seriously enter discussions about reducing their own emissions.

Action by developed economies will also prove important in other ways. It will provide much-needed impetus for the innovation of mitigation technologies, accelerate learning investments which reduce costs and improve performance, and increase the willingness of investors to adopt new innovations. Although developing countries have an important role to play in innovating GHG-efficient technologies, especially where there is a need for locally appropriate solutions, technological efforts in developed economies will be pivotal in expanding the portfolio of commercially viable mitigation technologies. From a policy perspective, action by developed economies will also help to demonstrate the feasibility of mitigating emissions and provide policy templates, innovations, and experiences from which developing countries can learn. Action by developed economies to make deep cuts in domestic emissions is also likely to expand the volume of finance available for low-carbon investments in

Chinese students in Beijing hold up a sign in favor of the Kyoto Protocol.The Protocol received support from nations across the world but lost much of its potential when key players Australia and the United States refused to sign on.

Photo Courtesy Reuters

developing countries via international carbon markets.

Second, there is an urgent need to overcome some of the financial constraints which currently hinder developing countries from "leapfrogging" straight to GHG-efficient technology. Achieving climate-friendly development will require large amounts of additional capital to bridge the investment gap between conventional and low-carbon technologies, demonstrate new technologies in the domestic setting, and provide incentives for technological uptake. Along similar lines, incentives need to be put in place to ensure that developing countries are rewarded for maintaining forests and other carbon sinks. Inevitably, much of this funding will have to come from developed economies in the short-term. The most likely source of funding will be the private sector through expanded and restructured carbon markets. Nevertheless, greatly expanded flows of public funds from developed economies (channeled through, for example, the Global Environmental Facility) will also be necessary.

Third, there is a need to link mitigation with broader development goals, such that low-GHG development generates "win-win" outcomes. Among others, this could mean using new sources of finance to expand provision of modern services to low income communities (e.g., electricity), but in ways which are climate-neutral. Win-win outcomes might also be realized by creating synergies between mitigation and goals of upgrading domestic technological capabilities. One way to create this cooperative atmosphere might be through research and development partnerships for low-carbon technologies between industrialized and industrializing countries. Through such partnerships, developing countries should be better placed to develop their own industries that supply and export a range of GHG-efficient technologies, providing them with a direct economic interest in international efforts to mitigate emissions.

Finally, any attempt to involve developing countries in a future global agreement to stabilize emissions must also take account of differences in states' contributions and relative capacities. High-emitting countries should be expected to make more ambitious mitigation commitments than low-emitting ones, while the same goes for more capable, middle-income economies versus less capable, least developed economies. Indeed, without the participation of high-emitting countries, international efforts toward climate stabilization are unlikely to succeed. Similarly, international assistance for adaptation should be greater for more vulnerable countries, many of whom are likely to suffer from climate change with or without future mitigation on account of past emissions of greenhouse gases.

North-South Relations in the Warming World

Climate change has the potential to both unite and divide the international community. On the one hand, it is an issue which brings into sharp focus global interdependence and diverse countries' reliance on a single, finite ecosphere. As such, climate change might play a role in accelerating the transition to a post-sovereign order, whereby the interests of individual states are increasingly defined in terms of the common interests of humanity. On the other hand, climate change can divide sovereign states, exposing differences, inequities, and uneven responsibilities, thereby fueling interstate tensions.

So far, international debates, negotiations, and policies around human-derived climate change have involved elements of both of these contradictory dynamics. They have brought certain states together behind the normative ideal of stabilizing emissions, led to the creation of an international governance regime, and created new cross-border relationships via flows of capital, technology, and assistance. At the same time, however, climate change has reinforced existing fault lines between states. Nowhere is this more apparent than between developed and developing countries. Although a hugely diverse group, developing countries have nevertheless found common ground in the idea that they are more vulnerable and in the corresponding argument that they carry neither the responsibility nor capabilities for mitigation. In often politically-charged international negotiations, developing countries have constructed themselves in contradistinction to developed countries, a divide which has become institutionalized in international climate change politics and policy.

> "It will be increasingly difficult to exclude emissions originating in developing countries from international political negotiations."

Yet the reality is that developing countries, and especially the larger, rapidly industrializing ones, will need to participate in mitigation efforts in order to realize the goal of avoiding dangerous climate change. Can we bridge North-South divisions which have made developing countries reticent to take more aggressive steps in curbing GHG emissions ? The answer is a cautious yes—provided that two conditions are met. First, developed countries must avoid defaulting to short-term, domestic economic interests and instead demonstrate a willingness to act as genuine leaders by committing resources to take radical action at home and assist developing countries abroad. Second, high-emitting developing countries must admit that they are not simply hapless victims of climate change and face up to the fact that they must take urgent action to avoid becoming carbon copies of today's rich, industrialized economies. Only if these conditions are met will climate change mitigation become a sovereignty-transgressing issue behind which the entire global community can mobilize. H