# The Developing World *and* Climate Change

*The disappointing truth.*

**BY GREG MASTEL, STEPHEN KHO, AND BERND JANZEN**

The year 2009 could be a turning point for proponents of action to address climate change. Despite grumbles from some quarters, a scientific consensus is solidifying that global warming is happening and that the release of greenhouse gases—chiefly carbon dioxide—by human activity is a leading cause. The 2008 elections in the United States brought into office a President and a Congress inclined to act on the issue. There is likely to be an earnest effort to pass legislation to create a new cap-and-trade system to reduce greenhouse gas emissions in 2009. Globally, a United Nations conference is scheduled for the end of the year in Copenhagen aimed at reaching a new international agreement to replace the Kyoto Protocol in 2012, when its emissions reduction commitments expire. The global recession may dampen enthusiasm for action, but it clearly has not eliminated it.

Unfortunately, the central problem remains a deep chasm between the developing world and the developed world on assigning responsibility for climate change and sharing responsibility for action. Europe and now the United States seem inclined to adopt new emissions restrictions in hopes of tempering future warming, but Beijing and New Delhi lay blame for the problem entirely on the developed world and refuse to take actions that might restrict their future economic growth.

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In the meantime, China has become the world's leading emitter of greenhouse gases, and other developing countries are not far behind. Developed countries—notably the United States—are still major emitters, but even if the developed world took heroic measures to sharply reduce future emissions, those reductions would be completely swamped by continued increases in developing world emissions. This state of affairs has spawned deep pessimism in some circles on the prospects for meaningful efforts to reduce global carbon dioxide emissions. Certainly in the United States, the apparent unwillingness of the developing world to act is likely to become a serious political impediment to potentially painful emission restrictions.

All hope may not be lost, however. It is possible that a new global trade in greenhouse gas emission credits created by the adoption of cap-and-trade systems might generate a pool of capital that could offset some of the costs of change in the developing world. It may also be possible to find ways to apply more broadly evolving "green technologies," now largely controlled by developed country patent-holders. These possible incentives coupled with persistent diplomacy and perhaps trade measures might create a path to a global effort to reduce emissions.

P. Chidambaram

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### THE BLAME GAME

As is often the case with complex issues, there are two sides to the question of who is to blame for the greenhouse gases now in the atmosphere and the impact they appear to be having on the global climate. There is no doubt that the bulk of carbon dioxide and other greenhouse gases that have been released into the atmosphere come from the developed world, which has steadily increased emissions since the Industrial Revolution.

Unfortunately, the greenhouse gases now in the atmosphere will not be removed by natural processes for decades, and the developing world is churning past the developed world in greenhouse gas emissions. China alone plans to bring on more than one hundred new coal-fired power plants—the most carbon-intensive source of electricity—in the next decade. For comparison, China added approximately 95,000 megawatts of coal-fired electricity generation capacity just in 2007; Great Britain has a total of 75,000 megawatts of coal-fired production capacity. China's total annual coal use now exceeds that of the combined total coal use of the United States, the European Union, and Japan. It is possible that the global recession will slow the growth of emissions in the next year or two, but the direction of current trends is indisputable.

Absent some revolutionary technology to remove carbon dioxide from the atmosphere or some other unforeseen development, the developed world simply cannot do it alone.

But the leaders of the developing world—most notably China and India—have repeatedly denounced any restrictions on their future carbon dioxide emissions as threats to the growth of their standard of living and overall development.

When unveiling China's 2007 national plan for climate change, the then-Chairman of China's National Development and Reform Commission, Ma Kai, stated flatly that "China will not commit to any quantified emissions reduction targets" because "[t]he international community should respect the developing countries' right to develop." China reiterated this view in September 2008 when it stated in another report that "developed countries [must take] the lead in reducing their emissions of greenhouse gases, while ensuring development rights and spaces for developing countries." And in March of this year, China's

Department of Climate Change Director Gao Li went as far as to say that countries importing Chinese-made goods—rather than China—should be responsible for the emissions of Chinese factories that made those goods.

Likewise, the Indian Finance Minister P. Chidambaram declared in April 2008 that "the developed world has caused the problem [of climate change] with many decades of unsustainable developing process." And the July 2008 report by the Indian Prime Minister's Council on Climate Change added, "It is obvious that India needs to substantially increase its per capita energy consumption to provide a minimally acceptable level of wellbeing to its people."

Beyond the larger debate over who is responsible for current climate problems and who should bear the pain of emission reductions, there are important subsidiary issues. Many developing world leaders have pointedly demanded that various "green technologies," which promise to generate power without releasing carbon dioxide, capture carbon dioxide released from existing coal-fired generators, and solve other problems to make emission reductions possible, be provided to them free of charge—presumably at the expense of developed countries.

It is possible that some of these technologies could make a significant impact on reducing emissions. Alternate power technologies to produce energy through, for example wind and nuclear power, have proven potential albeit with limitations. Energy use can be reduced through new conservation technologies such as advanced temperature controls. Power can be better shared and transported by adoption of new grid technologies. There are also promising approaches to capturing and sequestering the carbon dioxide produced by the burning of fossil fuels. It is not clear exactly how great a reduction in greenhouse gas emissions can be achieved through technological solutions, but significant reductions from current levels are possible. In order to speed deployment of some green products, the United States and the European Union have advocated a new World Trade Organization agreement that would eliminate existing trade barriers for a range of "environmental goods and services."

But these "green technologies" are by and large not just free for the taking. Most are covered by patents held by western companies and governments, and applying these technologies in developing countries would require significant costs and know-how.

Attempts by the developing world to forcibly deploy (also known as "compulsory license") green technologies would inevitably inflame existing disputes on protection of intellectual property rights between the United States and developing countries. Such action would directly undermine the interests of patent holders and potentially slow innovation in this area. Beyond that, without a cooperative relationship to transfer and—as further innovations are developed—improve these green technologies, deployment is likely to be painfully slow and effectiveness is uncertain. Without ongoing support from those most experienced with the technology it might prove difficult, for example, to actually deploy large-scale carbon capture and sequestration or "smart grid" technology even if one had copies of all of the blueprints. A cooperative relationship with the patent holder would often be necessary to take advantage of new technology.

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### GLOBAL FINANCING

The leading concept for controlling greenhouse gas emissions—endorsed by the Kyoto Protocol and already adopted in Europe—is a cap-and-trade system. Cap-and-trade is an approach to environmental regulation that has been successful in some instances—albeit on a smaller scale than limiting global greenhouse gas emissions—in limiting pollution in a flexible manner that encourages innovation. In essence, cap-and-trade would place a total cap on emissions of carbon dioxide and other greenhouse gases and distribute—through auction, allocation, or a combination—allowances for emissions under the declining cap. The emission allowances would be tradable, which would provide a financial incentive for companies and others able to reduce emissions beyond the baseline and allow flexibility for implementing the cap.

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The total value of the traded allowances could be considerable. By the Congressional Budget Office's estimate, allowance auctions would generate $646 billion in new revenue to the United States Treasury between 2012–2019. The Obama White House has been quoting a higher figure—$1.2 to $1.9 trillion—for the same period. The details of the proposed cap-and-trade approach could significantly impact the amount of revenue collected by the government through allowance sales. For example, the provision of free allowances to certain industries or subsidies to consumers to offset higher energy and production costs created by emissions caps could reduce net revenue.

Allowances could be traded across sectors of the economy. For example, allowances could be issued to farmers for adopting low- or no-till farming practices (which reduce carbon dioxide emissions), and those farmers could sell their allowances to coal-fired power plants that would otherwise not be able to meet emission reduction targets.

The Kyoto Protocol envisions these transactions also occurring across international borders. For example, if Russia or Brazil agreed to keep in place forests which absorb carbon dioxide from the atmosphere they might be able to earn allowances that could be sold to utilities in other countries. This could create a reason for at least some developing countries to support a global cap-and-trade scheme and create a market that might be tailored to incentivize and support change in the developing world. Under one concept, as a condition for participating in allowance trading, developing countries could divert a portion of the revenues from allowance trading to addressing the economic and social costs of reducing emissions.

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Unfortunately, the countries with the largest potential for receiving offset allowances are not necessarily the countries with the largest potential costs due to measures to reduce emissions. But this might be remedied by taxing international transactions to create an international fund to assist in offsetting costs of emission reductions in the world's poorest countries. Certainly there are issues in both the collection and administration of such taxes and funds, but it is a concept worthy of more attention.

Similarly, there has been discussion in large developed countries such as the United States and those in Europe of earmarking a portion of the revenue collected under allowance auctions to the needs of developing countries. However, pure foreign assistance is not politically popular in the United States. And, in every developed country, there would be considerable internal demand to use revenues to offset impact on consumers, assist domestic industries with adjustment, and tend to other needs at home.

## PAYING FOR PATENTS

In terms of paying for green technologies, there might be some more politically attractive options. One possibility would be for developed countries to purchase broad licenses on key green technology patents and allow them to be used for free or at a reduced charge by developing countries to reduce greenhouse gas emissions. This would have the dual benefit of paying patent holders for their rights—thus avoiding international disputes and encouraging innovation—while providing the developing world with access to key green technology.

Similarly, it might be possible to allow advantaged trading of offset allowances earned by the developing world to purchase green technology. In other words, patent holders could exclusively license their green technology to developing countries in exchange for offset allowances that in turn could be used to meet the patent holders' emission reduction targets, or sold in the open market. Again, this would allow patent holders to receive compensation for their innovation while still benefitting developing countries.

This approach could have the added advantage of bolstering the market for international offset allowances. Currently, the Kyoto Convention's Clean Development Mechanism aims to establish a market for developed countries to invest in green projects in developing countries in return for offset allowances. Unfortunately, the CDM program has gotten off to a rocky start with serious questions raised about the reliability of the measurement of carbon dioxide reductions in developing markets. For example, it is questionable whether some of the projects, such as tree planting or retention of forest stands, really result in carbon savings. Rather, these projects might just pay for forest tracts that were not threatened anyway, or result in other different tracts of forestland being eliminated. Often, carbon savings may not be reliably verifiable.

CDM offsets have been popular in developing countries, but concerns about the utility of the program in reducing atmospheric carbon dioxide have led some in the developed world to call for its elimination or severe limitation to ensure that it does not take the place of greenhouse gas reductions from existing sources. This has also led to the consideration of limitations in the European Union and in any new U.S. cap-and-trade system on the ability to employ international offset allowances to meet domestic emissions reduction goals. These restrictions would limit the value of CDM offsets and perhaps call into question the very basis for the program.

If international emission allowance trades were limited to those for the purchase of green technology and perhaps other concrete, greenhouse gas reduction-friendly purposes, there might be more support for CDM offsets. This limitation on trading of CDM offsets would not address all questions related to verifying, managing, and tracking international offsets, but could create a viable market that would, at least in part, avoid the concern that the CDM would displace real greenhouse gas reduction efforts. This approach would likely enjoy the continued support of developing countries (albeit perhaps less so than an unlimited CDM) and would also build support among developed country patent holders while supporting action that could truly reduce global GHG emissions.

There can be little doubt that the discussion on international action on climate change is shifting from a scientific one to a more practical one involving politicians and businessmen rather than climatologists and chemists. This change is inevitable if we are ever to move from talking about climate change to actually reducing greenhouse gas emissions.

But a scientific consensus on the role of carbon dioxide in global warming does not automatically result in a global consensus for action. Rather, such a consensus merely raises the curtain for a discussion on courses of action; it does little to address the numerous economic, equity, and business concerns that must be addressed. The most difficult potential stumbling blocks to action arise from the gap in perception on this issue between the developing and the developed world. But if we are to have any hope of real global action on this issue we must move beyond climatological models to new models for shared action and responsibility between the developed and developing world. ◆