

Greenprint: Three Big Changes for Countries to Take Action on Climate Change

Aaditya Mattoo and Arvind Subramanian

These seem unusually inauspicious times to discuss, let alone yearn for, international cooperation to address the problem of climate change. After all, the Kyoto Protocol has been overtaken by dramatic changes in the world and efforts to update it in the form of the four most recent summits held under the UN Framework Convention on Climate Change (UNFCCC)—Copenhagen in 2009, Cancun in 2010, Durban in 2011, and Doha in 2012—have come and gone. They have offered only a thin reed of hope based on nothing more than promises to make more meaningful promises later, rather than on concrete commitments to act now.

The Three Problems of Cooperation on Climate Change

These failures reflect three serious problems. The first is the narrative problem. Climate talks have not taken place in a historical vacuum. They have been characterized by contentious and competing ethical and moral perspectives. Many in developing countries argue that the rich world has been responsible for the bulk of emissions and, having “colonized” emissions space, has preempted growth and development prospects for developing countries. The rich countries argue that developing-country

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Summary

Few problems are as pressing and as existential for the world as climate change, and few have proven to be as intractable. Three decades of international negotiations on climate change have yielded little by way of action that would substantially slow, let alone reverse, human-caused climate change. Can things be different?

The answer is yes, but only with an altogether new approach. Cooperation on climate change faces three problems: mutual recrimination between rich and poor countries (the narrative problem), the zero-sum arithmetic of a shrinking global carbon budget (the adding-up problem), and shifts in economic and bargaining power between industrialized and developing countries (the new-world problem). Overcoming them requires radical changes to forge a new Greenprint for cooperation:

- Large developing countries such as China and India take the lead
- All countries focus on technology generation
- Industrial countries undertake early emissions cuts while large developing countries make complementary contributions (cuts to energy subsidies, finance for technology development) to strengthen the deal

emitters such as China and India now account for a large share of emissions and insist that cooperation cannot proceed without them (see figures 1 and 2).

Second, there is an adding-up problem. For the planet to survive in some habitable form, the world has to live within a fixed carbon budget of about 750 gigatons of CO₂ emissions between now and

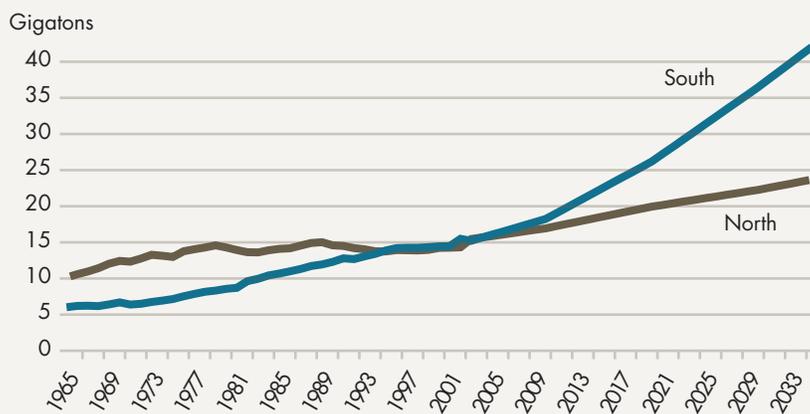
2050.¹ More allocations for one country mean less for another. But the exercise is even more difficult than allocating a fixed carbon budget. Any attempt at allocation is a moving target because the carbon budget is actually shrinking relative to the growing needs of developing countries.

Third, there is the new world problem. When the first major climate talks took place, resulting in the 1997 Kyoto Protocol, there were broadly two sets of countries: large emitters that were rich on average and medium to large emitters that were poor on average. Since then, there have been significant shifts in economic power: developing countries will account for 70 percent of world GDP by 2030 (measured in terms of purchasing power parity) and nearly 80 percent of incremental growth over the next 20 years. China alone might account for 15 percent of world trade and 20 percent of GDP by 2030. And by then, China, India, and Brazil will rank among the five largest economies in the world in terms of their purchasing power parity.²

Some of the most dramatic changes are likely to occur on the fiscal front. The public-sector balance sheet of advanced economies has become extremely fragile because of rising entitlements, aging populations, the global financial crises that began in 2008, and contingent liabilities in their financial systems. Whereas debt ratios for emerging-market G-20 countries are expected to remain steady at about 40 percent of GDP, those of advanced economies are expected to rise from close to 80 percent of GDP today to 120 percent by 2015.³ These ratios for industrial countries are not expected to reach reasonable levels until well into the future—if, that is, large fiscal adjustments are undertaken.

These numbers illustrate the obvious: the United States and Europe are no longer economically preeminent and must now deal with the new rising powers, especially China, India, Brazil, and Indonesia. These countries are large emitters—China is number one and India is number three

Figure 1. Annual Emissions from Poorer Countries Are Overtaking Those of the Rich: Annual CO₂ Emissions, 1965–2035



Source: David Wheeler and Kevin Ummel, "Another Inconvenient Truth: A Carbon-Intensive South Faces Environmental Disaster, No Matter What the North Does," CGD Working Paper 134 (Washington: Center for Global Development, 2007), p. 17.

Figure 2. Cumulative Emissions from Poorer Countries Will Eventually Dominate: Cumulative CO₂ Emissions, 1965–2035



Source: David Wheeler and Kevin Ummel, "Another Inconvenient Truth: A Carbon-Intensive South Faces Environmental Disaster, No Matter What the North Does," CGD Working Paper 134 (Washington: Center for Global Development, 2007), p. 17.

1. Nicholas Stern, *The Economics of Global Climate Change: The Stern Review* (Cambridge University Press, 2007).

2. Arvind Subramanian, *Eclipse: Living in the Shadow of China's Economic Dominance* (Washington: Peterson Institute for International Economics, 2011).

3. International Monetary Fund, "The State of Public Finances Cross-Country: Fiscal Monitor, November 2009" (Washington: IMF), p. 15. Available at www.imf.org/external/pubs/ft/spn/2009/spn0925.pdf.

in the emission rankings. They are also significant players in the economic system and will have a significant say in the design of any international agreement. These new circumstances have implications for rich countries' ability to offer "carrots," such as financial transfers, and wield "sticks," such as the threat of trade sanctions, as a way of inducing cooperative action.

Addressing the Problems

The old climate narrative must give way to a new one. First, the key shift will have to come from the dynamic emerging economies (DEEs). China, India, Brazil, and Indonesia have the most to lose and so must lead the charge on climate change. Second, all countries must focus on technology generation.

Large developing countries take the lead

Is it credible or plausible that large developing countries will take the lead? Yes, for two reasons. First, the stakes in the near to medium term are much greater for developing countries than for today's rich countries. Rising temperatures will hit

agricultural productivity in tropical and subtropical developing countries first and worst. Many such nations have high population densities and will have narrow margins for survival as natural systems, especially water, come under stress. They also have much lower incomes per capita, making it harder to cope with coming disruptions by making major infrastructure investments such as building sea walls or extending irrigation systems.

Indeed, the alarming prospect for the DEEs is not that they will be asked to contribute too much, but that the rich countries might ask and do too little. The rich countries, reluctant to cut emissions, may take inaction by the DEEs as an excuse to attempt to adapt to climate change instead of taking aggressive actions to avert it. If the rich make this strategic choice, the consequence could be catastrophic for all parties.

A second reason why DEEs will be obliged to take the lead is because industrialized countries are increasingly incapable of doing so. The political consensus for serious action is fraying, especially in the United States. One explanation may be the combination of economic problems—high unemployment, low growth, and diminishing prospects

	Old Approach	New "Greenprint" Approach
Narrative	Backward-looking—Industrial countries are to blame.	Forward-looking—Emerging-market countries are more vulnerable to consequences of climate change and thus must take the lead.
Focus	On emissions cuts, because required cuts are considered attainable at acceptable cost.	On technological progress, because required emissions cuts are not attainable at acceptable cost with current technologies (the "adding-up" problem).
Distribution of Burden	Industrial countries must bear nearly all costs.	All countries must contribute to a solution, consistent with their economic situation.
Actions	Industrial countries and emerging-market countries both cut emissions. Industrial countries compensate emerging-market countries for losses caused by the latter's emissions cuts.	Industrial countries make early emissions cuts. Emerging-market countries <ul style="list-style-type: none"> • contribute to fund for developing and disseminating new technologies • commit to making future cuts, conditional on development of new technologies • allow industrial countries to take trade actions under WTO auspices against imports from emerging markets where comparable emissions cuts have not been implemented
Results	Aggregate emissions cuts consistent with climate change goals.	Aggregate emissions cuts consistent with climate change goals but attained at lower developmental cost because of technological progress.



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for the middle class—that increasingly preoccupy American policymakers. No doubt this tension between the economy and the environment is reflected in the administration’s ambivalence toward the Keystone XL oil pipeline from Canada to the Gulf of Mexico. Then, too, the US political and intellectual environment—in which spectacularly rich fossil fuel companies use their money to oppose climate solutions such as carbon taxes and sow skepticism about climate science—offers little encouragement.

In the past, the DEEs, especially China and India, were accused of being recalcitrants because they were apparently unwilling to assume their “fair” share of the responsibility for climate action. Now, the growing political acceptance in these countries of the need to act on climate change is creating a possibility of a role reversal. But for China and India to articulate the new narrative, to credibly become the new demanders, they must back up their rhetoric with real contributions to the long-term solution.

All countries focus on technology generation

Developing countries can meet climate change goals without sacrificing their economic dynamism if they spew less CO₂ for the same amount of activity. This is only possible through rapid technological change—indeed, through radical, historically unprecedented technological breakthroughs.

The necessary increase in energy efficiency would have to be greater than the increase that followed the oil shocks of the 1970s—and they led to an increase in the price of energy far greater than what is contemplated under any of the current proposals on emissions mitigations.

Industrial countries undertake early emissions cuts; large developing countries sweeten the deal

So how can countries cooperate to generate the required technological progress? The key will be for the industrial countries to undertake early emissions cuts and recognize that premature cuts in carbon emissions by developing countries would threaten the latter’s economic dynamism.

In concrete terms, the rich countries would commit to an early increase in the price of carbon, targeting a steady-state price of carbon consistent with the emissions reductions needed to bring annual emissions per capita down from about 20 tons now to 2 tons in all industrialized countries by 2050—in keeping with a 80 percent reduction from 2005 levels. This carbon price would be the key price signal to spur investment in a green technology revolution.

The large developing countries would complement and facilitate this industrial-country action in a number of key ways: commit to end their energy subsidies; contribute to a global fund for green technology development; allow, under special conditions, industrial countries to impose limited carbon-based border taxes; and commit to future emissions cuts, conditional on improvements in technology.

We cannot say with absolute certainty that this approach will succeed or that it is the best among alternatives, but we are confident that the current approach cannot work. The steps outlined in the Greenprint for a new approach to cooperation on climate change could set in motion a mutually reinforcing dynamic to get emissions under control and avert a climate catastrophe.

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