Introduction

Today one of the major threats to individuals' security—economic and physical—around the world arises from the danger of global warming and climate change associated with the increased atmospheric concentration of greenhouse gases. Changes in weather affect those whose livelihood is dependent on agriculture, and extreme weather events—such as floods and cyclones—have left thousands, in some cases millions, homeless. Insecurity going forward is even greater: Rising sea levels will inundate low-lying coastal areas. As an example, rising sea levels are predicted to displace millions of people in Bangladesh.

Global warming is the quintessential global public good (or bad): It arises from carbon emissions everywhere in the world. America's carbon emissions adversely affect Bangladesh and the United States alike. The carbon molecules don't carry passports and they don't require visas as they move into the global atmosphere.

Although all may benefit from reducing carbon emissions, everyone would like others to bear the costs. This is a classic "free rider" problem. What makes the problem particularly difficult is the uneven incidence of the costs of climate change as well as of the costs of reducing emissions. The latter is likely to be especially large for the big polluters, such as the United

States, although the costs of climate change are disproportionately felt by poor countries in the developing world.

While in Copenhagen in December 2009, the international community agreed to reduce global emissions to prevent (or more accurately to reduce the likelihood of) a two-degree Celsius increase in temperature; however, they could not agree on how to share the burden or on how to enforce any agreement that might be reached. Indeed to many the agreement was a step back from the Kyoto Protocol, which had at least negotiated targets for emission reductions, though there was no enforcement mechanism and a large fraction of the world's pollution did not come within the ambit of that agreement. The Copenhagen Accord only committed countries to set out their own national agendas. It seemed to rely on peer pressure. Peer pressure had been remarkably successful in calling forth significant efforts at emissions reduction, but peer pressure had been totally unsuccessful in getting countries to reach an agreement or in getting the U.S. Congress to pass any bill to significantly curtail U.S. emissions. These failures—and the disarray evident at the Copenhagen summit—symbolized the failures of global governance. Clearly, an agreement could not be reached even in an arena that represented a real threat to the entire planet.

The two chapters in part 3 lay out some of the critical issues. The second, by Joseph Aldy and Robert Stavins, describes the key challenges facing the international community, the obstacles to reaching an agreement, and four alternative approaches going forward.

The first chapter in this part, though, focuses more narrowly on one of the obstacles—how to share the burden of saving the world—and borrows ideas from the analogous literature on how to share the burden of financing public goods within a country. Joseph Stiglitz expresses considerable pessimism—justified by the failures in international negotiations—about the current dominant approach, which focuses on reaching an agreement about emission reduction targets. The reason is that the allocation of emission rights is little different from allocating money. And the Kyoto Protocol—which effectively gave more emission rights (money) to those that had polluted more in the past—is, and should be, unacceptable to most in the developing world. Some (such as Lord Nicholas Stern) are hopeful that, nonetheless, a global deal can still be reached. The developing countries gain sufficiently from a reduction in emissions that even if they are granted, say, emission rights that are "unfairly small," they might nonetheless agree to a deal (Stern 2009). Stiglitz is less sanguine that a deal that is unfair—in effect, giving the rich greater rights to the

atmosphere's "carbon space" than the poor—will be acceptable to those in the developing world. He suggests that an approach based on "common measures"—an agreed-upon tax on carbon emissions, agreed-upon standards for automobiles or electricity generation—will be more acceptable, especially if accompanied by assistance to developing countries to help meet the additional burdens.

Reaching an agreement on enforcement also faces three obstacles. It would be nice if one could just trust others to live up to their commitments, but, as Stiglitz points out, what has happened since 1992 in the arena of climate change provides reason not to have such faith. Most of those signing on to the Kyoto Protocol did not achieve the reductions that had been promised; and to a large extent, some of the advanced industrial countries now seem to be trying to renegotiate the commitments they made as part of the 1992 Rio agreement to finance the incremental costs associated with emission reductions for developing countries. (China and India, for instance, remain developing countries, according to the World Bank, even though they are large countries with many well-off individuals.)

The first obstacle to achieving an enforceable agreement is that any enforceable agreement entails, in effect, a derogation of sovereignty. It is one thing to agree to a principle that there ought to be reductions in global emissions, so long as doing so imposes no direct obligations, or, if there are obligations, so long as those obligations cannot be enforced. It is quite another matter to give others—the international community—the right to impose one form of sanction or another if one fails to live up to one's commitments. The second obstacle—related to the first—is that there is no confidence in the international community's ability to adjudicate disputes. China may, for instance, worry that the United States might accuse it of not reducing emissions in the way agreed, and any international tribunal, composed largely of those from the advanced industrial countries, will side with the United States. Moreover, any international agreement involves multiple obligations, and developing countries worry that there may be more rigor in enforcing the obligations on them to reduce their emissions than the obligations on the developed countries to make technology or finance available to the developing countries. Thirdly, there are problems of devising effective enforcement mechanisms. The standard mechanism is trade sanctions (part of the Montreal Convention aimed at reducing ozone-destroying gases). But such sanctions are more effective against poor countries than against rich, and developing countries worry that with the possibility of such sanctions advanced industrial countries

will impose "green tariffs" accusing the developing countries of violating their commitments, even if they have not.

Developing countries worry, moreover, that any system, even if it were de jure fair, de facto might not be: Bringing and defending cases is costly. Rich countries can bear these costs far more easily than can poor countries. All of these fears on the part of developing countries find partial justification in what has happened in trade and investment agreements. Yet, there are some reasons for optimism. Although there was much to-do about the loss of sovereignty when the United States signed on to the WTO agreement, such concerns are seldom voiced today. There is a general consensus that countries gain by such agreements and that any agreement that is credible must have some enforcement mechanism. The benefits of the agreement, with its limited loss of sovereignty, are seen to be worth the costs (at least if the other problems described here can be solved). And there have been some instances of success—especially in the environmental area, for example, with the Montreal Convention.

What is at stake in climate change is much larger, as are the distributive consequences. That makes not only the benefits of achieving an agreement greater but also the difficulties. If the global community can make progress in this arena, it will enhance confidence in global governance. If it fails, the entire planet—and the security of all of its citizens—will be at risk.

Reference

Stern, N., 2009, *The Global Deal: Climate Change and the Creation of a New Era of Progress and Prosperity*, New York: Public Affairs.