Can International Regimes Be Effective Means to Restrain Carbon Emissions?

Yes—Brent Ranalli, *The Cadmus Group*

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Today's sorry situation

The Kyoto Protocol of 1997 is generally considered, if not an outright failure, at least a grave disappointment. The largest emitter of greenhouse gases in the world at the time of adoption, the United States, failed to ratify it. China, which now surpasses the United States in emissions, has no meaningful obligations under the Protocol; nor does India with over a billion people, or any other developing country.

It gets worse. Emission-reduction targets that were established under Kyoto were, it was widely agreed from the beginning, wholly inadequate to meet the threat of climate change—just a "good start." And even so, many nations are on track to fail to meet their 2012 targets, some by a wide margin. Anticipating failure, Canada has formally withdrawn from the Protocol. Canada, Russia, and Japan have all indicated their intention to "opt out" of the second commitment period, which is scheduled to last from 2013 to 2020, leaving only a straggling remainder of European and other countries planning to make any sort of formal commitment to mitigation action in the next decade.

Upon close inspection, even many nations that are on track to meet their Kyoto targets do not impress. Consider that targets for most countries are set in relation to 1990 baseline emissions. Russia and the Eastern European nations easily meet their own targets, since they suffered industrial collapse when the communist regimes fell in the early 1990s. And since the bar is set so low for these nations, they have emission credits to spare (so-called "hot air") that can be sold abroad, enabling other nations to meet their own targets without making any substantive changes at home. England gets credit for a transition from coal to cleaner-burning natural gas that took place in the 1990s, before Kyoto was signed. Germany gets credit for having swallowed post-Communist East Germany and its "hot air" credits, and worse: As Germany has de-carbonized, factories disassembled in the Ruhr Valley have been reassembled in China (so-called "leakage"—shifting pollution from countries with targets to countries without targets), where poor environmental management and lax government controls have resulted in a net *increase* in emissions, increases of up to 300% for some industrial processes.[1]

At the climate summit in Durban, South Africa in late 2011, negotiators agreed to let Kyoto expire in 2020, and failed to reach a firm agreement on what would replace it. They pledged to give themselves until 2015 to work that out. In the meantime countries

[1] Jonathan B. Wiener, "Climate change policy and policy change in China," *UCLA Law Review* 55 (2008) p. 1809

are invited, if they feel like it, to participate in a lame-duck second commitment period of Kyoto under the old rules. The climate diplomacy community put a brave face on this announcement, but there is palpable despair among climate activists of seeing any bold and meaningful action. Those skeptical of the diplomatic effort are able to gloat that "the proverbial can has been dented so hard and kicked so far down the road that it's no longer fit for the recycling bin."[2]

At this nadir in the climate negotiation process, it is tempting to wonder—is it wasted effort? Perhaps the international community, with its diverse agendas and interests and sheer weight of bureaucracy, is simply incapable of action that is bold enough and comprehensive enough to address the problem. Perhaps nations should give up efforts at climate change mitigation and focus on adaptation instead, save themselves and their neighbors as best they can. Perhaps we should look on the bright side—if crops fail in some parts of the world, think how much wheat Canada and Russia will be able to plant in what is now tundra. Or perhaps we should hold on to some ray of hope that the prognosis may change—after all, the science is never complete or 100% certain.

In this essay I will argue that in spite of the disappointing performance of climate diplomacy to date, there is every reason for cautious optimism that the international community can and will take meaningful action toward mitigating climate change.

Preliminaries

To start out, we should reiterate WHY mitigation is important, and why international collaboration is essential to mitigation. Addressing ourselves to some of the points raised a few paragraphs ago, in reverse order:

- *Should we take the science seriously?* Although the scientific enterprise is indeed never complete, and climate modeling is subject to uncertainty, it would be foolish not to take prudent action based on the evidence available. Today, the best available evidence indicates that the climate is changing, that anthropogenic greenhouse gas emissions play a role, and that the pattern of anthropogenic emissions in the coming decades could mean the difference between mild climate change and catastrophic climate change.
- *Won't there be benefits?* Although some localized benefits are anticipated from climate change, especially in the milder scenarios, they are balanced by costs, and in the more extreme scenarios the costs are overwhelming.[3] To take the example mentioned above: mild-to-moderate warming of northern latitudes would indeed create expanded opportunities for agriculture, but it would also melt the permafrost, making many current settlements uninhabitable and causing huge economic damages in the form of corrosion of oil infrastructure. The cost in

[2] Steven F. Hayward, "The slow, agonizing death of Europeanism," December 20, 2011, American Enterprise Institute (http://www.aei.org/article/the-slow-agonizing-death-of-europeanism/).
[3] Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Working Group II Summary for Policymakers, p. 17.

Alaska has been estimated at approximately $35 million annually, or 1.4 percent of the state budget; costs in Canada and Russia may be comparable or greater.[4] In addition, climate change poses costs that are rarely monetized: e.g., species and ecosystem loss.

- *Why not just adapt?* Adaptation is an essential element of any strategic thinking about climate change. Adaptation has already begun—e.g., in Papua New Guinea, rising sea levels have led to the evacuation and resettlement of some island communities. Many countries have begun to prepare national adaptation plans, and structures are in place for co-operative international action, including technology transfer and financial aid to poorer nations. This is one of the underappreciated success stories of the international climate diplomacy process. But adaptation can only be one piece of the puzzle. The difference between mild climate change, under which orderly adaptation is possible, and catastrophic change, under which it is not, lies in mitigation.

Given that mitigation is necessary, does it have to be internationally coordinated? In the abstract world of economics and game theory, greenhouse gas emissions are a classic example of a "negative externality" (a cost imposed on others) that leads rational actors to make choices that leave everybody worse off. The economic benefit of emitting greenhouse gases accrues to emitter, and costs are distributed all around the globe. So no one has a rational incentive to curb emissions—and if everyone emits, everyone suffers. Only a public or community solution—"mutual coercion, mutually agreed upon," in the phrase of Garrett Hardin[5]—can bring about an optimal solution.

One might balk at the pessimism implied in that analysis. People are not bloodless "rational actors," bent solely on the pursuit of narrow self-interest, narrowly defined. Real human beings have an altruistic streak and are susceptible to moral arguments. They can be moved to action by righteousness, indignation, reciprocity.[6] Is it not possible that in the absence of an international regime, nations might set aside economic self-interest sufficiently to pitch in to do their part to mitigate climate change? There are examples we might point to: in the United States, for example, numerous states, cities, and regional associations have pledged to reduce emissions in spite of U.S. non-participation in Kyoto.

I am very sympathetic to the argument that *homo economicus* is a thin abstraction, and real people are capable of surprising degrees of solidarity and altruism. But as an argument against making the effort to achieve an international climate regime, this line of reasoning fails on at least two counts. First, among the complex motivations of the state and local authorities who have taken voluntary action, prominent among them was a desire to fulfill their share of the U.S.'s neglected Kyoto obligations. That is, the voluntary action *presupposed* an international understanding of shared obligations. Second, the scenario in which nations are willing to pitch in to solve a common problem

[4] A. Korppoo, J. Karas, M. Grubb, eds. *Russia and the Kyoto Protocol: Opportunities and Challenges*. London (Chatham House, 2006) pp. 22-23.
[5] Garrett Hardin, "The Tragedy of the Commons," *Science*, 162 (1968): 1243-1248.
[6] Jedediah Purdy, "Climate Change and the Limits of the Possible" *Duke Environmental Law & Policy Forum* 18 (2008): 289-305.

voluntarily, described above, is exactly the optimal condition for establishing an international regime,[7] to turn those intentions into commitments. Conversely: if a coordinated regime fails, there is virtually no hope that voluntary action alone will succeed.

If we accept that coordinated international action is necessary for successful mitigation, we come to the thorny part of the problem: how has climate diplomacy failed so badly in recent years, and what prospect is there of improvement?

Solid foundations

Before diagnosing the weaknesses of the current climate regime, it is worth assessing and acknowledging its strengths. What is being done right? I highlight four pieces of diplomatic accomplishment that lay a solid foundation for future success.

1. A strong, versatile framework: convention and protocol.

The nations of the world did not attempt to solve the problem of global warming overnight. They started, in 1992, by agreeing on a convention, the United Nations Framework Convention on Climate Change (UNFCCC), that established a consensus on the need for international action and laid down some basic principles to guide that action. The UNFCCC stipulates (Art. 7, par. 4) that there will be regular (annual) conferences of the parties (COP) to work out further arrangements.[8] UNFCCC does not get into the nuts and bolts of how to solve the problem of climate change, but it authorizes the parties to negotiate such detailed agreements in the form of protocols. There can be as many protocols as necessary.

Having a strong undergirding framework, in the form of the UNFCCC, provides for continuity of climate negotiations even as specific protocols come and go. Thus, while Kyoto has limped along, spurned and abandoned by important nations, the underlying convention has nevertheless been remarkably strong and resilient, and there is no question of abandoning climate negotiations altogether. Thanks to the convention/protocol framework, nations that are not parties to the Kyoto Protocol, notably the United States, have still had a role to play and have remained active in climate diplomacy.

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[7] See Thomas Heller, "Climate Change: Designing an Effective Response," in E. Zedillo, ed., *Global Warming: Looking Beyond Kyoto* (Brookings Institution Press, 2008), p. 130.

[8] Each year's UNFCCC meeting is held in a different city. Since the Kyoto Protocol went into effect, members of that treaty have held their annual meetings at the same time and location. So the December, 2011 meeting in Durban, South Africa, for example, was simultaneously the 18th conference of the parties to the UNFCCC (COP8) and the 8th meeting of the parties to the Kyoto Protocol (MOP8).

2. Differentiated responsibility

Among the core principles enshrined in the UNFCCC is an acknowledgment that different nations have different levels of capacity for action. The Convention (preamble and Article 3) calls on all nations to cooperate and participate "in accordance with their *common but differentiated responsibilities and respective capabilities*" (emphasis added). This is a concession to realism, one that steers negotiations away from making technically and politically impossible demands on poor nations and failed states. It is also a concession to the moral argument that the wealthier nations bear the greatest responsibility for historical anthropogenic emissions.

In the Kyoto Protocol, this principle was put into operation by dividing nations into two groups: one group (roughly, the wealthier/developed nations) was expected to set targets for emissions reductions, while the other (roughly, the poorer/developing nations) was not. The somewhat crude division of nations into two groups, and the exemption of developing nations, even the most rapidly developing nations, from any responsibility for setting and meeting targets, has come in for criticism, as we will see below. But most observers would agree that the underlying principle of differentiated responsibility is sound. In one form or another, it will undoubtedly inform any future protocol.

3. Meaningful commitments

The Kyoto Protocol established a precedent of setting concrete national targets and timetables for reducing emissions of greenhouse gases. Not all nations set goals under Kyoto, and many of the current goals will not be met, but the principle of goal-setting is important, for at least two reasons. First, setting measurable targets and timetables for emissions reductions (or other concrete mitigation actions such as afforestation/reforestation, carbon sequestration, etc.) enables nations to focus their efforts. All the sincere intentions and optimistic energy generated by the establishment of UNFCCC, for example, under which nations agreed that mitigate was important and necessary, led to very little concrete action. It was this lack of action that convinced many that a formal protocol was necessary.

Second, setting concrete goals and targets makes it possible to connect concrete actions with science-based targets (e.g., peak concentrations of atmospheric carbon dioxide that are estimated to be low enough to ward off catastrophic risk). Goals set under Kyoto were not science-based, but under a future protocol they may be.

Goals should be ambitious but realistic. Arguably, the Kyoto goals were not realistic, given the current state of technology. Economic modeling suggests that the efficient path would be to set goals of progressively increasing stringency over the course of decades,

taking advantage of progressively more climate-friendly technologies as they come online.[9]

Talk of goals raises the question of enforcement. Is it necessary to establish sanctions and penalties for nations that fail to meet their goals? Experience to date suggests that too much emphasis should not, indeed can not, be placed on sanctions and penalties. Fear of sanctions will drive nations to set unambitious goals, or to drop out rather than risk failure, as Canada has done.[10] What matters ultimately is environmental outcomes. Failure to meet an ambitious target by a few percentage points may be better than hitting a "safe" target.

Since climate change mitigation is an effort that will span decades, goals should also ideally be set in the long term. Kyoto has been criticized as "too little, too fast," setting goals on a horizon of only years and leaving future targets in doubt. It is argued that industries that make capital investments with a lifespan of decades need to be given the right incentives to plan for a low-carbon economy.[11] That some industries appear to be doing this even in the absence of explicitly negotiated long-term targets[12] can be credited in at least some part to the stability of the underlying UNFCCC (see the discussion of convention and protocol, above). Protocols may come and go, but international action on climate appears inevitable.

4. Flexible Implementation

Another important precedent set in the Kyoto Protocol is that of subsidiarity—that is, letting nations decide for themselves how to meet the goals they set, rather than micro-managing. As is discussed in more detail below, there are many policy tools nations can use to reduce emissions, from comprehensive approaches like cap-and-trade or a carbon tax to more piecemeal regulatory options, institutional arrangements, and incentive programs.

As Kyoto has been amended over time, it has evolved in directions that provide even greater flexibility for meeting targets: for instance, nations get credit for investment in mitigation actions made in one another's territory (so-called Joint Implementation, or JI), and for investment in emissions-limiting projects in the developing world (the so-called

[9] S.M. Olmstead and R.N. Stavins, "A Meaningful Second Commitment Period for the Kyoto Protocol," *Economists' Voice* (May 2007): 2.

[10] The sanctions under Kyoto are both relatively mild and somewhat self-defeating—nations that fail to meet targets in the first commitment period are required to taken on more onerous targets, under stricter conditions, in the second commitment period. Under such rules, what penalized nation would choose to participate in the second commitment period?

[11] See, e.g., Olmstead and Stavins, 2007, op. cit., pp. 2-3.

[12] See William A. Pizer, "Practical global climate policy," in J.E. Aldy and R.N. Stavins, *Architectures for Agreement* (Cambridge University Press, 2007), p. 297. Another indicator of expectations in the private sector: In a 2011 survey of Global 500 companies, over two thirds report that climate issues inform their "overall business strategy" (https://www.cdproject.net/en-US/Results/Pages/CDP-Global-500-Report-2011.aspx).

Clean Development Mechanism, or CDM). And, as noted above, nations are allowed to buy and sell emissions credits (so-called International Emissions Trading, or IET). They are granted credit for afforestation and reforestation, and penalized for deforestation (under provisions for Land Use, Land-Use Change and Forestry, or LULUCF). These moves toward flexibility should be applauded, even as policymakers remain vigilant to close loopholes and prevent gaming.

Echoes of the Montreal Protocol

These foundations for success in the international climate treaty architecture are not unprecedented. They echo the highly successful diplomatic effort to tackle the ozone problem in the late 1980s. The ozone negotiators first established a general convention (the Vienna Convention of 1985), and then they hammered out a detailed plan of action in a protocol (the Montreal Protocol of 1987). The Montreal Protocol made special provisions for developing countries, giving them extra time to convert their infrastructure and promising financial assistance. It set concrete targets and timetables for phasing out of the ozone-depleting chemicals, and left it largely up to each nation to decide how best to manage its own phase-out.[13]

The resemblance between the two efforts is hardly accidental. The ozone negotiations and the documents they produced are considered a model of international environmental diplomacy, and they were fresh on the mind of early climate negotiators. Scholars—foremost among them Richard Benedick, who at the time of Montreal was the chief U.S. ozone negotiator and had a panoramic insider's view—have published books and articles assessing the factors that led to success in Vienna and Montreal, and suggesting how these might apply in the climate context.[14]

In addition to serving as a model of best practices in environmental diplomacy, the ozone negotiations set some precedents that may guide our thinking about what is desirable and achievable in the climate context. For example, the Vienna Convention and Montreal

[13] There are significant differences too, of course. One is the absence of "flexible mechanisms" for international trading of production and consumption allowances under Montreal. Flexible mechanisms produce economic efficiency, ensuring that the lowest-cost reductions are made first. With the relatively short timeframe for complete phase-out of CFCs under Montreal (as amended), it mattered relatively little whether low-cost or higher-cost reductions were made first. There were some, e.g., in Europe and Japan, who wanted to adopt this strict and simple approach under Kyoto as well, and indeed this is how Kyoto was initially written. But since the aim of Kyoto is to reduce rather than eliminate emissions, the gains in efficiency produced by flexible mechanisms are enormous, theoretically reducing the overall cost of compliance by as much as 50% according to Olmstead and Stavins (2007, op. cit., p. 4).

[14] Richard Benedick, *Ozone Diplomacy*, Harvard University Press, 1991; Benedick, "The diplomacy of climate change: Lessons from the Montreal Ozone Protocol," *Energy Policy* (March 1991); Benedick, "Avoiding Gridlock on Climate Change," *Issues In Science and Technology* (Winter 2007); Scott Barrett, "Montreal versus Kyoto: International Cooperation and the Global Environment," in I. Kaul, I. Grunberg and M. Stern, ed., *Global Public Goods: International Cooperation in the 21st Century* (Oxford University Press, 1999); Cass Sunstein, "Of Montreal and Kyoto: A Tale of Two Protocols," *Harvard Environmental Law Review* 31 (2007); Daniel Esty, "Beyond Kyoto: learning from the Montreal Protocol," in Aldy and Stavins, 2007, op. cit.

Protocol were negotiated as precautionary measures at a time when ozone science was evolving rapidly, far less settled than climate science is today.[15] And perfectionists who wish for simplicity or elegance or perfect equity and efficiency in a climate treaty will find in Montreal a salutary example of a treaty that *works*—not because it represents a Platonic ideal of elegance or efficiency (it surely does not), but because in the heat of negotiation a compromise was forged, warts and all, that was both environmentally effective and minimally satisfactory to all parties.

In the remainder of this essay, we will have occasion to make additional comparisons with the ozone and greenhouse gas diplomacy efforts.

Stumbling blocks in climate negotiations

We now turn to an analysis of the real weaknesses and problems of the current international climate regime, and examine prospects for ameliorating them. These weaknesses and problems can be placed in three main classes: those concerned with the *effectiveness* of the tools used by and available under the regime, those concerned with *procedure* under the regime, and those concerned with *participation* of nations in the regime. These three sets of problems are intertwined; we will treat them in the order in which they are listed above.

Effectiveness

Much of the debate and academic literature that has grown up around the Kyoto Protocol in the last decade or so has been preoccupied with the mechanisms that should be used to reduce emissions, and whether they will be adequate to the task. To an extent this debate has informed the shape of the treaty (e.g., the incorporation of "flexible mechanisms," described above). But for the most part (in accordance with the principle of subsidiarity, described above), Kyoto does not prescribe particular policies.

There are many policy tools available. The two approaches that are most frequently discussed are *tradable permits* (sometimes called "cap-and-trade" or "carbon markets") and a *carbon tax*. In addition to being economically efficient (encouraging lowest-cost emissions reductions to be made first), these two policy tools have the special feature that they can be calibrated to achieve specific emission-reduction targets. Below we discuss the feasibility and relative merits of carbon trading and carbon taxes, then the importance of considering a wide spectrum of other policy options as well. We close with discussion of implementation.

Permits and taxes

[15] Benedick 2007, op. cit., p. 38

The idea behind a market for tradable permits and a carbon tax is that they send a consistent price signal to the regulated community, inducing individual firms to make cost-effective investments in emissions-reducing technologies or practices rather than buying extra permits or paying extra taxes. In each case, it is a relatively simple matter to relax or (more likely) tighten restrictions over time: the number of available permits could be enlarged or reduced, and the tax rate could be adjusted downward or upward. Each policy option has known advantages and disadvantages:

Ease of implementation. A permit regime is far more challenging to implement than a tax. Taxation is an everyday function of government, while a market for permits requires technology, administrative capacity, and auditing capacity that may be challenging to assemble. Furthermore, there are technical considerations in setting up a carbon market that are particularly thorny. For instance, decisions must be made about the initial assignment of permits. Those decisions can have huge implications, both in terms of fairness and in terms of efficiency (consider the assignment of "hot air" credits to Russia and Eastern European nations, effectively subsidizing those ailing national economies without providing a spur to carbon-efficiency). Furthermore, permit market administrators must gauge the right quantity of permits to allow in circulation: too many and the market goes slack (as the price of a permit falls, so does the incentive to reduce emissions), too few and the market freezes up (permits are expensive and hard to obtain, and the cost of compliance with program requirements becomes ruinous for participants).[16]

Revenue generation. Both regimes would carry administrative costs; the costs of the tradable permit regime would be considerably higher. Even more significantly, a carbon tax would *generate public revenue* that could then be spent on related priorities.

Acceptance. A final factor is political acceptability. A tax, whatever relative advantages it may offer vis-à-vis tradable permits, is likely to be a harder sell with the public in most democratic nations.

Implementation at the international level (among nations)

Kyoto's IET program is an example of emissions trading among nations. Problems with this regime, as noted above, include leakage and questionable initial allocations.

There have been calls for an international carbon tax, possibly as part of a future protocol. In actuality this would not be a single international tax (no such authority or collection mechanism exists), but a system of harmonized national carbon taxes. Such a regime would eliminate problems of leakage and initial allocation, and would generate income that could be earmarked for climate mitigation and/or climate adaptation.

[16] It is possible to protect against this last hazard by allowing firms to purchase credits directly from the government when the price hits a predetermined ceiling. Since this sort of "safety valve" raises public revenue like a tax, a carbon market with a safety valve it is sometime considered a hybrid, "trade-and-tax" scheme. Over time, as stronger price signals are desired and businesses have had time to adapt, the ceiling price can be raised or eliminated entirely.

However, as a practical matter the idea of a harmonized carbon tax is a political non-starter. As Richard N. Cooper, an advocate of harmonized carbon taxes, has himself observed, taxation is a sovereign prerogative; national legislatures are unlikely to let an international agreement dictate tax policy.[17]

Implementation at the national or sub-national level (among firms)

As noted above, it is a principle of climate diplomacy that each sovereign nation may choose how to achieve its targets. So the result of international target-setting has been, and is likely to continue to be, a patchwork of national policies that include tradable permits and carbon taxes.

Several proposals for carbon taxes have foundered on political opposition (e.g., in New Zealand, Japan, Canada, the U.S.). Those that have been implemented (e.g., in Costa Rica, India, and several European nations, as well as sub-national Canadian and U.S. jurisdictions) are generally considered successes.

The most ambitious carbon emission permit trading scheme to date is the European Emissions Trading Scheme (ETS), which takes advantage of the efficiencies gained by merging multiple national markets into a single market. ETS was established around the same time that Kyoto went into effect, covering industries that represented around 40% of carbon dioxide emissions from the 15 participating nations. While ETS has had its setbacks (including a too-slack market during the first trading period of 2005-2007), it is continually improving and generally considered a success story. Today it encompasses 30 nations and has been expanded to include the aviation sector, and there are plans to broaden it further.

To sum up: Both permit trading and carbon taxes, the key policy options for achieving emission-reduction targets, can be made to work. Markets for trading emissions credits have been established both among nations (under Kyoto) and among firms, including cross-border trading among firms under ETS. Carbon taxes, which offer some distinct benefits, have been implemented successfully at the national and sub-national level. In future years, we can expect that these key tools will be used with increased effectiveness.

Beyond permits and taxes: other policy instruments

Carbon markets and carbon taxes can and should be supplemented by a wide range of other policy instruments. Options available include subsidies and assorted tax incentives, traditional command-and-control regulation of targeted industries, and changes to procurement rules, as well as “soft,” non-regulatory approaches like public/private partnerships, technical assistance, and grants to civil society. Moving to a low- or zero-carbon economy will involve changes in the way agriculture is practiced, changes in transportation infrastructure, changes in the way buildings and communities are designed.

[17] Cooper, 2001, op. cit., p. 20ff

Much activity is already underway, but we have barely scratched the surface of what is possible. Business, civil society, and almost every department of government will need to be engaged; local and regional governments have important roles as well.

Public investment in research and development is particularly important. Economic analysis and practical experience suggest that price signals from carbon markets and carbon taxes will be insufficient to generate technological innovation from the private sector on the necessary scale.[18] "Given the stakes," Benedick argues, "energy research arguably merits a degree of public sector commitment comparable to that devoted not long ago to aerospace and telecommunications."[19] Presumably it will also stimulate comparable levels of private-sector activity and wealth-creation.

Implementation

Often, in discussions of climate policy, too little attention is paid to the ability of governments and international regimes to effectively carry out the policies they enact.[20] Especially in poorer countries, civil servants may lack adequate training and tools. In every country, both firms and government agencies will be subject to temptation to find and exploit loopholes in the climate regime and otherwise "game" the system.

Some of this can be helped: capacity development efforts, including training and technology transfer, can be undertaken. Further, policy recommendations can and should take into account the possibility of gaming; robust monitoring and verification should be standard. It is also important to recognize local customs and norms, especially in developing countries, and adapt policy recommendations to fit those customs and norms.[21]

Procedural issues

Earlier we discussed the strengths of the UNFCCC process. The process has some well-known weaknesses as well.

Consensus and obstruction

One weakness is the employment of standard UN consensus rules, which in essence give any nation the power to veto cooperative action on the part of other nations. Political scientist Peter M. Haas blames this partly on the "reflexive application of UN procedural norms" by diplomats accustomed to them. But he also credits the "strategic efforts" of

[18] Pizer in Aldy and Stavins, 2007, op. cit., p. 292.
[19] Benedick, 2007, op. cit., p. 38.
[20] For a useful antidote, see Heller in Zedillo 2008, op. cit., pp. 130ff.
[21] Ruth Greenspan Bell, "What to do about climate change," *Foreign Affairs* 85 no. 3 (May-June 2006).

some nations "to prevent binding commitments." It appears that "the weak institutionalization on this issue is deliberate."[22]

Other ways are possible, or might have been possible. The ozone negotiations provide a telling contrast. One important difference is that there were fewer active participants in the early stages—this will be discussed below. Another was that discussions took place under the auspices of the United Nations Environmental Programme (UNEP). UNEP did not merely provide meeting space, it actively shepherded the discussions along. Benedick refers to the "catalytic and mediating functions" of the institution, and indicates that UNEP Executive Director Mustafa Tolba in particular played a very important personal role behind the scenes in brokering the eventual consensus.[23]

Before the UNFCCC was established, UNEP was seen as having a possible role in the climate negotiations. Haas reports that the U.S. and other nations deliberately sidelined UNEP, knowing that it would favor aggressive targets.[24]

Could the current lethargic forum or rules of procedure be abandoned or revised? Haas wrote optimistically in 2008 that "moving outside the UN is still an option," and that UN procedures could still be "replaced with other procedural and substantive norms, such as coordinating UN negotiations with discussions elsewhere, or going beyond consensus voting rules."[25] This is perhaps too optimistic. There is no real prospect of abandoning the current basic framework for discussion today, any more than there was in 2008. But Haas's suggestion of coordinating the UN negotiations with additional discussions has merit. It is possible for the plenary discussions to be supplemented by additional official and unofficial discussions.

"Thicker" discussions

There is every reason to expect that what we might call "thicker" discussions—multi-track discussions on a range of topics, working in smaller groups within and outside the UNFCCC framework, engaging stakeholders who are currently not represented in the negotiations—would yield improved results. To be sure, the current climate diplomacy process involves committee work. But a much more ambitious vision is possible. Benedick writes:

> An architecture of parallel regimes, involving varying combinations of national and local governments, industry, and civil society on different themes, could reinvigorate the climate negotiations . . . . By focusing on specific sectors and policy measures in smaller, less formal settings with varying combinations of actors and by not operating under UN consensus rules, the possibilities for

[22] Peter M. Haas, "Climate Change Governance after Bali," *Global Environmental Politics* 8 no. 3 (August 2008), pp. 4-5.
[23] Benedick, *Ozone Diplomacy*, 1991, p. 95.
[24] Haas, 2008, op. cit., p. 5.
[25] Haas, 2008, op. cit., pp. 4-6.

> achieving forward motion would be increased. The process and results could be termed protocols or forums or agreements, but their essential character would more closely resemble a pragmatic working group than a formal diplomatic negotiation. . . . Providing reports on these activities to the wider audience of the annual Conference of Parties to the Framework Convention could stimulate other countries to join one or another regime of interest and could gradually transform the Convention into a forum for dissemination of new ideas and practical results, rather than instrument for illusory consensus, rhetoric, and delay.[26]

The participation of civil society and business leaders in global discussions on climate mitigation would open up new realms of possibility. "Is it not conceivable," Benedick writes, "that the 15 or 20 automakers of the world, together with the ministers of industry of their respective nations, could convene in a medium-sized conference hall and hammer out a schedule for introducing low-carbon and then no-carbon vehicles? The topics could range from new fuels and engines to strong but lightweight structural materials. No auto manufacturer could complain of being at a disadvantage, for they would all operate under the same constraints."[27] He recalls that this is essentially what happened among chemical manufacturers at the time of the ozone negotiations: they pooled their knowledge and experience to help hammer out a realistic but ambitious timetable for the elimination of CFCs and the development of alternative technologies.

As newsworthy as the participation of auto manufacturers in climate negotiations would be, participation by "ministers of industry" would be equally revolutionary. As surprising as it may seem, given the scope of the climate problem and the range of activities that mitigation would require (see the discussion of "other policy instruments," above), government agencies responsible for industry, commerce, energy, agriculture, transportation, and urban planning have been almost entirely absent from the UNFCCC climate negotiations. This fact goes a long way toward explaining lackluster performance under Kyoto. The environmental agencies represented at UNFCCC just don't have much clout at home. There have been calls to break the impasse by further empowering environmental ministries.[28] A more credible solution, though, would be to "get the right actors to the table."[29]

This vision of "thicker" negotiations, both within and outside of the UNFCCC process, is compelling. But would it be politically feasible?

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[26] Benedick, 2007, op. cit., pp. 38-40.
[27] Benedick, 2007, op. cit., pp. 39.
[28] E.g., Bell, 2006, op. cit.
[29] Heller in Zedillo 2008, op. cit., 140. Two illustrative examples: Bringing finance ministers to the table could bring extraordinary results. "Changes in macroeconomic practices, financial liberalization, security arrangements, international trade reform, or other indirect influences on important climate input markets could have a far greater impact on climate-relevant choices than more direct and obvious policy measures" (Heller in Zedillo 2008, op. cit., p. 141). Government procurement policy is another area where a lot of good could be done. A simple conference of government bureaucrats to share ideas and best practices could revolutionize procurement practices in participating nations, with immediate effects. Again, Benedick is able to point to precedents in ozone history, where "the U.S. Department of Defense played an unexpectedly critical role in accelerating the phase-out of CFC 113 by revising its procurement standard" (Benedick, 2007, op. cit., p. 40).

There is doubt in some quarters. Climate consultants Nigel Purvis and Andrew Stevenson argue on the one hand that key nations like the U.S. and China prefer a forum that promotes obstruction (and presumably would be reluctant to give it up), and on the other hand that switching to a different forum would make little difference anyway, since the underlying problem is the attitude of the participants.[30] The bloc of large developing countries known as BASIC (Brazil, South Africa, India, and China) have affirmed that "the only legitimate forum for negotiation of climate change is the UNFCCC," and that breakout groups must not be allowed unless they meet stringent criteria.[31]

Such rhetoric appears to be overblown, however, and pessimism about the possibility of "thicker" discussions appears to be mostly unfounded. Both China and the U.S. were founding members of the Asia-Pacific Partnership on Climate and Clean Development, established in 2005 to promote cooperative climate-friendly R&D and technology transfer among major nations of the Pacific Rim and South Asia. And even as the BASIC nations claim UNFCCC is the only legitimate forum for climate discussions, they happily collaborate with each other on "the creation of an on-going [BASIC] forum, including work on adaptation and mitigation action plans,"[32] and they participate in climate policy discussions with other key players in extracurricular settings like the 2009-2010 Major Economies Forum.[33]

Several analysts argue that the most effective way to engage developing nations, or at least the key players among the developing nations (see the discussion of "minilateral diplomacy" below) is to work directly with each of them on tailored packages of aid and investment and technology transfer.[34] This is particularly important, as the greatest opportunities for low-cost mitigation are in the developing world,[35] and CDM projects have barely scratched the surface of those opportunities.[36]

It appears that in the high-stakes game of targets and time-tables, there is no escaping the cumbersome UN rules. But in the multitude of cooperative actions that are needed to meet those targets and timetables, a thousand flowers may yet bloom outside the UN process. It should be remembered that the failure of Kyoto was not primarily a failure to set goals, but a failure to meet them. The emergence of thicker discussions and the prospect of engaging an even wider range of actors provides reason for optimism that future goals, as ambitious as those under the first commitment period of Kyoto, may yet be met with effective action.

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[30] N. Purvis and A. Stevenson, "Rethinking Climate Diplomacy," Brussels Forum Paper Series (March 2010), pp. 11-13.
[31] "BASIC group wants global deal on climate change by 2011," *The Hindu* (April 26, 2010).
[32] "BASIC group . . . ," *The Hindu*, op. cit.
[33] For additional examples, see Sjur Kasa, Anne T. Gullberg, Gørild Heggelund, "The Group of 77 in the international climate negotiations: recent developments and future directions," *International Environmental Agreements* 8 (2008) pp. 113–127, at pp. 120-122.
[34] Heller in Zedillo 2008, op. cit., pp. 130ff; Purvis and Stevenson, 2010, op. cit., p. 29.
[35] Olmstead and Stavins, 2007, op. cit., p. 1.
[36] Pizer in Aldy and Stavins, op. cit., pp. 305-06.

Participation

Finally, we turn to the question of participation: in particular, participation in a protocol that establishes targets and timetables. Kyoto was greatly handicapped by the failure of the United States to ratify. It was weakened as well (in terms of anticipated environmental outcomes, leakage, and morale) by the lack of any requirement for developing nations to establish targets and timetables.

"Minilateral" diplomacy

Does participation need to be universal? Ultimately, universal participation is an ideal worth striving for, but as a practical matter what is most important—again, in terms of expected outcomes, avoidance of leakage, and morale—is participation by the largest emitters. In fact, given the dysfunctions of the plenary UN process discussed above, the most effective route might be for the large emitters to work out a scheme among themselves first, and then invite other nations to join. This essentially what happened in the ozone negotiations.[37] Legal expert Thomas Heller has coined the term "minilateral" to describe this kind of diplomacy.[38]

Which nations, then, are the critical actors for climate mitigation? Heller suggests a group consisting of the U.S., the EU, China, Russia, Japan and India, which together were responsible for 65 percent of global greenhouse gas emissions in 2008. Haas suggests that the OECD nations plus India and China would be a good core group. Benedick calculates that "25 nations, about half of them in the "developing" category, are responsible for about 85% of the world's greenhouse gas emissions. None of the other 160-plus countries accounts for even 1%."[39]

If any "minilateral" climate diplomacy is to take place today, it will have to be outside the official UNFCCC process. This was attempted before Copenhagen in 2009, with the establishment of the MEF. Seventeen "major economies" participated, including the BASIC countries and Indonesia. This did not result in a breakthrough at Copenhagen, but it could be tried again. The BASIC countries, as leaders and spokespersons for the bloc of developing nations known as G77, officially say that no negotiations should take place outside the UNFCCC process where the full G77 is represented, but (as noted above) they participate eagerly in bilateral and regional talks, so further "minilateral" discussions are not out of the question.

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[37] Benedick, 2007, op. cit., p. 38. Montreal, he writes, was "negotiated by only about 30 nations in nine months . . . I doubt whether the ozone treaty could have been achieved under the currently fashionable global format."

[38] Heller in Zedillo 2008, op. cit.

[39] Heller in Zedillo 2008, op. cit., p. 131; Haas, 2008, op. cit., pp. 4-5; Benedick 2007, op. cit., p. 37. Earlier, Benedick (1991, "The diplomacy of climate change," op. cit., p. 96) proposed that "the countries of North America, USSR, EC and Japan" could get things started, and then be joined by China, Brazil, India, and Indonesia.

In any case, whether a deal is worked out in the plenary discussions or in "minilateral" discussions, participation by major emitters is essential to success. Below we discuss the prospects of future participation by the United States and China, arguably the two "keystone" nations. The U.S. and China are not only the world's largest emitters of greenhouse gases, they have also been perceived as among the most obstructionist in negotiations to date. In addition, it has been argued, China and U.S. are thought to be among the major nations with least to lose from climate change, so they may have less of an incentive than others to work for a viable international regime.[40] If these two nations were to agree to set targets and timetables, there is every reason to be optimistic that others would follow.

United States

There is plenty of goodwill toward action on climate change in the U.S. What is missing is leadership at the national level. Conventional wisdom is that Democratic administrations are more likely to provide this than Republican. Certainly there is a climate-leadership vacuum among possible Republican presidential candidates at the time of writing in early 2012; these individuals hold positions ranging from opposition to Kyoto to avowal that global warming is a hoax. On the other hand, the Democratic administration of President Obama has not provided the strong leadership that many climate activists had anticipated.

The truth is that the obstacles to U.S. participation are not only or primarily partisan. At the outset, opposition to joining Kyoto was bipartisan; a resolution to that effect in the Senate passed unanimously, 95-0. What then are the obstacles to U.S. participation?

In the simplest terms, the U.S. has been unwilling to participate on terms that would be economically disadvantageous. At the time of the Kyoto meeting, this meant two things, primarily: First, the U.S. wanted market mechanisms that would enable it to meet its target by investing in inexpensive emissions reductions abroad (e.g., in Russia's "hot air" and in developing countries) rather than imposing onerous costs on businesses at home. Second, and more importantly, the U.S. wanted what it considered a level playing field. The Senate explicitly opposed binding the nation to targets and timetables if developing countries were not similarly bound.

Could U.S. reservations be overcome? Since the initial negotiations in Kyoto, flexible mechanisms have been incorporated into the treaty. As for a level playing field, this is still a sticking point. But at Durban, an agreement in principle was reached that the successor protocol to Kyoto will include mitigation commitments from developing countries.[41] There was also a sense at Durban that participation by the largest and

[40] Sunstein, 2007, op. cit., p. 48.

[41] There has been discussion of how this should be managed; some analysts have proposed that targets be conditional and graded, phased in as countries achieve certain development thresholds, such as per capita income thresholds (e.g., Robert Stavins, "An international policy architecture for the post-Kyoto era," in Zedillo 2008, op. cit., p. 147).

wealthiest of the developing nations, or even participation by China in particular--rather than universal participation--would be sufficient to ensure U.S. participation.

If those primary objections are overcome, there are plenty of reasons why U.S. participation in a climate treaty could come to be seen as advantageous and even enjoy bipartisan support. The U.S. would be in a position to take up its accustomed leadership role in the international community, and to profit from its accustomed leadership in technological innovation. Liberals may continue to view climate mitigation as a moral issue, and conservatives may increasingly come to view it (as the Department of Defense already does[42]) as a security issue. With the principle of subsidiarity intact, obligations under a climate treaty would be far less intrusive than, say, obligations as a member of the World Trade Organization.

China

Policy-making is far less transparent in authoritarian China than in the world's democracies. Nevertheless, some reliable inferences can be made about what principles currently guide Chinese climate policy, and what could change that policy in the future.

Two primary concerns appear to have shaped China's climate policy in recent years. The first is an intense preoccupation with increasing economic growth and employment, to absorb the surplus population that is continually migrating to the urban centers. In a sense this economic priority is ultimately a security priority: if the government fails to provide adequate employment in a society with no social safety net to speak of, it could find a revolution on its hands. The result of this principle is that China has steadfastly refused to accept any climate mitigation obligation that could impede domestic economic growth.

The second apparent principle behind China's climate policy is a desire to assume a more significant international leadership role. Whereas most nations send environmental ministers to climate negotiations, China's climate negotiations are conducted by its foreign ministry.[43] China exercises *de facto* leadership among the G77, and has positioned itself as a spokesperson for that bloc in the larger negotiations.

Given this starting point, there is reason to be optimistic that over time, China will come around to the view that taking on meaningful mitigation targets is in its interest. (Indeed, the experience at Durban indicates that this shift is underway.)

In the first place, having enjoyed tremendous economic growth in recent years and having surpassed the United States as the leading emitter of greenhouse gases, China can hardly retain its credibility among the G77 nations (which include small island nations and others most vulnerable to climate change) unless it supplements tough words against the wealthier nations with mitigation commitments of its own.[44]

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[42] E.g., U.S. Department of Defense, *Quadrennial Defense Review Report* (February 2010).
[43] Kasa, 2008, op. cit., p. 120.
[44] China has taken some significant steps in domestic policy, but remains leery of committing to targets. See Purvis and Stevenson, 2010, op. cit., p. 11.

In the second place, the Chinese leadership is getting a clearer picture of the potential downsides of climate change. As noted above, projections from around 2000 suggested that China—like the United States—did not stand to lose as much from climate change as most other major countries;[45] prospects of improved agricultural production may even have led some in China to perceive net benefits from climate change.[46] But more recent reports, including reports produced internally by Chinese scientists, are not so sanguine. These suggest significant risks of drought and desertification in the interior North, river flooding in the South, and sea level rise. The fact that domestic scientists are sounding the warning bells is significant: It is increasingly less possible for Chinese authorities to dismiss climate change as a mere foreign distraction.[47]

Drought and flooding are bad enough in themselves, but they also could be potentially destabilizing forces. In the calculus of economic growth and national security, Chinese leaders may decide that the risks associated with global inaction may outweigh the costs of action.[48]

Veteran China-watcher Martin Sieff reminds us that the nation is extremely volatile.[49] Throughout its modern history, China has been subject to swift and dramatic changes in foreign and domestic policy, often to the surprise and bewilderment of outsiders. If the Chinese leadership were to make climate mitigation a top priority, the result would undoubtedly be dramatic. The world's largest national bureaucracy would be mobilized to reduce emissions at home, and the tone of international negotiations would be altogether changed.

Diplomatic windows of opportunity

The above analysis suggests that meaningful, coordinated international action on climate mitigation is possible, and offers some specific reasons to expect that the chances of meaningful action will improve. But it provides no assurance.

Here, a final lesson from the ozone negotiations is apropos.

Diplomacy, like politics, is the art of the possible. In hindsight, the Montreal Protocol appears to have a masterstroke of diplomacy. And in many ways it was: key players at UNEP and in national diplomatic missions aimed high, worked hard, and made good strategic and tactical decisions. But they also were incredibly lucky. The U.S. business community was uncharacteristically supportive. Cutting-edge scientific advances arrived just in time to deliver answers to critical technical questions. An attempt by the anti-

[45] As described by Sunstein, 2007, op. cit., p. 48.
[46] Wiener, 2008, op. cit., pp. 1810, 1816.
[47] See Myanna Lahsen, "Trust through participation? Problems of knowledge in climate decision making," in Mary E. Pettenger, ed., *The Social Construction of Climate Change* (Ashgate, 2007).
[48] Other factors that may enter into the calculus include the public health co-benefits of action (e.g., in urban air quality) and the possible problem of climate refugees (Wiener, 2008, op. cit., p. 1822), plus the effect of climate change on Chinese investments around the globe, including in vulnerable African nations.
[49] Martin Sieff, *Shifting Superpowers* (Cato Institute, 2010).

regulatory faction within the Reagan administration to withdraw U.S. support for the emerging consensus at the Vienna negotiations narrowly failed. Within the bitterly divided European Community, rotating leadership passed to sympathetic nations just months before the Montreal negotiations began. Between Vienna and Montreal, initial reports of the giant seasonal ozone hole over Antarctica began to hit the newsstands, creating a groundswell of public interest and support. [50]

In other words, there are windows of diplomatic opportunity. In the ozone negotiations, those windows opened up in quick, serendipitous succession, enabling an international agreement that many had believed was impossible on its face[51] to be negotiated and put into effect with astonishing speed.

Climate is a more complex and challenging issue than ozone in many respects. Carefully weighed arguments about the efficacy of policy instruments and the attitudes of key nations, such as I have tried to offer above, may suggest possibilities and probabilities of action on climate mitigation, but ultimately what action is taken will depend on the alignment of multiple windows of opportunity. In almost 20 years of climate diplomacy under the UNFCCC, many important steps forward have been taken, but a breakthrough to strong, coordinated action that will be environmentally effective has remained elusive. The last few years of negotiation have been largely devoid of progress. This may continue for many more years—or, if internal developments in key nations like China and the U.S. alter the terms of debate, it could change overnight.

The plenary discussions under UNFCCC, though procedurally flawed, will remain for better or worse the one and only forum for making commitments to targets and timetables. But while progress on national commitments in the UNFCCC forum is stalled, there are many other opportunities for climate diplomacy on other fronts, in other fora—including the nuts and bolts of effective actions that national and local governments, regional coalitions, specific industries, and civil society can undertake. "Thicker" discussions and coordinated actions outside UNFCCC are already underway, and prospects for expanding them are good.[52] It is likely that the sum of these actions taken on the periphery—the development of needed technologies, the demonstration of dramatic emissions reductions by pioneering cities and countries, the increasing sensitivity of major global corporations to climate in their operations and their public image—will open up new windows of opportunity at the center, creating conditions under which nations find it advantageous to participate, and find it possible to make and keep ambitious commitments.

[50] Benedick, 1991, *Ozone Diplomacy*, op. cit., pp. 30ff, 77-79, 46, 36, 19-20.
[51] Benedick, 1991, *Ozone Diplomacy*, op. cit., p. 94.
[52] See, e.g., Haas 2008, op. cit.; Dimitrov 2010, op. cit.