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The Evolution of a Global Climate Change Agreement

By WILLIAM A. PIZER*

There is a tendency in economics to focus on the big picture and key messages. In the arena of climate change, these might be: A global externality requires global cooperation, international emissions trading lowers costs for all nations, and emission pricing is the key to the development of new climate-friendly technologies. Such thinking clearly shaped the design of the Kyoto Protocol, a climate change treaty negotiated by more than 140 nations that establishes a global emissions trading system for greenhouse gases. And even among those who might quibble with the particular targets, timetables, or mechanisms, many would embrace the overall architecture of global cooperation and international emissions trading.

Yet despite reports of success following the most recent Montreal negotiations on the Kyoto Protocol and U.N. Framework Convention on Climate Change (UNFCCC), there are some clear indications that this architecture is not working so well. Most obviously, the United States is out of the system, and developing countries have successfully avoided any discussion of future commitments under the Protocol. Below the surface, there is the reality that most Kyoto participants are well above their targets, with the exception of transition countries such as Russia and Poland, and countries that underwent unrelated structural changes such as the United Kingdom and Germany. While government action to purchase allowances from Russia or project-based credits from developing countries may succeed in achieving overall compliance, such a result seems to hinge more on domestic political agendas and less on incentives created by the Protocol. Finally, among countries that have implemented or are on the way to implementing mandatory programs, only the European Union (EU) Emissions Trading Scheme (ETS) is designed to parallel Kyoto's

cap-and-trade architecture. The Canadian Large Final Emitter Program is a tradable performance standard with a fifteen Canadian dollar (C\$15) safety valve. New Zealand announced, but recently renounced, a fifteen New Zealand dollar (NZ\$15) carbon tax. Other countries are pursuing a combination of standards, voluntary programs, and technology incentives.

While these wide-ranging domestic programs march along, there has been considerable financial interest in project-based crediting in developing countries. Natsource, a brokerage firm, recently capitalized more than \$500 million in private funds to purchase credits and is rumored to be well on its way to another \$250 million. The World Bank is now managing nearly \$1 billion in various project funds. A similar fund in Japan recently collected \$150 million in private funds. On the supply side, the Clean Development Mechanism (CDM) Executive Board had approved roughly 50 projects by the end of 2005, totaling slightly more than 100 million tons over the 2008–2012 period.

Based on this experience, there seem to be three lessons for the design of a global agreement. First, the Protocol's targets-and-timetables approach seems both ill-suited for the current suite of domestic policies and increasingly unmanageable in negotiations; a more flexible architecture is needed that can accommodate price, quantity, and sectoral and technology policies. Second, there is an unusual alliance of support for project-based crediting in developing countries. Environmental advocates see this as maintaining environmental integrity in a cap-and-trade program, businesses see this as a cheaper alternative to domestic compliance, brokers and dealmakers see profit opportunities, developing countries see foreign aid, and industrialized country governments see opportunities to complement (substitute?) domestic mitigation. Given the inevitable need to channel mitigation resources from industrialized to developing countries, and the reluctance of developing countries to embrace other domestic policies to

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price carbon dioxide (CO₂) emissions, more thought should be given to how these mechanisms can be expanded and improved. The recent Montreal negotiations, for example, pushed the idea of providing credits for sector-level policies to reduce emissions, not just individual facility-level projects. Finally, given the need to embrace a wider range of domestic policy responses, including investments in both technology and developing country activities, a global agreement needs to contemplate how such actions will be measured and valued.

The purpose of this paper is to take these three practical lessons and argue that a more subtle application of economic thinking supports the same lessons. First, the absence of institutions, experience, and trust makes it difficult, if not impossible, to jump to an efficient cooperative solution; instead, there needs to be an evolution from domestic initiatives—in whatever form domestic interests support—toward international cooperation. At the same time, the efficiency gains from grand efforts to harmonize marginal costs across countries may be relatively small if, by default, marginal costs are already similar and modest. Second, the key direction of CO₂ emissions trading will be with developing countries because of their cheap mitigation opportunities. It is the institutions surrounding this trade that need to be prioritized (versus capacity to trade among industrialized countries). Finally, as countries seek to ratchet up their own and their allies' divergent policy approaches, a key ingredient is quantifiable information about what each nation is doing, and the success or failure of those actions.

I. The Need for Domestic Policy Development

Through repeated interactions, international agreements can nudge domestic actions but have trouble dramatically influencing them. In the case of climate change, most countries will miss their Kyoto targets without substantial inflows of allowances or credits; all but the EU ETS have avoided Kyoto's cap-like architecture; and none of the noted domestic market-based schemes allows individual (versus government) trading or use of Assigned Amount Units

(AAUs), the currency of the Kyoto Protocol.¹ That is, even if *governments* choose to meet their Kyoto commitments through international trades of AAUs, with a corresponding international price, this will not necessarily be reflected in the domestic price facing *firms* complying with the policies described above. The underlying economic rationale for the Kyoto architecture, equalization of marginal costs, is thereby thwarted. Apparently, a nation's compliance with international agreements is tied more to its domestic politics than to the agreement's intended incentives (making it different from the familiar case of a firm complying with a domestic policy). Despite this observed disconnect between domestic actions and Kyoto commitments and architecture, however, the *impetus* for domestic policies seems unquestionably tied to the Protocol.

This experience matches that of other global efforts—on ozone-depleting substances, trade, human rights, etc.—where there has been a much clearer set of domestic responses before significant global institutions have been built around these responses. In these examples, international agreement moved alongside, if not behind, domestic policy developments without constraining them. Applied to climate change, this might look like the “bottom-up” or “pledge-and-review” approach discussed by Daniel Bodansky et al. (2004), rather than the current Kyoto Protocol. That is, the first step is for countries to pursue domestic climate policies consistent with domestic pressures, reinforced by an international agreement that prods without constraining.

As countries develop market-based domestic policies, a more controversial question is whether these countries really want international emissions trading. Standard economics says yes—everyone gains from trade. But this aggregate gain ignores other issues, distributional concerns, and the underlying technological problem. The United States, for example, is increasingly sensitive about shifting from coal

¹ The EU and Canada admit project-based CDM credits from developing countries. The Canadian system will also allow “greened” AAUs, but the meaning of that is unclear, and the EU system will allow trading with other mandatory *domestic* programs in countries that have ratified the Kyoto Protocol.

to natural gas and may not want to trade if it means exacerbating that shift. And, even if the country as a whole benefits financially from international emissions trading, key stakeholders or regions may not.

The potential importance of the trade gains is also diminished by the fact that the underlying near-term policy goal is to spur technological change, not achieve significant reductions (John P. Weyant, 2004). While fully pricing the emissions externality would create the right incentives for this technological change, it is not the only approach (and may not be a politically practical one). Countries could choose lower emission prices and larger technology incentives (Carolyn Fischer and Richard Newell, 2005). Seeking to equalize marginal costs across countries might thwart domestic efforts to find the appropriate domestic balance between these elements.

Some economists have also pointed to concerns over trade flows as a potential negative side effect of international emissions trading (Warwick J. McKibbin et al., 1999). Even to noneconomists, there may be some concern if there are large net trade flows among industrialized countries, perhaps because such flows suggest the initial allocation was unfair. Finally, and perhaps most practically, the need for international trade is diminished if prices are already similar and modest across countries, or if the various domestic programs are linked indirectly through common use of project-based crediting. For example, the noted domestic policies all exhibit prices that are more modest and similar than early analyses of autarkic Kyoto Protocol implementation, such as Weyant and Jennifer Hill (1999), in part because current policies are not expected to achieve the autarkic targets. They are also all seeking to link, in one form or another, to the project-based credit market.

None of this is to say that a global market-based approach should not be the end goal, but rather to recognize that there are good reasons why countries may need to evolve, rather than jump, toward that goal. These reasons start with the simple notion that countries should figure out the policies that meet their internal constraints before they begin ratcheting up those policies in a cooperative framework. And, as countries begin establishing domestic policies,

they may prefer idiosyncratic price levels to global efficiency, as a means to preserve domestic tranquility, to properly incentivize technology in conjunction with other policies, and to avoid large trade flows. This is particularly true when prices are already similar and modest.

II. Credits In Developing Countries

Even as countries have been reluctant to embrace unfettered (as well as fettered) international emissions trading, they have moved ahead much more rapidly with the idea of buying credits for projects in developing countries. Private and public funds have come up with billions of dollars to finance such projects. In some ways, this is analogous to how domestic trading started in the United States—first embracing offsets under the 1977 Clean Air Act Amendments, before full-fledged trading began under the 1990 amendments. It is also far more important. The very cheapest emission reductions exist in developing countries (Weyant and Hill, 1999) and these reductions will likely not occur through domestic action because developing countries are deservedly focused on development over climate change.

Economists have tended to argue in favor of using generous caps or even nonbinding targets to bring in developing countries (David Bradford, 2002; Cedric Philibert, 2005). Yet the sense of many developing countries, emphasized by their position in the most recent Montreal meetings, is that any notion of an emissions cap could eventually be used to limit their development and growth (Ray Kopp, 2005). Such concerns exist, in addition to those over the institutional capacity for monitoring and enforcement in developing countries. This means that some form of project-based—or perhaps policy-based—crediting is likely to be the only vehicle for broadly incentivizing inexpensive opportunities in developing countries for some time.²

The major handicap for project-based crediting is the question of baselines—what would have happened absent the crediting scheme and,

² One possible alternative is government-to-government cooperation, such as the U.S.–Asia-Pacific Partnership, though the capacity of such agreements is unclear.

therefore, what is the basis for generating credits? From a cost-effectiveness perspective, individual baselines are not so important as long as the credit price is fully applied at the margin for each project. There is a valid concern that overly generous baselines will tend to weaken the overall target and transfer (perhaps large) inframarginal payments to project developers. Against this, one must weigh the priority of motivating action in developing countries (perhaps laying groundwork for an eventual domestic target), as well as incentivizing inexpensive opportunities.

III. Evaluating Action

Evaluating other nations' actions is clearly an important element of any country's domestic policymaking with regard to climate change because of concerns over both free riding and competitiveness. Decisions to continue and accelerate domestic programs hinge on whether each nation believes that other key nations are making comparable, or at least appropriate, efforts. A recent proposal in the U.S. Senate (2005) made such conditionality explicit, and regular reports on domestic activities are already required under the UNFCCC.

With this in mind, there is a tendency to look at a Kyoto-like target and timetable approach and see the evaluation task as easy—did a country achieve its target on schedule, or not? But such a view is illusory. The real work is up front—defining the appropriate target whose achievement other nations believe is fair. Indeed, the enormous difficulties facing current Kyoto participants as they seek to set targets for the second commitment period (beginning in 2013) suggest that such an up-front fairness evaluation may not only be difficult, it may be impossible.

Meanwhile, there is evidence that nations already have an alternate view about measuring fairness—via carbon prices. As noted earlier, the European Union, Canada, and New Zealand are all choosing policies with prices in the \$15- to \$25-per-ton CO₂ range, even as they diverge from their Kyoto targets.

Moving beyond market-based price and quantity policies, a more flexible international architecture will make it necessary to evaluate various forms of traditional regulation and investments in both technology and developing

country activities. Each of these policies, however, possesses natural metrics with oftentimes no more hazards than measuring quantities or prices (e.g., emission rates per unit of output by sector, spending, or incentives in particular technology or foreign aid categories, etc.). The real challenge as countries move forward will be to make comparisons *across* these policy categories, not just within them.

IV. Conclusions

Global cooperation is challenging. Given the difficulties in coordinating an international response on issues such as security and trade, a certain amount of humility is necessary when confronting climate change—an issue that ranks considerably lower in public opinion, but is equally, if not more, complex. Cost-effectiveness is a valuable long-term goal but should not obstruct short-term progress. There are valid reasons why countries might resist efforts to pursue a single global price, despite the efficiency gains. In any case, domestic policies need to reflect domestic circumstances, and an international agreement should not assume a particular architecture. Under these conditions, the value in an international agreement appears to be in prodding domestic action rather than elaborating mechanisms for global trading and enforcement.

Two areas where more elaborate mechanisms may be valuable in the near term are in crediting programs for developing country activities and evaluation tools for national policies. There is wide-ranging stakeholder support for credit programs in developing countries, while at the same time common sense economics argues that this is where the action ought to be. That is, this is where the cheap mitigation options lie, and improved institutions are needed to funnel resources in that direction. Meanwhile, the continuation and acceleration of the initial spate of mandatory policies hinges on appropriate responses in other countries. Compliance with the Kyoto Protocol is unlikely to be the sole metric—both because compliance will reflect politics more than economic incentives and because nations are pursuing a broad range of policies that do not fit easily into the Kyoto box.

Neither project-based crediting nor a plurality of policy approaches is likely to be as

tidy—or as efficient—as a standard emissions trading regime (or harmonized taxes). Such a regime should still be viewed as a longer-term goal, and efficiency should be regularly held up as a criterion to be reviewed and evaluated. Of course, even in the longer-term, two obstacles continue to loom: the difficulty of sustaining domestic emission pricing policies sufficient to encourage technology development and the (related) difficulty of encouraging developing countries to pursue emissions pricing at all. Thus, we must recognize the evolutionary nature of a global climate change agreement. Useful near-term steps should be the priority but should also be viewed in the context of ongoing negotiations to refine the international framework.

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