

Session 5: Adjustment and Learning Processes in the Climate Change Regime

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The second set of longer-term issues on which the CMRA will focus is the adjustment and learning processes that enable the climate change regime to adapt changing technology, scientific understanding, and global socioeconomic conditions. All regimes must adapt to changing circumstances and underlying conditions if they are to persist. Adaptation and evolution are particularly important for regimes addressing large-scale environmental problems such as climate change, as these problems involve poorly understood complex systems that are subject to rapid, nonlinear change over short time frames.

Because the processes through which international treaties are negotiated unfold over years to decades, opportunities exist for learning and adaptation. Negotiations on the FCCC and the Kyoto Protocol were initiated in 1988 and are expected to continue into the foreseeable future. Considerable progress has been made over this period in resolving some of the scientific and economic uncertainties, and more will be made over the next ten years. The processes through which national climate change policies are developed and implemented have also been found to foster learning and adaptation. Questions remain, however, as to how regimes go about adapting to changes in science and socioeconomic conditions, how scientific issues are brought into the political processes, and the roles of environmental and business interests, the media and the public in overall learning and adaptation process.

- CMRA Scoping Report

Domestic Trading: A Credible Early Action

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Thank you. Let me make a confession at the outset regarding flexibility and learning. I am an economist, and economists, after all, specialize in flexibility. Some people think that we overspecialize in flexibility. I am also from a country that puts me squarely in the enforcement school. I said that earlier, so I just wanted to make that clear. I am also from a country where we have two television characters that may not be known to all of you who are not American named Harry and Louise. Harry and Louise first made their debut in the United States when there was a battle against the Clinton Administration's health care proposal. Harry and Louise were a middle-aged couple sitting around the breakfast table, and Louise would say, "Gee, I really want to have universal health care." Then Harry would say, "Yes, but I don't want to lose my job," and "This is really going to be painful for me." This Harry and Louise ad is credited with crystallizing public opinion against President Clinton's health care proposal at that time.

In the run-up to Kyoto, Harry and Louise reappeared on our television sets in the United States. This time it was sponsored by the carbon emitters in the United States. Louise was saying, "Gee, I really want to do the right thing for the environment" and "I really care about the environment," but again, Harry is saying, "You know, I don't want to lose my job", "I'm going to be unable to heat my home," and so forth. So we had this debate played out on our television screen.

In the rather open, transparent society that we have in the United States, this was seen as a shot across the bow of the negotiators, and I think it remains a big issue. That is to say, can we really mobilize wide-scale public support for a Protocol of this sort when we have such a well-organized opposition, as we obviously do in the United States. Let me go on to say that I believe as an economist that one of the issues that is very important, not just in the United States but in fact all countries, is the cost uncertainty question. That is to say, if you look at respectable forecasts of the costs of complying with Kyoto, there is a huge variation. I was running the policy office of the Environmental Protection Agency in a former life, and I am accustomed to seeing cost estimates in dispute with each other. This happens all the time. But when you look at the climate cost estimates provided by respectable models, you see that they vary by a factor of five and sometimes by a factor of ten. This is a frightening source of variation, particularly when you have the Harry and Louise characters out there just waiting to capitalize on these variations and highlighting for the American public the outliers that make their case. As a result, we have a very difficult problem trying to get a consensus on action.

Let me also say by way of introduction that there are some, and I suspect I put myself in this category, who believe that the famous phrase "meaningful participation" may in fact have an element of code to it. It may really be code for "Keep the costs down." What the Senate is really saying is, "We want to have the developing countries participate in part because we can't, as politicians, move ahead with a commitment that the American people are not going to buy into." This is a dynamic that exists very openly in the United States and, I would suggest, exists a little less openly in other countries as well.

What I want to do today is get beyond these generalities but use this as a bit of a backdrop for a proposal that several of my colleagues and I have put together at Resources for the Future about a domestic policy that might be pursued in the United States as an early action proposal. I want to put this before you because this proposal embodies a mechanism that reveals the cost uncertainties. I believe that it has some useful lessons that we can translate into the international arena, and I want to return in my last few minutes to some of the compliance issues that we discussed in the last session because I think that there is a very clear linkage.

An Emissions Permit Program

I think that it is well known to us that, dating back to the days of the Framework Convention, emissions have obviously risen a fair amount over the last decade, and there is interest in doing something to begin making some actual reductions. What we are proposing is an emissions permit program that would require tradable carbon emissions permits beginning in 2002. This program would allow the United States to take early action to reduce carbon emissions while taking into account the cost uncertainties.

There are three key features of this program. The first is that the program would have broad coverage. The breadth of the coverage is critical to understanding the ability of a country to truly control its emissions. Secondly, we are building in what I am referring to as a modest goal with cost containment. Finally, there is an equitable burden-sharing. I will talk about each of these points in turn.

The first point is broad coverage. We are proposing that we administer an "upstream" permit program to obtain the broadest possible coverage for carbon. "Upstream" means regulating carbon at the wellhead or the mine mouth rather than at the point of emission to the atmosphere. We are leaving for the moment non-carbon emissions.

Secondly, we are proposing that the permits that would be required of people that are in the business of drilling for oil or gas, mining coal, or importing any of these fuels. Energy producers would be required to obtain permits equivalent to the volume of carbon dioxide eventually released to the atmosphere. These would be essentially the IPCC numbers. In the United States, by the way, there are approximately 2,500 companies in the business of either primary sales of energy of this sort or importation. This is a manageable number, even for a country as large as the United States, as compared to "downstream" permit systems where there literally hundreds of thousands or even millions of points that one would have to control. Obviously, this would be much more difficult and much more subject to abuse.

We are proposing that the United States issue permits for 1.3 billion tons of carbon, which is roughly equivalent to 1990 annual emissions levels for the United States. This would be consistent with the intent of the Framework Convention on Climate Change, which was ratified by the U.S. Senate in October, 1992. It would not be tied to the Kyoto Protocol, which the United States has not yet ratified.

The cost containment is the innovative feature of this proposal. We are proposing is at the same time that permits are required for all carbon that is put into commerce, there also be a second window that is opened up for the sale of additional permits. So the initial distribution would be the sale of permits equal to the 1990 emissions levels. But then there is this second window that would open up in which permits would be sold at a predetermined price. In the United States, we have a food store called 7-11 that is open all the time. This window would be a store, literally, that would sell additional permits at any time at a predetermined price. We are proposing that this price be \$25 per ton of carbon,

and that this price increases by seven percent in real terms each year. This would mean that the price would roughly double by 2012. So the idea here is that additional permits could be introduced into the system at this price, and thus contain the overall cost of the emissions reduction effort.

An additional element of this is that there would be equitable burden-sharing. When these carbon producers buy these permits, they will pass the costs along to consumers. We do not kid ourselves by thinking that the producers will reduce their profits as a result of this. We will pay more for products and fuels that have carbon embodied in them. We are proposing, therefore, that the permits be auctioned, not grand fathered. This is a critical point. Secondly, the revenues generated from this auction would be returned to households, for the most part. We propose three-fourths to households and one-fourth to the States. So what we are doing is auctioning off permits, generating a fair amount of revenue, but we are returning these revenues to households.

The particulars of this auction system are as follows. Quarterly permit auctions would be held, with 75 percent of all proceeds in the first year funding a direct payment to all legal U.S. residents. This would be on a per capita basis, which would be slightly progressive, as people with higher incomes tend to consume more energy. They would not be compensated for this, however, as everyone would receive the same payment. To address special hardships, which could include industry as well as labor, we are proposing to use the states as a vehicle for returning the remaining 25 percent of the funds. This 25 percent would be gradually reduced by 2.5 percent annually.

This is a proposal that was put forth last year. While people were initially skeptical about it, I would say that interest is gathering, at least in a quiet way. There is now an advocacy organization that has been established to promote this idea. Some of you might know the head of the organization, Rafe Pomerance, who was formally a Deputy Assistant Secretary of State and has a long and distinguished record in this field. I am not going to sit here and tell you that it is about to be adopted by the United States Senate, but it is alive and people are moving ahead on it.

Application to the International Arena

What I would like to do in my remaining few minutes is to try to translate some of the ideas embodied in this domestic policy into the international arena and see if there is a way to link them. Let me say that this is still work in progress so I would welcome any ideas that people have, but the way that I have thought about this is in the context of the compliance regime. The different alternatives for a compliance regime that are before us fall into several categories. Some of them are in the technical assistance mode. That is to say, if a country does not comply, an international body will give them aid and assistance in learning how to comply. Other ideas are in the category of borrowing. If a country does not meet its target, then it would be able to borrow tons from a future, as yet unspecified, commitment. Another set of ideas involves a penalty payment, where a country that cannot meet its target would pay a penalty on top of the then-market price that exists for permits.

An alternative approach that I would like to discuss with you here is a scheme that can be referred to as a compliance fund. Now the compliance fund is an idea that actually has its origins in the Brazilian proposal that was made pre-Kyoto. What Brazil proposed at that point was that a country that did not meet its obligations would be obliged to make a payment of a set amount into an international fund. They in fact suggested a number, but, obviously, one need not be bound by that number. That fund would then be obliged to

disperse the revenues according to procedures that would need to be established, presumably by the international community.

The idea that I would like to advance today is really a two-part idea. The first is modeled very closely on the Brazilian idea in that a pre-determined payment would be introduced that would be made by countries that are not able to meet their targets under Kyoto. The advantage of the pre-determined payment, much like I tried to demonstrate in the domestic approach, is that it would eliminate the cost uncertainty. Whereas I said that there were huge questions associated with the costs of complying with Kyoto, the advantages of having a pre-determined payment is that the cost uncertainty is eliminated. So when Harry and Louise go on television to talk about how Kyoto may be very costly, there would no longer be the uncertainty of those high ranges of numbers. They would have been taken off of the chart by an agreement in advance on a very specific number. Thus scare tactics cannot be used beyond the normal uncertainties that we have fought. So one can imagine this sort of Brazilian approach in which you had a pre-determined payment that went into the fund.

There is then the question of what happens to the money at the other end. This is an issue for which there is an opportunity for a great deal of research on and thinking about an institutional mechanism, but certainly the most transparent and simplest approach would be to have a mandate that this institution that receives the money would be obliged to spend it over, for example, a five-year period to buy tons of carbon on the open market. Thus this institution would become purchasers of tons just as countries would be purchasers of tons. This is one simple formulation, and one could obviously devise others that would be attractive to different interests.

A second permutation on this that may have more political appeal to Annex 1 countries, and probably less political appeal to non-Annex 1 countries, would be to devise a series of domestic compliance funds. If you think about one of the barriers to an international compliance fund being the unwillingness of Annex 1 countries to make large payments to an international institution, then you could imagine there being a host of domestic compliance funds set up in Annex 1 countries that would be subject to very strict reporting requirements, be required to use the funds for perhaps environmental purposes, and perhaps having an obligation to spend some portion of the funds on international projects.

To tie this together, I want to say that, sitting in a country like the United States as I do, there is a lot of concern about the uncertainty of the costs associated with Kyoto. I think this is a major stumbling block to having Kyoto ratified and hence become effective. The beauty of having a pre-determined penalty or a pre-determined payment that one can make is that it removes the uncertainty by definition. You can then think of there being an international version as well as several domestic versions. Obviously, there are many subtleties here as to how to design this, and I think that a group like this could shed some light on the questions of how it should be designed and its institutional implications. The debate we have been having about sustainable development, what it means and how to operationalize it fits into this as well, as there are tremendous opportunities in how the funds are used. Thank you.

Long-Term Learning and the Climate Regime

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Thank you very much. I have a feeling that a lot of people will be very unhappy with me by the time I am done here. And it is not just because I am last and am standing between you and your dinner. I was asked to think about the learning question in the Scoping Report, and that is what I am going to do.

There are a lot of ways to think about the learning question. One of the obvious and easy ones would be to look at the institutions that are out there right now for the purpose of learning like the IPCC and talk about them. I am not going to do that. First, by talking about the IPCC, I would only incriminate myself. Second, we are talking long-term learning, and long-term is the key word here. I am not sure if these same institutions would or should be around to perform their tasks over the type of long term that I want to talk about. So I do want to focus on the issue of long term because I think it is critical to the climate change question. I want to organize my comments around various types of long-term: the short long-term, the medium long-term, and the long long-term.

The Long Term

I do seriously believe that the issue of long-term is really critical to climate change. Climate change is unique not just because it is global, but because it is truly long-term. There are many things that are called long-term, but are really not as long-term as the climate issue. The length of the long-term really makes this a unique issue. My own charge on the policymakers as well as the academics have really somehow mistakenly translated long-term policy as if it meant that you take short-term measures, but you take them over a very long period of time. The only people who have really thought about this as a really long-term issue are the civil society actors, although there are, of course, exceptions to this. These are the people who are really thinking about what will happen in 2100. Much of the talk of CDM, compliance, the Kyoto Mechanisms, and so forth has really been focused on taking a short-term measure and doing it for a long period of time in hopes that something will happen.

I suggest that this is not the case. The CDM and the Kyoto Mechanisms are not important because they can reduce emissions. The important issue is where we will be in 2100 in relation to a world that is fair, that is equitable, that is just, and that is climate-stable. Therefore, the focus has to be on that world and how we get there rather than these little baby steps. These are given much more importance than I think they deserve.

In the short long-term, precedent matters. This is where I take the lawyers' perspective because the lawyers will tell you how important precedent it. I think this is very important to the climate change issue because whatever we design and put on the table today will determine what will happen in the very long-term. It may be possible that we are already too late. It may be that the strengths of the Kyoto Protocol, which are very few, and the faults, which are many, will be with us to stay. That is what is important in the Kyoto design. The year 2008 is around the corner, and 2012 will come and go. The impact of Kyoto is not whether countries meet their targets. This is not important at all. The impact of Kyoto is the imprint that it will or will not leave on the truly long-term design. And

this is the short-term question. I am not really a friend of the Kyoto agreement, as I think that it is full of holes. However, I am enough of a friend of the principles of the UNFCCC and the principles of the Kyoto Protocol to live with the belief that we need to make the best of the agreement despite all of its faults. The Kyoto Protocol suffers from all of the faults of international environmental negotiations that we have seen before it. It was the lowest common denominator and it is an agreement of convenience. It therefore has all the faults of agreements of convenience. Yet here we are designing something that is meant to last literally for centuries, unlike many other agreements.

Let me focus now on the medium long-term. The fact of the matter is that there is no Kyoto Protocol at this point. The fact of the matter is that there is no CDM. There may be a CDM in the future, but the Kyoto Protocol has not been ratified. I would like to believe my friends who tell me that it will be ratified. But as of this point in time, it is not. Therefore, if we are thinking in terms of the long-term, we need to be thinking of what could be. It seems to me that if you want to do a quick scenario exercise, there are at least two types of things might occur in the medium long-term, say 2010. The first is that the Kyoto Protocol is ratified and implemented. This is one possibility. Another is that it is ratified but not implemented. A third world is that the Protocol is not ratified at all. This is at least a possibility.

On the other hand, the world of 2010 could also vary by a number of other factors. One of these might be the developing countries level of development. In one world, all developing countries have miraculously developed enough that they are now ripe for having commitments like those in Kyoto. In another scenario, some of them, like Argentina, have either developed enough or are willing to join that community. A third world is one in which none of them want to change their position. So as we think of the long term, we need to think about these various permutations and possibilities.

If the Kyoto Protocol is ultimately ratified and implemented, should we be happy? I am not so sure. If this best of all Kyoto worlds happens, then the Annex 1 emissions will be exactly where they were in 1997. Having said that, my own sense is that Kyoto will be ratified, if only because there are too many people whose careers depend on it, and have invested too much of their institutional interest in making this happen. But I do not think that it will be implemented. At least not all the targets will be met. One or two of the developing countries will be able to move over, but most will not. Therefore, the medium long-term world will probably not be too different from the world that we have right now. It will still be an unequal world, and it will still be a treaty that is not really about the environment but about economics. Therefore, the long-term design should incorporate these two facts whether we like them or not.

What are the questions for research for the long long-term? This, I think, is the only real long-term. My own sense is that, in the long long-term, we need not be constrained by the realities of today. In the long long-term, we can think, we can dream, we can imagine what the world might be and then move back to identify constraints and see which of these we can or cannot move. This, I think, is the strength of the scenarios approach. By looking forward to where we could be, by looking forward to where we want to be, and then working backwards to where we are and seeing how we could change things.

The Research Questions

My one comment on the Scoping Report is that it overstressed the importance of science. I do not foresee the big surprises coming from science. The real questions are in the economic and sociology domains. These include the question of ratification, the questions

of implementation, and the question of economic costs. The big science question that I would think would make a difference is if someone really formed an agreement around where we want to be as a world so that we could allocate. Beyond that, I think science will happen, some things will come, but there will not be the climate equivalent of the ozone hole. It will happen at its own pace, and not much will happen beyond that. So I am not sure that science will be an important factor.

The real question of institutional design, and the question that I think Kyoto sidetracked, is going to be the question of allocation. The reason that I think the Kyoto Protocol is a bad treaty is that it is a treaty without any theory. It is a treaty without any basis. I have looked carefully, but have not found any reason why Japan's target is six percent. Why is that of the United States eight percent? There is no basis for these decisions. If you are looking at the long long-term, on what basis will a target for Bangladesh be decided? What about that for Pakistan? At whatever point at which commitments are accepted, what is the rationale or basis for these commitments? My own preference is for a per capita basis, but this is only one option. It is important, however, that there is some reason for why one country has one commitment and another country has something else. In the long long-term, there needs to be clarity, so that when others follow, there is some sense of why they are being asked to follow one way versus another.

The allocation question is dear to my heart and I could go on and on about it, but I will not do that. One of the things that really gets me boiling is the stock statement, "By the way, by 2035, the developing countries are going to produce as much as industrialized countries." What they are really saying is, "Even by 2035, two-thirds of the world will be producing only as much as the remaining one-third." What they are really saying is that the present inequities should be perpetuated. So some sense of where and when the allocations will be made and how they will happen is important.

Imagine now a Kyoto Protocol and a Framework Convention that has targets for Pakistan. Pakistan has already sold their low-hanging fruit to Japan. How will the regime account for this? This goes back to some of the issues we discussed earlier. Who is Pakistan going to get involved with in the CDM? There is one thing about the Kyoto Protocol that is better than any other agreement that I know of. That is, it says exactly what it sets out to do. The purpose of the Kyoto Protocol is to allow developing countries to assist Annex 1 countries in meeting their obligations. One of the most truthful lines I have ever seen. But this becomes the implementation question. It is not what happens to the Kyoto Protocol right now, but how the Protocol or the FCCC will be implemented in the year 2100. Answering this question will require addressing these complex, long long-term issues. Thank you very much.

Session 5 Discussion Summary: Research Questions Concerning Adjustment and Learning Processes in the Climate Change Regime

The core research question put forth in the CMRA Scoping Paper is: *how can flexibility, self-correcting procedures, and social learning processes be incorporated into the evolving climate change regime?*

With this question and the presentations as background, meeting participants outlined the following important institutional research questions:

- **What opportunities and threats do the Kyoto Protocol and the climate regime that it embodies pose to the global economic system?** Many countries view the regime as a long-term threat for a variety of reasons, but little analysis has been conducted on the range of opportunities and threats over the course of the next century that could demystify these issues and take some of the thorns out of the system.
- **What are the alternative learning mechanisms that can be used to break out of the current mode of thinking about climate change?** Can a research effort be designed that could take a more long-term view and suggest some scenarios of a more equitable and climate stable world and how such a world can come to pass? Are there certain institutional arrangements that promote or at least allow for new ways of thinking about these issues? It is not clear that the IPCC can serve this purpose, as much of the IPCC's current mandate is focused on the Kyoto Protocol. One mechanism might be to realign the established learning mechanisms, such as the IPCC, not around the day-to-day events but around these larger questions.
- **When we talk of capacity-building, what are the capacities that are required?** Many who seek capacity think in terms of a three-week course at Harvard or a training workshop with speakers. However, the kind of capacity that is needed may not be met by these approaches. This is particularly true if the focus of the capacity is institutions. It is not just a question of how many people and what they are doing. For example, the country that had the greatest impact on the final form of the desertification convention was Benin. Benin had only one-half of a delegate, but that half-delegate wrote a good part of the final text of the Convention. Those who are doing research on this topic have not done a very good job of saying what the capacity is for, who it is for, and how it is different from simply training another academic to perpetuate research on capacity-building.
- **How can capacity be build for social science research on climate change?** Social scientists, in contrast to natural scientists, have relatively limited experience with the conduct of large-scale, collaborative research programs. While there is room for individual contributions within the common framework of these programs, there is generally a consensus on how to define some of the key variables, how to make data sets accessible to researchers, and how to make datasets sufficiently harmonized so that they are sufficiently close to measuring the same things. It is very difficult to say meaningful things about the differences and similarities among conclusions reached in different research efforts. The challenge of scientific capacity-building is one of the greatest that social scientists face. Social scientists also face the challenge of socializing funding agencies to understand the need for their collective capacity to engage in substantial coordinated projects just as it is needed in the natural sciences.

- **What can we learn from other international regimes about the learning processes and the development of global norms, particularly those involving long-term or quantitative targets or goals?** For example, the nuclear non-proliferation regime sets as a long-range goal the elimination of nuclear weapons. It would be useful to gain a better understanding of how these agreements contribute to the changing of norms and obtaining long-term objectives.
- **How do countries and regions differ in their interpretation of international agreements and quantitative targets such as those contained in the Kyoto Protocol?** For example, international agreements are viewed very differently in Japan than they are in many European countries. Similarly, an emissions trading system in the United States would operate very differently than one in Japan. How do we account for these differences in the evolution of the regime over the long term?