RPR Review of Policy Research

The Global Climate Regime: Explaining Lagging Reform

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Abstract

There have been growing calls for reform of the United Nations Framework Convention on Climate Change (UNFCCC). How have governments met the demand for action on climate change despite the lagging pace of UNFCCC reform? New qualitative data demonstrate that the institutional, sectoral, and technical characteristics of multilateral institutions have guided government choices in managing climate change issues. Institutional resources and sectoral participation in multilateral institutions have enabled governments to handle climate change issues outside the UNFCCC, reducing the need to invest in its reform as demand for action has grown. These specialized institutions are able to mitigate political disputes and facilitate greater efficacy in handling specific issues such as financing and emissions mitigation. They have mandates that overlap with the cross-cutting nature of climate change, requiring no new mandates, which mitigates political disputes in managing specific climate issues.

KEY WORDS: climate change, international governance, environment, governance, UNFCCC, regimes, multilateral institutions, climate governance, global governance

Introduction

In 1992, national governments negotiated the United Nations Framework Convention on Climate Change (UNFCCC) to meet the growing problem of anthropogenic climate change. Over time, there have been calls for reform of the UNFCCC to better meet the challenges posed by climate change. Nonetheless, UNFCCC institutions established under the Framework Convention and the Kyoto Protocol remain largely intact, perpetuating perverse incentives and political dynamics that hamper the process. Governments have instituted relatively minor reforms that lagged behind the calls for UNFCCC reform. Despite the lagging state of reform, however, governments have added new rules and institutions on a wide range of climate change issues outside the UNFCCC. Why has the UNFCCC not been reformed to meet the growing demand for action on climate change? How have governments met the demand despite the lagging pace of UNFCCC reform?

Baseline explanations would maintain that institutions handle issues under their mandates and see their mandates grow. Path dependence and increasing returns would inhibit governments from handling emergent challenges outside the institution mandated to address those challenges. Governments are likely to handle new challenges with the institution created for those purposes. Institutions are unlikely to adjust at the precise moment that external conditions change. We should therefore expect the UNFCCC to handle climate change issues but with minor and lagging reforms. The demand for action against climate change should outpace UNFCCC reforms.

This paper explains why this baseline expectation does not account for the complex pattern of international cooperation on climate change. For example, governments have increasingly emphasized managing tropical forestry under the

Review of Policy Research, Volume 31, Number 3 (2014) 10.1111/ropr.12068

UNFCCC. They have invested more in the UNFCCC to manage forestry through the development of a program on Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+). They are adding new rules and institutions in this area, without pursuing reform of non-UNFCCC institutions also mandated to protect tropical forestry. By contrast, the UNFCCC no longer exclusively handles carbon dioxide emissions. It shares that responsibility with other international organizations. Much of the attention to non-CO_2 greenhouse gases is also outside the UNFCCC. There has been new governance in this area, with only minor institutional reform in the UNFCCC. Similarly, climate financing is spread across multiple international organizations, although it was originally made the subject of a legal mandate under the UNFCCC. Meanwhile, monitoring, reporting, and verification (MRV) and technology transfer are largely handled within the UNFCCC.

Overall, governments have undertaken few and relatively minor reforms of the UNFCCC in managing these issues but have developed new rules and institutions, particularly in the last eight years, as the demand for more action has grown. In this paper, *institutional reform* refers to one of four changes in the UNFCCC: (i) a change in the rules for making decisions on substantive issues; (ii) a change in the transparency of a decision-making process; (iii) an expansion of the application of rules, provisions, or resources to more UNFCCC parties; or (iv) the addition of limitations on institutional exploitation by organized special groups. *Governance* refers to the means by which stakeholders have managed a climate change issue in the form of rules or institutions.[1] Governments have undertaken less institutional reform than new governance, particularly since 2005.

This paper argues that governments have taken into account two conditions in deciding how to manage a climate change issue. First, sectoral characteristics and technical aspects of multilateral institutions have mitigated political disagreements. Second, institutional resources in multilateral institutions have facilitated political convergence and made it more cost-effective to accomplish goals. These variables have guided the extent to which governments need to reform the UNFCCC to create new governance. The need for UNFCCC reform has been limited in situations when good alternative options existed. Governments have made new rules or programs without UNFCCC reform by harnessing the sectoral and institutional characteristics of numerous multilateral institutions with mandates to govern climate-relevant issues.

Several testable implications follow from this argument. First, governments will handle climate change issues within the UNFCCC when it possesses the institutional resources and the sectoral participation necessary to handle them but other institutions do not. Second, when the UNFCCC has neither sectoral participation nor institutional resources that make it better equipped than other international institutions, governments will handle the issue outside the UNFCCC. In general, we should expect governments to follow an instrumental approach to managing specific climate change issues that harnesses the institutional and sectoral/technical characteristics of multilateral institutions. But this approach to selecting multilateral institutions will reflect a political logic of avoiding costly and unrealistic UNFCCC reforms when possible.

New qualitative data from interviews with participants in multilateral climate change negotiations and participant observations at UN ozone meetings support

these expectations. The data characterize UNFCCC institutions relative to other multilateral institutions over the period 1992–2013, based on the experiences of government negotiators and non-government participants in UNFCCC negotiations and other climate-relevant institutions. Specifically, the data track the institutional and sectoral characteristics of different international bodies and their subsidiary institutions involved in climate change governance, when new rules or provisions were added under those institutions, and the timing and scale of UNFCCC reforms.

The evidence demonstrates that institutional and sectoral characteristics of multilateral institutions enabled governments to handle several issues outside the UNFCCC, reducing the need to reform it as the demand for action against climate change has grown. Some multilateral institutions are better equipped to regulate specific climate change issues than the UNFCCC because they have specialized institutional resources, sectoral participation, and technical knowledge that surpass those of the UNFCCC. Some international institutions pre-dated the UNFCCC and developed those institutional resources and technical expertise beforehand without previously applying them to climate change. Specialized international institutions have mitigated political disputes and facilitated greater efficacy in emissions mitigation and international climate financing. Their mandates overlap with the cross-cutting nature of climate change, requiring no new mandates for those non-UNFCCC institutions to become engaged.

Consequently, the conditions promoting the use of non-UNFCCC institutions have diminished the need for reform of the UNFCCC. Governments have taken advantage of sectoral participation and institutional resources in existing non-UNFCCC institutions on climate financing and emissions mitigation. But they have also taken advantage of the UNFCCC in relation to other international institutions, particularly on sustainable forest management. They have not needed to reform the UNFCCC to achieve *limited* policy goals. They have not needed to reform other institutions to achieve certain policy goals within the UNFCCC. The conditions promoting institutional continuity in the UNFCCC have also promoted change in global climate governance more broadly.

These findings advance the study of institutional change. International climate governance illustrates that conditions for new governance can perpetuate institutional path dependence. Specifically, overlapping institutions may relieve pressures to reform a single institution by providing governance opportunities when the demand for collective action grows. In the climate context, international institutions outside the UNFCCC have been important vehicles of progress, but not by encouraging UNFCCC reform.

The findings also advance our knowledge of climate change governance. The broad scope of climate change has enabled non-UNFCCC institutions to become involved under their respective mandates in managing issues under the UNFCCC's mandate. Many have said the scope of climate change is too big for a single international regime (Barrett, 2010; Keohane & Victor, 2011; Victor, 2011). Yet the broad scope of climate change and its cross-cutting implications have provided international institutions that would otherwise not invest in climate change governance a reason to do so under their mandates. Much like subnational and transnational actors (Hoffmann, 2011), national governments have

also harnessed the encompassing nature of climate change in developing an institutional response.

Governments have followed an instrumental approach to managing specific climate change issues by utilizing the institutional, sectoral, and technical characteristics of multilateral institutions. But this approach has reflected an underlying political reality in which reforming the UNFCCC has proven costly, complicated, or unrealistic. The UNFCCC has mitigated certain longstanding political disputes or provided a framework for settling certain technical issues. Yet it has not consolidated a role on the issues that other multilateral institutions could handle through a combination of specialized institutions, technical expertise, and stakeholder engagement. Lagging UNFCCC reform has not prevented new climate governance.

Lagging UNFCCC Reform

The UNFCCC has long been the subject of calls for reform. In the early 2000s, David Victor argued that the Kyoto Protocol would not succeed in reducing greenhouse gases (GHGs) because it was premised on an international carbon emissions market that was unlikely to meet the expectations of negotiators of the Protocol (Victor, 2001). The implementation architecture relied on tenuous assumptions about emissions trading. Expectations far exceeded likely outcomes.

Perhaps the most widely criticized aspect of the Kyoto flexibility mechanisms has been the Clean Development Mechanism (CDM), which enables companies in the developed world to offset their emissions obligations with credits purchased on a global carbon market from developing country firms. The CDM has been the subject of various grievances. For example, the Executive Board's delegation to so-called Designated Operational Entities (DOEs) has been called "dysfunctional delegation" (Lund, 2010). The DOEs are supposed to operate as independent evaluators of project proposals but have interests aligned with the project proposers to a greater extent than with the Executive Board.

Moreover, decision-making procedures within the UNFCCC have been the subject of calls for reform. The consensus requirement for reaching decisions under the UNFCCC has been criticized for slowing progress (Depledge, 2005, Chapter 8; Streck, 2012). Many parties to the Framework Convention have repeatedly voiced concerns about consensus—and the early Conferences of the Parties (COPs) featured multiple attempts by some countries to adopt a voting rule of three-fourths majority. Other rules within the UNFCCC have been criticized for favoring some stakeholders at the expense of environmental effectiveness. For example, the measurement of additionality of emissions reductions under the CDM is among the more questioned methodologies of the Kyoto institutions (Juhnke, 2012).

Some analysts have called for reforms to raise the UNFCCC's effectiveness. For example, the Compliance Committee of the Kyoto Protocol can ban parties from participation in emissions trading mechanisms, although it does not have the power to enforce its decision (Streck, 2012, 148–149). This hampered the enforcement regime's ability to prevent noncompliance with emissions targets during the first Kyoto commitment period (2008–2012). Perhaps most critically, the Framework Convention places responsibility on the developed countries to act first

Table 1. Institutional Reforms in the UNFCCC

1995: COP launches a review of the effectiveness of the UNFCCC and new negotiations for a legal agreement (*expansion of application of rules, provisions, or resources among UNFCCC parties*)
1996: COP does not adopt draft rules of procedure but applies them as though they had been adopted, with the exception of voting (*no change in the rules for making decisions*)
2005: Kyoto parties adopt rules to limit HFC-23 destruction by limiting eligibility to 2000-04 HCFC production (*limitations on exploitation by organized special groups*)
2007: Developing countries and the United States accept the Bali Action Plan (*expansion of application of rules, provisions, or resources among UNFCCC parties*)
2008: Kyoto parties adopt new rules of procedure for the Compliance Committee (*change in transparency of decision-making processes*)
2009: Developing countries accept voluntary targets without COP decision (*expansion of application of rules, provisions, or resources among UNFCCC parties*)
2010: Developing countries accept voluntary emissions targets with COP decision (*expansion of application of rules, provisions, or resources among UNFCCC parties*)
2011: Developing countries accept making a legal agreement in the future under the Durban Platform for Enhanced Action (*expansion of application of rules, provisions, or resources among UNFCCC parties*)
2012: Kyoto parties adopt new CDM rules enabling consolidation of small projects (*expansion of application of rules, provisions, or resources among UNFCCC parties*)

Note. This is not an exhaustive list.

in mitigating climate change but places no specific mitigation obligations on developing countries. Some observers have argued there is an urgent need for reform of the UNFCCC to broaden commitments and to support vulnerable groups and countries with adaptation and climate-resilient development (Yamin & Depledge, 2010).

Expressing discontent with the UNFCCC, several authors have proposed alternatives (Eckersley, 2012; Leal-Arcas, 2011). They premise the need for alternatives largely on a host of institutional and cultural dimensions of the UNFCCC/Kyoto regime (Depledge, 2005). Research has begun to clarify aspects of the wider international climate change regime outside the UNFCCC and how different stakeholders manage that regime (e.g., Keohane & Victor, 2011; Green, 2013a). Yet the factors driving the pattern of governance and the lack of major reform remain obscure, partly because some issues are solely managed within the UNFCCC and others are managed across different multilateral institutions.

To be precise, I refer to each of four types of changes in the UNFCCC as an *institutional reform*: (i) a change in the rules for making decisions on substantive issues; (ii) a change in the transparency of a decision-making process; (iii) an expansion of the application of rules, provisions, or resources to more UNFCCC parties; or (iv) an addition of limitations on institutional exploitation by organized groups. Taking these four changes as reforms, it is clear there have been some reforms in the UNFCCC. However, the scale and consequences of these reforms has been minor compared to the growing demand for action by the UNFCCC to combat climate change. The pace of reform has lagged behind the calls for reform. Table 1 summarizes institutional reforms in the UNFCCC.

Under the Framework Convention or the Kyoto Protocol, parties have expanded the nominal application of emissions obligations, limited the opportunities for CDM exploitation by organized interests, and modified the rules of the Compliance Committee. However, they have not adopted changes in the *rules* for making decisions on substantive issues (e.g., finance, technology transfer) or significant changes in the *transparency* of decision-making processes. Similarly, the expansion of

obligations has been minor compared to the scale envisaged by some UNFCCC experts (Depledge, 2006; Victor, 2001) and experts on climate-affected issues like public health (Epstein & Ferber, 2011).

For example, Kyoto parties adopted new rules for the CDM in 2012 to enable applicants to consolidate small projects into one CDM project proposal (Juhnke, 2012, 154). The effects of this reform remain to be seen, but it reflects the CDM Executive Board's willingness to improve the institution by making it more accessible to more developing countries. Nonetheless, the measurement of additionality of emissions reductions, the dearth of substantive projects to enhance sustainable growth, and the bureaucratized registration of projects continue to hamper the CDM. The Kyoto parties did not implement any of the proposed reforms recommended by a panel of experts they appointed to review the CDM and make recommendations. The window for CDM reform had seemed to pass by 2012 (Michaelowa, 2013).

Similarly, despite sustained efforts by the United States government and European governments, led by the European Commission, the legal asymmetry between developed and developing states remains largely intact. In 2007, developing states accepted the Bali Action Plan, which called upon them to take further steps to mitigate climate change, despite the Framework Convention and Kyoto Protocol, both of which place no explicit emissions obligations on them within a specified timeframe.

Since 2007, these efforts to reform the legal asymmetry between developed and developing states and to expand obligations have yielded some nominal successes. In December 2011, the COP launched the Durban Platform for Enhanced Action, under which both developed and developing states would take on legally symmetrical obligations under a future agreement. However, the diplomatic phraseology of the decision has been criticized for allowing a loophole that could enable countries to avoid legal obligations and claim that the COP decision actually did not commit them to accept a legal agreement (Levi, 2011).

Although the scale and extent of UNFCCC reforms have lagged behind calls for reform and demands for greater action on climate change, governments have developed new rules and institutions for managing climate change. Several new rules and institutions have been added outside the Framework Convention or the Kyoto Protocol, including local and sub-national "experiments" and non-state governance networks (Green, 2013a; Hoffmann, 2011).

The creation of new governance has outpaced UNFCCC reform, particularly since 2005 when the Kyoto Protocol entered into force. On carbon dioxide emissions, other greenhouse gases, financing, and forestry, the creation of new rules and institutions has outpaced reform of the UNFCCC. With respect to technology transfer and monitoring, reporting, and verification, the development of rules and institutions has followed a more path-dependent course.[2] The next section offers an explanation for the relationship between climate governance and UNFCCC reform.

Explaining the Pattern of Global Climate Governance

The institutional change literature provides a starting point for analyzing UNFCCC reform. Studies converge on the premise that political institutions are prone to path

dependence because they make alternative behaviors more costly over time but that political institutions change under a variety of external pressures (Mahoney & Thelen, 2010). In some situations, external pressures might arise from conditions generated endogenously by the institutions themselves (Greif & Laitin, 2004). At critical junctures, external pressures may force institutional changes (Collier & Collier, 1991). Several studies have applied these ideas to analyze the evolution of international institutions (Colgan, Keohane, & Van de Graaf, 2012; Wallander, 2000).

The baseline view of institutional change is that institutions experience stasis for lengthy periods, followed by abrupt changes due to exogenous shocks (Streeck & Thelen, 2005, 3). Institutional change may take a variety of forms when it occurs (Mahoney & Thelen, 2010). Ironically, the self-enforcing characteristics of an institution may lead to both its reproduction and change by altering so-called "quasi-parameters" that make the institution more sensitive to exogenous shocks (Greif & Laitin, 2004). Otherwise, path dependence characterizes institutional development, which one author defines by the initial adoption of an institution, followed by its stable reproduction over time (Mahoney, 2000, 535). This is one reason that institutions have been called "carriers of history" (David, 1994). They are unlikely to adjust at the precise moment when new demands arise (North, 1990).

At the international level, institutional change may depend on the assets of an institution—whether they are adaptable to changing external conditions or specific to a current external environment (Wallander, 2000). However, if preferences within an international institution block changes inside that institution, dissatisfied governments might form an independent institution that better services their policy goals (Colgan et al., 2012). Otherwise, path dependence characterizes institutional development. Nonetheless, exogenous conditions are often used to explain institutional changes in international institutions, including those governing the natural environment (Young, 2010). In that respect, there is some agreement on a basic level that international institutions are prone to path dependence unless external changes prompt governments to pursue institutional changes or alternative institutions.

These perspectives provide a framework for understanding why UNFCCC reform has lagged behind demand for new governance. Stakeholders preferring institutional stability under the UNFCCC/Kyoto regime have used rules to maintain the status quo (Depledge, 2008). For example, the United States has been reluctant to invest resources into the Green Climate Fund, preferring to call for private sector investments to far exceed public investments. Institutional reforms in the UNFCCC/Kyoto regime have not included changes in decision-making rules or transparency and have included minor or slow changes in the broadening of commitments and rules to all UNFCCC parties.

Although research on institutional change helps to explain this long-standing trend, it does not explain what governments have done in reaction to institutional continuity in the UNFCCC. New rules and institutions have emerged, while UNFCCC reforms have remained few and minor in scale. The pattern of international climate governance since 2005 has displayed specific dynamics driven by technical and institutional conditions that have not forced UNFCCC reforms to nearly the same extent as they have generated new governance. Despite the lagging pace and minor scale of reforms, governments have created new rules and institutions outside the UNFCCC.

The variables shaping their strategic choices over new rules and institutions have meant that lagging reforms have not prevented new governance. In particular, institutional resources, technical expertise, and sectoral participation explain the pattern of international climate governance. Although they do not define a singular strategy of managing climate change without institutional reform, they have shaped international policy responses on greenhouse gas emissions, climate financing, clean technology transfer, forestry, and compliance verification. These variables have enabled governments to create new governance without enacting UNFCCC reforms.

Institutional Resources and Sectoral Participation

Climate change is recognized as a cross-cutting issue spanning policy fields as diverse and complex as energy transformation and agricultural land development. Yet the institutions of the UNFCCC have not been reformed in ways that make them viable responses to the various challenges associated with climate change. Climate change is actually many different cooperation problems (Keohane & Victor, 2011, 8). This has made the institutional resources of the UNFCCC useful for managing some climate change issues, but not all of them. In particular, two variables have made the UNFCCC/Kyoto institutions relatively better equipped for managing substantive issues such as clean technology transfer; sustainable forest management; and monitoring, reporting, and verification. However, they have prompted governments to harness the institutional resources of intergovernmental organizations and conventions outside the UNFCCC to help manage other substantive issues such as greenhouse gas emissions and international financing.

Institutional Resources—Although the UNFCCC was negotiated in June 1992 and has served as a vehicle for over 20 years of negotiations, it was preceded by other intergovernmental organizations with specialized institutional resources. These institutional resources enable governments to regulate issues under the mandate of the Framework Convention and the Kyoto Protocol more effectively than UNFCCC/Kyoto institutions can, precisely because those alternative institutions can mitigate political disputes among governments.

Existing multilateral institutions provide rules and mechanisms that governments need not re-create from scratch. Governments are spared the politically contentious process of institutional creation. Rather, existing institutions can be employed for specific climate change issues which those international institutions appear well equipped to manage. This saves governments the transaction costs of creating new institutions.

Some multilateral institutions with a long history of regulating stakeholders contributing to greenhouse gas emissions or servicing demands for financing development projects possess resources that exceed the institutions of the UNFCCC/Kyoto regime. Since the Kyoto institutions only became operational in 2005 and the UNFCCC entered into force in 1994, a diverse range of international institutions had by that time developed resources with potential application to climate change management.

However, since governments initially began to manage climate change issues through the UNFCCC, several institutions within the UNFCCC have more

specialized mechanisms than international institutions outside the UNFCCC. Institutions developed under the Framework Convention and the Kyoto Protocol have specialized multilateral mechanisms that other international institutions do not possess in relation to specific climate issues. Yet international institutions outside the UN climate regime had previously developed—and continue to develop—rules and institutions on climate change issues, particularly emissions mitigation and financing.

I hypothesize that governments will tend to manage a climate change issue under the mandate of the UNFCCC with international institutions that had developed specialized mechanisms for that issue. When the UN climate regime possesses better-equipped institutions, governments will tend to manage the issue within the regime. When that regime does not possess multilateral institutions with the specialized mechanisms that can overcome technical and political obstacles to manage a climate issue, governments will rely on multilateral institutions outside the UNFCCC.

Sectoral Participation and Technical Knowledge—Issues relevant to climate change governance such as emissions accounting and technology development and transfer are highly technical. They pose knowledge challenges for non-experts in the technologies relevant to a specific sector. They also require the commitment of sectors with a stake in managing climate change as the producers of GHG emissions or as potential recipients of international transfers, either in the form of technology or financial assistance.

Having the commitment of large stakeholder sectors is politically essential to enact new policies that lower GHG emissions (Pinske & Kolk, 2009). The long history of resistance to response measures by politically influential industries contrasts with the political engagement of stakeholder industries in the UN ozone regime (Victor, 2011; Zaelke, Andersen, & Borgford-Parnell, 2012). To the extent that international institutions outside the UNFCCC have garnered the engagement and support of stakeholder industries, this makes the politics of emissions abatement more conducive to reaching agreement. When intergovernmental mechanisms encourage stakeholder engagement and address stakeholder concerns, the institutional resources of an international regime may contribute to sectoral participation that encourages new pollution controls.

Moreover, sectoral participation is an important dimension of effective emissions controls in part because the intergovernmental regulations are intended to alter the incentives of industries contributing GHG emissions to change their practices or technologies. Indeed, the Kyoto market mechanisms were justified from an environmental standpoint on the grounds that they would shape stakeholder incentives away from the pre-Kyoto status quo and towards more energy efficient and sustainable practices and technologies (Victor, 2001). Sectoral participation entails technical knowledge of cost-effective implementation strategies because the stakeholder industries have technical information about existing alternatives and prospects for new alternatives. For technically complicated issues such as technology transfer or emissions accounting, the inclusion of non-government technical expertise has long been recognized as an imperative for climate change mitigation (Green, 2013b).

I hypothesize that governments will tend to employ the international institutions with the sectoral participation and technical knowledge necessary to manage a specific climate change issue. When the UNFCCC possesses these stakeholder and knowledge characteristics, governments will manage the issue within the UNFCCC. However, when other international institutions possess sectoral participation and technical knowledge that surpasses that of the UNFCCC institutions on a specific climate change issue, governments will tend to employ other international institutions to harness their sectoral engagement and technical expertise, concentrating political efforts on the issue outside the UNFCCC.

Research Design

This paper employs new qualitative data to evaluate the significance of institutional resources and sectoral participation in the evolving international management of climate change. Most of qualitative data were collected through semi-structured interviews with 50 participants in the negotiations on climate change under the UNFCCC or international institutions making contributions to climate change governance outside the UNFCCC. The respondents were non-randomly recruited over March 2011–August 2013 through Lists of Participants from meetings of the UNFCCC or other international conventions and through recommendations by respondents. All interviews were conducted on the basis of indefinite confidentiality. Table 2 summarizes the geographical representation and institutional affiliations of the respondents. Some respondents had over eight years of professional experience in different types of institutions or had professional experience in multiple continents and are therefore represented twice in the table.

The responses were used to construct a dataset of the explanatory and dependent variables. In particular, they were used to measure the significance of institutional resources and sectoral participation across multilateral institutions involved in climate change governance (e.g., UNFCCC/Kyoto treaties, Montreal Protocol, International Maritime Organization, International Civil Aviation Organization, World Bank, Global Environmental Facility, etc.). Moreover, the data were used to measure the scale or significance of institutional reforms under the UNFCCC and new international rules or institutions on GHG emissions, international financing, technology transfer, monitoring and reporting, and forestry. The author also collected some qualitative data in the form of participant observations during two Montreal Protocol meetings.[3] Quantitative data and primary documents from intergovernmental organizations were used to supplement the interview responses and participant observations in coding the variables.

Table 2. Geographic and Institutional Backgrounds of Interviewees

	Business	Government	IGO	NGO
Europe	1	4	11	0
North America	6	18	7	5

Observations that would falsify the argument include government attempts to reform the UNFCCC to manage specific climate-related issues when viable non-UNFCCC options existed. For example, if governments sought to reform the UNFCCC to enlarge the coverage of emissions commitments among parties to manage a specific GHG that could be regulated more cost-effectively under another treaty, this would falsify the argument. If governments sought to manage the issue under a treaty that did not possess the institutional resources or sectoral participation appropriate to managing the issue, this would also falsify the argument.

Observations that would help to validate the argument include government attempts to reform UNFCCC institutions only in managing a climate-related issue for which there were no viable multilateral institutions mandated to govern the issue. For example, if governments consistently sought to reform a UNFCCC implementation institution in the absence of viable non-UNFCCC alternatives, this would support the argument. If they consistently sought to utilize viable non-UNFCCC alternatives when they did present themselves, this would also lend support. However, their choices would need to have been guided by the institutional resources or technical/sectoral characteristics of non-UNFCCC institutions to provide support for the argument.

The Evolving Global Governance of Climate Change Issues

Governments have not followed a singular strategy in creating international rules and institutions to manage climate change. Their choices to create new institutions and rules, or to reform UNFCCC institutions, have been reactions to the growing demand for mitigation action and adaptation assistance. Nonetheless, governments have been strategic in deciding how to manage specific climate change issues to mitigate political disputes and lower governance costs. They have relied on existing international institutions outside the UNFCCC to achieve specific mitigation and adaptation goals and to allocate financing to developing countries for these goals. They have adopted policy goals tailored to the institutional mechanisms and stakeholder characteristics of international institutions outside the UNFCCC. In this respect, governments may not have followed a collective strategy, but they have harnessed a wide array of international institutions based on political and technical considerations.

Table 3 summarizes how governments have managed six issues related to climate change and the institutional options at their disposal for each issue. Most of these issues were on the negotiating table at 2009 Copenhagen climate conference (Dimitrov, 2010). Next, I explain why governments have managed each of these issues differently.

Institutional Resources

Emissions Mitigation—Since the Kyoto Protocol entered into force in February 2005, governments have increasingly pursued carbon dioxide mitigation policies under international conventions outside the UNFCCC or the Kyoto Protocol, just as they have sought to broaden obligations and commitments on all parties within the UNFCCC. The United States and the European Union have sought to reform the

Table 3. Non-UNFCCC Institutions and Governance by Climate Change Issue

Issue	Non-UNFCCC institutions with specialized resources and expertise	How countries have governed the issue
CO_2	Good viable options in IMO and ICAO for bunker fuels, but no obvious options for "territorial" GHG sources	(i) Use the IMO and ICAO for bunker fuels (ii) Use the UNFCCC for all other CO_2 emissions
non-CO_2 GHGs	Good viable option: Montreal Protocol	(i) Adopt amendments under the Montreal Protocol (ii) Create a new informal institution in the CCAC and other small "clubs"
Finance	Good viable options: World Bank, MDBs	(i) Use the World Bank and MBDs (ii) Form a new UNFCCC institution in the GCF
Technology transfer	Very limited viable options outside the CDM	(i) Try to reform the CDM's rules (ii) Create small "clubs" focused on technology promotion
Forestry	Questionable viable options outside the REDD+ program	Advance REDD+ inside the UNFCCC negotiations
MRV	No viable options outside the UNFCCC/Kyoto MRV regime	Maintain the UNFCCC/Kyoto MRV regime and attempt to include developing countries to a greater extent

Note. This covers government initiatives, not the wider array of non-governmental initiatives. For more detailed information, please read the Supporting Information File S1.

structure of commitments by having developing countries accept legally binding commitments on their GHG emissions. Yet the United States and the European Union have also recognized that UNFCCC and Kyoto Protocol institutions are not as well equipped to manage specific mitigation challenges.

The primary institutional resources for GHG emissions mitigation under the UNFCCC and the Kyoto Protocol are the market mechanisms established under the Protocol. The United States made market mechanisms such as emissions trading and the CDM pre-conditions for accepting the Protocol (Depledge, 2000). The United States viewed the market mechanisms as politically essential to receive support from the private sector for implementation of emissions control measures (Interview 13, U.S. State Department). However, international emissions trading outside the European Union does not exist—and the CDM's effectiveness in reducing emissions has long been a subject of debate (Juhnke, 2012; Repetto, 2001). Convergent political interests among the large developing countries have blocked efforts to reform the CDM aimed at limiting the extent to which it is subject to exploitation by powerful groups (Schneider, 2011).

Governments have recognized that outside the UNFCCC and the Kyoto Protocol, there are numerous international institutions with specialized institutional resources that could be applied to overcome political disputes and achieve limited mitigation objectives, unlike the mitigation institutions of the UNFCCC or Kyoto Protocol (Interview 12, U.S. State Department). In other words, the United States, Canada, European Union, and other governments have recognized that they do not need to reform existing international institutions outside the UNFCCC to make meaningful progress on climate change mitigation. This has enabled the United States and the EU to have aligned political interests in specialized international institutions outside the UNFCCC and has relieved them of needing to reform UNFCCC institutions to take mitigation steps on particular emissions.

Specifically, carbon dioxide emissions mitigation and HFC emissions mitigation are two policy goals that the United States and the European Union have pursued outside the UNFCCC, where they have often been at loggerheads (Interview 30, U.S. State Department). This has relieved them of needing to reach political agreement on institutional reform inside the UNFCCC, since major changes would not be needed in existing specialized international institutions outside the UNFCCC to achieve limited CO_2 mitigation objectives (Interviews 13 & 30, U.S. State Department).

For example, the Montreal Protocol has developed specialized institutions for global conversions towards more environmentally friendly chemical technologies since 1987. These institutions have been developed for two decades to facilitate both cost-effective technological transitions and political convergence between North and South (Interview 20 NGO/White House; Interview 36, U.S. EPA). The Multilateral Fund of the Montreal Protocol has served as both a political instrument for securing the participation of large developing countries and a mechanism for training and technical assistance in developing countries (Interviews 46 & 47, Multilateral Fund Secretariat). The Technical and Economic Assessments Panel (TEAP) of the Montreal Protocol has provided useful information on latest technologies and their corresponding economic costs to parties to the Protocol, contributing to more evenly shared information between wealthy and least developed countries (Author's observations, 9 COP/23 MOP & 32 OEWG Montreal Protocol). The U.S. and Canadian governments have viewed the Montreal Protocol as far better equipped to lower HFCs emissions through control measures on the production and consumption of HFC technologies than the CDM, which has generated perverse incentives and has made destruction of HFC-23 a lucrative enterprise for China (Schneider, 2011; Interview 36, U.S. EPA). Montreal Protocol institutions have not created these perverse incentives in manufacturing chemicals.

Financial Assistance—As a major donor to international financial institutions, the United States has not yet committed public funds to the UNFCCC's Green Climate Fund (GCF), since the GCF is a nascent institution, not yet ready to receive contributions, and still without experience in managing project funding (Interview 48, finance ministry). The United States has preferred to create regulatory incentives for the private sector to invest in climate financing for developing countries. It has found the World Bank and other multilateral development banks to be suitable institutions for contributing financial resources for climate-related projects in the developing countries (Interview 48, finance ministry). In particular, it has viewed the institutions of the World Bank as important tools for achieving climate-financing goals cost-effectively. By contrast, reform efforts in the GEF, aimed at streamlining the project cycle for developing country applicants, have reflected calls by the recipient countries to make GEF financial resources more accessible and responsive (Interview 49, World Bank; Interview 50, GEF). As in emissions mitigation, developed countries have viewed a non-UNFCCC institution as a viable mechanism for achieving a climate objective without needing to undertake large reform efforts of the institution to service that objective.

The financial mechanisms of the Framework Convention have had broad and specialized mandates. The GEF was mandated to service project financing in the

developing countries, called non-Annex I parties, but this was largely centered on mitigation projects (Interview 49, World Bank; Interview 45, GEF Secretariat). The GEF did not have experience in servicing demand for adaptation support and climate-resilience projects, although the MDBs have dedicated funds for development aid that could be (and have been) linked to climate change. Instead, the GEF has been mandated to focus on global environmental benefits, which are generally linked more to mitigation than adaptation (Interview, 13 U.S. State Department; Interview 48, finance ministry; Interview 45, GEF Secretariat). Specialized funds like the Special Climate Change Fund and the Adaptation Fund were established to service specific needs. However, they lacked the institutional resources, primarily the development-oriented tools, to meet different climate-resilience and adaptation needs on the ground in vulnerable developing countries compared to the MDBs.

From a political standpoint, non-UNFCCC financial institutions have enabled donor countries and recipient countries to limit politicized negotiations over new financing. The Green Climate Fund was operationalized after politically difficult negotiations that included objections from the United States and other parties (Interview 5, U.S. State Department). By contrast, the institutional mechanisms of the MDBs and the limited calls for reform of the MDBs has enabled donor countries and recipient countries to converge on existing international financial institutions outside the UNFCCC with existing funds (e.g., International Development Assistance) and the institutional resources to meet specific climate-related demands, both regionally and in-country. Since the MBDs already had established funds and have proven themselves as institutions able to service some demand for financing, the donor and recipient countries have grown to utilize them (Interview 31, World Bank).

Technology Transfer—Unlike climate finance, governments have not had multiple international institutions providing for clean technology transfer for energy projects and land use projects. Instead, the CDM was created in the absence of other international institutions able to service demands for clean technology transfer. Stakeholders gravitated towards the CDM without major international institutions having been designed from an institutional standpoint to meet the clean energy needs of developing countries. The CDM has developed institutional resources in the form of an Executive Board and a cadre of accredited project evaluators linked to the CDM. These resources have become particularly capable in facilitating technology transfer in the absence of viable non-UNFCCC institutions with resources for accomplishing that policy goal. Despite the demands for reform of the CDM, it has enabled expedient political convergence between countries in the developing and developed worlds, representing a "win-win for everybody" (Interview 6, UNFCCC Secretariat). Much like the MDBs in climate finance, the CDM has developed resources better equipped than other international institutions in meeting specific demands related to climate change governance.

The United States has sought to create small institutions to meet clean energy development goals in the developed and large developing countries by launching institutions such as the Major Economies Forum, which has a technology institution in the Clean Energy Ministerial, and the now-defunct Asia-Pacific Partnership.

However, these informal institutions did not reach the scale or resource level of the CDM and have not had the rules involved in the CDM market, which has contributed to a deepening of CDM institutions, particularly on technical accounting and project accreditation issues (Green, 2008).

Monitoring, Reporting, Verification—Under the Kyoto Protocol, Annex I parties to the Protocol must report on HFC emissions—an obligation that has become the subject of provisions in the North American amendment proposal under the Montreal Protocol. Specifically, the most recent amendment proposal states that parties to the amendment would not be exempted from reporting their GHG emissions under Article 7 of the Kyoto Protocol (UNEP/OzL.Pro.WG.1/33/3). Unlike the Montreal Protocol, the Kyoto Protocol institutions have worked with national inventories of HFCs emissions since the treaty entered into force. Besides the UNFCCC Secretariat, no other intergovernmental organization has institutions that have been employed to verify national inventories of HFC emissions.

U.S. negotiators working on the UNFCCC and the Montreal Protocol both recognize the value of using the UNFCCC to record HFC emissions inventories (Interview 30, U.S. State Department; Interview 36, U.S. EPA). Although the United States is not party to the Kyoto Protocol, its reports are practically similar to those of Annex I Kyoto parties (Interview 20, U.S. State Department; Interview 19, UNFCCC Secretariat). The North American amendment proposal under the Montreal Protocol would not exempt parties from reporting on the production and consumption of HFCs to the Ozone Secretariat. However, it also would not employ the Ozone Secretariat in lieu of the UNFCCC Secretariat for the monitoring, reporting, and verification of HFCs.

Although MRV has been the subject of discussions outside the UNFCCC negotiations, those discussions have been focused on strengthening the MRV regime of the UNFCCC. For example, an informal body called the Cartagena Dialogue that consisted of European states with developing states held discussions on MRV in the years following COP-15 in Copenhagen, although the parties recognized the importance of strengthening MRV inside the existing UNFCCC/Kyoto institutions (Interview 7, British Embassy in Berlin). Discussions under the Major Economies Forum before COP-16 again were intended to strengthen rules on MRV under the UNFCCC institutions (Interview 24, UNFCCC Secretariat). Even the United States, which has increasingly questioned the UNFCCC process, has maintained its position to work on MRV issues within the institutional structures of the UNFCCC (Interview 24, UNFCCC Secretariat). Reforming the MRV regime has remained politically contentious inside the UNFCCC, particularly as China has refused independent inspections of their reports (Interview 9, White House). But governments have not resorted to developing or applying institutions outside the UNFCCC, as none possesses the existing institutions of the UNFCCC MRV regime.

Forestry—The main institutional resource of the UNFCCC in forestry conservation has been the CDM. The CDM's mandate to accept projects on Land Use, Land Use Change, and Forestry (LULUCF) has given forest-rich developing countries and the private sector in developed countries a financial stake in forestry conservation and sustainable forest development under the UNFCCC (Interview 33, UNFCCC

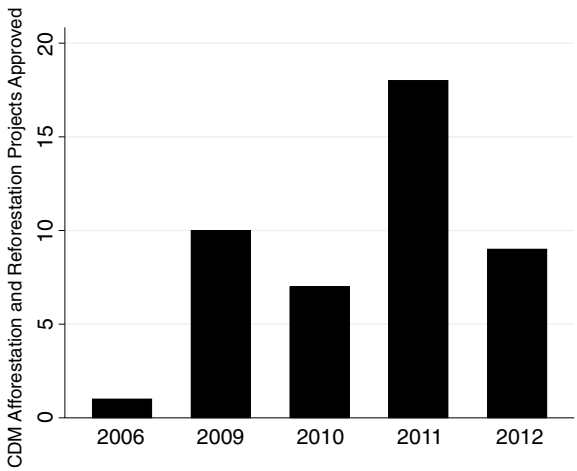

Figure 1. Afforestation and Reforestation Projects Approved by the CDM Executive Board. Source: CDM Project Database

Secretariat; Interview 23, European Commission). This financial stake had long been missing in other multilateral institutions in the field of sustainable forestry management, which had either promoted the tropical timber trade under the International Tropical Timber Organization (ITTO) or political disputes between North and South under the UN Forum on Forests (UNFF). Figure 1 displays the number of afforestation and reforestation projects approved under the CDM. It shows some volatility but stakeholders in the developed and developing states recognize the political importance of the CDM's acceptance of LULUCF projects.

In particular, institutional assets and experience with credits-based emissions markets under the Kyoto Protocol institutions enabled different parties to find a common interest in UN REDD and REDD+. The CDM has enabled parties to find convergent interests on the forestry issue, whereas other forestry institutions have lacked those institutional mechanisms. Institutions unique to the Kyoto regime have helped break the political deadlock on this issue (Interview 32, Danish Ministry of Climate and Energy). In that respect, the institutions of the Kyoto Protocol have promoted a convergence of political interests on reducing tropical deforestation, much like institutions of the Montreal Protocol can promote a convergence of political interests in controlling HFCs.

The UNFCCC also has other institutions besides the CDM that can formalize and institutionalize this convergence of interests. Unlike the UNFF, the COP can take decisions and form new rules and institutions. For example, it can formally adopt methodologies and accounting rules to implement REDD+, which is considered critical for operationalizing the goals of COP decisions on this program (Interview 32, Danish Ministry of Climate and Energy; Interview 23, European Commission). These institutional characteristics have further added to the capacities of the UNFCCC/Kyoto regime in forestry conversation relative to pre-existing UN and non-UN forestry institutions. Meanwhile, multilateral institutions outside the UNFCCC have remained active in the forestry area, but have not made new rules or institutions on global tropical forestry comparable to REDD+.

Sectoral Participation and Technical Knowledge

Emissions Mitigation—As early as the Kyoto conference in December 1997, governments have sought to broaden the mandate for mitigating carbon dioxide emissions outside the scope of the Framework Convention itself by asking the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO) to address emissions from bunker fuels (Kyoto Protocol, Article 2.2). According to a British legal expert, "When Kyoto was negotiated, there was no political appetite to try to deal with bunker fuels" (Interview 3, UK Department of Energy and Climate Change).

Negotiators understood that the IMO and ICAO were specialized UN agencies with decades of experience regulating the commercial shipping and aviation industries. The IMO was viewed as an appropriate international institution for regulating GHG emissions from tankers. In 1997, IMO parties adopted a protocol to the 1973 and 1978 treaties regulating pollution from ships to add an annex on air pollution. By 2011, an amendment proposal to reduce GHG emissions had gained support from different elements of the shipping sector. According to an EU climate negotiator, the benefits of the amendment were clear to the containership companies and the ship manufacturers (Interview 16, European Commission). The containership companies saw the energy savings that would come from the energy efficient ships compliant under the amendment, while the shipping manufacturers had a new product to sell. Support (or acquiescence) from the shipping industry enabled the amendment to pass.

By contrast, sectoral resistance to regulations on carbon dioxide emissions from commercial aircraft has blocked similar political progress towards an agreement under the ICAO (Interview 16, European Commission). The United States and China have both rejected the EU's proposal to place a carbon price on emissions from civil air travel, claiming it would be too costly and the EU proposed regulation would entail extra-territorial legislation. This has paralleled resistance by the fossil fuels sector during the early rounds of the UNFCCC negotiations (Newell, 2000).

In seeking to lower HFC emissions, the United States, Canada, and Mexico have proposed an amendment to the Montreal Protocol to phase-down the production and consumption of HFCs. Although the fluoro-carbons industry in the United States has asked for more time to develop technological alternatives to current HFCs technology, it has supported the amendment proposal (Interview 40, Dupont; Interview 41, Honeywell). Observers of the Montreal Protocol and insiders in the process have long recognized that sectoral participation is a critical element of the ozone regime's success, after an initial period of resistance to regulations in the 1970s before the UN ozone regime was developed (Interview 20, NGO/White House). Montreal Protocol regulations have created new markets for alternatives to older chemicals, producing incentives for the fluoro-carbon producers in the United States and Japan to support control measures.

Sectoral participation in the Montreal Protocol has accelerated transitions to newer chemicals—and is accelerating the transition towards replacements for HFCs—in part because of technical knowledge and expertise that runs through Montreal Protocol institutions. For example, the TEAP is composed of industry experts (Interview 36, U.S. Environmental Protection Agency). The TEAP answers

multiple questions from parties to the Montreal Protocol, effectively educating the negotiators on the technical elements of different technologies (Author's observations, COP 9/MOP 23 Montreal Protocol). Since the same industries that had previously undergone conversion would be regulated under the HFCs amendment, the Montreal Protocol's technical bodies could be applied towards the transition to HFC alternatives (Interview 36, U.S. Environmental Protection Agency).

Financial Assistance—As in emissions abatement, financing mitigation actions and adaptation projects requires the technical expertise that comes with institutional experiences. UNFCCC institutions do not possess the body of experience or knowledge in adaptation support to the extent that MDBs have gained over decades. The MDBs and the developed and developing countries began to recognize that the UNFCCC did not possess the body of expertise and experience necessary to handle complicated adaptation challenges. The UN system recognized the potential contributions of non-UNFCCC institutions in a report presented to the COP (UNFCCC, 2008). Although the UNFCCC system includes a fund reserved for adaptation projects, the Adaptation Fund, it took ten years before issuing its first project after becoming operational (Interview 49, World Bank).

The World Bank has been the most active international institution in providing climate financing outside the UNFCCC. The World Bank serves three different roles in the area of climate finance. It is a lending institution through the International Development Assistance (IDA) and International Bank for Development and Reconstruction (IBRD) funds. It is a trustee of other financial institutions like the GEF and the Climate Investment Funds (CIFs). And it houses the CIF administration in World Bank offices. The World Bank's engagement in climate change has accelerated in recent years because of the growing awareness that the Bank cannot achieve its goal of eradicating poverty without meeting climate-related needs in the developing world (Interview 49, World Bank).

The Bank's knowledge in development assistance is a leading reason it serves a critical role in climate finance. Many donor countries appreciate the expertise of the World Bank when they provide it funding for climate change assistance (Interview 48, finance ministry). Recipient countries know the money will be applied effectively and without the problems sometimes ascribed to the GEF, a UNFCCC financial mechanism. The Bank uses its knowledge of specific countries and regions and incorporates knowledge from thematic and sectoral branches of the Bank, holding regular consultations among different branches and departments (Interview 49, World Bank). Its program of Analytical Advisory Assistance (AAA) is a foundation for the Bank's development work in countries—and that is employed in adaptation projects (Interview 31, World Bank). The GEF and other UNFCCC-linked financing institutions do not possess the same knowledge base, particularly on adaptation and climate-resilience issues.

Technology Transfer—Since the 1992 Rio negotiations, the U.S. government has recognized that climate change would ultimately need a technological solution (Interview 27, U.S. State Department). Providing clean energy technology on the scale necessary to reach nominal emissions targets has proven extraordinarily daunting for the international community—and far beyond the resources of

existing international institutions inside and outside the UNFCCC. Yet the sustained focus on technology transfer between developed and developing countries has made parties to the UNFCCC process more conscious of the need to develop clean technology institutions under the UNFCCC. This has ultimately produced institutions that harness the technical expertise of stakeholders in the energy sector and the land use sector, both of which are subjects of technology transfer under Kyoto Protocol rules. Other international institutions outside the UNFCCC/Kyoto regime do not possess comparable knowledge and expertise in technology transfer across this range of sectors.

Industry plays an important role in the CDM as an evaluator of project proposals (Green, 2008). It also has been involved in setting standards for CDM accounting and verification. A former Executive Secretary of the UNFCCC remarked, "I think there has been some quite useful engagement of the private sector around the whole issue of technology transfer—and secondly there has been very significant input from the private sector around the market-based mechanisms, especially the Clean Development Mechanism, which has made that [institution] more effective" (Interview 10, UNFCCC Secretariat). Despite reservations about its environmental efficacy, the CDM has had a positive albeit conditional impact on wind energy technology transfer (Haščič & Johnstone, 2011). According to one estimate, well over one-third of CDM projects approved by 2006 had claimed to promote technology transfer (Haites, Duan, & Seres, 2006).

Monitoring, Reporting, Verification—The first main obligation of Annex I parties under the Framework Convention has been reporting their GHG emissions annually to the UNFCCC Secretariat. However, neither the Framework Convention nor the Kyoto Protocol places comparable obligations on the developing countries to report their emissions. They provide reports to the Secretariat on a voluntary basis under the Kyoto Protocol. The UNFCCC Secretariat has been charged with receiving those reports and verifying them on the basis of technical standards. The Secretariat has developed comprehensive technical expertise in GHG emissions verification in large part because it has held that long-standing responsibility. In particular, experts from the Secretariat travel to national capitals in the Annex I parties and verify their reports (Interview 4, UNFCCC Secretariat). Under the Convention, non-compliance with reporting standards did not have tangible consequences. However, under the Kyoto Protocol, insufficient reports can result in a country's suspension from the market mechanisms of the Protocol.

Forestry—Although sustainable forest development has long been a subject of negotiations and discussion at the UN level, the UNFCCC institutions have provided a platform for technical negotiations on forestry conservation projects. One reason has been the long-standing technical nature of the negotiations on carbon sinks under the Kyoto Protocol. In the negotiations leading to the Protocol, Annex I parties to the Convention viewed forests as carbon sinks that could be used for accounting purposes to make implementation of their prospective emissions commitments less costly for national economies and businesses (Depledge, 2000). Since that point, the negotiations on forests have taken a surprisingly technical character, considering the principled debates over sovereignty during the 1980s and early

1990s between forest-rich developing states and wealthy developed states (Humphreys, 1998). Following the decisions in COP-13 in 2007, the negotiations on REDD+ have involved technical experts from diverse fields working on issues such as performance-based payments, emissions accounting methodologies, and market mechanisms (Interview 32, Danish Ministry of Climate and Energy; Interview 23, European Commission).

Other international organizations and institutions in the area of forestry had not included the range of stakeholders that have been involved in the REDD+ negotiations. Governments involved in the ITTO and the UNFF have not taken advantage of technical expertise and institutional experiences in viewing forests as carbon sinks and therefore as market instruments because that experience has been developed under the Kyoto Protocol and the REDD+ negotiations. Consequently, experts from different sectors with a stake in the REDD+ negotiations have gravitated towards the UNFCCC, even if they would not otherwise have been interested in climate change negotiations (Interview 32, Danish Ministry of Climate and Energy). This has raised the political profile of forestry inside the UNFCCC and has meant that a wider range of negotiators from national governments are involved, which has enabled the EU for example to employ experts across different issues to help form REDD+ (Interview 23, European Commission).

A Broadening Perception of Climate Change

The engagement of international institutions outside the UNFCCC and the Kyoto Protocol has hinged on the political obstacles to reforming institutions because governments have been able to use the institutional resources, sectoral participation, and technical knowledge of independent multilateral institutions to manage specific climate change issues. In other words, governments have been able to add new international rules and institutions on issues such as financing and emissions mitigation without also needing to reform institutions to achieve those policy objectives, at least not reforms in the requirements for reaching decisions or the opportunity of special groups to exploit institutional loopholes. In that respect, the evolving international management of climate change has been a sustained and multi-faceted effort by the developed countries to limit the politically contentious process of fundamentally reforming the UNFCCC while taking advantage of institutional and technical dimensions of multilateral institutions.

However, this evolving management of climate change issues has hinged on the growing perception by governments, businesses, NGOs, and intergovernmental organizations of the scope and cross-cutting nature of climate change. The evolving international management of climate change has benefited from the broad scope of climate change. Although the vast scope of climate change is often regarded as a source of political dispute and institutional limitations, the cross-cutting nature of climate change has enabled a wide range of international institutions to develop new rules or institutions, or expand the resources supporting existing rules and institutions, *without needing to enlarge their mandates*. In this respect, the cross-cutting nature of climate change has provided governments

with a strong basis for claiming that institutions as diverse as the Montreal Protocol and the World Bank are unable to achieve their mandates without also handling specific climate change issues.

Consequently, governments have not needed to expand the mandates of existing international institutions like the World Bank or the IMO to achieve limited policy goals related to climate change governance. They have not needed to undertake reforms that would involve altering voting rules or the transparency of decision-making processes to use international institutions outside of the UNFCCC to achieve climate change policy goals. Neither have they needed to close loopholes exploited by special groups or expand the range of commitments to costly actions. The mandates of international institutions like the Montreal Protocol's Multilateral Fund, the World Bank, the IMO, or the ICAO already had windows for servicing demands for action on climate change. In that respect, the use of multilateral institutions has been politically expedient because it has not involved considerable reforms but has led to new institutions and new rules making a variety of contributions to climate change governance.

Several respondents with different institutional backgrounds reiterated the significance of the cross-cutting nature of climate change for the engagement of international institutions on specific climate issues. During negotiations on the Framework Convention, climate change was viewed through mitigation lenses as a global emissions problem with technological solutions. Some of the key participants in the early days of the UNFCCC negotiations, or even after it was formed, did not know the full scope of what mitigating climate change would entail (Interview 1, UNFCCC Secretariat). One U.S. negotiator even remarked that being asked to switch from fisheries negotiations to climate negotiations seemed like a demotion because there were hundreds of fisheries agreements but only one climate change agreement (Interview 13, U.S. State Department). Only after the social and economic implications of climate change became more apparent did that negotiator recognize that working on climate change was a "license to steal" because the issue overlaps with other policy fields. Multiple respondents only began to recognize the broad-ranging implications of climate change for policy and governance after accepting portfolios that included climate change.

This change in perceptions has enabled international institutions outside the UNFCCC to make limited contributions in managing specific climate-related issues without needing to expand their mandates, preventing potentially contentious disputes over mandate scope. In those situations where the mandate of a non-UNFCCC institution would be expanded to regulate a climate change issue, institutional resources and sectoral participation have mitigated the political disputes. The movement towards political convergence on HFC control measures under the Montreal Protocol is an example where the institution's mandate could be reasonably said to expand, since HFCs do not possess any ozone-depleting potential. However, the institutions of the Montreal Protocol have helped to mitigate those political disagreements over mandate expansion. As several U.S. legal experts remarked, since the growth of HFCs has been a byproduct of the Montreal Protocol's phase-out of older chemicals, a particular clause in the Montreal Protocol requires parties to address those byproduct environmental consequences of phasing out ozone-depleting substances (Interview 30, U.S. State Department).

The growth of concerns over present-day climate change impacts and the growing recognition that development issues are linked to climate change has prompted the MDBs to begin investing more personnel and financial resources in climate change adaptation and mitigation, believing that they cannot achieve their objectives as development banks without servicing demands for clean energy and capacity building (Interviews 31 & 49, World Bank; Interview 48, finance ministry). The broad scope of climate change as a policy issue has prompted development institutions inside and outside of the UN system to become more engaged financially and with capacity building projects (UNFCCC, 2008). These development institutions have directed greater resources to climate change as a distinct policy issue but they have not needed to change their guiding principles or strategic objectives because they recognized an overlap with climate-related needs. Without undertaking reforms to broaden commitments or close institutional loopholes, or to alter voting rules or the transparency of decision-making processes, these institutions have added to climate change governance.

Conclusion

There have been growing calls for reform of the UNFCCC to meet the demands for action against climate change. This paper explained how governments have met the demand for more governance despite the lagging pace of UNFCCC reforms. New data from interviews and participant observations explained the evolving pattern of international climate change governance. Governments have followed an evolving logic of employing international institutions with specialized sectoral, technical, and institutional characteristics to manage climate change issues. Governments have looked to specific attributes in pursuing new governance when reform was not politically likely. When there were good non-UNFCCC options, governments have made new rules or institutions without reforming existing institutions. Since climate change is a cross-cutting issue, there have been good non-UNFCCC options because of existing specialized international institutions. As a broad issue, climate change has attracted the resources of specialized international institutions without requiring changes in their mandates.

In particular, governments have taken advantage of sectoral participation and institutional resources within existing international institutions. But they have also taken advantage of the UNFCCC in relation to other international institutions, particularly in developing forestry conservation institutions. They have not needed to reform the UNFCCC to achieve limited policy goals, except where no other international institution could service a particular policy goal, such as clean technology transfer, which has prompted more demand for reforming the CDM than using non-UNFCCC institutions. It is not surprising that the pace of UNFCCC reform has lagged behind the demand for action on climate change. The conditions promoting continuity in the UNFCCC have promoted change in climate change governance more broadly.

The evidence points to the importance of institutional resources, sectoral participation, and technical knowledge in the evolving global governance of climate change. Governments have sought to employ several multilateral institutions to regulate specific climate-related issues, precisely to manage them cost-effectively

and mitigate political disputes. However, it is important to acknowledge that power and hard politics have been involved in these decisions, particularly between the United States, Europe, and China.[4] For example, several interviewees pointed to the reluctance of the U.S. government to work within the UNFCCC in explaining why it has favored other multilateral institutions and processes. Nonetheless, those participants have also emphasized the institutional and sectoral characteristics of the specific multilateral institutions that the United States has favored to explain how and why it has engaged in those institutions on issues like financing and emissions mitigation. Political motivations, particularly during the Bush administration, *coincided* with institutional and technical considerations. The precise pattern of climate governance—that is, which issues are handled where—has followed an outcomes-oriented goal of making limited climate progress.

These findings advance the study of institutional change. The case of international climate governance illustrates that conditions for new governance can perpetuate institutional path dependence. When international institutions are viewed as "outside options," they relieve pressures to reform by providing governance opportunities when the demand for collective action grows.[5] When international institutions provide outside options as alternatives to each other, they may diminish the need for institutional reform by relieving the pressure on a single institution to provide public goods. International institutions that operate as outside options for governments are not detrimental to multilateral cooperation. Rather, they can enhance opportunities for it by enabling governments to avoid reforms while providing opportunities for collective action.

The findings also advance the study of global climate governance. The broad scope of climate change has enabled other institutions to get involved under their mandates. Many have claimed that climate change is vast and will affect different aspects of daily life (Archer & Rahmstorf, 2010). The scale of social and economic changes needed to effectively address the problem renders prevailing public institutions ill equipped to make sufficient progress (Perlmutter & Rothstein, 2011). However, the broad scope of climate change has also meant that international institutions do not need expanded mandates to employ their resources to manage specific issues related to climate change. Broad scope has enabled governance to move forward in areas without requiring UNFCCC reforms or new mandates. It has also enabled a wide selection of "experiments" to take place on different climate change issues by providing local, regional, and global actors of various organizations with opportunities to have tangible impacts (Hoffmann, 2011).

To the extent that UNFCCC reform is unlikely because other multilateral institutions can service specific climate change goals, stakeholders in the UNFCCC and national governments may decide to have greater institutionalized coordination between the UNFCCC and other multilateral institutions. This would enable stakeholders and national governments to further harness institutional resources, technical expertise, and sectoral participation across different treaty regimes and international organizations. Greater coordination would also enable parties holding vested interests to achieve various goals, such as securing financing, providing support to domestic industries, satisfying environmental interests, and creating more efficient governance.

Acknowledgments

Special thanks to Robert Keohane, Christy Ley, Christina Davis, Michael Oppenheimer, Phillip Hannam, Matthew Shapiro; three anonymous referees; panel participants at the 2012 Annual Convention of the Midwest Political Science Association; and especially the editor of *Review of Policy Research*, Christopher Gore, for helpful feedback. Funding was provided by the Mamdouha S. Bobst Center for Peace and Justice and the Princeton Institute for International and Regional Studies, both at Princeton University.

Notes

1 Governance encompasses regulatory actions by non-state actors and governments. This article focuses on national government actions.
2 The reader is encouraged to review Supporting Information File S1 for details on the international governance of six climate change issues: (i) carbon dioxide emissions; (ii) non-CO_2 emissions; (iii) forestry; (iv) financing; (v) technology transfer; and (vi) monitoring, reporting, and verification.
3 Joint 9th Conference of the Parties to the Vienna Convention and 23rd Meeting of the Parties to the Montreal Protocol, Bali, Indonesia, 21–25 November 2011 (hereafter "COP 9/MOP 23 Montreal Protocol"); 32nd Open-Ended Working Group of the Montreal Protocol, Bangkok, Thailand, 23–27 November 2012 (hereafter "OEWG 32 Montreal Protocol").
4 Thanks to a reviewer for making this point.
5 For a contrasting view, see Lipscy (2013).

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Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

File S1. Supplementary information on how governments have managed six issues relevant to climate change governance.
Figure S1. *Climate Change Projects Approved (National Projects)*. Sources: GEF Projects Database, World Bank Projects Database.