Mapping Institutional Linkages in European Air Pollution Politics

*Henrik Selin and Stacy D. VanDeveer**

Scholars interested in international cooperation have demonstrated increased attention to various linkages among the growing number of international institutions associated with environmental politics.[1] Analytical interest in these linkages stem from observations that as the density of human activities with transnational environmental effects continues to grow in conjunction with a growth in the number and scope of international institutions that fully or partly address environmental issues, the formation and operation of these institutions increasingly intersect. Documented examples of environmental areas where institutional linkages have important effects on activities and outcomes across institutions include fisheries, regional seas, hazardous chemicals, transboundary air pollution, as well as linkages between environmental institutions and economic and trade institutions.[2]

While earlier work highlighted the growing importance of institutional linkages, the literature on linkages remains littered with proposed taxonomies of linkages and little agreement regarding their utility for advancing understanding of the implications of such linkages.[3] Furthermore, most of these taxonomies remain too broad and vague to offer useful guidance for empirical research regarding linkages as possible avenues of influence across institutions. This article stresses the function of linkages as potential causal pathways of influence within policy making and implementation across institutions—pathways often neglected in research on environmental politics.

Views on the origin and function of linkages as causal pathways, in part, will be determined by general perspectives on international cooperation. Power-

* Helpful comments on drafts of this article were given by Jørgen Wettestad, Christer Ågren, Noelle Eckley and two anonymous reviewers. Financial support for this research has been provided by the Global Environmental Assessment Project at Harvard University and the Knut and Alice Wallenberg Foundation.

1. Young 1996, 1999, and 2002; VanDeveer and Dabelko 1999; Stokke 2000 and 2001; Rosendal 2001; and Oberthür 2001 and 2002.
2. Stokke 2000; Haas 1993; Selin and VanDeveer forthcoming; Krueger and Selin 2002; Selin and Eckley 2003; Wettestad 2002; Zito 2001; United Nations Environment Programme and International Institute of Sustainable Development 2000; Bail, Falkner, and Marquard 2003; and Williams 2001.
3. Young 2002; and Stokke 2001.

Global Environmental Politics 3:3, August 2003

based perspectives might view institutional linkages as a means for the most powerful actors to impose their preferred outcomes across institutions. Interest-based perspectives may regard institutional linkages as potential pathways for strategic action and deliberation to forward specific interests. Knowledge-based or cognitive perspectives would likely see institutional linkages as potential avenues for the diffusion of norms and ideas.[4]

This article offers an analytic framework for guiding empirically grounded research on the linkages between institutions as potential causal path- ways. It outlines a "map" of such linkages for use in empirical study. The analytical framework remains agnostic as to the relative utility and explanatory power of power-based, interest-based and knowledge-based explanations. For example, within the framework, participants may be seen to act strategically to exploit institutional linkages in pursuit of their defined interests and preferences, or linkages may be seen to serve as vehicles for diffusing norms, ideas and knowledge across institutions.

The analytical framework distinguishes between *governance* and *actor* linkages. Governance linkages, on which the linkage literature hitherto has almost exclusively focused, refer to structural connections between components of particular international institutions (e.g. principles, norms, rules, decision-making procedures, and issues-areas). Supplementing governance linkages, actor linkages are agent-based linkages across institutions. The focus on actor linkages addresses an important limitation of much of the existing strucurally-focused linkage literature. Namely, this literature pays too little attention to the roles of various actors in the creation, maintenance and strategic use of linkages. The inclusion of actor linkages also helps to better operationalize the concept of linkages for the empirical research.

As a case-study, this article explores governance and actor linkages in attempts to abate air pollution problems in Europe resulting from sulfur, nitrogen compounds and volatile organic compounds (VOCs). Politics in this area exemplify the increasing complexity and quantity of institutional linkages in contemporary multilateral environmental cooperation.[5] Attention is directed to the two primary multilateral institutions for European air pollution cooperation and regulation: the Convention on Long-Range Transboundary Air Pollution (CLRTAP), centered in Geneva at the United Nations Economic Commission for Europe; and the European Union (EU), located in Brussels. While CLRTAP and the EU are of a different legal character, both are multilateral institutions engaged in environmental policy development. Furthermore, as the scope and stringency of policy has grown in both institutions, so too has the importance of the linkages between them.

International environmental institutions are usually analyzed in isolation, partly because the common definition of regimes focuses on single issue-areas. The expanding research on institutional linkages, including the framework and

4. For more on power-based, interest-based and knowledge-based explanations, see Hasenclever, Mayer, and Rittberger 1997.
5. Wettestad 2002; and Zito 2000 and 2001.

the CLRTAP-EU linkages presented here, illustrates the multitude of complex linkages between environmental institutions. This suggests that researchers may need to reject the false isolation of international environmental institutions that is embedded in commonly used theory and methods, and pay more attention to linkages and linkage politics as potential causal pathways for shaping policy making and implementation across institutions.

The following section maps governance linkages and actor linkages and elaborates these concepts. The subsequent section reviews the development of CLRTAP and EU air pollution policy, respectively. After these reviews, the remainder of the piece explores numerous governance and actors linkages between CLRTAP and EU air policy, highlighting the importance of these linkages for programmatic and policy outcomes across the two institutions. The article ends with concluding remarks on the role of linkages and argues that research on international environmental cooperation would benefit from greater empirical attention to linkages in a context of a multitude of connected governance and actor linkages.

Mapping Linkages

Institutions denote social orders that operate as codes of conduct by defining social practices among those who participate in them.[6] For Young, institutional linkages are politically significant connections between multiple, nominally separate institutions, including regimes, commonly understood as sets of converged principles, norms, rules and decision-making procedures connected to a specific issue-area.[7] Studies of institutional linkages examine situations when one institution affects the contents, operation or outcome of another institution.[8] Such interplay occurs on a spectrum from highly iterated interactions where two institutions affect each other to a similar extent, to largely unidirectional interactions where one institution often affects another, but not vice versa.[9] The EU-CLRTAP linkages discussed later are typically examples of iterated interactions.

Rosendal argues that institutional linkages can give rise both to synergetic and conflicting effects.[10] Synergy arises in situations where two institutions are mutually reinforcing. Conflict arises when the objectives of two institutions contradict each other, hampering international cooperation and problem solving. While this formulation draws attention to an important distinction, it tends to neglect the role of competition across institutional venues. For example, progress in CLRTAP in the late 1980s and early 1990s worked as a stimuli and incentive for the EU to strengthen its air policy, jointly resulting in a general strengthening of pan-European air pollution regulations. Such competition,

6. Young 1994, 3.
7. Young 2002; and Krasner 1983.
8. Stokke 2001.
9. Young 2002, 84.
10. Rosendal 2001, 97.

however, may not be equally beneficial for both institutions; competition may enhance the political and regulatory status of one institution, but weaken the position of another.

This article distinguishes two general types of linkages as a means for examining the roles and effects of such linkages on policy-making and implementation: governance linkages and actor linkages. Governance linkages refer to structural connections between components of particular international institutions (e.g. principles, norms, rules, decision-making procedures and issues-areas). Young argues that such linkages can operate vertically and horizontally.[11] Vertical linkages are connections between institutions that operate at different levels of social organization. Thus, particular narrow regimes may be nested or embedded within other broader institutions. Horizontal linkages are interactions among institutions operating at a similar level of social organization.

In a different structural taxonomy, Stokke distinguishes between utilitarian, normative and ideational interplay.[12] Utilitarian interplay exists when the rules and programs of one institution alter the costs or benefits or behavioral options of another institution. Normative interplay exists when one institution confirms or contradicts the norms upheld by another institution. Ideational interplay involves learning and takes place when one institution supports the effectiveness of another institution by drawing international and/or domestic attention to the problems that institution addresses. Ideational interplay is also intended to cover situations when one institution provides a solution that is emulated or adapted for problem-solving by another institution.

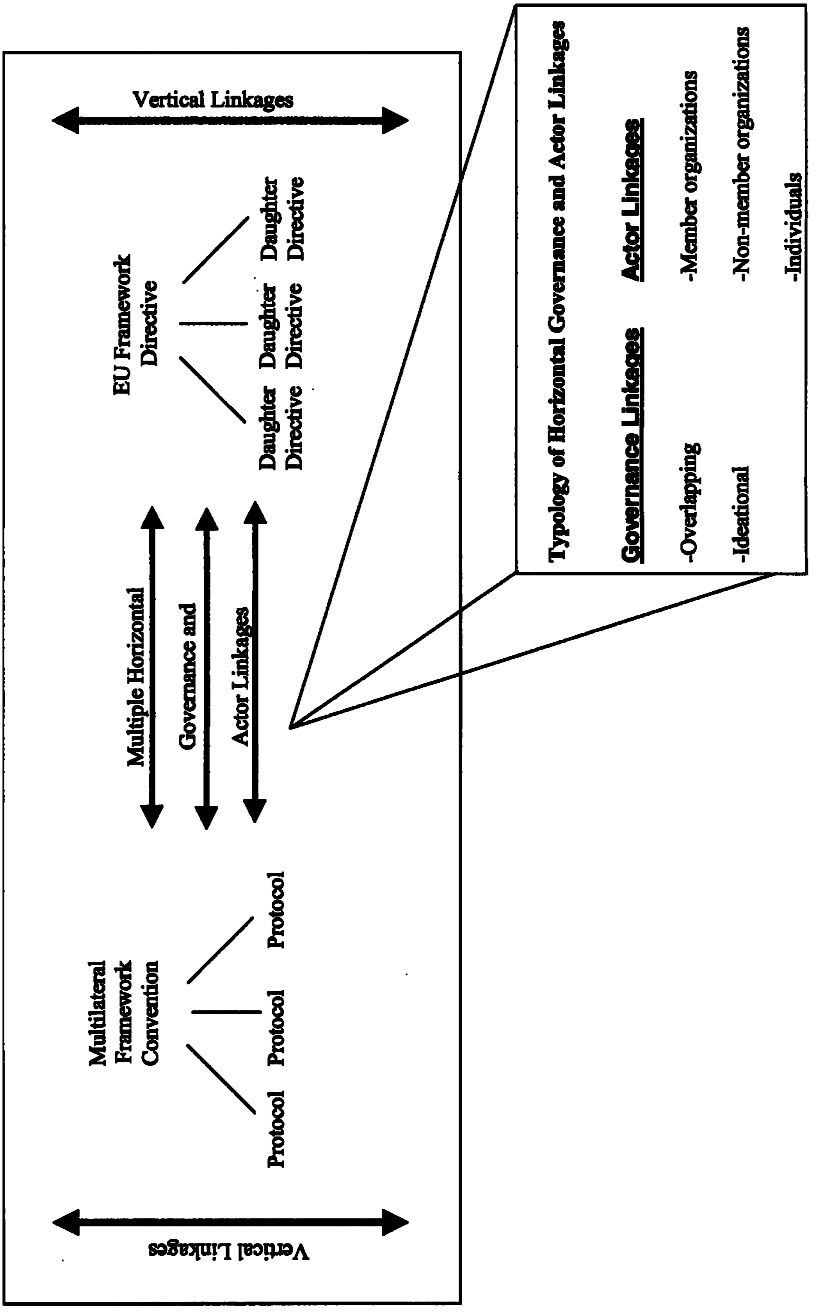
Because of their structural nature, taxonomies such as those presented by Young and Stokke are largely silent on the various systematic ways in which states, other organizations, and individual participants participate across separate institutions and potentially create and drive institutional linkages. In order to empirically study linkages in any meaningful way, structural-oriented governance linkages must be supplemented with attention to agency, as developed through actor-linkages, and considered in concert with governance linkages. For that purpose, we elaborate the notion of actor linkages. We identify three types of actor linkage—member organizations, non-member organizations, and individuals—that we discuss and apply to our examination of linkages between CLRTAP and the EU. Figure 1 graphically illustrates vertical and horizontal linkages where types of horizontal linkages are listed in the figure's pull-out box.

Governance Linkages

Both CLRTAP and the EU are embedded in a broader institutional structure. Some of these broader institutions, such as sovereignty, constitute the international system *writ large*.[13] Overarching institutions may also be cast at the level

11. Young 1996 and 2002.
12. Stokke 2001.
13. Young 1996 and 2002.

Figure 1
Vertical and Horizontal Linkages between CLRTAP and the EU



of general policy arenas.[14] An important example in international environmental politics includes Principle 21 of the 1972 United Nations Conference on the Human Environment, which assigns states shared responsibility to ensure that activities within their jurisdiction do not cause damage to the environment of other states, or of areas beyond national jurisdiction. Another increasingly common vertical governance structure in international environmental cooperation is the convention-cum-protocol model of institutional development. Here, a framework convention is first negotiated, followed by the development of more detailed regulatory protocols.[15] In addition to CLRTAP, which fits this model, examples include regimes around ozone layer protection, biodiversity, and climate change. Similarly, EU air pollution policy has moved from a 1996 Framework Directive to stronger regulatory requirements in subsequent Daughter Directives.

Two types of horizontal governance linkages of relevance for CLRTAP-EU linkages are overlapping and ideational linkages. Overlapping linkages exist when institutions that were formed largely separately intersect on a de facto basis, impacting on each other.[16] Overlapping linkages are said to be functional and political.[17] Functional overlaps exist in biophysical and socioeconomic terms. For example, the relationship between the ozone regime and the climate change regime is affected by the complex feed-backs that ozone-depleting substances have on the climate.[18] Also, regimes on marine pollution frequently interface with regimes on the protection of marine mammals and fish stocks having both biophysical and socioeconomic implications.

In political overlaps, the content and design of one regime, or interests and capabilities of regime actors, affect the formation or operation of another. This has been demonstrated both between different global regimes, and between global and regional regimes.[19] Among political overlaps, Rosendal distinguishes between norm overlap and rule overlap.[20] Norm overlap exists when the overall policy objectives that carry legitimacy among participants of two institutions overlap. Physical (environmental) and political linkages have become increasingly visible in European air pollution abatement as both CLRTAP and the EU have increased the number of commonly regulated substances and converged in regulatory design. This article explores the means by which actors may drive norm and rule linkages.

14. Hasenclever, Mayer, and Rittberger 1997, 10–11; and Levy, Young, and Zürn 1995, 273.
15. Young 1996; Joyner 1998; and Porter, Brown, and Chasek 2000. Though increasingly common, Susskind (1994, 30–37) in a critique of the convention-cum-protocol approach argues that such nesting can easily result in the creation of lowest-common-denominator agreements and that the content and structure of the initial convention—often designed to primarily satisfy political pressures—can later obstruct the design of environmentally effective protocols.
16. Young 1996, 6.
17. Young 1999.
18. Oberthür 2001, 359.
19. Oberthür 2001; Stokke 2000; and VanDeveer 2000.
20. Rosendal 2001, 97.

Ideational linkages denote the many knowledge-based linkages across international institutions.[21] Important examples of these linkages include common technical and scientific ideas, concepts, and practices as well as their physical expressions such as assessment models, products and reports. Organized environmental assessments whereby expert knowledge related to a policy problem is organized, evaluated, integrated and presented to inform decision-making are increasingly utilized in international environmental cooperation.[22] Likewise, the use of particular forms of social-economic analysis has increased in recent years, for example in evaluating international and domestic impact of different abatement strategies. Such analysis techniques and their physical expressions are often taken up and adopted for policy-making purposes in multiple international regimes.[23] Numerous empirical examples of these horizontal linkages and their implications on European air pollution abatement are detailed below.

Actor Linkages

In conjunction with an increase in the number and scope of environmental institutions, the number and range of institutional participants have grown over the past three decades. Yet the existing linkages literature has largely ignored the actions, strategies and beliefs of participants (i.e. the agents) in creating, maintaining and using linkages to exercise influence. To address this shortcoming, we separate participants into three types of actors: member organizations, nonmember organizations, and individuals. These three types capture a wide range of participants, including state parties and state observers, IGO parties and IGO observers, NGOs, research organizations, business groups, and individuals who represent these organizations. Individuals are treated as a separate category because they have the capacity to exercise agency both in their formal and informal roles. Furthermore, individuals move across organizations and venues over time, playing multiple roles as state officials, IGO and NGO representatives, and secretariat officials. An exclusive focus on organizational actors would ignore these potentially important linkages.

Member organizations: Typically, formalized international institutions have state members, although membership can also include IGOs such as the European Community. For example, the European Community is a full party to CLRTAP through the European Commission. Also, in very few cases, such as in the Arctic Council, NGOs have similar rights as other members.[24] As linkages grow in both number and scope, demands on members to avoid conflicting goals in separate institutions increase. If related institutions develop incompati-

21. Ideational linkages can operate both vertically and horizontally, but are here treated as horizontal linkages based on our case-study. Selin and VanDeveer 1999; and Stokke 2001.
22. Jasanoff and Wynne 1998; and Global Environmental Assessment Project 1997.
23. Selin and Eckley 2003.
24. Young 1997.

ble goals or set contrasting standards and rules, members face dilemmas. Thus, members typically have incentives to push for compatible norms and rules across institutions. For example, active coordination of policy positions by states with membership in both the Helsinki Commission (HELCOM) and the Oslo-Paris Commission (OSPAR) has led to many similarities across the two marine protection regimes.[25] Similarly, some states actively seek harmonization and coordination of CLRTAP and EU policy.

Environmental policy leaders may attempt to use institutional linkages to "venue shop" for the institutions most receptive to their calls for stronger policy.[26] They may also seek to use regional institutions to implement global ones, thereby creating and driving linkages in order to try to strengthen policy making and implementation.[27] Such behavior can be observed on European air pollution abatement, where some member states seek to exploit linkages between CLRTAP and EU air policy to formulate and implement more stringent international policies. Of course, other actors may seek to use linkages to block formulation of new policy, or the implementation of existing policy.

Linkages may also arise from the desire of a member of one institution to become a member of another. For example, part of the surge in ratification and implementation efforts for CLRTAP and its protocols can be attributed to the drive by many states to gain entry to the EU.[28] In turn, the European Commission and the EU member states have pushed EU candidate states to harmonize their domestic air pollution policies with EU legislation as a requirement for EU membership.[29] Thus, these types of linkages can be driven both by those who seek membership and those who stipulate requirements for such membership.

In situations where some members belong to two institutions, while others do not belong to both, efforts to harmonize and coordinate the two institutions' requirements and programs may produce tensions. The efficiency goals of members who belong to both institutions may put these organizations' interests in conflict with those members belonging to only one of the institutions. For example, CLRTAP parties that are neither EU member states nor candidate states are likely to prioritize CLRTAP policies over EU concerns and pay less attention to CLRTAP-EU linkages. Such linkages are discussed below.

Non-member organizations: Organizations other than formal members can influence institutional activities, often in the capacity of observers through provisions that allow for non-member observers to be present and act outside member delegations. Typically, NGOs are observers, but non-member states can also be observers. For example, Australia, New Zealand and Japan are observers to CLRTAP. Studies have shown that NGOs can act as catalysts of change and participate by providing scientific information, developing policy proposals,

25. Haas 1993; and Selin and VanDeveer forthcoming.
26. Young 2002; Selin 2003; and VanDeveer forthcoming.
27. VanDeveer 2000; and Young 2002.
28. VanDeveer forthcoming.
29. Crisen and Carmin 2002.

partaking in transnational coalition building, reporting on negotiations, helping monitor commitments, and mobilizing public opinion.[30] The growing tendency to allow NGOs more prominent roles in international cooperation arrangements, together with a growing importance of linkages, suggest that NGOs must spend more resources coordinating their activities and positions across institutions.

Some institutions assign formal roles to non-members beyond those of observers (yet short of membership). For example, HELCOM sometimes designate NGOs as "lead parties" in multilateral assessment and policy recommendation efforts.[31] Non-member organizations can also fulfill other tasks, such as providing secretariat services and functioning as international coordination centers that facilitate policy making and implementation. Moreover, organizations that possess technical and scientific capabilities can perform research and monitoring activities such as conducting environmental assessments and building models to aid policy-making and implementation. In these capacities, technical and scientific organizations can have potentially important influence on activities and outcomes across institutions, if assessments and models are utilized in more than one institution.[32] The role of such CLRTAP-EU linkages is discussed below.

Individuals: The importance of individual leadership and informal networks is visible in linkage politics, as individual state officials and representatives of international organizations often participate in multiple international regimes and exercise leadership and participate in networking also in a linkages context. Furthermore, specific individuals may influence multiple organizations and/or change institutional affiliation, thereby changing their roles over time. Existing literature on leadership and informal networks notes the importance of individuals in international cooperation. The leadership literature highlights different ways in which specific individuals can affect cooperation and outcomes by exercising various forms of leadership.[33] The network literature demonstrates that individuals play crucial roles in international cooperation by participating in coalition-formation, agenda-setting, decision-making and dealbrokering, in these capacities regularly affecting outcomes.[34]

It is not unusual for one person to work in the same regime for several years, building important personal networks within and across related regimes. Such individual linkages are quite common within European air pollution abatement. Many European countries send the same delegates to CLRTAP meetings for a long period of time, sometimes even over decades. Often such individ-

30. Hägerhäll, 1993; Princen and Finger, 1995; Raustiala 1997; Betsill and Corell 2001; Florini 2000; and Simmons and Oudraat 2001.
31. VanDeveer 1997.
32. Bäckstrand 2001.
33. Underdal 1998; Osherenko and Young 1993; and Young 1991.
34. Keck and Sikkink 1998; and Sikkink 1993.

uals, particularly those from the environmental pusher states, play important leadership roles in formulating policy.[35] Many delegates of EU member states to CLRTAP are also state delegates to EU bodies, working with the European Commission (of whom some are Community representatives at CLRTAP meetings) as the Community develops its air policies. In these webs of personal interactions informal networks can be influential vehicles for the diffusion of knowledge, ideas, policy proposals and individual career advancement across fora. As such, these individual linkages may play a role in attempts by pusher states to use linkages to strengthen international policy.

In addition to the same state delegates working in parallel in connected institutions and being part of linkage politics, individuals frequently change institutional affiliation and employment over time. People may move between institutions and organizations, taking their experience, knowledge, ideas and personal contacts with them. Sometimes these moves result largely from the individuals' choices. Other times, they may be the result of state and organizational strategies. Appointment of specific individuals to key positions in international organizations is used to influence activities and policy. This can be seen, for example, in reference to chairpersons of CLRTAP sub-groups, EU Commissioners, and national experts in the European Commission, where environmental pusher states often finance and fill key positions with individuals intended to further policy goals.

The Convention on Long-Range Transboundary Air Pollution

Little of the large body of CLRTAP literature examines CLRTAP's linkages with other institutions.[36] CLRTAP was the joint result of developments within cold war politics and international environmental cooperation in the late 1970s.[37] The LRTAP Convention was negotiated between 1977 and 1979, signed in November of 1979, and entered into force in March of 1983.

As a framework convention, CLRTAP establishes a basis for research and information sharing. CLRTAP policy-making power is vested in the Executive Body, which, like all CLRTAP bodies, makes decisions by consensus and meets at least once a year to review the implementation of the Convention and adopt plans for future activities. The CLRTAP secretariat is comparatively small and has remained more or less the same size throughout the Convention's existence, despite a growing workload, with about five full time professional positions. The main function of the secretariat is to organize meetings under the Convention, prepare annual work plans, and collect information from states. Technical

35. Bäckstrand 2001; and Selin 2003.
36. On CLRTAP, see, for example, Levy 1993; Westone and Rosencranz 1983; McCormick 1997 and 1998; Munton 1998; Carlos di Primio 1998; Social Learning Group 2001; Victor, Raustiala, and Skolnikoff 1998; Wettestad 1997, 2000, and 2002; Underdal and Hanf 2000; and Eckley 2000.
37. Larsson 1996; and Chossudovsky 1989.

emission data are sent to the Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (EMEP) for compilation in EMEP reports.[38]

The CLRTAP organization structure has changed frequently over the years. As the focus of work under the Convention has shifted, new subsidiary bodies were created and existing ones were abolished and given new tasks and/or new names. Three main bodies are currently operating under the Executive Body; the EMEP Steering Body, the Working Group on Effects, and the Working Group on Strategies and Review. The EMEP Steering Body oversees the activities of the EMEP programs, including an environmental monitoring system and the collection of emission data, measurement of air and precipitation quality, and modeling of atmospheric transport and deposition of air pollution.

The Working Group on Effects provides information on impacts on human health and the environment of air pollutants. The Working Group on Strategies and Review is the political negotiation committee where the parties conduct formal negotiations on pollution-specific agreements and review progress. Under the three main bodies, one or several International Cooperative Programs and Technical and Scientific Centers can be established on an ad hoc basis, either to supervise continuing programs or prepare technical and scientific reports. In addition, the Executive Body established the Implementation Committee in 1997 to aid in the review of compliance by the parties.[39]

Eight CLRTAP protocols have been negotiated, six of which are of relevance for addressing environmental problems associated with sulfur, nitrogen, and VOCs.[40] Table 1 lists these six protocols, briefly describes their major provisions, includes information on the number of signatories and parties to each agreement, and notes progress in implementation. Table 2 lists the CLRTAP parties and presents information on the national ratification status of the protocols.

The first substantive agreement to be negotiated under CLRTAP was a financing mechanism for EMEP. This requires parties to pay mandatory contributions, as well as invites voluntary financial contributions to cover the costs of the international technical EMEP centers that monitor air pollutants and report data. In addition to the EMEP protocol, separate pollution-reduction protocols have been created in a piecemeal fashion. In 1983, work began on creating a sulfur agreement which resulted in an agreement on a 30% reduction in 1985.

When the contribution of nitrogen to acidification was highlighted, it was added to the Convention's agenda. A separate nitrogen protocol was adopted in

38. EMEP was established already in 1977. When CLRTAP was set up, EMEP and its programmes were incorporated into CLRTAP. Carlos di Primio 1998.
39. United Nations Economic Commission for Europe 1997.
40. In addition to protocols on sulfur, nitrogen compounds and VOCs, CLRTAP has also negotiated protocols on heavy metals and persistent organic pollutants that were signed in 1998. Because these two protocols cover substances that are outside the scope of this paper, they are not addressed in this article.

Table 1
CLRTAP and its Protocols

1979	**LRTAP Convention**: Framework convention, states agree to endeavor to limit and/or reduce air pollution using best available technologies and to share scientific, technical and environmental policy information. (Adopted in Geneva, 13.11.1979; Entry into force, 16.03.1983; 49 parties, as of 06.10.03)
1984	**EMEP Protocol**: Creates a multilateral trust fund for the long-term financial support of EMEP activities. (Adopted in Geneva, 28.09.1984; Entry into force, 28.01.1988; 40 parties, as of 06.10.03)
1985	**Sulfur Protocol**: States agree to reduce sulfur emissions or their transboundary fluxes by 30 percent, from 1980 levels, by 1993. All parties in compliance by 1998. (Adopted in Helsinki, 08.07.85; Entry into Force, 02.09.87; 22 parties as of 06.10.03)
1988	**NOx Protocol**: States commit to freezing NOx emissions (at 1987 or earlier levels) by the end of 1994, and to future co-operation to further reduce NOx emissions and establish critical loads. Eighteen of the Protocol's 25 parties complied with the terms of the freeze. Twelve West European states went farther, aiming to reduce NOx emissions by 30 percent by 1998. (Adopted in Sophia, 31.10.88; Entry into Force, 14.02.91; 28 parties, as of 06.10.03)
1991	**VOCs Protocol**: States agree to reduce VOCs emissions by 30 percent from a chosen baseline year between 1984 and 1990. Most countries chose 1988. By 2000, only seven states had achieved the targeted reductions, while four more states had documented reductions between 16–21 percent. (Adopted in Geneva, 18.11.91; Entry into Force, 29.09.97; 21 parties, as of 06.10.03)
1994	**Second Sulfur Protocol**: Replaces the expired 1985 Sulfur Protocol. Retaining 1980 levels as a baseline and using an "effects based" approach setting "target loads" based on calculated critical loads, states agreed to different emissions reductions by 2000, 2005 and 2010—representing a 60 percent reduction in the difference between existing deposition levels and critical loads. By the late 1990s, 19 states had either achieved their 2000 target levels or appeared to be on track to do so. (Adopted in Oslo, 14.06.94; Entry into Force 05.08.98; 25 parties, as of 06.10.03)
1999	**Multi-Pollutants/Multi-Effects Protocol**: States agree on national emission ceilings for 2010 for sulfur, NOx, VOCs and ammonia. When fully implemented, Europe's sulfur emissions will be cut by at least 63%, NOx emissions by 41%, VOC emissions by 40% and ammonia emissions by 17% compared to 1990. (Adopted in Gothenburg, 30.11.99; 31 signatories and 4 parties as of 06.10.03)

Source: Adapted and expanded from McCormick 1997, 59.

Table 2
List of the 49 CLRTAP Parties and Signatories (S) and Ratifications (R) of Protocols. EU member states and the European Commission are in bold.

CLRTAP Party	*EMEP*	*First Sulfur*	*Nitrogen*	*VOC*	*Second Sulfur*	*Multi/ Multi*
Armenia						S
Austria	R	R	R	R	R	S
Azerbaijan						
Belarus	R	R	R			
Belgium	R	R	S	S	R	S
Bosnia and Herzegovina	R					
Bulgaria	R	R	R	R	S	S
Canada	R	R	R	S	R	S
Croatia	R				R	S
Cyprus	R					
Czech Republic	R	R	R	R	R	S
Denmark	R	R	R	R	R	R
Estonia	R	R	R	R		
Finland	R	R	R	R	R	S
France	R	R	R	R	R	S
Georgia						
Germany	R	R	R	R	R	S
Greece	R		R	S	R	S
Hungary	R	R	R	R	R	S
Iceland						
Ireland	R		R		R	S
Italy	R	R	R	R	R	S
Kazakhstan						
Kyrgyzstan						
Latvia	R					S
Liechtenstein		R	R	R	R	S
Lithuania						
Luxembourg	R	R	R	R	R	R
Malta	R					
Monaco	R			R	R	
Netherlands	R	R	R	R	R	S
Norway	R	R	R	R	R	R
Poland	R				S	S
Portugal	R			S		S
Republic of Moldova						S

Table 2 (*continued*)

CLRTAP Party	*EMEP*	*First Sulfur*	*Nitrogen*	*VOC*	*Second Sulfur*	*Multi/ Multi*
Romania	R					S
Russian Federation	R	R	R		S	
Serbia and Montenegro	R					
Slovakia	R	R	R	R	R	S
Slovenia	R				R	S
Spain	R		R	R	R	S
Sweden	R	R	R	R	R	R
Switzerland	R	R	R	R	R	S
FYR of Macedonia						
Turkey	R					
Ukraine	R	R	R	S	S	
United Kingdom	R		R	R	R	S
United States	R		R	R		S
European Community	R		R	S	R	

Source: http://www.unece.org/env/lrtap/

1988. As the third set of pollutants that was picked up by CLRTAP, protocol negotiations on VOCs were held between 1989 and 1991. VOC emission sources include fuels, solvents, cleaners and a number of other volatile chemicals that are partly linked to the acidification issue, but are regulated primarily because of their contribution to the formation of ground-level ozone. As the first sulfur protocol became obsolete in the early 1990s, it was replaced by a second sulfur protocol in 1994.

Despite previous efforts, the parties believed in the mid-1990s that pollution levels of sulfur, nitrogen compounds and VOCs remained above levels safe for ecosystems and humans. Parties hoped that simultaneously addressing this set of environmental concerns would take into account the close relationship between emission sources, their receptors and the transboundary nature of the pollutants. For that purpose, a multi-effects/multi-pollutions protocol on acidification, eutrophication and ground-level ozone was developed and adopted in Gothenburg 1999, setting national emission reduction targets for each pollutant for each state.[41]

Going beyond flat-rate emissions cuts, the Gothenburg protocol is based on the critical loads concept first was used in the 1994 second sulfur protocol.

41. Wettestad 2002.

The concept of critical loads denotes an attempt to establish a critical environmental level below which no harmful effects occur. Emission reductions are divided among countries on a regional basis in an attempt to minimize the costs for the region as a whole.[42] Environmental data are gathered within the EMEP monitoring system and critical loads maps are made on outputs generated by the Regional Air Pollution Information and Simulation (RAINS) model developed at the International Institute for Applied Systems Analysis (IIASA).

EU Air Policy

Like CLRTAP analyses, EU scholarship tends to ignore other international institutions and the importance of institutional linkages for Community policy making.[43] Whereas CLRTAP was established to deal specifically with transboundary air pollution, the EU began as the European Economic Community as a forum for economic and security cooperation that came into force with the Treaty of Rome in 1957.[44] Early Community attempts at environmental legislation were primarily concerned with harmonizing regulatory standards across member states in order to promote the common market.[45] Environmental policy had been introduced to the Community agenda by the early 1970s. In the 1987 Single European Act, environmental policy gained legal recognition as a Community policy area for the first time.

Community decisions are negotiated among (and within) the Commission, the Council of Ministers and the European Parliament. The Service for the Environment and Consumer Protection was established in 1973 and became Directorate General XI within the Commission in 1982. The Commission, largely because of its policy making powers and great command of resources, plays a major role in setting agendas, developing policies and supervising implementation. Between the Single European Act of 1987 and the entry of force of the Maastricht Treaty in 1993, many environmental decisions were taken by unanimity in the Council, with Parliament having a purely consultative function.[46]

The Maastricht Treaty introduced qualified majority voting in the environmental field, also outlining new cooperation and co-decision procedures. The cooperation procedure allows the Council to override Parliamentary rejection of a measure only by unanimous vote, where the co-decision procedure requires the use of a Conciliation Committee to reconcile differences between Parlia-

42. Bäckstrand 2001.
43. Carius 2002; and VanDeveer 2002.
44. What is now called the European Union has changed names throughout its existence. Community will be used as a generic term to denote the European Economic Community, the European Community, and the European Union and the entire period of Community environmental policy.
45. Boehmer-Christiansen and Skea 1991; Dietrich 1996; and Dahl 1997.
46. This description is a simplification in the sense that several important environmental decisions (e.g. vehicle emission standards) were taken under the then Article 100A on qualified majority.

ment and Council on specific issues. With the 1997 Amsterdam Treaty, the co-operation procedure in practice disappeared on environmental issues and the co-decision procedure establishes full equality between Parliament and the Council. The European Environmental Agency, set up in 1994, collects, processes and distributes technical and scientific environmental data, aiming to improve the state of environmental knowledge.

Although some air policy was created in the 1970s, the main development of Community air policy began in 1983–84.[47] In recent years it has grown in scope and stringency and become a cornerstone in Community environmental legislation, setting minimum standards for environmental and human health protection across member states. Table 3 lists Directives central to Community air policy and CLRTAP and its protocols to illustrate the dual development of CLRTAP and EU air policies over time. Table 2 shows which of the eight CLRTAP Protocols the Commission and the separate EU member states have signed and ratified.

Directives in the 1970s introduced Community legislation on vehicle engines and fuel contents. A 1980 Directive set air quality limits for sulfur dioxide, suspended particulates, nitrogen dioxide, black smoke and lead. Under a 1984 Framework Directive on reducing emissions from industrial plants, work began the same year to develop a daughter directive on emissions from large combustion plants (LCPs).[48] Delayed by the needs for unanimity among member states, a LCP Directive was finally adopted in 1988 (88/609). To strengthen fuel and vehicle emission standards, the Commission in 1984 proposed further regulations on vehicle emissions. With the entry into the force of the 1987 Single European Act and its possibility for qualified majority voting, Directive (88/76) could be taken in December 1987. As a result of a continued effort on vehicles regulations, Directive 89/458 made new standards for small cars compulsory starting in 1992. Further, Directive 91/441 taken in December 1991 set required standards for all new-model cars.

By the early 1990s, despite previous Community legislation, many Community and national officials believed that further sulfur and nitrogen regulations were needed in order to achieve acceptable environmental and human health standards.[49] Such work was guided by the Fifth Environmental Action Program (1993–2000), setting general long-term objectives for acidification, eutrophication and ozone that there must be no exceeding of critical loads (for acidification) or of critical levels (for ozone). To achieve this goal, a Framework Directive on air quality standards (96/62) was adopted in September 1996.

There was also internal Community pressure to develop a comprehensive Community Acidification Strategy with the 1994 CLRTAP second sulfur protocol serving as a reference point. In 1995, the Commission began to develop a

47. Wettestad 2002.
48. Haigh 1989.
49. This discussion of EU air policy development draws heavily on Grant, Matthews, and Newell 2000; McCormick 2001; and Wettestad 2002.

Table 3
Main Community Air Directives and CLRTAP Protocols.

Year	*Directives and Protocols*
1970	EC Directive 70/220—Initial Community standards set for spark-ignition engines for carbon monoxide and hydro carbons. Nitrogen oxides added in 1978. All standards tightened through 1987.
1972	EC Directive 72/306—Early limits on the opacity of emissions from diesel engine vehicles.
1975	EC Directive 75/716—Initial Community standards for the sulfur content in fuel. Standards for lead and VOC emissions added subsequently. All standards tightened progressively through 1996.
1979	UNECE Convention on Long-Range Transboundary Air Pollution.
1980	EC Directive 80/779—Initial Community air quality limit values on sulfur dioxide and particles.
1984	EC Directive 84/360—Framework Directive on emissions from industrial plants.
1984	CLRTAP EMEP Protocol.
1985	CLRTAP Sulfur Protocol.
1988	EC Directive 88/76—Principle of optional harmonization is revoked. EC Directive 88/77 and 88/436—Initial Community standards for diesel engines. EC Directive 88/609—Large Combustion Plant Directive sets both technology-based emission limits and overall percentage reductions. Revised in 2000.
1988	CLRTAP Nitrogen Protocol.
1990	EC Directive 90/313—Establishes requirement of public access to environmental information. EC Directive 90/1290—Established European Environmental Agency to collect and provide environmental information to the Community and Member States. Became operational in 1992.
1991	EC Directive 91/441 on road vehicle emissions, including volatile organic compounds.
1991	CLRTAP Volatile Organic Compounds Protocol. 1992
1992	EU Directive 92/72—Requires ozone monitoring and establishes air quality standards for ozone.
1993	EU Directive 93/12—Sets limit values for sulfur content of gas oils.
1994	CLRTAP Sulfur Protocol on Further Reductions.
1996	EU Directive 96/61—Integrated Pollution Prevention and Control Directive establishes multi-media permitting system and strengthens implementation mechanisms. EU Directive 96/62—Air Quality Framework Directive sets air quality standards and requires monitoring and notification of the public when standards are not met. Intended to beget daughter directives.

Table 3 (*continued*)

Year	*Directives and Protocols*
1999	CLRTAP Multi-Pollutants/Multi-Effects Protocol
1999	EU Directive 99/30, daughter directive to 96/62—Sets limit values for sulfur, nitrogen, particulate matter, and lead in ambient air.
1999	EU Directive 99/32—Sets maximum permitted concentration for sulfur in heavy fuel oil.
2000	EU Directive 2000/69, daughter directive to 96/62—Sets limit values for carbon monoxide and benzene.
2001	EU Directive 2001/80 on large combustion plants—Sets emission limits for sulfur dioxide, nitrogen oxide, and dust.
2001	EU Directive 2001/81—National Emission Ceilings Directive sets national emission ceilings for acidifying substances and ozone-forming pollutants for each Member State.
2002	EU Directive 2002/3, daughter directive to 96/62—Sets limit values for ground-level ozone.

Source: Adapted from Farrell 1999; McCormick 2001; and Swedish NGO Secretariat on Acid Rain 2002.

strategy aided by IIASA staff and their RAINS model. The Commission formally launched an Acidification Strategy in 1997 that included: i) setting national emission ceilings (NECs) for each member state for the acid rain pollutants sulfur, nitrogen and ammonia to be coordinated with the development of an ozone strategy; ii) a strengthening of LCP Directive 88/609; iii) proposed ratification of the 1994 CLRTAP second sulfur protocol; and iv) revisions of an existing Directive (93/12) on the sulfur content of certain fuels.

Pursuant to the Acidification Strategy, the Community ratified the 1994 CLRTAP second sulfur protocol and concluded an Auto-Oil regulation in 1998, and the new directive on sulfur in liquid fuels was adopted in 1999. Agreement on a NEC Directive and the revision of the LCP Directive took longer, with the adoption of the NEC Directive on acidifying substances and ozone-forming pollutants (01/81) and the new LCP Directive (01/80) in 2001. In the meantime, agreements were reached on daughter directives to the 1996 Framework Directive on ambient air quality assessment and management, setting limit values for the concentrations of pollutants in air. The first Daughter Directive (99/30) sets standards for sulfur dioxide, nitrogen dioxide, particulates, and lead. The second Daughter Directive (00/69) sets standards for carbon monoxide and benzene, while the third Daughter Directive (02/3) addresses ground-level ozone. A fourth Daughter Directive on polyaromatic hydrocarbons (PAHs) and three heavy metals (i.e. nickel, cadmium and arsenic) remains in preparation.

The Clean Air for Europe (CAFE) program was launched by the Commission in 2001 to gather the increasingly complex web of Community air policies

within a single, integrated program.[50] CAFE aims to develop a long-term, strategic and integrated air pollution policy. It is intended to focus primarily on ground-level ozone and particles, with some additional attention to pollutants such as sulfur dioxide and nitrogen dioxide. Initial efforts (2001–2004) involve the following: a review of the implementation of air quality directives and effectiveness of air quality programs in the member states; the improved monitoring of air quality and the provision of information to the public; and setting priorities for further actions, the reviewing and updating of air quality thresholds and national emission ceilings and the development of better systems for gathering information, modeling and forecasting.

Linkages in European Air Pollution Abatement

When CLRTAP and the European Community began developing air pollution regulations in the 1980s, these efforts were largely politically independent. As such, it made sense to study them independently. However, as air policy cooperation expanded in both CLRTAP and the EU in the 1990s, linkages between the two institutions increased. This section examines the character and implications of governance and actor linkages between CLRTAP and EU air policy. Using the analytic framework outlined above for mapping institutional linkages, the discussion begins with governance linkages and proceeds to actor linkages. While this discussion does not constitute a collectively exhaustive treatment of such linkages, it empirically examines the growing importance of linkages in European air pollution abatement and demonstrates the benefits of our taxonomy of linkages.

Governance Linkages

CLRTAP and the EU cover much of the same geographical area (i.e. all of the EU is covered by CLRTAP). Emissions of substances are transported across this geographic area, and are subject to complex interactions in the environment after deposition. Shared norms and rules between CLRTAP and EU air policy are, at least in part, consequences of conscious strategic linking by members to both, fuelled by some members' interests in harmonizing activities and regulations, as well as interests of environmental pushers to strengthen pan-European air pollution policies.[51] This contrasts with Rosendal who argues that political overlap "typically results from choices with unintended and unforeseen effects."[52]

Shared CLRTAP-EU norms include emission reduction goals for transboundary pollutant transport based on similar reduction methods. Such reduction measures include the use of critical loads approaches to calculate desirable

50. Commission of the European Communities 2001.
51. Wettestad 2002.
52. Rosendal 2001, 108.

emission reductions, the setting of country based emissions ceilings and the use of best available techniques (BAT) and emission limit values (ELV) standards on specific emissions sources. Common CLRTAP-EU rules, including specific emissions reductions requirements, also have increased over time. These are most visible in the development of the CLRTAP 1999 Gothenburg protocol and the EU NEC Directive (see Table 4).

Throughout the 1980s, CLRTAP was the forerunner, serving as a model for EU members pushing for expanded EU air regulations. In the 1990s, both CLRTAP and the EU expanded regulatory scope by increasing the number of pollutants and emission sources they regulate and strengthened their regulations by setting more ambitious emissions reduction targets. In this process, the EU closed some of the gap between the two. The Commission planned to launch the NEC Directive ahead of parallel work in CLRTAP on the multi-pollutants/multi-effects protocol. However, this ambition failed, partly as a result of the resignation of the full Commission following a corruption scandal.[53] Despite the growing CLRTAP-EU linkages, however, policy outcomes differ in part across the two institutional fora, as illustrated in Table 4.

When CLRTAP policy first used critical loads in the early 1990s, the EU Commission was not very active in CLRTAP. Its main focus was to ensure compatibility between emerging CLRTAP policy and existing Community policy.[54] However, as EU air policy developed and the impact of gradually more stringent CLRTAP policies on Community legislation grew stronger, the Commission came to play a more active role in CLRTAP, working to coordinate member states' positions in CLRTAP negotiations.[55] This was intended to increase EU influence by putting forward common EU positions, and ensure that member state positions in CLRTAP were compatible with evolving EU policy.

Informal cooperation between DG XI and the CLRTAP secretariat was established in 1996 in connection with the Commission's early work on the EU Acidification Strategy.[56] Formally acknowledging increasing linkages, the Commission presented a discussion paper (a so-called "non-paper") at the 2000 CLRTAP Executive Body meeting, outlining linkages between CLRTAP and the EU at a strategic and technical level.[57] At the meeting, the CLRTAP Executive Body accepted an invitation from the Commission to participate in the Technical Analysis Group (TAG), which will coordinate the technical analysis work carried out within CAFE program. They also agreed to set up a CLRTAP-EU group to enhance coordination of strategies and work programs. Commission representatives will also participate in meetings of the smaller CLRTAP Bureau

53. Wettestad 2002.
54. Zito 2001, 595.
55. The authors' observation of Commission staff practices at CLRTAP negotiations, 1996–1998. For the Commission's view, see Commission of the European Communities 2001, section 5.9.1.
56. Personal correspondence with Christer Ågren, Swedish NGO Secretariat on Acid Rain, January, 2003.
57. CAFE 2001.

Table 4
Emission ceilings (kilotonnes) in the Community 2001 NEC Directive and the CLRTAP Gothenburg Protocol.

Country	SO2 EU	SO2 CLRTAP	NOx EU	NOx CLRTAP	VOC EU	VOC CLRTAP	NH3 EU	NH3 CLRTAP
Austria	39	39	103	107	159	159	66	66
Belgium	99	106	176	181	139	144	74	74
Denmark	55	55	127	127	85	85	69	69
Finland	110	116	170	170	130	130	31	31
France	375	400	810	860	1050	1100	780	780
Germany	520	550	1051	1081	995	995	550	550
Greece	523	546	344	344	261	261	73	73
Ireland	42	42	65	65	55	55	116	116
Italy	475	500	990	1000	1159	1159	419	419
Luxembourg	4	4	11	11	9	9	7	7
Netherlands	50	50	260	266	185	191	128	128
Portugal	160	170	250	260	180	202	90	108
Spain	746	774	847	847	662	669	353	353
Sweden	67	67	148	148	241	241	57	57
U.K.	585	625	1167	1181	1200	1200	297	297

Source: Wettestad 2002

of the Executive Body. Such explicit CLRTAP-EU coordination is likely to further increase linkages across the two fora and increase the incentives for actors to strategically use linkages to pursue policy goals.

The increasing use of similar regulatory approaches in CLRTAP and the EU calls attention to ideational linkages. CLRTAP and EU air policy are linked through the common use of particular scientific and technical ideas. Examples include concepts such as critical loads on abating acidification, euthrophication and ground-level ozone based on the RAINS atmospheric transport model. The critical loads concept and the RAINS model were developed in CLRTAP with the help of IIASA and first applied to policy in the context of the development of the CLRTAP second sulfur protocol.[58] While the Commission initially was skeptical to the feasibility of a Community critical loads strategy,[59] technical and scientific work on critical loads has been conducted for use both in CLRTAP and the EU since the middle of the 1990s. Thus, both CLRTAP and the EU formulate policy based on the same technical and scientific assumptions and assessments of environmental quality, which creates a common basis for harmonizing policy between the two institutions.

58. Bäckstrand 2001; and Castells and Ravetz 2001.
59. Interview with Christer Ågren, September, 2000.

EU incorporation of the critical loads concept and the RAINS model was facilitated by previous acceptance of these ideas by EU member states and the EU Commission within CLRTAP.[60] Environmental policy leaders perceived the use of RAINS and critical loads to be in their interests, while EU environmental "laggard" states had already accepted its use. Furthermore, the RAINS model and the critical loads approach had established scientific and technical credibility, and any attempt to develop alternatives would be more time consuming and costly. In developing the NEC-Directive, the Commission received input from CLRTAP and:

> Aimed to maintain an approach which is both internally consistent (e.g. in terms of data and models) and which relates closely to on-going work under CLRTAP. The Commission's contractor, the IIASA, was able to use common data and models for integrated assessment, thus ensuring a high level of consistency between the exercises.[61]

Future review of the NEC Directive is officially linked with review of the CLRTAP 1999 Gothenburg protocol and cooperation and coordination at the technical level will be key to exploiting synergies and avoiding duplication.[62] CLRTAP technical support for this review rests on the EMEP multi-annual work program, and will be conducted by IIASA and the Norwegian Meteorological Institute. This CLRTAP work is funded by the Commission. However, the overlapping assessments may not produce the same policy outcomes in CLRTAP and the EU. While the use of common CLRTAP and EU assessments help to reduce overall European costs of assessments by avoiding costly duplication, because the membership of CLRTAP and the EU differs, issues of cross-institutional legitimacy may arise regarding these assessments. States that participate in both institutions are likely to have more influence on policy and assessment than those participating in only one.

Actor Linkages

Many of the governance linkages between CLRTAP and the EU result from strategic actions taken by participants involved in European air pollution abatement. Consistent with the discussion above, we divide the actor linkages into three types: member organizations, non-member organizations and individuals.

Member Organizations: The European Community, through the European Commission, is a party to CLRTAP. The need to enhance cooperation with CLRTAP has been one of the strongest messages arising from recent internal Community discussions, although the Commission clearly stresses that "such co-operation must not lead to any dilution of Community competence or con-

60. Interviews with Markus Amman, Director of Transboundary Air Pollution Project, IIASA, February, 1998.
61. Commission of the European Communities 1999, 10.
62. CAFE 2001.

trol over EU policy in this area".[63] The Commission has become increasingly active in CLRTAP in recent years, endeavoring to establish and maintain common EU policy positions during preparation and negotiation of CLRTAP agreements.[64] To this end, Commission and EU member state representatives engage in frequent discussions both during and between CLRTAP meetings.

The Commission has the competence to negotiate in CLRTAP on behalf of all member states on issues where there is existing Community legislation. This can give rise to conflicts between the Commission and individual member states. For example, the Commission refused to sign the 1999 CLRTAP multi-pollutants/multi-effects protocol on the grounds that it did not cut emissions enough. Commission representatives did not want to signal that they accepted what they saw as weak emission reduction targets. However, all EU member states signed the protocol, with many arguing that it was a first step that could be strengthened later and that it was better to reach agreement on the proposed reduction rather than have no agreement at all.

A second important actor linkage between CLRTAP and the EU is its overlapping national membership. All 15 EU member states are parties to CLRTAP. The same states that have been leaders and laggards in CLRTAP have played similar roles in Community air policy. Scandinavian countries and the Netherlands, joined after 1982 by Germany, have been the traditional environmental leaders in CLRTAP.[65] Resistance to stronger air pollution policy came primarily from the United Kingdom, supported by Italy, Greece and Ireland in both CLRTAP and the EU. When Spain and Portugal, who were laggards in CLRTAP, joined the EU in 1986 the group of less affluent and less green EU members increased further.

The accession of Austria, Sweden and Finland in 1995, significantly affected Community air policy, making strategic linking between CLRTAP and the EU more visible.[66] These countries, together with Denmark, Germany and the Netherlands, pushed for more stringent EU air pollution policy to bring it in line with the more ambitious, but less enforceable, CLRTAP agreements. For example, EU environmental leaders pushed to have a NEC-Directive finished before the signing of the 1999 CLRTAP multi-pollutants/multi-effects protocol. They hoped that higher EU standards would set a precedent that could be used to strengthen the CLRTAP agreement. Importantly, the NEC-Directive will be legally binding on EU members regardless of the CLRTAP outcome. If the NEC-Directive is more ambitious than the CLRTAP protocol, then EU members will face larger reductions than non-EU members.

Environmental leader states often couple political will with technical and scientific capability to push air pollution policy.[67] They exercise influence by sponsoring technical and scientific activities around particular policy issues in

63. Commission of the European Communities 2001, section 5.9.1.
64. Wettestad 2001; and Zito 2001.
65. Levy 1993; and VanDeveer 1998.
66. Wettestad 2002.
67. Botcheva 2001.

their attempts to influence the direction of policy and technical debates. These lead states marshal scientific and technical expertise and resources to be used in both EU and CLRTAP debates as they push for similar policies in both fora. Despite the growing importance of linkages between CLRTAP and EU air policy, many states fail to coordinate national delegates and experts at CLRTAP and EU meetings. In general, only Sweden, Denmark, Germany and the UK send the same representatives to Geneva and Brussels.[68] As a result, policy tools such as the RAINS model and technical and scientific aspects of the critical loads/levels approach have been explained and debated in both Geneva and Brussels. This consumes time and resources, two things that are generally scarce in international fora.

By mid-2004, roughly half of the European CLRTAP parties will be EU members. The ongoing enlargement of EU membership has given rise to increased CLRTAP and EU linkages. The interests of states seeking EU memberships frequently influence their international and domestic actions on environmental issues. They often follow positions taken by the EU in CLRTAP and seek to harmonize domestic regulatory structures and standards with those that are applied and planned within the EU.[69] As repeatedly stated by the European Commission and EU member states, such harmonization is a necessity for EU membership. In turn, the Commission recognizes that "CLRTAP is the main forum through which the European Community and the Member States can influence and promote emission reductions in non-member countries. Further action in some of those countries has proven generally to be highly cost-effective".[70] To that end, enhanced EU-CLRTAP cooperation through the CAFE program provides a mechanism for the EU to put pressure on non-EU member states to take more stringent domestic actions.[71] In addition, the European Environment Agency (EEA) is the first EU body to admit candidate countries as members. Its CAFE-related activities include candidate and member states to support the review of existing legislation, including calculation of national emission ceilings for the candidate countries.

Non-member organizations: Non-member organization linkages between CLRTAP and the EU consist of a multitude of NGOs, business organizations and research organizations active in both institutions. Environmental NGOs role in European air pollution politics roughly follows that seen in other issues. In addition to policy advocacy, they often act as awareness raisers and "watch dogs," communicating "bad behavior" to national NGOs, the media and the public. The most active environmental NGO on air pollution issues both in CLRTAP and the EU has been the Swedish NGO Secretariat on Acid Rain.[72] The Secretar-

68. Interview with Christer Ågren, September, 2000.
69. Botcheva 2001; and VanDeveer forthcoming.
70. Commission of the European Communities 1999, 39.
71. Swedish NGO Secretariat on Acid Rain 2002.
72. The organization's staff has carefully calculated where and when to devote resources in the two institutions. The Secretariat was established in connection with the Stockholm 1982 Confer-

iat has been an effective alley to the pusher states in CLRTAP and the EU, "(t)he material distributed through the Secretariat and its contact network reached target groups that would hardly have been accessible for material distribution through official channels."[73]

Countries originally targeted by the Secretariat included the UK and former West Germany. Later it worked to develop contacts with eastern European countries. In a survey by the Secretariat about the its work, sent to governments and NGOs, the Secretariat was praised by laggards for fulfilling an educational function by providing easily comprehensible and reliable information. Such information was often held in higher regard than information provided by industry NGOs.[74] The Secretariat's information is used in overlapping CLRTAP-EU policy debates. In recent years, the Secretariat has focused more of its efforts on EU activities, compared with CLRTAP, because of the increasingly strict and legally binding EU regulatory system. Also industry organizations such as EUROPIA/CONCAWA have been more active in the EU than in CLRTAP.

Regarding research organizations, both CLRTAP and the EU use IIASA's network of experts and RAINS modeling techniques. Both also use EMEP data to grapple with the complex challenges of combating tropospheric ozone pollution, acidification and eutrophication at the same time. While most European states have domestic monitoring systems, EMEP attempts to build and maintain a regional European monitoring and environmental data analysis system—with remaining geographic gaps in the system's coverage. EMEP is essentially the only pan-European monitoring and data gathering analysis of this kind. The Commission recognizes that:

> There is an increasingly large overlap in both policy and geographical terms between CLRTAP and EU air quality policy, and enhanced co-operation with CLRTAP will therefore be essential if CAFE is to add real value to policy-making and avoid wastage of resources. In particular, it will be essential to create and maintain strong structural links to ensure good co-operation and co-ordination between the technical analysis work carried out by the two programmes. Co-operation and co-ordination at the technical level will thus be the key to exploiting synergies and avoiding duplication.[75]

CLRTAP and EU bodies have institutionalized connections to the same organizations for data gathering, calibration, modeling and scientific and techni-

---

ence on Acidification of the Environment. It was set up by originally four (later expanded into five) Swedish NGOs to provide information on the acid rain problem and promote abatement action. Mainly the Swedish Environmental Protection Agency funded the Secretariat until 1992, when the Ministry for the Environment overtook the role as prime financier. See Bäckstrand and Selin 2000, 96.

73. Hägerhäll 1993, 58.
74. Interview with Christer Ågren, September, 2000. There is naturally a risk that these comments may have been overly generous in praise, but still indicates that the Secretariat has played an important role.
75. Commission of the European Communities 2001, section 5.9.1.

cal assessment. If scientific and technical information matters in environmental policy, as much as international cooperation research suggests, then the fact that CLRTAP and EU air policy rely on many of the same information sources should affect their policy outcomes.

Individual Linkages: Individuals often play key roles in international environmental cooperation.[76] European air pollution abatement is no exception. Professional and personal contacts between state officials and nonstate representatives are important linkages across CLRTAP and EU bodies and activities. Individual participants in related policy-making and scientific and technical advising bodies often move between CLRTAP and the EU and exist within dense transnational issue and advocacy networks. For example, Christer Ågren was director of the Swedish NGO Secretariat on Acid Rain for many years before working briefly at the Swedish Environment Ministry. This work was followed by a stint in the EU Commission DG XI working primarily with the development of the Acidification Strategy, after which he returned to the Secretariat.

The use of the RAINS model has lead to the increased inclusion of IIASA alumni and other RAINS model users in EU policy-making circles. Such experience is an asset to individuals seeking to participate in policy-making. Individuals who have spent time in IIASA's Transboundary Air Pollution Project now populate many state administrative bodies, research institutes, EMEP bodies, and universities. Many technical and scientific assessments have been produced by such networks and evaluated at international workshops and seminars and have been crucial in designing politically acceptable solutions during negotiations. Moreover, the influence of transnational scientific networks in European pollution abatement work seems to have increased during the past decade. With the introduction of CAFE program and closer formalized cooperation between CLRTAP and the EU, more cooperation between scientists and technical experts from CLRTAP and the EU and more movement of individuals between the two institutions becomes more likely.

In addition, the strategic use of national experts is common in both CLRTAP and the European Commission. CLRTAP assessments and development of policy proposals are dependent on member state financing and carried out by national experts. A significant portion of European Commission DG XI personnel consists of national experts, funded by member states. The placing of national civil servants into strategic positions within the Commission is frequent.[77] Normally 25% of the staff in DG XI consists of nationally appointed experts, but the figure has been as high as 50%.[78] This has been used actively by environmental leader states, where national experts from Sweden, Norway, Germany and the United Kingdom have been very active on the development of the Community acidification and tropospheric ozone strategies and the NEC-

76. Underdal 1998; Osherenko and Young 1993; and Young 1991.
77. Wurzel 1999, 126.
78. Wurzel 1999, 125; and Kronsell 1997, 156–157.

Directive.[79] Such work includes explicit efforts to harmonize activities and policies between CLRTAP and the EU on air pollution issues.

Concluding Remarks: False Isolation, Actors and Linkages Politics

The often uncritical analysis of international environmental institutions in isolation is a continuing theoretical, methodological and empirical weakness in the international environmental politics literature. The fact that the common definition of a regime draws attention to single issue-areas does not mean that scholars should study multilateral institutions as entirely separate entities. Nevertheless, most research on international environmental institutions pays, at best, only scant attention to the potentially influential linkages across institutions. The expanding research on institutional linkages, including that presented here, illustrates a multitude of complex linkages between environmental institutions. This research shows compelling reasons to reject false isolation and take linkages and linkage politics more seriously as potential causal pathways for influence on policy making and implementation across institutions.

International environmental cooperation entails not only the creation of new institutions, but also the coordination of existing ones to achieve more effective policy making and implementation. On the global level, chemicals management has been chosen by United Nations Environment Programme as a pilot area for investigating the possibility of better coordination among related institutions.[80] Efforts to integrate international trade law and multilateral environmental agreements offer another important global example.[81] At the regional level, many of the organizations and individuals involved in CLRTAP and EU air policy participate in an effort to establish pan-Asian air pollution cooperation.[82] EU bodies are increasingly active in a host of regional and global environmental fora.[83] As EU environmental policy grows in scope and stringency and EU membership expands to at least 25 states, linkages across international environmental institutions will become more difficult to ignore for both practitioners and scholars of international environmental politics.

Based on the analytical framework for mapping linkages presented here, the case study of CLRTAP and EU air policy linkages identifies a multitude of governance linkages and actor linkages between the two institutions. Whereas earlier work on linkages has focused on structurally-oriented governance linkages, this article argues that greater attention to agency is needed (i.e. to the role of organizational and individual actors in creating and utilizing linkages). Mem-

79. Zito 2001, 596; and personal correspondence with Christer Ågren, January, 2003. Note that Norway is not an EU member, but acts as an observer in Brussels and has the right to have national experts working within the Commission.
80. Krueger and Selin 2002.
81. United Nations Environment Programme and International Institute of Sustainable Development 2000; Bail, Falkner, and Marquard 2003; and Williams 2001.
82. Shah 2000; and Downing, Ramankutty, and Shah 2000.
83. Carius 2002; and Selin and VanDeveer forthcoming.

ber organizations, non-member organizations and individuals link scientific and technical activities and policy making processes and outcomes in CLRTAP and the EU. For example, such actors often pursue their interests in harmonizing activities and policy across institutions. Environmental leader states often use linkages in their attempts strengthen policy in one or both institutions.

The growing influence of linkages has implications for IR empirical research and hypothesized causal pathways *writ large.* Researchers approaching the study of international cooperation from knowledge-based or cognitivist perspectives can use the linkage concept to trace the influence of norms, rules, ideas and particular sets of information across multiple institutions. Likewise, interest-based and power-based research projects can examine actor linkages to trace the influence of particular states, IGOs, NGOs and/or individuals across multiple institutions, such as efforts made by EU representatives and a number of EU member states to integrate the precautionary principles across various international environmental regimes.[84] Greater attention to linkage politics also calls attention to the role of strategic behaviors such as "venue shopping," where particular actors pursue their interests by selecting the institution they perceive to be most receptive to their desired outcomes.[85]

In sum, this examiniation of CLRTAP-EU linkages demonstrates the significance of linkage politics for global and regional environmental governance. As such, it suggests that students of international relations would do well to intensify their efforts to understand the varied linkages between international institutions. They must do so with greater attention to agents and their behavior than the literature on linkages has hitherto paid. Empirical research and theorizing about linkages across international environmental institutions, if it is to take up the challenge of engaging broad questions and debates in the IR literature, will be required to re-engage the roles of agency and agents in relation to linked institutional structures. The framework for empirically mapping governance and actor linkages offered here attempts to move beyond the conceptually driven, often quite ad hoc, proposition of typologies of institutional linkages, toward a more operationalizable, empirically driven research agenda designed to improve understanding of forms and ramifications of linkages.

References

Bail, Christoph, Robert Falkner, and Helen Marquard, eds. 2003. *The Cartagena Protocol on Biosafety: Reconciling Trade in Biotechnology with Environment & Development.* London: The Royal Institute of International Affairs.

Betsill, Michele M., and Elisabeth Corell. 2001. NGO Influence in International Environmental Negotiations: A Framework for Analysis. *Global Environmental Politics* 1 (4): 65–85.

84. Haas 1993; and Gupta 2000.
85. Young 2002; and VanDeveer forthcoming.

Boehmer-Christiansen, Sonja, and Jim Skea. 1991. *Acid Politics: Environmental and Energy Politics in Britain and Germany.* New York: Belhaven Press.

Botcheva, Liliana. 2001. Expertise and International Governance: Eastern Europe and the Adoption of European Union Environmental Legislation. *Global Governance* 7 (3): 197–224.

Bäckstrand, Karin. 2001. *What Can Nature Withstand? Science, Politics and Discourses in Transboundary Air Pollution Diplomacy.* Lund: Lund Political Studies 116.

Bäckstrand, Karin, and Henrik Selin. 2000. Sweden—A Pioneer of Acidification Abatement. In *International Environmental Agreements and Domestic Politics: The Case of Acid Rain*, edited by Arild Underdal and Kenneth Hanf, 82–103. Aldershot: Ashgate.

Carius, Alexander. 2002. Challenges for Governance in a Pan-European Environment: Transborder Cooperation and Institutional Coordination. In *EU Enlargement and Environmental Quality: Central and Eastern Europe & Beyond*, edited by Sabina Crisen and JoAnn Carmin, 21–31. Washington, D.C.: Woodrow Wilson International Center for Scholars.

Carlos di Primio, Juan. 1998. Data Quality and Compliance Control in the European Air Pollution Regime. In *The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice*, edited by David G. Victor, Kal Raustiala and Eugene B. Skolnikoff, 283–303. Cambridge, MA: MIT Press.

Castells, Nuria, and Jerry Ravetz. 2001. Science and Policy in International Environmental Agreements: Lessons from the European Experience on Transboundary Air Pollution. *International Environmental Agreements: Politics, Law and Economics* 1 (4): 405–425.

Chossudovsky, Evgeny. 1989. *"East-West" Diplomacy for Environment in the United Nations.* New York: UNITAR.

Clean Air for Europe (CAFE). 2001. Discussion paper for the Air Quality Steering Group meeting on 23 January 2001.

Commission of the European Communities. 1999. *Proposal for a Directive of the European Parliament and the Council on National Emission Ceilings for Certain Atmospheric Pollutants/Proposal for a Directive of the European Parliament and the Council Relating to Ozone in Ambient Air.* Brussels, 9 June 1999, COM (1999) 125.

_____. 2001. *Communication from the Commission, The Clean Air for Europe (CAFE) Programme: Towards a Thematic Strategy for Air Quality,* Brussels, 4 May 2001, COM (2001) 245.

Crisen, Sabina, and JoAnn Carmin, eds. 2002. *EU Enlargement and Environmental Quality: Central and Eastern Europe & Beyond*. Washington, D.C.: Woodrow Wilson International Center for Scholars.

Dahl, A. 1997. National Freedom of Action in EU Environmental Policy: The Cases of Denmark and the Netherlands. *Environmental Politics* 6 (3): 68–98.

Dietrich, W. F. 1996. Harmonization of Automobile Emission Standards Under International Trade Agreement: Lessons From the European Union Applied to the WTO and the NAFTA. *William and Mary Environmental Law and Policy Review* 20 (2): 175–221.

Downing R. J., R. Ramankutty, and J. J. Shah. 2000. *Rains-Asia: An Assessment Model for Acid Deposition in Asia. Directions and Development.* Washington, D.C.: World Bank.

Eckley, Noelle. 2002. Dependable Dynamism: Lessons for Designing Scientific Assessment Processes in Consensus Negotiations. *Global Environmental Change* 12 (1): 15–23.

Farrell, Alex. 1999. Environmental Policy in an Industrializing, Democratizing Nation: Air Pollution in Spain. Paper presented at the Annual meetings of the American Political Science Association, Atlanta, Georgia, September 1999.

Florini, Ann, ed. 2000. *The Third Force: The Rise of Transnational Civil Society.* Washington, D.C.: Carnegie Endowment for International Peace.

Global Environmental Assessment Project. 1997. *A Critical Evaluation of Global Environmental Assessment: The Climate Experience.* Calverton, MD:CARE.

Grant, Wyn, Duncan Matthews, and Peter Newell. 2000. *The Effectiveness of European Union Environmental Policy.* London: MacMillan Press.

Gupta, Aarti. 2000. Governing Trade in Genetically Modified Organisms: The Cartagena Protocol on Biosafety. *Environment* 42 (4): 23–33.

Haas, Peter M. 1993. Protecting the Baltic and North Seas. In *Institutions for the Earth: Sources of Effective International Environmental Protection,* edited by Peter M. Haas, Robert O. Keohane and Marc A. Levy, 133–181. Cambridge, MA: MIT Press.

Haigh, Nigel. 1989. New Tools for European Air Pollution Control. *International Environmental Affairs* 1 (1): 26–37.

Hasenclever, Andreas, Peter Mayer, and Volker Rittberger. 1997. *Theories of International Regimes.* Cambridge, UK: Cambridge University Press.

Hägerhäll, Bertil. 1993. The Evolving Role of NGOs. In *International Environmental Negotiations: Process, Issues and Context,* edited by G. Sjöstedt, U. Svedin and B. Hägerhäll Aniansson. Stockholm: Swedish Council for Planning and Coordination of Research.

Jasanoff, Sheila, and Brian Wynne. 1998. Science and Decisionmaking. In *Human Choice and Climate Change, Vol. 1, The Societal Framework,* edited by S. Rayner and E. L. Malone, 1–87. Ohio: Batelle Press.

Joyner, Christoffer C. 1998. *Governing the Frozen Commons: The Antarctic Regime and Environmental Protection.* Columbia, SC: University of South Carolina Press.

Keck, Margaret E., and Kathryn Sikkink. 1998. *Activists Beyond Borders; Advocacy Networks in International Politics.* Ithaca, NY: Cornell University Press.

Krasner, Stephen D. 1983. Structural Causes and Regime Consequences: Regimes as Intervening Variables. In *International Regimes,* edited by Stephen D. Krasner, 1–21. Ithaca, NY: Cornell University Press.

Kronsell, Annica. 1997. *Greening the EU: Power, Practices, Resistances and Agenda Setting.* Lund: Lund University Press.

Krueger, Jonathan, and Henrik Selin. 2002. Governance for the Sound Management of Chemicals: The Need For a More Comprehensive Global Strategy. *Global Governance* 8 (3): 323–342.

Larsson, Per. 1996. *Regimeförhandlingar på miljöområdet: En studie av förhandlingarna om LRTAP-konventionen.* Lund: Lund Political Studies 93.

Levy, Marc A., Oran R. Young, and Michael Zürn. 1995. The Study of International Regimes. *The European Journal of International Relations* 1 (3): 267–330.

McCormick, John. 1997. *Acid Earth.* 3ed. London: Earthscan.

_____. 1998. Acid Pollution: The International Community's Continuing Struggle. Environment 40 (3): 17–20, 41–45.

_____. 2001. *Environmental Policy in the European Union.* New York: Palgrave.

Munton, Don. 1998. Dispelling the Myths of the Acid Rain Story. *Environment* 40 (6): 4–7, 27–34.

Oberthür, Sebastian. 2001. Linkages Between the Montreal and Kyoto Protocols: Enhancing Synergies Between Protecting the Ozone Layer and the Global Climate. *International Environmental Agreements: Politics, Law and Economics* 1 (3): 357–377.

_____. 2002. Clustering of Multilateral Environmental Agreements: Potentials and Limitations. *International Environmental Agreements: Politics, Law and Economics* 2 (4): 317–340.

Osherenko, Gail, and Oran R. Young. 1993. The Formation of International Regimes: Hypotheses and Cases. In *Polar Politics: Creating International Environmental Regimes,* edited by Oran R. Young and Gail Osherenko, 1–21. Ithaca, NY: Cornell University Press.

Princen, Thomas, and Matthias Finger. 1995. *Environmental NGOs in World Politics.* London: Routledge.

Porter, Gareth, Janet Brown, and Pamela Chasek. 2000. *Global Environmental Politics.* 3ed. Boulder, CO: Westview Press.

Raustiala, Kal. 1997. States, NGOs, and International Environmental Institutions. *International Studies Quarterly* 41 (4): 719–740.

Rosendal, G. Kristin. 2001. Impact of Overlapping International Regimes: The Case of Biodiversity. *Global Governance* 7 (2): 95–117.

Selin, Henrik. 2003. Regional POPs Policy: The UNECE/CLRTAP POPs Agreement. In *Northern Lights against POPs: Combatting Toxic Threats in the Arctic,* edited by David L. Downie and Terry Fenge, 111–132. Montreal: McGill-Queens University Press.

Selin, Henrik, and Noelle Eckley. 2003. Science, Politics, and Persistent Organic Pollutants: Scientific Assessments and their Role in International Environmental Negotiations. *International Environmental Agreements: Politics, Law and Economics* 3 (1): 17–42.

Selin, Henrik, and Stacy D. VanDeveer. 1999. A Tale of Two Cities: Brussels, Geneva and Combating European Air Pollution. Presented at the Annual Meeting of the American Political Science Association, Atlanta, USA, September 1999.

_____. Forthcoming. Baltic Sea Hazardous Substances Management: Results and Challenges. *Ambio.*

Shah, Jitendra. 2000. Intergrated Analysis for Acid Rain in Asia: Policy Implications and Results of RAINS-ASIA Model. *Annual Reviews Energy & the Environment* 25: 339–375.

Sikkink, Kathryn. 1993. Human Rights, Principled Issue-Networks and Sovereignty in Latin America. *International Organization* 47 (3): 411–441.

Simmons, P. J., and Chantal de Jonge Oudraat. 2001. *Managing Global Issues: Lessons Learned*. Washington, D.C.: Carnegie Endowment for International Peace.

Social Learning Group. 2001. *Learning to Manage Global Environmental Risks: Vol. 1 and Vol. 2.* Cambridge, MA: MIT Press.

Stokke, Olav Schram. 2000. Managing Straddling Stocks: The Interplay of Global and Regional Regimes. *Ocean & Coastal Management* 43 (2–3): 205–234.

_____. 2001. The Interplay of International Regimes: Putting Effectiveness Theory to Work. The Fridtjof Nansen Institute Report, 14/2001.

Susskind, Lawrence E. 1994. *Environmental Diplomacy: Negotiating More Effective Global Agreements.* Oxford: Oxford University Press.

Swedish NGO Secretariat on Acid Rain. 2002. *Acid News*, No. 2, June.

Underdal, Arild. 1998. Leadership in International Environmental Negotiations: Designing Feasible Solutions. In *The Politics of International Environmental Management*, edited by Arild Underdal, 101–127. Dordrecht: Kluwer Academic Publishers.

Underdal, Arild, and Kenneth Hanf, eds. 2000. *International Environmental Agreements and Domestic Politics: The Case of Acid Rain*. Aldershot: Ashgate.

United Nations Economic Commission for Europe. 1997. *Decision 1997/2 Concerning the Implementation Committee, Its Structure and Functions and Procedures for Review of Compliance*. ECE.EB.AIR/53. 19 December 1997.

United Nations Environment Programme and International Institute for Sustainable Development. 2000. *Environment and Trade: A Handbook*. Winnipeg: IISD.

VanDeveer, Stacy D. 1997. Normative Force: The State, Transnational Norms and International Environmental Regimes. Doctoral dissertation, University of Maryland, College Park, MD.

_____. 1998. European Politics with a Scientific Face: Transition Countries, International Environmental Assessment, and Long-Range Transboundary Air Pollution. ENRP Discussion Paper E-98–09, Kennedy School of Government, Harvard University.

_____. 2000. Protecting Europe's Seas: Lessons from the Last 25 Years. *Environment* 42 (6): 10–26.

_____. 2002. Europeanizing Central Europe: Capacity, Surprises, Lessons and Challenges. In *EU Enlargement and Environmental Quality: Central and Eastern Europe & Beyond*, edited by Sabina Crisen and JoAnn Carmin, 114–123. Washington, DC: Woodrow Wilson International Center for Scholars.

_____. Forthcoming. Assessment Information in European Politics: East and West. In *Global Environmental Assessments: Information, Institutions and Influence*, edited by Ronald B. Mitchell, William C. Clark, David W. Cash and Frank Alcock. Cambridge, MA: MIT Press.

VanDeveer, Stacy D., and Geoffrey D. Dabelko. 1999. Redefining Security around the Baltic: Environmental Issues in Regional Context. *Global Governance* 5 (2): 221–249.

Victor, David G., Kal Raustiala, and Eugene B. Skolnikoff, eds. 1998. *The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice*. Cambridge, MA: MIT Press.

Westone, Gregory S., and Armin Rosencranz. 1983. *Acid Rain in Europe and North America: National Responses to an International Problem*. Washington, DC: Environmental Law Institute.

Wettestad, Jørgen. 1997. Acid Lessons? LRTAP Implementation and Effectiveness. *Global Environmental Change* 7 (3): 235–249.

_____. 2000. From Common Cuts to Critical Loads: The ECE Convention on Long-Range Transboundary Air Pollution (CLRTAP). In *Science and Politics in International Environmental Regimes: Between Integrity and Involvement*, edited by Steinar Andresen, Tora Skodvin, Arild Underdal and Jørgen Wettestad, 95–121. Manchester: Manchester University Press.

_____. 2001. Designing Effective Environmental Regimes: The Conditional Keys. *Global Governance* 7 (3): 317–341.

_____. 2002. *Clearing the Air: European Advances in Tackling Acid Rain and Atmospheric Pollution*. Aldershot: Ashgate.

Williams, Marc. 2001. Trade and the Environment in the World Trading System: A Decade of Stalemate? *Global Environmental Politics* 1 (4): 1–9.

Wurzel, Rüdiger K.W. 1999. *Britain, Germany and the European Union: Environmental Policy-making from 1972–97*. Doctoral dissertation. London School of Economics.

Young, Oran R. 1991. Political Leadership and Regime Formation: On the Development of Institutions in International Society. *International Organization* 45 (3): 281–308.

_____. 1994. *International Governance: Protecting the Environment in a Stateless Society*. Ithaca, NY: Cornell University Press.

_____. 1996. Institutional Linkages in International Society: Polar Perspectives. *Global Governance* 2 (1): 1–24.

_____. 1997. Arctic Governance: Bringing the High Latitudes In From the Cold. *International Environmental Affairs* 9 (1): 54–68.

_____. 1999. Institutional Interplay: Exploring the Vertical Dimension. Paper presented at the Open Meeting of the Human Dimensions of Global Environmental Change Research Community, Shonan Village, Japan, June, 1999.

_____. 2002. *The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale*. Cambridge, MA: MIT Press.

Zito, Anthony. 2000. *Creating Environmental Policy in the European Union*. London: MacMillan.

_____. 2001. Epistemic Communities, Collective Entrepreneurship and European integration. *Journal of European Public Policy* 8 (4): 583–603.