

Introduction

The Institutional Fragmentation of Global Environmental Governance: Causes, Consequences, and Responses

*Fariborz Zelli and Harro van Asselt**

A core institutional phenomenon and challenge in today's international relations is a growing degree of fragmentation. Ongoing regulation and legalization processes have led to material and functional overlaps between international institutions. As a consequence, "problems of fragmentation arising from the segmentation of governance systems along sectoral lines"¹ have become unavoidable.

Institutional research has sought to catch up with this emerging phenomenon, as it has kept pace with previous tides of institutional development. After a first wave of research on security and trade regimes,² and a second wave attending to the further diversification and growing importance of institutions operating in other issue areas,³ a "third wave"⁴ started to break in the mid-1990s, putting stronger emphasis on the increasing complexity and interlinkages among international institutions.⁵

This special issue builds on the insights of these growing strands of institutional research, sharing a major starting assumption with them: a thorough understanding and explanation of core aspects of an institution—its genesis,

* We would like to thank two anonymous reviewers for their comments. This special issue builds on an international workshop organized by the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), together with the Environmental Change Institute (ECI) of the University of Oxford, in Bonn, Germany, August 29–30, 2011. We would like to thank the COST Action IS0802 (Transformation of Global Environmental Governance) for their financial support of the workshop, and the participants for their valuable contributions. Lastly, we would like to thank the editors of *Global Environmental Politics*, Kate O'Neill and Stacy D. VanDeveer, and managing editor Susan Altman, for their great support and excellent guidance.

1. O. Young 2011, 1.

2. Cf. Rittberger 1990.

3. E.g., Keohane and Ostrom 1995.

4. Ruloff 1999, 17.

5. E.g., Herr and Chia 1995; O. Young 1996; O. Young 2002; Selin and VanDeveer 2003; Oberthür and Gehring 2006; Chambers 2008; O. Young et al. 2008a; O. Young et al. 2008b; Oberthür and Stokke 2011a.

development, compliance pull, fairness, and problem-solving effectiveness—is not possible without taking into account its wider institutional environment.

This common ground and the merits of existing scholarly approaches notwithstanding, major gaps remain in the literature on institutional interlinkages and complexity. Seeking to fill these gaps, this special issue is:

- *scaling up*: Compared to research on institutional interlinkages, this issue focuses on the overall complexity of public and transnational institutions in given issue areas, moving away from a level of analysis that concentrates on overlaps between only two distinct, and mostly public, institutions.
- *asking different questions*: Many studies addressing this overarching level of institutional complexity suffice with a simple stock-taking paired with abstract conceptual approaches. In particular, they attend to the normative question of whether a centralized or polycentric global governance architecture is preferable.⁶ Building on a rise of more analytical approaches,⁷ it is time to advance this sprawling scholarly debate toward elaborate concepts and theory-driven analyses that tackle more specific questions on the causes and consequences of, and responses to, institutional complexity.
- *focusing on global environmental governance*: Unlike studies on institutional interlinkages, more encompassing and comparative approaches of environmental cases are largely missing from the research program of institutional fragmentation.⁸ With their material complexity and a plethora of institutional arrangements,⁹ environmental domains offer prime cases for analyzing and contrasting institutional fragmentation and its implications.

In short, the objective of this special issue is to address more pertinent questions, both theoretical and empirical, around the phenomenon of institutional fragmentation for several realms of global environmental governance: biological diversity, climate change, forestry, renewable energy, and sustainable resource use in the Arctic. In this first piece, we introduce the concept of fragmentation. We spell out our rationale by showing how we build on, and differ from, related approaches. Finally, we put forward novel research questions on the causes, consequences, and management of fragmentation, and outline how the various contributions provide insights on these questions.

The Concept of Fragmentation

A major point of departure of this issue is the study on fragmentation by Biermann and colleagues.¹⁰ We follow their broad understanding of the term,

6. E.g., Biermann et al. 2009a; Ostrom 2010; Rayner 2010.

7. Oberthür and Stokke 2011a.

8. Cf. Zelli 2011a.

9. Cf. Mitchell 2013.

10. Biermann et al. 2009a.

stating that many policy domains are marked by a “patchwork of international institutions that are different in their character (organizations, regimes, and implicit norms), their constituencies (public and private), their spatial scope (from bilateral to global), and their [predominant] subject matter.”¹¹

We adopted the notion of fragmentation, since it is a longstanding and widespread concept used across disciplines by both scholars and practitioners. The concept originated in the international legal community,¹² before being adapted by international relations scholars and extended toward transnational and public–private institutions.¹³

This established nature and interdisciplinary potential notwithstanding, the term “fragmentation” may suggest to some a preference for institutional centrality. In the context of this special issue however, we consider fragmentation as value-free with regard to any favored institutional setting: the concept neither implies a particular bias toward a state of universal institutional order, nor does it generally suggest that fragmentation is a negative quality.

The broad framing of the term acknowledges that, after the linguistic turn, a consensus definition of structural terms in international relations is neither feasible nor desirable. Our understanding leaves some choices regarding, among others, the degree of conceptual richness, the epistemological approach, the agency-structure problem, static or dynamic framings, and the (qualitative or quantitative) methodological access. Each of these choices opens or closes certain doors—and creates path dependencies for how specific research questions may be approached.

When it comes to conceptual richness, one may stick to a parsimonious or formal framing,¹⁴ which defines the shape of fragmentation according to the number of institutions and the legal coherence among them. Alternatively, one may start from a richer relational concept that incorporates behavioral impacts of fragmentation, or underlying cognitive and discursive structures.¹⁵ Likewise, some scholars settle for a static definition, taking a snapshot of institutional fragmentation at a given point in time, while others prefer a dynamic approach. While the latter does justice to the process character of fragmentation, it makes it more difficult to distinguish between fragmentation as such and associated management efforts.

While we agree to disagree on these conceptual choices, we are adamant about one starting assumption: institutional fragmentation is an inherent structural characteristic of international relations today. There is no policy domain where all relevant provisions are placed under, or legally linked to, a single institutional umbrella with universal membership. Fragmentation is a matter of degree and indeed may vary considerably across issue areas, spanning a

11. Biermann et al. 2009a, 16.

12. E.g., Koskenniemi and Leino 2002; Hafner 2004; International Law Commission 2006; van Asselt et al. 2008; M. Young 2012.

13. E.g., Andresen 2001; Bernstein and Ivanova 2007.

14. Cf. Hasenclever et al. 1997, 8–22.

15. Cf. Zelli et al. 2012; Zelli et al. 2013.

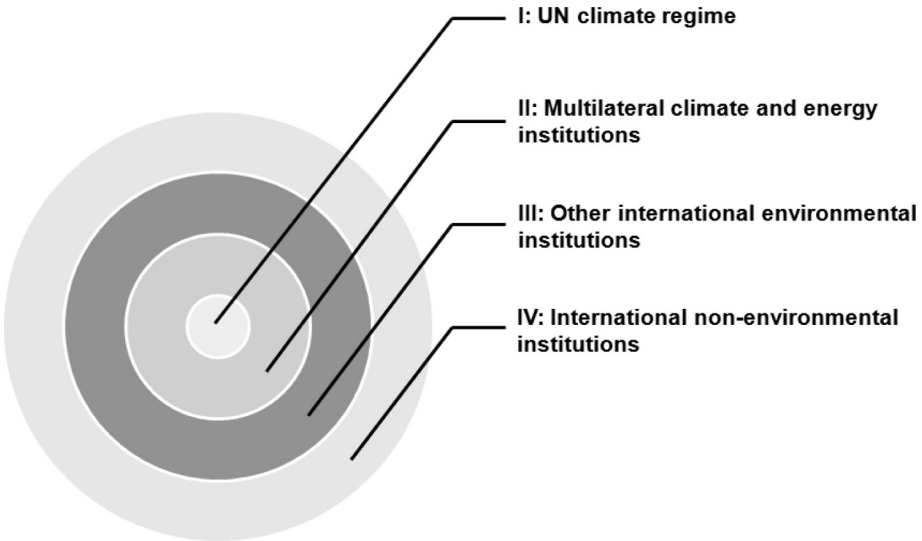


Figure 1
Spheres of Institutional Fragmentation in Global Climate Governance

Biermann et al. 2009b, 270.

continuum from domains with relatively low levels of fragmentation to highly intricate institutional complexes. Capitalizing on the conceptual flexibility, one chief intention of this issue is to elaborate a variety of suitable and differentiated dimensions to take stock of the respective degree of fragmentation in a given issue area and its various implications.

To illustrate this briefly for one dimension, among other factors the degree of fragmentation depends on the delineation and the very framing of the domain or problem structure in question.¹⁶ The broader an environmental domain, the more likely it touches upon other environmental and non-environmental spheres and the associated institutions. The onion model of Figure 1 depicts this notion of different spheres for the complex issue of global climate governance, starting with predominantly climate-oriented institutions in the inner two circles and extending to institutions from other domains.

This simple domain- or sector-based approach was a first attempt to reduce a high degree of institutional complexity to one possible dimension. More detailed and relational mappings could combine a series of such dimensions and thereby allow for multi-dimensional analyses. These dimensions include the legal coherence among institutions, their jurisdiction and their membership, as well as the role of transnational institutions and non-state actors. Spheres II, III and IV in Figure 1 comprise not only public institutions but

16. Biermann et al. 2009a, 19–21.

also a large and ever-increasing number of transnational or public-private institutional arrangements, such as a diversity of carbon markets and energy-related partnerships in sphere II.¹⁷

Moving Institutionalism and Global Environmental Governance Research Forward

In light of these defining features, fragmentation is related to several other concepts that seek to enhance our understanding of the growing institutional complexity in international relations.

First, we draw on research on institutional interlinkages or interplay, which has provided insights on different types of interlinkages,¹⁸ causal pathways underlying such interlinkages,¹⁹ and different forms of interplay management.²⁰ Similar to the empirical focus of this special issue, and unlike a pioneer strand of research on interlocking finance or security institutions,²¹ much of the literature on interlinkages has dedicated particular attention to environmental issue areas.

However, there are also important differences. While the research on interlinkages scrutinizes dyadic overlaps between two (or a few more) individual institutions from the same or from different domains, the concept of fragmentation “focuses on the *overall institutional setting* in which distinct institutions exist and interact” in a particular issue area.²² Table 1 shows these different levels of analysis, treating “institutional complexity”²³ as the generic concept that comprises research programs on both institutional fragmentation and institutional interlinkages. Moreover, research programs differ with regard to the issue area they predominantly scrutinize. Research on institutional interlinkages dedicates similar attention to different issue areas, depending on the prevailing subject matter of the institutions involved—for instance, climate and trade, if the focus is on the overlap between the UNFCCC and the WTO. Research on fragmentation, on the other hand, uses one predominant issue area as a focal point through which a whole set of institutions, and the relations among them, are approached. This focus can still be extensive, depending on how broadly an issue area is delineated (and on how bordering issue areas are framed). Depending on this framing, an issue area could be rather specific, such as plant genetic resources, or trans-sectoral and complex, such as climate change.

Moreover, with some notable exceptions,²⁴ the research on institutional interlinkages has made only “limited progress [. . .] on rooting the study of

17. For a detailed analysis, see Hoffmann 2011.

18. O. Young 1996; O. Young 2002.

19. Rosendal 2001; Oberthür and Gehring 2006; Oberthür and Gehring 2011; Zelli 2011b.

20. Oberthür 2009; Oberthür and Stokke 2011b; van Asselt 2011.

21. Guetzkow 1966; Aldrich 1979; Galaskiewicz 1979.

22. Biermann et al. 2009a, 17.

23. Oberthür and Stokke 2011a.

24. Stokke 2001; Oberthür and Gehring 2006; Zelli 2011b; Stokke 2012.

Table 1
Research Programs on Institutional Complexity: Fragmentation and Interlinkages

	<i>Institutional Interlinkages</i>	<i>Institutional Fragmentation</i>
Thematic Focus	One or more (specific) issue areas	One overarching issue area
Level of Analysis	"Dyadic" (two or more individual institutions)	Overarching institutional complex

interplay theoretically,"²⁵ and "the literature on linkages remains littered with proposed taxonomies."²⁶ With a view to avoiding a similar development for the study of fragmentation, the special issue builds on international relations theories when approaching core aspects of institutional fragmentation. If institutions matter, then institutional complexity matters and, depending on the research question, needs to be factored in as an independent, intervening or dependent variable.²⁷

Second, institutional fragmentation differs from recent concepts like orchestration, strategic linkages, and bandwagoning. More precisely, orchestration and bandwagoning could be interpreted as two particular forms of managing fragmentation through different types of actors. Orchestration is a rather prospective governance strategy to strengthen the role of international organizations in an increasingly complex institutional environment.²⁸ "Bandwagoning" focuses on an existing (and growing) practice of strategic issue-linking through which different types of actors seek to maximize their interests in a fragmented institutional environment.²⁹

Finally, other related concepts share with fragmentation the overarching level of analysis in a given issue area. This is particularly the case for the emerging literature on polycentric governance³⁰ and on regime complexes.³¹ Regime complexes are defined in a rather additive manner as "loosely coupled set[s] of specific regimes."³² This research program provides various helpful categories for the analysis of institutional fragmentation, for instance, for assessing the embeddedness of one agreement in a larger web of institutions.³³ In this sense, a regime complex is akin to what other authors have termed as governance architecture.³⁴ The degree of fragmentation would then add a particular notion of quality to assess the nature of a regime complex. However, we consider "institu-

25. Chambers et al. 2008, 7; similarly: O. Young 2008, 134.

26. Selin and VanDeveer 2003, 14.

27. Zelli 2011a, 263–264.

28. Abbott and Snidal 2010.

29. Jinnah and Muñoz Cabré 2011.

30. Ostrom 2010.

31. Raustiala and Victor 2004; Orsini et al. 2013.

32. Keohane and Victor 2011, 7.

33. Alter and Meunier 2009.

34. Biermann et al. 2009a.

tional complexes,"³⁵ rather than regime complexes, to be a more appropriate term. The existing analyses of such complexes, for example on climate change, plant genetic resources, or trade, not only refer to regimes, but always include other types of international institutions such as international organizations or more informal institutional arrangements.³⁶

More importantly, some studies on environmental regime complexes have mixed their analyses with a normative question: whether a regime complex or polycentric governance is *preferable* to a centralized institutional setting for a specific domain. Scholars who established or advanced the concepts of regime complex and polycentricity tend to favor a diversity of initiatives, assuming that the invisible hand of a market of institutions leads to a better distribution of functions and effects.³⁷

It is not our intention to draw or fortify artificial borders where more collaboration is needed. Researchers may disagree on the best conceptual framing or labeling—polycentricity, institutional fragmentation, regime complexes, or governance experiments³⁸—but as long as their studies leave a certain bias behind and ask similar analytical questions, we should speak of a single research program. We believe the literatures under each of these headings have insufficiently built on each other to date. It is time to bridge such gaps, and we hope that this special issue contributes to this endeavor, providing overarching research themes to which authors working with a different concept or terminology can relate.

Research Questions and Core Objectives

This special issue starts from the observation that global environmental governance is already fragmented, and seeks to advance this research program in several ways:

- *Conceptually*: The contributions go beyond additive accounts that are underspecified with regard to the quality of relations among various components of an institutional complex. Instead, they introduce multi-criteria sets to assess and distinguish different degrees of fragmentation and different forms of fragmentation management.
- *Theoretically*: Following the call for "more theoretical concerns"³⁹ in the study of institutional complexity, the contributors draw on international relations theories (such as neoliberal institutionalism and social construc-

35. And in this sense of a broader "institutional complex" for a given issue area, this research program would largely coincide with the focus and level of analysis of the research tradition of institutional fragmentation.

36. See, for instance, the classical typology provided by Keohane (1989, 3), who uses "institutions" as the generic term and then distinguishes as different types: organizations, regimes and implicit rules ("conventions").

37. E.g., Victor et al. 2005; Ostrom 2010; Hoffmann 2011; Keohane and Victor 2011.

38. Hoffmann 2011.

39. Young 2008, 134.

tivism) and their explanatory variables (problem structure, norm structure, constellation of power or interests). They adapt these to examine a number of novel structural and agent-based phenomena: the creation of institutions in fragmented settings, institutional hedging strategies, implications of fragmentation across scales, and choices of complexity management.

- *Empirically*: In addition to identifying and analyzing such phenomena, all articles provide innovative insights on the advantages and drawbacks of institutional complexity in several environmental domains. These insights may also contribute to the ongoing debate on the reform of international environmental governance under the UN umbrella. Thus, apart from the diverse academic target audience of this special issue, its findings may also prove highly attractive to practitioners in the various domains under scrutiny.
- *Methodologically*: While most contributions rely on interviews, participant observation, text analyses, and further qualitative approaches of political science and international law, statistical methods and network analysis will also be introduced to the study of fragmentation.

Based on this common ground, the contributions address four sets of pertinent research questions: taking stock, causes, consequences, and responses.

The first set of questions relates to *taking stock of fragmentation* across issue areas. What are useful criteria to assess fragmented governance architectures? And what insights can be gathered from comparing the state of fragmentation across environmental domains?

As the contributions show, the framing of fragmentation varies significantly across disciplinary (legalistic to sociological), ontological, and epistemological premises—and depends on the delineation of the problem structure under scrutiny. Several criteria to map and distinguish degrees of fragmentation are introduced, including predominant institutional subject matter (Humrich), or different levels of segmentary, stratificatory, and functional differentiation (Zürn and Faude). Based on such categories, the contributors offer detailed assessments of the fragmentation for domains as different as resource use in the Arctic, renewable energy, and forestry.

A second group of questions concerns *the causes of fragmentation*. How can the observed institutional fragmentation be explained with the help of major explanatory variables from theories of international relations (power, constellation of interests, norms, knowledge)? And, drawing on the literatures on institutional fit and problem structures, to which extent can the degree of fragmentation be explained by the structure of the environmental or resource problem at hand?

The contribution by Van de Graaf attends to the first question by analyzing the creation of a new institution in an already fragmented institutional environment: the International Renewable Energy Agency (IRENA). Elaborating assumptions of neoliberal institutionalism, he explains how domestic preferences

may lead to an institutional hedging strategy, whereby states deliberately pursue the creation of overlapping institutions. Karlsson-Vinkhuyzen and McGee also assess the creation of new institutions (and the novel use of existing ones), showing how power plays an important role in advancing the degree of institutional fragmentation in global climate governance. Humrich addresses the second question with respect to resource use in the Arctic, linking the complexity of institutional evolution in this domain to the multifunctional nature of the subject matter. He shows that institutional fragmentation can be explained in part by a demand for institutions tackling different—yet overlapping—problems: oil and gas exploration, increasing maritime traffic, and environmental protection.

Third, the special issue addresses questions on *the consequences of institutional fragmentation*. What are the advantages and drawbacks of institutional fragmentation with regard to negotiation dynamics and decision-making procedures at the international level? What are the implications for certain types of public and transnational actors and institutions operating at this level and across scales?

Altogether, the contributions find that institutional fragmentation, as an intervening variable, may amplify legitimacy gaps and organizational power gaps between different types of public and non-state actors. Karlsson-Vinkhuyzen and McGee draw on tenets from the English School and social constructivism to examine gaps in the legitimacy of “minilateral” forums and public–private arrangements. They show that, despite these gaps, the support from powerful countries allows these forums to exert a significant impact on global climate negotiations. Van de Graaf discusses the potential implications of a new institution for established ones, illustrating how the creation of IRENA has forced the International Energy Agency to reconsider its position on renewable energy options. The contribution by Orsini fills an important research gap by discussing agency in two fragmented institutional settings (forestry and access to genetic resources). Using network analysis and new datasets in combination with qualitative methods, she shows that non-state actors with the capacity to participate in various institutions may significantly enhance their organizational power. She further finds that non-state actors use this power for strategic forum shopping, as well as for integrative attempts at forum linking.

Finally, the special issue tackles various questions related to *responses to fragmentation*. What are options for, and limits to, the management of fragmentation? Do they necessarily imply de-fragmentation, or are other forms of management possible? Who are the driving actors in managing fragmentation? When and why are such approaches undertaken? And finally, when are they desirable—and when not?

A key finding of the contributions to this research theme is that management approaches are confronted with a considerable stability or equilibrium of institutional complexes due to interest- and power-based path dependencies and high transaction costs. Oberthür and Pożarowska provide an important

conceptual and theoretical contribution to address these questions. Building on core explanatory variables of international relations theories like the constellation of interests and norm structures, they introduce an analytical framework to distinguish and explain different forms of complexity management. They apply this framework to the domain of access to, and benefit-sharing from, genetic resources, focusing on the role of the recent Nagoya Protocol. Similarly, Humrich critically analyzes the development and chances of two different forms of responses that have been proposed to manage the institutional fragmentation in the Arctic: a grand proposal of an overarching legal framework, and a more modest attempt to coordinate the existing institutions. He argues that the latter is more feasible and desirable, underlining the inherent limitations to ambitious top-down responses to institutional fragmentation for this case.

The concluding commentary by Zürn and Faude puts the four thematic foci into the wider context of research on social complexity and differentiation. Regarding the first theme of taking stock, their article positions the concept of institutional fragmentation within debates on coordination gaps in international relations in particular, and social systems in general. Likewise, for the themes of causes and consequences of fragmentation, Zürn and Faude link some of the key approaches and findings of this special issue to insights from social differentiation theory. Based on this theoretical perspective, they conclude that it is not fragmentation as such that needs addressing, but the coordination gaps of fragmented or differentiated institutions.

This special issue provides novel insights into the analysis of causes, consequences, and responses, and also stimulates further collaboration across different disciplines and concepts in the emerging research field of institutional complexity. The issue also shows that there is a lot of theoretical and empirical ground to cover, both within and beyond the research themes we introduced above. Additional themes include carefully adapting further strands of rationalist, constructivist, and discursive institutionalism to this new research program; and where analytically feasible, examining implications of institutional fragmentation beyond the level of output effectiveness, for the compliance and problem-solving effectiveness of affected institutions. Scholars of international relations and environmental politics should welcome these challenges to redefine and advance their understanding of global environmental governance.

References

- Abbott, Kenneth W., and Duncan Snidal. 2010. International Regulation without International Government: Improving IO Performance through Orchestration. *Review of International Organizations* 5 (3): 315–344.
- Aldrich, Howard E. 1979. *Organizations and Environments*. Englewood Cliffs, NJ: Prentice-Hall.
- Alter, Karen J., and Sophie Meunier. 2009. The Politics of International Regime Complexity. *Perspectives on Politics* 7 (1): 13–24.

- Andresen, Steinar. 2001. Global Environmental Governance: UN Fragmentation and Coordination. In *Yearbook of International Co-operation on Environment and Development 2001/2002*, edited by Olav Schram Stokke and Øystein B. Thommessen, 19–26. London: Earthscan.
- Bernstein, Steven, and Maria Ivanova. 2007. Institutional Fragmentation and Normative Compromise in Global Environmental Governance: What Prospects for Re-embedding? In *Global Liberalism and Political Order: Towards a New Grand Compromise?* edited by Steven Bernstein and Louis W. Pauly, 161–185. Albany, NY: State University of New York Press.
- Biermann, Frank, Philipp Pattberg, Harro van Asselt, and Fariborz Zelli. 2009a. The Fragmentation of Global Governance Architectures: A Framework for Analysis. *Global Environmental Politics* 9 (4): 14–40.
- Biermann, Frank, Philipp Pattberg, Fariborz Zelli, Harro van Asselt, Ingrid Boas, Christian Flachsland, Nitu Goel, Andries Hof, Anne Jerneck, Eric Massey, Lennart Olsson, and Johannes Strippel. 2009b. Global Climate Governance after 2012. Architecture, Agency and Adaptation. In *Making Climate Change Work for Us*, edited by Mike Hulme and Henry Neufeldt, 263–290. Cambridge, UK: Cambridge University Press.
- Chambers, W. Bradnee. 2008. *Interlinkages and the Effectiveness of Multilateral Environmental Agreements*. Tokyo: United Nations University Press.
- Chambers, W. Bradnee, Joy A. Kim, and Claudia ten Have. 2008. Institutional Interplay and the Governance of Biosafety. In *Institutional Interplay: Biosafety and Trade*, edited by Oran R. Young, W. Bradnee Chambers, Joy A. Kim, and Claudia ten Have, 3–19. Tokyo: United Nations University Press.
- Galaskiewicz, Joseph. 1979. Interorganizational Relations. *Annual Review of Sociology* 11: 281–304.
- Gehring, Thomas. 2011. The Institutional Complex of Trade and Environment. Toward an Interlocking Governance Structure and a Division of Labor. In *Managing Institutional Complexity: Regime Interplay and Global Environmental Change*, edited by Sebastian Oberthür and Olav Schram Stokke, 227–254. Cambridge, MA: MIT Press.
- Guetzkow, Harold. 1966. Relations among Organizations. In *Studies on Behavior in Organizations*, edited by Raymond V. Bowers, 13–44. Athens, GA: University of Georgia Press.
- Hafner, Gerhard. 2004. Pros and Cons Ensuing from Fragmentation of International Law. *Michigan Journal of International Law* 25 (4): 849–863.
- Hasenclever, Andreas, Peter Mayer, and Volker Rittberger. 1997. *Theories of International Regimes*. Cambridge, UK: Cambridge University Press.
- Herr, Richard A., and Edmund Chia. 1995. The Concept of Regime Overlap. Toward Identification and Assessment. In *Overlapping Maritime Regimes: An Initial Reconnaissance*, edited by Bruce Davis, 11–26. Hobart: Antarctic Climate and Ecosystems Cooperative Research Centre and Institute of Antarctic and Southern Ocean Studies.
- Hoffmann, Matthew J. 2011. *Climate Governance at the Crossroads. Experimenting with a Global Response after Kyoto*. Oxford, UK: Oxford University Press.
- International Law Commission. 2006. Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law. Report of the

- Study Group of the International Law Commission. A/CN.4/L.682 (April 13, 2006). Geneva: International Law Commission.
- Jinnah, Sikina, and Miquel Muñoz Cabré, eds. 2011. Special Issue: Climate Bandwagoning: The Impacts of Strategic Linkages on Regime Design, Maintenance, and Death. *Global Environmental Politics* 11 (3).
- Keohane, Robert O. 1989. *International Institutions and State Power: Essays in International Relations Theory*. Boulder, CO: Westview Press.
- Keohane, Robert O., and Elinor Ostrom, eds. 1995. *Local Commons and Global Interdependence*. London: Sage.
- Keohane, Robert O., and David G. Victor. 2011. The Regime Complex for Climate Change. *Perspectives on Politics* 9 (1): 7–23.
- Koskenniemi, Martti, and Päivi Leino. 2002. Fragmentation of International Law? Post-modern Anxieties. *Leiden Journal of International Law* 15 (3): 553–579.
- Mitchell, Ronald B. 2013. International Environmental Agreements Database Project, 2002–2013 (Version 2013.1). Available at <http://iea.uoregon.edu>, accessed March 26, 2013.
- Oberthür, Sebastian. 2009. Interplay Management: Enhancing Environmental Policy Integration among International Institutions. *International Environmental Agreements: Politics, Law and Economics* 9 (4): 371–391.
- Oberthür, Sebastian, and Thomas Gehring, eds. 2006. *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*. Cambridge, MA: MIT Press.
- . 2011. Institutional Interaction: Ten Years of Scholarly Development. In *Managing Institutional Complexity: Regime Interplay and Global Environmental Change*, edited by Sebastian Oberthür and Olav Schram Stokke, 25–58. Cambridge, MA: MIT Press.
- Oberthür, Sebastian, and Olav Schram Stokke, eds. 2011a. *Managing Institutional Complexity: Regime Interplay and Global Environmental Change*. Cambridge, MA: MIT Press.
- . 2011b. Conclusions: Decentralized Interplay, Management in an Evolving Interinstitutional Order. In *Managing Institutional Complexity: Regime Interplay and Global Environmental Change*, edited by Sebastian Oberthür and Olav Schram Stokke, 313–341. Cambridge, MA: MIT Press.
- Orsini, Amandine, Jean-Frédéric Morin, and Oran R. Young. 2013. Regime Complexes: A Buzz, a Boom or a Boost for Global Governance? *Global Governance* 19 (1): 27–39.
- Ostrom, Elinor. 2010. Polycentric Systems for Coping with Collective Action and Global Environmental Change. *Global Environmental Change* 20 (4): 550–557.
- Raustiala, Kal, and David G. Victor. 2004. The Regime Complex for Plant Genetic Resources. *International Organization* 58 (2): 277–309.
- Rayner, Steve. 2010. How to Eat an Elephant: A Bottom-up Approach to Climate Policy. *Climate Policy* 10 (6): 615–621.
- Rittberger, Volker, ed. 1990. *International Regimes in East-West Politics*. London: Pinter Publishers.
- Rosendal, G. Kristin. 2001. Impacts of Overlapping International Regimes: the Case of Biodiversity. *Global Governance* 7 (1): 95–117.
- Ruloff, Dieter. 1999. Kompatibilitätsprobleme internationaler Regime: Theoretischer Hintergrund und Forschungsfragen. In *Handel und Umwelt. Zur Frage der Kompatibilität internationaler Regime*, edited by Thomas Bernauer and Dieter Ruloff, 13–42. Opladen: Westdeutscher Verlag.

- Selin, Henrik, and Stacy D. VanDeveer. 2003. Mapping Institutional Linkages in European Air Pollution Politics. *Global Environmental Politics* 3 (3): 14–46.
- Stokke, Olav Schram. 2001. The Interplay of International Regimes: Putting Effectiveness Theory to Work? FNI Report 10/2001. Lysaker: Fridtjof Nansen Institute.
- . 2012. *Disaggregating International Regimes: A New Approach to Evaluation and Comparison*. Cambridge, MA: MIT Press.
- van Asselt, Harro. 2011. Legal and Political Approaches in Interplay Management: Dealing with the Fragmentation of Global Climate Governance. In *Managing Institutional Complexity: Regime Interplay and Global Environmental Change*, edited by Sebastian Oberthür and Olav Schram Stokke, 59–85. Cambridge, MA: MIT Press.
- van Asselt, Harro, Francesco Sindico, and Michael Mehling. 2008. Global Climate Change and the Fragmentation of International Law. *Law & Policy* 30 (4): 423–449.
- Victor, David G., Joshua C. House, and Sarah Joy. 2005. A Madisonian Approach to Climate Policy. *Science* 309 (5742): 1820–1821.
- Young, Margaret A., ed. 2012. *Regime Interaction in International Law: Facing Fragmentation*. Cambridge, UK: Cambridge University Press.
- Young, Oran R. 1996. Institutional Linkages in International Society: Polar Perspectives. *Global Governance* 2 (1): 1–24.
- . 2002. *The Institutional Dimension of Environmental Change: Fit, Interplay and Scale*. Cambridge, MA: MIT Press.
- . 2008. Deriving Insights from the Case of the WTO and the Cartagena Protocol. In *Institutional Interplay: Biosafety and Trade*, edited by Oran R. Young, W. Bradnee Chambers, Joy A. Kim, and Claudia ten Have, 131–158. Tokyo: United Nations University Press.
- . 2011. Overcoming Fragmented Governance: The Case of Climate Change and the MDGs. Governance and Sustainability Issue Brief 2. Boston, MA: Center for Governance and Sustainability, University of Massachusetts.
- Young, Oran R., Leslie A. King, and Heike Schroeder. 2008a. *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers*. Cambridge, MA: MIT Press.
- Young, Oran R., W. Bradnee Chambers, Joy A. Kim, and Claudia ten Have, eds. 2008b. *Institutional Interplay: Biosafety and Trade*. Tokyo: United Nations University Press.
- Zelli, Fariborz. 2011a. The Fragmentation of the Global Climate Governance Architecture. *WIREs Climate Change* 2 (2): 255–270.
- . 2011b. Regime Conflicts and Their Management in Global Environmental Governance. In *Managing Institutional Complexity: Regime Interplay and Global Environmental Change*, edited by Sebastian Oberthür and Olav Schram Stokke, 199–226. Cambridge, MA: MIT Press.
- Zelli, Fariborz, Aarti Gupta, and Harro van Asselt. 2012. Horizontal Institutional Interlinkages. In *Global Environmental Governance Reconsidered*, edited by Frank Biermann and Philipp Pattberg, 175–198. Cambridge, MA: MIT Press.
- . 2013. Institutional Interactions at the Crossroads of Trade and Environment: The Dominance of Liberal Environmentalism? *Global Governance* 19 (1): 105–118.

Copyright of Global Environmental Politics is the property of MIT Press and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.