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# Organizational Ecology and Institutional Change in Global Governance

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**Abstract** The institutions of global governance have changed dramatically in recent years. New organizational forms—including informal institutions, transgovernmental networks, and private transnational regulatory organizations (PTROs)—have expanded rapidly, while the growth of formal intergovernmental organizations has slowed. Organizational ecology provides an insightful framework for understanding these changing patterns of growth. Organizational ecology is primarily a structural theory, emphasizing the influence of institutional environments, especially their organizational density and resource availability, on organizational behavior and viability. To demonstrate the explanatory value of organizational ecology, we analyze the proliferation of PTROs compared with the relative stasis of intergovernmental organizations (IGOs). Continued growth of IGOs is constrained by crowding in their dense institutional environment, but PTROs benefit from organizational flexibility and low entry costs, which allow them to enter “niches” with limited resource competition. We probe the plausibility of our analysis by examining contemporary climate governance.

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The institutions of global governance have changed dramatically in recent years. In the decades after 1945, dozens of specialized agencies, programs, and commissions were created within the UN system. Other functional intergovernmental organizations (IGOs), notably the World Trade Organization (WTO), appeared and gained influence, and European institutions expanded dramatically. Multilateral treaties also multiplied; environmental agreements, for example, grew by nearly 150 percent during the 1990s.<sup>1</sup> In the early years of this century, however, growth in the number of IGOs has slowed markedly. Although existing IGOs continue to expand their activities, the formation of new organizations has decreased by about 20 percent.<sup>2</sup> Adoption of new environmental treaties has slowed even more sharply.<sup>3</sup>

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1. See Zelli and van Asselt 2013.

2. Pauwelyn, Wessel, and Wouters 2012.

3. Authors' calculations based on data from Ronald B. Mitchell, 2002–12. International Environmental Agreements Database Project (version 2012.1), available at <<http://iea.uoregon.edu/page.php?file=home.htm&query=static>>, accessed 7 February 2015.

New organizational forms, in contrast, have emerged and expanded rapidly. States have created informal institutions<sup>4</sup> and plurilateral “clubs,”<sup>5</sup> such as the G20 and other “G-groups.” In response to increasing institutional fragmentation, states have also established meta-institutions to coordinate other entities, such as the High Level Political Forum for sustainable development<sup>6</sup> and the G20 for financial regulation.<sup>7</sup> IGOs have created their own “emanations.”<sup>8</sup> National regulatory agencies have established influential transgovernmental institutions<sup>9</sup> such as the Basel Committee on Banking Supervision.<sup>10</sup> Subnational governments have also established transnational networks such as the C40 Cities Climate Leadership Group. Transnational public-private partnerships (PPPs) have expanded and gained official recognition, as at the 2002 World Summit on Sustainable Development.<sup>11</sup>

Perhaps most striking, private transnational regulatory organizations (PTROs) have proliferated. PTROs are established and governed by actors from civil society, business, and other sectors.<sup>12</sup> They engage directly in transnational governance, adopting standards of conduct for business and other targets on regulatory issues from worker rights to climate change; promoting, monitoring, and enforcing those standards; and conducting related administrative activities.<sup>13</sup> PTROs operate through markets, not through interstate negotiations or hierarchy;<sup>14</sup> they adopt voluntary standards and rely on incentives such as consumer demand, reputational benefits, avoidance of mandatory regulation, and reduced transactions costs to induce participation and compliance.<sup>15</sup> Before the 1990s, such organizations barely existed.<sup>16</sup> Today, they are numerous, well established, and expanding in numbers.<sup>17</sup> These changes are especially notable in climate change governance, on which we focus our empirical analysis.

This dramatic shift in the institutional landscape is highly significant for global governance. Because PTROs are controlled by private actors rather than states,

4. Vabulas and Snidal 2013.

5. Keohane and Nye 2001.

6. Abbott and Bernstein 2015.

7. Viola 2015.

8. Shanks, Jacobson, and Kaplan 1996.

9. Keohane and Nye 1974.

10. Slaughter 2004.

11. See Keohane and Nye 1974; Slaughter 2004; Betsill and Bulkeley 2006; Andonova 2010; and Bäckstrand 2008.

12. See Abbott and Snidal 2009a and 2009b. On the public-private distinction, see Pattberg and Stripple 2008.

13. Such activities include operating accreditation systems for monitors and registries of certified projects. Private transnational organizations, a more inclusive class, also perform other functions, such as managing operational projects and disseminating information. Abbott 2012. We focus here on the subset of regulatory organizations.

14. Lake 2009.

15. See Keohane 1984; Cashore, Auld, and Newsom 2004; Prakash and Potoski 2006; and Buthe 2010.

16. See Abbott and Snidal 2009b; and Hale and Roger 2014.

17. Robert Axelrod has suggested to us that the Internet, which did not exist before 1990, may have facilitated the growth of PTROs by facilitating their ability to create a transnational brand (Axelrod, personal communication, 30 September 2015).

they make decisions and exert influence through different processes than do IGOs. They make different claims to legitimacy, provide different avenues for political participation, and are accountable to different constituencies. They complement IGO norms and programs, multiplying their governance impact. For these and other reasons discussed more fully in the conclusion, a world of global governance in which key decisions are made by private-sector and civil society actors operating through PTROs is very different from one dominated by states acting through IGOs.

What accounts for this shift in the composition of global governance institutions? Why do some types of organizations—such as PTROs—rapidly increase in number, becoming a major, ongoing presence in global governance? And why do other organizational forms—such as IGOs—experience slowing growth, even as incumbent organizations take on new responsibilities? In short, what explains the different *patterns* of growth these organizational forms have experienced? Current theories of international governance provide valuable insights and focus usefully on variations in the characteristics of organizational actors. However, they overlook the other crucial causal variable: the *structure* of the institutional environments that influence organizational behavior.

To remedy the lack of attention to the institutional environment in contemporary theory, this article draws on work in the sociology of organizations—known as “organizational ecology”—that has demonstrated the importance of institutional landscapes for organizational behavior. Deriving from pioneering work by Hannan and colleagues in the 1980s and 1990s,<sup>18</sup> organizational ecology studies aggregate changes in the types and numbers of organizations. It considers both the structural influence of organizational environments and the specific actor characteristics that mediate that influence. Organizational ecology has not been systematically applied to global governance, even though it speaks directly to the issue of organizational change and diversity. It is highly relevant to understanding the viability not only of PTROs, but also of other innovative governance institutions.

## Why Organizational Ecology?

A number of theories of global governance can provide partial explanations for the divergent growth patterns of IGOs and PTROs but these explanations are incomplete because they overemphasize agency at the expense of structure.

*Functionalist theory* would argue that negative externalities generated by diverse global activities create interests among actors and organizations in correcting them through cooperation. Whether cooperation led to the creation of new IGOs or PTROs, or to the expansion of existing organizations, would depend on the alignment of actor and organizational interests, weighted by power. From a functionalist standpoint, both the expansion in the number of democratic states over the past thirty years

18. See Hannan and Carroll 1992; and Hannan and Freeman 1989.

and advances in communications technology could have generated new interests and capabilities, generating viable transnational organizations.<sup>19</sup> But functionalist theory—which has focused on interstate cooperation<sup>20</sup>—would find it difficult to explain the differential increase in the number of PTROs compared with IGOs.

*Theories of self-regulation* view the emergence of voluntary standards, especially self-regulatory standards, as a means of capturing private benefits, especially by business or other (potential) targets. These benefits may include preempting public regulation, gaining access to markets, and enhancing firm reputation.<sup>21</sup> Many climate PTROs, however, are based in nongovernmental organizations (NGOs) or are multi-stakeholder initiatives in which these economic incentives are absent or diluted. Nonetheless, these theories warn us that target firms may still seek to capture PTRO norms and procedures.<sup>22</sup>

*Organizational theories* focus on the interests of organizations themselves.<sup>23</sup> All organizations seek to survive and so must act to satisfy their minimum resource needs.<sup>24</sup> In addition, organizations typically seek to expand their authority and resources. But these theories do not explain our puzzle, which is not why existing organizations expand, but why many organizations of a new type are able to survive.

*Principal-agent theory* would predict that established IGOs will delegate certain functions to other organizations that can perform them more efficiently. The agents might be newly created IGOs, PTROs, or other institutions. In this view, we should observe, as we do, new entities tied by authority and accountability relationships to older ones. Also consistent with this argument are orchestration—in which IGOs support and guide the activities of organizations with “on-the-ground” knowledge or other capabilities IGOs lack<sup>25</sup>—and the creation of emanations, “second-order IGOs created through actions of other IGOs.”<sup>26</sup> However, delegation is costly, requiring high levels of agreement among principals and careful oversight of agents. Many recent PTROs were not created as agents of any principal, but reflect what Green calls “entrepreneurial private authority.”<sup>27</sup> So although principal-agent theory helps to account for the creation of some PTROs, it does not explain their vast expansion or viability.

All of these theories are incomplete because they fail to pay systematic attention to the *organizational environment* within which both IGOs and PTROs operate. Organizational ecology, in contrast, is primarily a structural theory. In answering the question “Why are there so many (or so few) kinds of organizations?”<sup>28</sup> it

19. See Keohane and Nye 1972 and 1977.

20. Keohane 1984.

21. See Haufler 2001; Prakash and Potoski 2006; and Locke 2013.

22. See Falkner 2003; Newig and Fritsch 2009; and Fuchs and Kalfagianni 2010.

23. See Allison 1969; and Wilson 1989.

24. See Bob 2002; Cooley and Ron 2002; Wong 2012; and Bush 2015.

25. See Abbott and Snidal 2010; and Abbott et al. 2015.

26. Shanks, Jacobson, and Kaplan 1996, 594.

27. See Green 2010a and 2014, chap. 3.

28. Hannan and Freeman 1989, 7.

focuses on the institutional environment in which organizations operate, especially the density of that environment and the resources it can provide. Organizational ecology does not deny the roles of functions, agency relationships, organizational goals, or private benefits, but highlights the constraints and opportunities that institutional environments create.

Organizational ecology also pays attention to organizational characteristics, but it emphasizes those intrinsic organizational features that shape institutional environments and determine how particular organizations respond to them. These include the cost of creating organizations, flexibility, and stability or fragility.

## Organizational Diversity in Climate Governance

Our analysis begins from a simple empirical observation: the number of PTROs has grown dramatically in the past two decades, while the number of IGOs has remained relatively static. Here we establish this empirical premise in the climate change issue-area.

### *Patterns of Growth*

Among IGOs, the United Nations Framework Convention on Climate Change (UNFCCC) (adopted 1992)<sup>29</sup> is the focal institution, together with its offshoot the Kyoto Protocol (KP) (1997).<sup>30</sup> Since 1992, the UNFCCC has become a complex organization, with both shared and separate organs for the convention and KP and multiple subsidiary bodies. These include a Conference and Meeting of the Parties; permanent subsidiary bodies; issue-specific committees; boards governing programs such as the Clean Development Mechanism (CDM); and a Secretariat.<sup>31</sup> In all, more than twenty bodies are related to the UNFCCC or KP. All but one of these are internal organs of the conventions—not independent IGOs. Only the Global Environment Facility (GEF), the main financial mechanism of the UNFCCC, is a separate IGO, established in 1991 (before the convention). The Intergovernmental Panel on Climate Change (IPCC) (formed in 1988) is also an independent body.

Additional IGOs are (or may become) involved in climate policy. Michonski and Levi<sup>32</sup> identify twenty-two multilateral organizations that are relevant to climate policy but for which climate is not the primary focus (Table 1); as with the UNFCCC/KP organs, not all are regulatory bodies. These include broad environmental organizations such as the United Nations Environment Program (UNEP),

29. The UNFCCC and KP are treaties that establish obligations for state parties. But both also establish organizations and it is those we consider here.

30. The KP entered into force in 2005; its first commitment period began in 2008. The second commitment period began in 2013.

31. UNFCCC Bodies, available at <<http://unfccc.int/bodies/items/6241.php>>, accessed 19 October 2015.

32. Michonski and Levi 2010.

multilateral and regional development banks, and sectoral bodies including the International Energy Agency and WTO. The World Bank, in addition to general lending, administers several specialized funds to support CDM projects and develop carbon markets. Keohane and Victor identify a similar range of institutions in the climate change regime complex.<sup>33</sup> Michonski and Levi note that “efforts to create new institutions ... can take a long time (and often fail),” emphasizing that “a wealth of climate-related institutional capacity already exists” in these IGOs.<sup>34</sup>

**TABLE 1.** *IGOs in the climate change regime complex*

*Core Organizations*

- UNFCCC: including Kyoto Protocol, organs, funds, and other emanations (R)
- Global Environment Facility (GEF): financial mechanism, special funds
- Intergovernmental Panel on Climate Change (IPCC)

*Related Organizations*

*Environmental*

- United Nations Environment Program (UNEP) (R)
- Montreal Protocol: addresses greenhouse gases (R)

*Informal*

- Group of 8 (G8) (R)
- Group of 20 (G20) (R)
- Asia-Pacific Economic Cooperation (APEC) (R)
- Major Economies Forum (R)

*Sectoral*

- International Civil Aviation Organization (ICAO) (R)
- International Maritime Organization (IMO) (R)
- UN Industrial Development Organization (UNIDO) (R)
- International Atomic Energy Agency (IAEA) (R)
- World Trade Organization (WTO) (R)

*Energy*

- International Energy Agency (IEA)
- International Renewable Energy Agency (IRENA) (R)

*Development*

- Food and Agriculture Organization (FAO) (R)
- UN Development Program (UNDP) (R)
- World Food Program (WFP)
- World Health Organization (WHO) (R)

*Development Banks*

- World Bank: including Climate Investment Funds, other specialized funds
- Regional Development Banks: African, Asian, Inter-American Development Banks; European Bank for Reconstruction and Development

*Note:* Regulatory organizations denoted with (R).

In sum, given the breadth of activities undertaken within the climate regime, there are relatively few IGOs. Not all of these organizations, moreover, engage in rulemaking, and most are “old” IGOs that steered their activities toward climate change as the issue became salient. Many, including the World Bank, Food and Agriculture Organization, and International Civil Aviation Organization, date back to the founding of the United Nations. Even the GEF and IPCC predate the UNFCCC. The only

33. Keohane and Victor 2011, Fig. 1.

34. Michonski and Levi 2010, 3.

recent climate-related IGOs are the International Renewable Energy Agency (2009) and the Major Emitters Forum (2007).

Most of the more recent bodies in the climate change regime complex are emanations. For example, the UNFCCC established the Adaptation Fund (AF) in 2001; it approved the Green Climate Fund (GCF) in 2010, but that is still not operational. These examples reflect a general trend in global governance: IGOs are increasingly creating emanations or “progeny.”<sup>35</sup> A 1996 study estimated that more than two-thirds of international organizations could be described as “emanations.”<sup>36</sup> A more recent study estimates that proportion as close to 80 percent.<sup>37</sup>

By contrast, the number of climate-related PTROs is substantially larger, and they are much younger organizations. It is challenging to make a definitive count of this population: there is a “dearth of systematic records on transnational governance initiatives for climate change,” so that “the entire population is unknown.”<sup>38</sup> However, triangulating across recent studies suggests that there are more than three times as many PTROs as rule-making IGOs in this domain, probably even more.

Bulkeley and colleagues identify sixty transnational institutions that explicitly address climate change.<sup>39</sup> Some involve subnational governments or IGOs; many engage in activities other than regulation. But 75 percent “have some sort of target, monitoring or rule-setting function,” and “over 64 percent of all rule-setting initiatives” are private.<sup>40</sup> Abbott modifies that database to analyze nearly seventy organizations. Approximately one-third are regulatory; thirteen of those are pure PTROs (nearly as many more are public-private collaborations).<sup>41</sup> Hale and Roger examine seventy-five transnational climate governance initiatives. Roughly half are private.<sup>42</sup> Green identifies thirty organizations focused on carbon measurement and accounting.<sup>43</sup> Applying conservative definitions of “private” and “regulatory” to these data, we identify at least thirty-one organizations, some with multiple standards, that qualify as climate-focused PTROs (Table 2).

PTROs are also much more recent creations than the IGOs identified earlier. Some 90 percent of all climate-focused initiatives were founded after the signing of the KP in 1997;<sup>44</sup> almost all climate PTROs were formed since 2000. Just as with IGOs, one must also consider PTROs that address climate issues as part of broader mandates. Based on our ongoing research, at least twenty-two organizations fall within this category (Table 3).<sup>45</sup> These organizations are diversified: they pursue broad

35. Johnson 2014.

36. Shanks, Jacobson, and Kaplan 1996.

37. Johnson 2014, 8.

38. Bulkeley et al. 2012, 599.

39. Ibid.

40. Ibid., 604.

41. Abbott 2012.

42. Hale and Roger 2014.

43. Green 2013.

44. Bulkeley et al. 2012, 599.

45. Abbott and Snidal 2014.

environmental and social goals but also explicitly address climate mitigation and/or adaptation. They have followed a similar temporal trajectory: with three exceptions,<sup>46</sup> all were formed since 1997, and most since 2000.

**TABLE 2.** *Climate change-focused PTROs and year established*

Business Environmental Leadership Council	1998
Cleaner and Greener Certification	1999
WWF Climate Savers	1999
CarbonNZero	2001
Greenhouse Gas Protocol	
Corporate Standard	2001
Project Standard	2005
Product Standard	2011
Value Chain Standard	2011
Carbon Disclosure Project	
Climate Change Program	2003
Forests Program	2009
Supply Chain Program	2009
Carbon Neutral Protocol	2003
Chicago Climate Exchange (offset standards)	2003/2011
The Gold Standard	2003
Refrigerants, Naturally!	2004
Climate, Community and Biodiversity Standards	2005
Green Tick Carbon Neutral/Negative	2005
International Organization for Standardization (ISO) 14000 series standards	
Environmental management standards	2006
Carbon accounting standards	2006
Verified (formerly voluntary) Carbon Standard	2006
CarbonFree Certified	2007
Climate Counts Scorecard	2007
Climate Disclosure Standards Board	2007
ClimateWise Principles	2007
FTSE4Good Climate Change Criteria	2007
VER+	2007
Carbon Trust Standard	2008
CEMARS	2008
Green-e Climate	2008
Social Carbon	2008
American Carbon Registry	2009
Climate Bond Initiative	2011
International Sustainability and Carbon Certification	2011
NEPCon Carbon Footprint Management Standard	2011
REDD + Social and Environmental Standards	2011
Natural Forest Standard	2012
The W+ Standard	2013

In sum, there is clear evidence that climate PTROs are multiplying rapidly, much more quickly than climate IGOs. They already outnumber climate IGOs by at least a factor of three. Given that most have emerged within fifteen years, this is a remarkable rate of growth. The empirics only reinforce our question: What explains the rapid growth in PTROs and the relative stability of IGOs?

46. IFOAM (1972) was established by organic farmers before climate was a salient issue. FSC (1993) was formed after the Rio Conference on Environment and Development failed to adopt binding obligations on forestry; SFI (1994) was formed partly in response.



TABLE 3. *Diversified PTROs with climate standards and year established*

<i>Business based</i>	
Ethical Tea Partnership	1997
Green Globe Certification Standard for Sustainable Tourism	1999
International Council on Mining and Metals sustainability principles	2003
Program for the Endorsement of Forest Certification	1999
Sustainable Forestry Initiative	1994
<i>Nongovernmental organization based</i>	
Plan Vivo	2008
Rainforest Alliance Sustainable Agriculture Network	1997
Sustainability Consortium	2010
<i>Collaborative</i>	
4C Association code of conduct for coffee	2006
Bonsucro standard for sugar cane	2004
EPEAT standards for electronics products	2005
Equitable Origin standard for petroleum	2009
Fairtrade Labelling Organizations	1997
Forest Stewardship Council	1993
Global Reporting Initiative	1997
Global Roundtable for Sustainable Beef	2010
Global Sustainable Tourism Council	2010
IFOAM organic agriculture standard	1972
Roundtable on Sustainable Biofuels	2007
Roundtable on Sustainable Palm Oil	2003
Roundtable on Sustainable Soy	2006
UTZ certified standard for agricultural products	2002

### *The Role of PTROs in Climate Governance*

A skeptic might question whether the growing number of private transnational regulatory organizations is consequential if these organizations remain at the margins of climate governance. In fact, however, in addition to their broader political significance,<sup>47</sup> they are an increasingly important component of climate governance. PTROs within the “transnational regime complex for climate change”<sup>48</sup> regulate large swaths of the global economy. They write and implement influential (albeit voluntary) rules both in core areas of climate governance—such as the measurement of carbon emissions<sup>49</sup> and qualification of CDM projects<sup>50</sup>—and in related areas including green buildings,<sup>51</sup> environmentally responsible investment,<sup>52</sup> and environmental disclosure.<sup>53</sup>

47. We address the political implications of PTROs in the conclusion.

48. Abbott 2012.

49. Greenhouse Gas Protocol, available at <[www.ghgprotocol.org](http://www.ghgprotocol.org)>, accessed 22 October 2015.

50. Climate, Community and Biodiversity Alliance, available at <<http://www.climate-standards.org/>>, accessed 22 October 2015.

51. Leadership in Energy and Environmental Design, available at <<http://www.usgbc.org/certification>>.

52. United Nations Principles for Responsible Investment, available at <<http://www.unpri.org/>>, accessed 22 October 2015.

53. Global Reporting Initiative, available at <<https://www.globalreporting.org/Pages/default.aspx>>, accessed 22 October 2015.

PTROs are increasingly recognized as essential components of the international climate change regime. States created the Ad Hoc Working Group on the Durban Platform (ADP) in 2010 for two purposes: to develop a legal instrument to succeed the KP in 2020, and to pursue mitigation in the interim. The latter effort, Workstream 2, is charged with “enhancing mitigation ambition to identify and explore options for a range of actions ... to ensur[e] the highest possible mitigation efforts by all Parties.”<sup>54</sup>

Among other efforts, Workstream 2 is focusing on potential contributions by subnational and private actors. The December 2014 decision of the UNFCCC Conference of the Parties in Lima explicitly recognized the need to identify subnational policy options for mitigation, and to involve private actors in that process.<sup>55</sup> The Peruvian government, with UNFCCC support, launched the “Nazca Portal” at Lima to highlight private and subnational initiatives.<sup>56</sup> A recent technical paper by the UNFCCC Secretariat proposes a formal process to “analyze and identify development-focused mitigation opportunities and good practices, under a ‘policy menu.’”<sup>57</sup> This process will include PTRO standards.

Domestic carbon regulations also show the significance of PTROs. Numerous PTROs address carbon offsetting. States are increasingly incorporating these private regulations into their domestic policies on emissions trading and voluntary reductions. Roughly 30 percent of all states with carbon-pricing instruments now recognize PTRO standards in domestic regulations, blurring the lines between private and public governance.<sup>58</sup>

## Organizational Ecology: Concepts and Theory

Our analysis revolves around three key concepts: (1) *organizations*, (2) *populations and niches*, and (3) *organizational density*. Institutions are sets of interconnected rules and practices that prescribe behavior.<sup>59</sup> They have varying degrees of agency. Some have no ability to act independently; bilateral investment treaties are an example. Organizations are institutions capable of exercising agency.<sup>60</sup> UNEP and the World Bank are intergovernmental organizations. The Greenhouse Gas Protocol and Forest Stewardship Council are private organizations.<sup>61</sup>

54. UNFCCC Ad Hoc Working Group, available at <<http://unfccc.int/bodies/body/6645.php>>, accessed 22 October 2015.

55. UNFCCC 2014a, paragraph 19.

56. UNFCCC 2014b.

57. UNFCCC 2014a, paragraph 83.

58. Green 2015.

59. Keohane 1988.

60. Compare the definition in Scott 1998, 25. There is no agreed-on definition of organizations in OE; see Baum 2002. For our purposes, an IGO is comprised of both its secretariat and its state members because the members, acting through IGO organs, exercise significant influence, if not control, over its activities.

61. On the agency of intergovernmental organizations, see Baum 2002.

The major units of analysis in organizational ecology are not individual organizations but populations of organizations with particular forms. Populations are “sets of organizations engaged in similar activities and with similar patterns of resource utilization.”<sup>62</sup> Organizations within a population share common features such as goals, technologies, and forms of authority.<sup>63</sup> A population defined around such features usually forms a recognizable class, such as trade unions, hospitals, or fast-food restaurants.<sup>64</sup> Indeed, recent organizational ecology scholarship suggests that the perceptions of relevant audiences define and constitute populations.<sup>65</sup> Within a population, individual organizations may vary in size, resources, and other features; for example, some may be generalists, others specialists. “Segregating factors,” such as social networks that reinforce separate identities, keep populations distinct; “blending processes,” such as restructurings that recombine organizational features, bring them together.<sup>66</sup>

In ecological terms, a fundamental feature of a population is its members’ dependence on a common set of resources. Because of this common dependency, organizations within a population respond similarly to changes in their environment. A population can thus be seen as occupying an ecological niche defined by its required resource set: “the fundamental niche of an organizational form consists of the social, economic, and political conditions that can sustain the functioning of organizations that embody the form.”<sup>67</sup> If two organizational forms require different resources, they occupy different niches.<sup>68</sup>

Among PTROs, for example, organizations that regulate and certify emissions reduction credits for sale in the voluntary carbon market constitute a population. These organizations require similar social, material, and political resources, including rule-making authority recognized by market participants, legitimacy within relevant stakeholder communities, members, funding (from members, contributors, fees, foundations, or other sources), access to essential actors, and administrative resources. Within the population, however, individual organizations may have larger or smaller budgets, more or less stringent standards, and other variations. PTROs that set standards for city renewable-energy programs would constitute a different population than those PTROs that participate in the carbon market, distinguishable on each of these features, and perceived as distinct by relevant audiences. When an organization modifies its operations so that it requires a different mix of resources—for example, when a climate PTRO targets adaptation rather than mitigation—it shifts to a different

62. Baum and Rowley 2002, 13.

63. Hannan and Freeman 1989.

64. Analysts often use “native” or “conventional” classifications such as these, based on understandings of participants, legal classifications, and organizational practices. Hannan and Freeman 1989, 45–46, 62–65.

65. See Hsu, Hannan, and Koçak 2009; and Pontikes 2012.

66. Hannan and Freeman 1989, 57–60.

67. Hannan and Carroll 1992, 28.

68. Each population need not have a unique resource set; some resources—such as information and technology—can be shared across populations.

niche and population. Populations that affect one another's resources form an ecological community, which co-evolves within their shared environment.

Finally, organizational density is a central feature in organizational ecology because organizations must compete more vigorously for resources in a dense population than in a sparse one. In natural ecologies, the density of a species is understood as "the number of individuals divided by the area occupied."<sup>69</sup> Classic works of organizational ecology reflect a similar numerical understanding: Hannan and Carroll define density as "the number of organizations within a specified population, defined in terms of specified spatial and temporal boundaries."<sup>70</sup>

These definitions do not fit world politics well. Considering the numerator of the density ratio, governance organizations often take on new activities that increase their demand for resources and the intensity of their competition, without changing their numbers. For example, the UN now engages in peacebuilding as well as peacekeeping; the UNFCCC addresses adaptation, finance, and technology transfer as well as mitigation; and the World Bank builds carbon markets as well as funding economic development. Considering the denominator, surface area would be a poor proxy for social, political, and economic resources because such resources are not fixed. Both exogenous events and organizational actions can increase (or decrease) available resources. Indeed, organizations may elicit new resources by expanding their activities: as states and nonstate actors come to accept UN peacebuilding, for example, they provide additional authority, legitimacy, and material resources.<sup>71</sup>

We therefore adopt a different understanding of density. The numerator represents the extent and complexity of governance activities within a population of organizations; numbers are relevant but not determinative. The denominator represents the resources available for that population. Both factors are subject to change. To be sure, this mutability presents significant measurement challenges. In principle, however, one can observe the density of a population, compare its density over time, and compare it with other populations.

Like Waltz's structural theory, organizational ecology focuses on configurations at the systemic level, not on the internal politics of actors or the relationship of internal politics to world politics. But for Waltz, structures are defined by the distribution of capabilities among the major actors in world politics—states. The key variable distinguishing different systems of world politics is the distribution of power among states—unipolar, bipolar, or multipolar.<sup>72</sup> In organizational ecology, by contrast, the relevant structures are populations of actors, not the actors themselves, and the key variable is the organizational density of a given population. States constitute populations, as do intergovernmental, transnational, and other types of organizations.

69. Cotgreave and Forseth 2002.

70. Hannan and Carroll 1992, 5.

71. Clarke 2014.

72. See Waltz 1979; and Monteiro 2014.

These two theoretical approaches are complementary rather than in conflict: both are structural because they focus on configurations at the systemic level, but they emphasize different configurations. Both can be distinguished from theories that focus on the internal characteristics of actors or that examine relationships between internal and interstate politics—the “second image” or “second image reversed.”<sup>73</sup>

### *Theory: Organizational Growth and Change*

Organizational ecology theory is concerned with the institutional factors that affect the “vital rates” of organizations within a population—especially their rates of “birth” (founding or entry) and “death” (dissolution or exit). For an organizational form to be ecologically viable, its vital rates must be at least in balance. For it to expand, its vital rates must be positive. Organizational ecology identifies two processes that explain the ongoing success or failure of organizational forms; both are based on the structural variable of density. They are *legitimation* and *competition*.

First, an emerging organizational form must be seen as legitimate in the environments where its members operate. Individual organizations pursue varied legitimation strategies. In an ecological perspective, however, the mere fact that the number of organizations in a population is increasing makes that form more widely acceptable to key audiences<sup>74</sup> under the logic of appropriateness.<sup>75</sup> Early in the life of the organizational form, then, there is a positive relationship between institutional density and growth rates through the mechanism of legitimation. But this process is subject to diminishing returns: eventually, additional organizations will not further enhance the legitimacy of the form.

Second, competition strongly affects the vital rates of organizations. In the early years of an organizational form, density is low relative to carrying capacity: the numbers of organizations and the scope of their activities are small. As a result, competition for resources is limited. The number of organizations can grow rapidly; indeed, its growth rate may increase for some time. As more organizations occupy a niche and expand their activities, however, resource constraints begin to bind. The ecological process of *selection* begins to operate: organizations find it more difficult to gain members, financing, and other essential resources. Past the inflection point, there is a negative relationship between density and growth rates through the mechanism of competition.

Based on these two factors, scholars studying organizational ecology observe broad regularities in organizational life cycles, across diverse organizational forms. New forms initially grow rapidly, with little resource competition and increasing legitimacy; eventually, however, competition causes growth to level off and

73. For the classic statement of the “second image,” see Waltz 1959. For the “second image reversed,” see Gourevitch 1978.

74. Hannan and Carroll 1992, 51.

75. March and Olsen 1998.

decline, perhaps even turning negative as organizations exit.<sup>76</sup> Figure 1 depicts this common pattern.

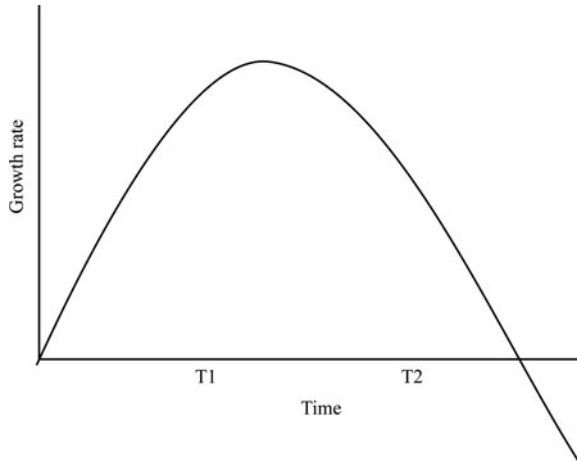


FIGURE 1. *Organizational growth rates over time*

*Intrinsic organizational features* influence how particular types of organizations shape and respond to their institutional environments. Some organizational forms require substantial investments of resources, personnel, and time to establish; they have high entry costs. Organizations of this type may ultimately grow large and are often stable and persistent. However, resource limitations imply that relatively few can be created. As a result, the intrinsic growth rate of the form is limited. Because of their long “gestation periods,” such organizations may be unable to respond rapidly to new opportunities and challenges.

Other organizational forms, in contrast, can be established with relatively small investments; they have low entry costs. Organizations of this type often have simpler structures and operate at smaller scales than those of the first type. Individual organizations may therefore remain smaller and less stable, but many can be created within a given period; their intrinsic growth rates are high. In addition, their short gestation periods allow them to respond nimbly to new opportunities or other environmental changes.

Organizations of these two types pursue classic, contrasting ecological strategies.<sup>77</sup> The slow-but-stable type reproduces at a low rate, producing relatively few new units, but with heavy investment in each. As a result, most units survive. Their stability enables them to weather difficult resource conditions; their behavior is also predictable, a quality valued by many organizational principals. The rapid-but-fragile type, in contrast, reproduces at a higher rate, producing many more new units, but with less

76. Hannan and Freeman 1989, 132–33.

77. These are referred to as *k* and *r* strategies respectively; Hannan and Freeman 1989, 118.

investment in each. As a result, the survival chances of individual units are relatively small. In favorable conditions, however, this form can expand rapidly.

## Organizational Ecology and Institutional Growth: Three Conjectures

We can now apply insights from organizational ecology to help explain the viability and rapid growth of private transnational regulatory organizations, relative to the slowing growth of IGOs. We develop three conjectures with observable implications for the behavior and growth of IGOs and PTROs.

### *Intrinsic Features*

We begin by contrasting the intrinsic features of IGOs and PTROs. Multilateral IGOs generally belong to the slow-but-stable organizational type. IGOs operate largely as agents of their member states, which are reluctant to delegate extensive authority.<sup>78</sup> The formation of IGOs thus requires costly political negotiations over difficult design issues, such as organizational mandates and authorities, voting procedures, oversight mechanisms, and financial support, and then requires ratification by diverse states following domestic approval procedures.<sup>79</sup> There is also a limited pool of potential member states; if “IGO fatigue” sets in among them, it will be difficult for new organizations to be created. Finally, domestic budget constraints make state provision of material support to IGOs relatively inelastic in response to new demands. These features limit the ability of IGOs to respond to opportunities or challenges, as populations, by expanding the number of purpose-built organizations.

PTROs, in contrast, resemble the rapid-but-fragile type of organization. PTROs are entrepreneurial;<sup>80</sup> a few entrepreneurs can establish a PTRO within a short time, at limited expense and with little if any external oversight. PTRO founders, moreover, come from a deep pool of civil society, business, and technical actors—far larger than the pool of potential member states. Most PTROs can also begin operations with a few members. As populations, then, PTROs can respond rapidly to new opportunities and challenges through the formation of new organizations. Yet PTROs are relatively fragile, suggesting that over time they will experience higher “death rates” than IGOs.<sup>81</sup>

This discussion gives rise to our first conjecture:

*C1: Private transnational regulatory organizations will have lower entry costs than intergovernmental organizations.*

78. See Green and Colgan 2013; and Green 2014.

79. Jupille, Mattli, and Snidal 2013.

80. Green 2014.

81. Although some climate organizations have failed or merged in recent years, there is little systematic empirical evidence on death rates.

Observable implications of this conjecture include the following: (1) PTROs will experience higher birth rates than IGOs; and (2) as populations, PTROs will respond more rapidly to changes in the environment through organizational formation than will IGOs.

### *Institutional Density and Niche-finding*

The institutional environment in which IGOs operate is much denser than that of PTROs. In addition, distinct features of these organizational forms help shape their environments and determine their responses to environmental constraints.

For IGOs, a dense institutional environment is largely a product of the organizational life cycle depicted in [Figure 1](#). Over time, IGOs have moved far along the growth rate curve, to around the point labeled T2; their numbers and the complexity of their activities have greatly increased. Much of this expansion has been matched by increases in social, political, and material resources, but constraints on state support mean that resources have not fully kept pace. In this world of high institutional density, resource competition is intense, affecting state decisions to create new organizations and organizational decisions to initiate new activities.

IGO strategies intensify these conditions of competition. IGOs have strong incentives to build out the breadth and complexity of their activities to the boundaries of their assigned domains: doing so allows IGOs to demonstrate to principals that they are fulfilling their mandates. These mandates are often broad and sweeping: the General Assembly resolution establishing UNEP, for example, mandated it to promote international cooperation and appropriate policies “in the field of environment.”<sup>82</sup> IGOs also have strong incentives to interpret their mandates broadly, expanding the accepted scope of their domains, even if they impinge on others.<sup>83</sup> Doing so allows IGOs to satisfy organizational incentives to prosper and expand, and to elicit additional political, social, and material resources.

In general, IGOs have limited organizational flexibility because of strong state oversight and multiple veto points. Combined with the difficulty of forming new IGOs, this makes the creation of emanations the best, if not the only, way for IGOs to respond to opportunities and challenges. IGO officials largely drive the growth in emanations, advocating for additional “progeny” and taking the lead on their design.<sup>84</sup> States often support this strategy to avoid the costs of establishing new organizations,<sup>85</sup> although the resources they provide may not keep pace with demand. As a result, however, IGOs must contend with increasingly dense complexes of organizations and rules, pursuing costly competition in congested organizational spaces.<sup>86</sup>

82. United Nations 1972.

83. Kahler 2009, 192. See also Johnson and Urpelainen 2012.

84. Johnson 2014.

85. See Johnson and Urpelainen 2012; Jupille, Mattli, and Snidal 2013; Raustiala and Victor 2004; and Helfer 2004.

86. See Raustiala and Victor 2004; Alter and Meunier 2006; Keohane and Victor 2011; and Abbott 2012.



PTROs, in contrast, are still at an early stage in their organizational life cycle. In Figure 1, we would place PTROs at point T1: their growth rates have increased rapidly and are still increasing in many issue areas. PTROs thus operate in a world of modest institutional density, both in numbers and in the scope and complexity of their activities, relative to their potential resource base. This favorable organizational environment limits resource competition among PTROs and provides numerous niches in which they can gain footholds and thrive.

PTRO strategies reinforce the effects of low institutional density. As rapid-but-fragile organizations, PTROs have strong incentives to avoid intense competition. Competition absorbs scarce resources and may lead to costly discord and conflict, even to organizational “death.” To avoid competition, PTROs may cooperate by reciprocally adjusting their activities, for example, by shifting to less competitive areas or actively collaborating.<sup>87</sup> Alternatively, and at lower cost, they may adapt unilaterally, shifting their activities to a niche in which resources are more abundant or institutional density lower.<sup>88</sup>

PTROs are highly flexible, which enhances their ability to locate and occupy favorable niches. Their authority is primarily established through acceptance of their standards, not through delegation from principals. As a result, they are less constrained by principal oversight; their principals are in any case entrepreneurial. In addition, PTROs frequently have less costly decision procedures and more flexible mandates than IGOs. This suggests that at any point on the growth rate curve PTROs will be better able to occupy favorable niches.

This discussion gives rise to our second conjecture:

*C2: Intergovernmental organizations will expand their activities to fill their domains, while more flexible private transnational regulatory organizations will strategically seek favorable niches.*

Observable implications of this conjecture include the following: (1) the number of issues the average IGO deals with will grow more rapidly than the number dealt with by the average PTRO; and (2) IGOs will expand into adjacent domains, crowding against other IGOs, while PTROs will operate in narrower niches that limit competition.

### *Legitimation*

Legitimacy is an especially important organizational resource for PTROs: they are a more novel form than IGOs, and they depend on voluntary adoption of their standards. In organizational ecology, an increase in the numbers of an organizational

87. Keohane 1984, 53.

88. This is similar to Carroll’s view of “resource partitioning” whereby specialist and generalist organizations self-sort into different activities that rely on different sets of resources, including consumers, Carroll 1985.

form, with its associated practices, will gradually lead to widespread acceptance of the form by relevant audiences. PTROs do not rely solely on that phenomenon, however, but actively pursue strategies of legitimation.<sup>89</sup> Multistakeholder organizations such as the Forest Stewardship Council adopt representative, participatory structures. Organizations within the ISEAL Alliance follow consultative standard-setting procedures. Even industry schemes seek legitimacy in collective action. All seek output legitimacy through concrete results.

PTROs are also able to pursue an additional legitimation strategy: engaging in activities that complement the policies of IGOs and other legitimate public institutions.<sup>90</sup> Many follow norms and procedures approved by states. For example, the vast majority of private carbon-offset organizations recognize CDM rules.<sup>91</sup> ISEAL Alliance organizations follow standard-setting and certification procedures approved by the WTO and the International Organization for Standardization (ISO).<sup>92</sup> In other cases, PTROs engage in activities that parallel IGO rules and programs; private carbon-offset standards, for example, structure the voluntary carbon market in parallel with official market systems. Such relationships, both consistent with the niche-finding strategy, can enhance the legitimacy of PTROs within stakeholder communities and the public, strengthening their authority.

The flexibility of PTROs enhances their ability to locate and form complementary relationships, as with other types of niches. In addition, IGOs increasingly seek to engage PTROs through the strategy of orchestration to help IGOs achieve their own goals.<sup>93</sup> IGO orchestration enhances the legitimacy, authority, and competitive position of collaborating PTROs, which provide IGOs with access to private targets, information, and other capabilities.

As a result of such strategies, reinforced by growth in numbers, the authority of PTROs has increased rapidly, with public and private actors alike adhering to, endorsing and ratifying their rules.<sup>94</sup> For example, the last two global summits on sustainable development emphasized the need for PTROs, along with other voluntary commitments, to address the challenging problems in this area. The “sociological legitimacy” of PTROs appears increasingly established.<sup>95</sup>

This discussion gives rise to our third conjecture:

*C3: Private transnational regulatory organizations will strategically forge complementary relationships with intergovernmental organizations, enabling them to gain legitimacy and other resources.*

89. Bernstein and Cashore 2007.

90. See Abbott and Snidal 2009b, 559–60; and Green 2013.

91. Green 2013.

92. ISEAL Alliance, available at <<http://www.isealliance.org/>>, accessed 22 October 2015.

93. Abbott et al. 2015.

94. For example, see Pattberg 2007; and Pattberg and Strippel 2008.

95. On the concept of sociological legitimacy, see Buchanan and Keohane 2006; on related topics, see Bernstein and Cashore 2007; Black 2008; Fuchs and Kalfagianni 2010; and Bernstein 2011.

Observable implications of this conjecture include the following: new domains of IGO activity will be associated with rapid increases in the numbers and activities of PTROs in those domains, provided that PTROs have access to them.<sup>96</sup>

Taken together, these conjectures suggest an organizational ecology explanation for the phenomenon of differential growth rates as between PTROs and IGOs. C1 implies that the birth rates of PTROs will be much higher than those of IGOs. C2 suggests that the survival rates of PTROs will also be relatively high because their institutional density is low, minimizing competition among them. C3 claims that when IGOs expand into new areas of activity, PTROs will not be far behind. Together, these conjectures lead us to expect that the aggregate growth rate of PTROs in contemporary world politics will exceed that of IGOs.

## Organizational Ecology in Climate Governance

We probe the plausibility of our analysis by examining the global governance of climate change—a politically salient area involving numerous IGOs and private transnational regulatory organizations. Organizations of both types adopt and implement rules and standards and engage in related administrative activities.

We present evidence from climate governance that supports the three conjectures introduced earlier. For both IGOs and PTROs, the organizational and environmental factors highlighted in the conjectures (entry costs and birth rates; density; flexibility, and niche strategies) are cumulative. For IGOs, all of these factors work in a negative direction, constraining growth rates. For PTROs, in contrast, they all work in a positive direction, enhancing growth rates and viability.

### *First Conjecture: Entry Costs and Growth Rates*

Our first conjecture was that PTROs have lower entry costs than intergovernmental organizations, which means that they should experience higher birth rates than IGOs and that populations of PTROs should respond more rapidly than populations of IGOs to changes in the environment through organizational formation. The arduous processes to establish financial mechanisms under the UNFCCC and KP provide ample evidence that intrinsically high entry costs constrain the creation of new IGOs.

The Adaptation Fund (AF) grew out of the Kyoto Protocol (KP), which required that a share of proceeds from CDM projects be used to fund adaptation activities in vulnerable developing countries.<sup>97</sup> In 2001, the KP parties voted to create a

96. In some cases, the nature of the issue (for example, one surrounded by secrecy) will foreclose PTRO access.

97. Adaptation Fund, available at <<https://www.adaptation-fund.org/>>, accessed 22 October 2015.

fund for adaptation and directed 2 percent of CDM proceeds to it. In 2007, with the KP already in force, the parties established its governance structure, agreeing on a complex system of representation with guaranteed seats for the UN regions, least-developed countries, small island developing states, and UNFCCC Annex I states, along with a temporary secretariat and trustee. In 2008, the parties established the Adaptation Fund Board and adopted rules and procedures, revised in 2009. The AF approved its first project in 2010; as of March 2015 it had approved only \$265 million in grants and disbursed only \$95 million.<sup>98</sup>

An equally fraught process has characterized establishment of the Green Climate Fund (GCF), intended to become the main financial instrument of the UNFCCC.<sup>99</sup> The GCF was proposed at the 2009 Copenhagen Conference of the Parties (COP) to the UNFCCC and included in the Copenhagen Accord. The 2010 Cancun COP formalized the commitment to establish the GCF and established a Transitional Committee to design it. The committee recommended some basic design elements, including a board with multiple guaranteed seats like those on the Adaptation Fund Board; the 2011 Durban Conference of Parties adopted these recommendations.

However, northern and southern states were sharply divided over many aspects of the GCF design, and the governance structure approved at Durban was incomplete. Among the important unresolved issues were the GCF's relationship to the UNFCCC, mechanisms for capitalizing the fund, the fund's "business model" and operating modalities, and the board's voting rules.<sup>100</sup> From 2012 to 2014, the board made a series of decisions necessary to the initial mobilization of resources. Although states have pledged some contributions, no disbursements have yet been made.

Many climate PTROs provide striking support for the other aspect of this conjecture, that PTROs will have lower entry costs and higher birth rates. For example, in 2010 environmental NGOs (including the Natural Resources Defense Council [NRDC]) and socially responsible investor groups (including the CERES Investor Network on Climate Risk and California State Teachers Retirement System) established the nonprofit Climate Bond Initiative (CBI).<sup>101</sup> CBI was created to develop standards for private-sector "climate bonds," following the example of successful public bonds dedicated to supporting environmental projects. In 2011—only a year later—CBI launched a prototype Climate Bond Standard focused on bonds backed by wind energy assets. This rapid entry is not unique: organizations such as CarbonFix and the Natural Forest Standard followed similar schedules. CarbonFix also illustrates the fragility of PTROs; it merged with a larger organization, the Gold Standard, in 2013.

98. Projects Table View, Adaptation Fund, available at <<https://www.adaptation-fund.org/projects-programmes/project-information/projects-table-view/>>, accessed 22 October 2015.

99. Lattanzio 2013.

100. Schalatek and Nakooda 2013.

101. Climate Bonds Initiative, available at <<https://www.climatebonds.net/>>, accessed 22 October 2015.

The flexible governance of PTROs allows them to operate efficient, though still legitimate, design processes for standards and procedures. Entrepreneurs (such as NRDC and CERES), familiar with governance needs and niche opportunities, typically initiate these processes. The UN Environmental Program (UNEP) and other IGOs sometimes provide support, as UNEP did for the Global Reporting Initiative (GRI) and Principles for Responsible Investment. Entrepreneurs convene expert technical advisory groups, organize stakeholder consultations, and provide opportunities for public comment, typically online. These processes, and the resulting institutional designs, increasingly rely on learning from existing organizations.

### *Second Conjecture: Institutional Density and Niche-finding*

Our second conjecture was that IGOs will expand their activities to fill their domains, while PTROs will strategically seek favorable niches. This means that the IGOs should deal with more issues than PTROs, on average, and that IGOs should expand into adjacent domains, while PTROs operate in narrower niches.

The tendency of IGOs to expand their activities to the borders of their domains and beyond is illustrated by the widely noted phenomenon of “mission creep.” Kahler argues that as issue areas are redefined (for example, from environment to sustainable development) and new issues emerge, IGOs consistently expand their activities to encompass the new frontiers, even to the point of institutional overload.<sup>102</sup> Gutner agrees, arguing that this strategy, combined with the breadth and complexity of IGO mandates, undermines performance;<sup>103</sup> Einhorn argues that mission creep impairs accountability.<sup>104</sup>

A second illustration is the phenomenon of “bandwagoning,” in which IGOs and treaty bodies link themselves to the discourse and policies of salient regimes such as climate.<sup>105</sup> This expansionary strategy frequently “colonizes” portions of neighboring domains, both to gain resources and to ensure that an organization is fully occupying its own domain. For example, the Secretariat of the UN Convention to Combat Desertification (UNCCD) has “committed disproportionate attention to climate change to capitalize on the financial resources the climate regime has garnered.”<sup>106</sup>

Like the UNCCD example, the Rio Conventions provide evidence of institutional expansion and crowding. These conventions, all signed in 1992, include the UNFCCC, UNCCD, and Convention on Biological Diversity. Like many environmental agreements, they have significant substantive overlap. Land conversion is a common catalyst for climate change, biodiversity loss, and desertification; some sources of biodiversity are significant sources of greenhouse gases when destroyed. Accordingly, policy

102. Kahler 2009. Such expansion may result from state mandates rather than IGO agency.

103. Gutner 2005.

104. Einhorn 2001.

105. Jinnah 2011.

106. Conliffe 2011.

measures under one convention necessarily affect others, sometimes negatively. For example, the CDM accepts credits generated by monoculture plantations—a clear threat to biodiversity. Conversely, properly designed forestry projects can both combat climate change and preserve biodiversity.<sup>107</sup> A similar level of institutional density can be observed in renewable energy (hydro, wind, and solar) and other fields.

The Rio Conventions have recognized the existence of rule overlaps and the costs they create, but each has incentives to maintain these overlaps to elicit additional resources. In 2001, the three Secretariats created a “Joint Liaison Group” (JLG) to share information and coordinate efforts yet there has been virtually no progress toward alleviating overlap; more than a decade later, the JLG is still focused on shallow forms of cooperation. Indeed, the Executive Secretary of UNFCCC recently argued that the JLG should not undertake concrete implementation activities or deal with international rules,<sup>108</sup> but should merely support the parties’ activities at the national level. In short, the conventions are pursuing superficial cooperation that allows for continued expansion and the increased resources expansion may elicit.

In contrast, PTROs frequently follow narrower niche strategies. Consider the Verified Carbon Standard (VCS), which recently launched a new standard for REDD—reduced emissions from forest degradation and deforestation. Although the UN and private organizations have undertaken numerous REDD activities, all have been project-based. There is an emerging consensus, however, that REDD activities are ideally undertaken across a jurisdiction, rather than as discrete, geographically delimited projects. “Jurisdictional REDD” reduces the likelihood of “leakage”—simply pushing deforestation from the project area to other locations. Recognizing the lack of appropriate rules, VCS designed its standard to help states and subnational actors implement jurisdictional REDD. Its entry strategy was explicitly to select a low-density domain.<sup>109</sup>

The Greenhouse Gas Protocol (GHGP) was created by two NGOs: the World Resources Institute and World Business Council on Sustainable Development, the latter business-based.<sup>110</sup> The organization’s standards are measurement tools that allow organizations to account for their carbon emissions. Its standards apply to companies, carbon-offset projects, and products.

The GHGP first published its corporate standard in 2001. At that point, the KP had just been signed but had not yet entered into force. There was a smattering of national and private experiments with carbon markets, such as the UK Emissions Trading Scheme and Chicago Climate Exchange, but in general the organizational landscape

107. Secretariat of the Convention on Biological Diversity 2003.

108. Convention on Biological Diversity, 11th Meeting of Joint Liaison Group of Rio Conventions available at <<http://www.cbd.int/doc/reports/jlg-11-report-en.pdf>>, 2, accessed 22 October 2015.

109. Verified Carbon Standard, Groundbreaking Jurisdictional REDD+ Requirements Released, 4 October 2012. Available at <<http://v-c-s.org/news-events/news/groundbreaking-jurisdictional-redd-requirements-released>>, accessed 22 October 2015.

110. This discussion is drawn from Green 2010b.

was sparse, with few private initiatives and virtually none at the corporate level. UNEP was working on a corporate-level measurement tool but its program had a slightly different audience and never gained traction.<sup>111</sup> Thus, the GHGP entered an institutional environment where it could establish itself without significant competition. Moreover, by filling a recognized governance gap that UNEP had been unable to fill, it gained some benefits of complementarity. These conditions allowed it to gain political resources, avoid discord, and establish itself as a credible and legitimate standard-setting organization.

Since then the GHGP has enjoyed significant success. It is currently the most widely used corporate-level accounting standard. It is also the basis for several other carbon accounting frameworks, including that of the International Organization for Standardization (ISO-14064, Part 1). In 2013, 81 percent of Global 500 companies reported emissions using standards based on GHGP.<sup>112</sup> In short, the GHGP has become the leading standard for corporate-level emissions accounting and reporting. Its staying power and high adoption rate demonstrate the success of its niche strategy.

The Climate Bond Initiative (CBI), discussed earlier, complements private carbon-offset standards by providing financing for offset projects. By focusing its standards on financial instruments, the CBI entered its own low-density niche; there is virtually no overlap or competition with offset standards. The recently created Natural Forest Standard,<sup>113</sup> in contrast, entered a domain crowded with private sustainable forestry schemes. Yet it was still able to limit competition by carving out its own narrow niche: it focuses only on projects that are designed for “REDD+,” are relatively large, involve natural forests, and do not involve commercial forestry.

The Green-e Climate Certified Carbon Offset program also shaped its mission to avoid competition with private offset organizations.<sup>114</sup> The Green-e standard addresses retail sellers of voluntary offsets. It requires that the projects underlying retail offsets be certified by organizations such as the Gold Standard and VCS; it complements those standards by verifying that credits sold are retired from inventories and by regulating consumer advertising and disclosures. These cases illustrate the “conscious parallelism” that niche-finding produces.<sup>115</sup> They also reflect the ability of flexible, entrepreneurial organizations to adopt widely varying strategies within a particular issue area, enabling PTROs to enter sparsely populated niches in ways not available to IGOs.

111. Green 2010b, 14.

112. Sector Insights: What Is Driving Climate Change Action in the World's Largest Companies? *CDP Global 500 Climate Change Report 2013*, 12 September 2013. Available at <<https://www.cdp.net/cdpreports/cdp-global-500-climate-change-report-2013.pdf>>, accessed 22 October 2015.

113. Natural Forest Standard, available at <<http://www.naturalforeststandard.com/>>, accessed 22 October 2015.

114. Green 2013.

115. Abbott 2012.



*Third Conjecture: Legitimacy and Complementarity*

Our third conjecture was that PTROs will gain legitimacy and other resources by forming relationships with IGOs. This means that new domains of IGO activity should be associated with the increased presence of PTROs in those domains, provided that PTROs have access to them.

Carbon offset programs support C3. The Clean Development Mechanism (CDM) is the largest of three market-based mechanisms created by the KP. It allows developed nations to purchase carbon offsets produced from projects in the developing world to help achieve their emissions-reductions commitments. The CDM thus creates a “compliance market” for offsets: the purchase of KP-monitored carbon credits helps developed countries meet their binding reduction requirements.

After the CDM was in place, PTROs began creating their own carbon-offset rules. Many are more stringent than CDM rules; in addition, many expand on the CDM through a “climate-plus” logic. The projects they certify produce emissions reductions but must also provide additional benefits, such as biodiversity preservation, local economic development, or long-term sustainability.<sup>116</sup> Private offset rules and the voluntary private market they support thus complement public rules in terms of meeting—and exceeding—CDM goals. But PTRO standards have different targets. Whereas states use CDM to comply with their KP targets, most buyers of private offsets are business firms that use them to enhance their reputations or prepare for future regulation.<sup>117</sup>

Not only do PTROs intend to complement the CDM; they are in fact substantively complementary. A network analysis of public and private offset standards shows that, overwhelmingly, private standards choose to link to CDM rules: roughly 80 percent of all private transnational carbon offset standards recognize those rules.<sup>118</sup> Given the uncertain future of the KP and carbon markets, PTROs are “hedging their bets” by ensuring maximal compatibility with other standards—including the dominant public standard, CDM. This strategy of compatibility increases the likelihood that a given private standard will continue to be usable in a future regulatory regime and maximizes organizational autonomy because standards need not compete directly with the CDM (though they do compete with each other). It enables PTROs to maintain relevance—and thus survive—into the future.

Complementary PTRO standards also arise in climate finance. In the mid-1980s, the World Bank and European Investment Bank issued “Green Bonds” and “Climate Awareness Bonds,” respectively. Those bonds included financial terms equivalent to commercial bonds and were (highly) rated on the same bases; however, proceeds were “ring-fenced” for use exclusively in environmental projects. As we discussed, in 2010 environmental NGOs and socially responsible investors

116. The extent to which projects actually deliver these benefits is subject to debate.

117. Peters-Stanley and Hamilton 2012.

118. Green 2013.



created the CBI. CBI's standards for private-sector "climate bonds" complement public bonds and other forms of climate finance. CBI and voluntary offsets both involve the construction of new niches not previously identified as part of a governance domain.

In some areas, IGOs encourage PTROs to provide complementary standards through the strategy of orchestration. In 1997, UNEP—having long attempted to persuade businesses to report on their environmental impacts as a complement to treaty-based national reporting mechanisms—collaborated with the environmental NGO CERES to found and promote the GRI. UNEP engaged in notable efforts to build the authority and legitimacy of GRI, including arranging its launch at the General Assembly, endorsing it and recruiting governments to host its headquarters. GRI is now an independent, multistakeholder institution, but a UNEP official sits on its board. Its standards for environmental reporting, which address carbon emissions and energy consumption among other behaviors, have become the global standard.

Finally, IGOs also afford nonregulatory private organizations opportunities to provide complementary services rather than standards. The 2002 World Summit on Sustainable Development (WSSD) encouraged public-private and private-private partnerships to develop activities that would further implementation of global norms, including the Rio Declaration and WSSD outcome. Nearly 350 of these so-called Type II partnerships were registered. The 2012 United Nations Conference on Sustainable Development (Rio+20) similarly encouraged private "voluntary commitments" focused on implementation.

## Conclusion: Implications for Governance

The composition of global governance institutions has shifted dramatically in recent years. Intergovernmental organizations (IGOs), the dominant form since at least the end of World War II, remain numerous and influential, but their growth rates have slowed. Other organizational forms—from informal intergovernmental institutions to transgovernmental networks and private transnational regulatory organizations (PTROs)—have appeared and expanded rapidly.

This institutional revolution has potentially important consequences for a wide range of outcomes, in climate governance and beyond. PTROs are controlled by private actors, not by states; this difference has broad implications. The activities of PTROs respond primarily to private actors' priorities, which may differ from the priorities of governments. PTRO standards directly address private targets, primarily businesses; they bypass governments<sup>119</sup> and may provide a rationale for governments to avoid politically costly regulation. Business frequently participates in PTRO governance. It may promote weak rules, engage in efforts to reinforce oligopoly and monopoly, and attempt to preempt public regulation. Short of this, it may

119. Abbott et al. 2015, 11–12.

promote market-oriented measures that generate private benefits, furthering the neo-liberal cast of environmental policy.<sup>120</sup> PTROs are accountable primarily to their members and those that voluntarily support them, not to society as a whole.

PTROs also promise important governance benefits. They frequently reinforce public governance with complementary standards and mechanisms. They can act when divergent interests block intergovernmental agreement. The rapid formation of numerous PTROs occupying diverse niches provides a wealth of natural experiments from which governments and IGOs can learn. PTROs provide new opportunities for civil society, business, workers, technical experts, and other private actors to participate in international governance, although these tend to bypass government control and traditional notions of democracy.

Organizational ecology suggests further political implications. PTROs can multiply rapidly in response to new opportunities. However, if PTROs are “fragile” as well as “rapid,” they may be less resilient than established organizational forms in the face of shocks. Changes in public attention or attitudes, or in the priorities of foundations or other funding bodies, may be enough to produce widespread failure. PTRO responses to shocks are difficult to forecast, however, because the organizational form is so young; comparative analysis of the life cycles of other forms should shed valuable light on future prospects. Similarly, PTROs can flexibly occupy niches where competition is limited. Yet this may lead to greater institutional fragmentation, reducing impacts, and requiring investments in coordination. Niche-finding flexibility may also render PTROs less predictable than incumbent forms—they may suddenly shift to new areas of operation.

Actor-centric theories of politics shed substantial light on how organizational agency, strategies, and power—subject to constraints—shape the behavior of governance organizations. But these theories provide little insight into how populations of organizations become viable (or fail), behave, and evolve. Although regime complex theory and related approaches have begun to explore the impact of interorganizational interactions on behavior, they have yet to provide a full understanding of the impacts of organizational structures in resource-constrained environments.<sup>121</sup>

We introduce organizational ecology theory, not previously applied to international relations, to help fill these analytical gaps. Organizational ecology focuses on populations: it explicitly addresses the abundance and diversity of organizational populations, their viability, and their life cycles of growth and decline. Organizational ecology emphasizes the process of selection through which some new forms succeed, while others fail and exit. Selection is driven, in this framework, by the nature of the institutional environment—especially the conditions of resource competition—and by interactions among organizations in conditions of greater or lesser resource scarcity.

Actor-centered and ecological approaches are complementary. Organizational ecology enhances our understanding of the constraints and opportunities presented

120. Bernstein 2002.

121. Eberlein et al. 2014.

by environmental and population-level variables. Actor-centric theories supply the micro-foundations for understanding organizational responses to those constraints and opportunities. Even here, however, organizational ecology makes important contributions, highlighting actor characteristics important in structuring and mediating the influence of organizational environments.

We have chosen a “most-likely case”<sup>122</sup> to demonstrate the applicability of organizational ecology theory: the issue-area of climate change, where much new PTRO activity is taking place. When one seeks to demonstrate the existence of a new phenomenon, selecting a most likely case is appropriate; but this choice implies that one cannot generalize to the entire domain. We can only claim to have shown, therefore, that organizational ecology, with its focus on populations and institutional density, helps to explain macro-level patterns of organizational change in institutionally dynamic domains such as climate policy. Whether it is equally relevant to other issue-areas remains to be established by further research. As a structural theory, however, organizational ecology should be highly transferable across issue-areas. Although the specific institutional forms and patterns of growth in other domains may vary, fundamental concepts such as organizational density, resource competition, and legitimation are likely to retain their explanatory power.

Similarly, because we have focused on two sharply divergent organizational forms, it is tempting to suggest that other forms—such as informal and transgovernmental institutions—fall between those extremes. Transgovernmental networks, for example, have lower entry costs and greater flexibility than IGOs; their mandates are more fluid, and states exercise less formalized oversight. Although we do not consider such institutions in this study, organizational ecology opens an important comparative research agenda: exploring the evolution of diverse organizational forms and the interactions among them.

Our analysis suggests likely future trajectories for the two forms we have considered, especially for PTROs. If these organizations continue to thrive, we would expect their environment to change in line with the growth rate curve in [Figure 1](#). Over time, as their numbers and the complexity of their activities increase, competition should intensify, while the number of low-density niches should decline. PTROs may therefore modify their strategies. They may increasingly invest in defending their “turf;” they may seek to fully occupy their domains and refuse to cede any portion of them.

To be sure, flexible PTROs have niche-finding advantages at any point on the growth rate curve. However, recent organizational ecology scholarship suggests that the flexibility of organizational forms declines with age.<sup>123</sup> PTROs may thus become more highly bureaucratized and inert over time. Eventually, they could even become organizational “dinosaurs,” trapped in a form adapted to the institutional

122. Eckstein [1975](#).

123. We are indebted to Michael Hannan for this point.

environment of the early twenty-first century. Other forms may then prove better adapted to current conditions.

In all these settings, though, analysts will still find it valuable to think, as organizational ecology does, in terms of populations. They will still find structural features such as institutional density, niches, resource availability, and conditions of competition important. They will also look to the intrinsic characteristics of organizational forms that shape environments and influence their impact on individual organizations, including entry costs, birth and death rates, and flexibility. Organizational ecology does not answer, certainly not definitively, all questions of future organizational design and behavior; it must be complemented by the micro-foundations provided by agent-centered theories. Where this is done, however, organizational ecology is a valuable addition to the international relations toolbox.

## References

- Abbott, Kenneth W. 2012. The Transnational Regime Complex for Climate Change. *Environment and Planning C: Government and Policy* 30 (4):571–90.
- Abbott, Kenneth W., and Steven Bernstein. 2015. The High-Level Political Forum on Sustainable Development: Orchestration by Default and Design. *Global Policy* 6 (3):222–33.
- Abbott, Kenneth W., Philipp Genschel, Duncan Snidal, and Bernhard Zangl, eds. 2015. *International Organizations as Orchestrators*. New York: Cambridge University Press.
- Abbott, Kenneth W., and Duncan Snidal. 2009a. Strengthening International Regulation Through Transnational New Governance: Overcoming the Orchestration Deficit. *Vanderbilt Journal of Transnational Law* 42:501–78.
- . 2009b. The Governance Triangle: Regulatory Standards Institutions and the Shadow of the State. In *The Politics of Global Regulation*, edited by Walter Mattli and Ngaire Woods, 44–88. Princeton, NJ: Princeton University Press.
- . 2010. International Regulation Without International Government: Improving IO Performance Through Orchestration. *Review of International Organizations* 5 (3):315–44.
- . 2014. The Governance Triangle. Unpublished paper.
- Allison, Graham T. 1969. Conceptual Models and the Cuban Missile Crisis. *American Political Science Review* 63 (3):689–718.
- Alter, Karen J., and Sophie Meunier. 2006. Nested and Overlapping Regimes in the Transatlantic Banana Trade Dispute. *Journal of European Public Policy* 13 (3):362–82.
- Andonova, Liliana B. 2010. Public-Private Partnerships for the Earth: Politics and Patterns of Hybrid Authority in the Multilateral System. *Global Environmental Politics* 10 (2):25–53.
- Bäckstrand, Karin. 2008. Accountability of Networked Climate Governance: The Rise of Transnational Climate Partnerships. *Global Environmental Politics* 8 (3):74–102.
- Baum, Joel A.C., ed. 2002. Organizational Ecology. In *Blackwell Companion to Organizations*, 304–26. Malden, MA: Blackwell.
- Baum, Joel A.C., and Timothy Rowley. 2002. Companion to Organizations: An Introduction. In *Blackwell Companion to Organizations*, edited by Joel A. C. Baum, 1–35. Malden, MA: Blackwell.
- Bernstein, Steven. 2002. Liberal Environmentalism and Global Environmental Governance. *Global Environmental Politics* 2 (3):1–16.
- . 2011. Legitimacy in Intergovernmental and Non-state Global Governance. *Review of International Political Economy* 18 (1):17–51.
- Bernstein, Steven, and Benjamin Cashore. 2007. Can Non-state Global Governance Be Legitimate? An Analytical Framework. *Regulation and Governance* 1 (4):347–71.

- Betsill, Michele M., and Harriet Bulkeley. 2006. Cities and the Multilevel Governance of Global Climate Change. *Global Governance: A Review of Multilateralism and International Organizations* 12 (2):141–59.
- Black, Julia. 2008. Constructing and Contesting Legitimacy and Accountability in Polycentric Regulatory Regimes. *Regulation and Governance* 2:137–64.
- Bob, Clifford. 2002. Merchants of Morality. *Foreign Policy*. 129:36–45.
- Buchanan, Allen, and Robert O. Keohane. 2006. The Legitimacy of Global Governance Institutions. *Ethics and International Affairs* 20 (4):405–37.
- Bulkeley, Harriet, Liliana Andonova, Karin Bäckstrand, Michele Betsill, Daniel Compagnon, Rosaleen Duffy, Ans Kolk, et al. 2012. Governing Climate Change Transnationally: Assessing the Evidence from a Database of Sixty Initiatives. *Environment and Planning C: Government and Policy* 30 (4):591–612.
- Bush, Sarah Sunn. 2015. *The Taming of Democracy Assistance: Why Democracy Promotion Does Not Confront Dictators*. New York: Cambridge University Press.
- Buthe, Tim. 2010. Global Private Politics: A Research Agenda. *Business and Politics* 12 (3):1–24.
- Carroll, Glenn R. 1985. Concentration and Specialization: Dynamics of Niche Width in Populations of Organizations. *American Journal of Sociology* 90 (6):1262–83.
- Cashore, Benjamin, Graeme Auld, and Deanna Newsom. 2004. *Governing Through Markets: Forest Certification and the Emergence of Non-state Authority*. New Haven, CT: Yale University Press.
- Clarke, Warren. 2014. Institutional Density Reconsidered: States, International Organizations and the Governance Space. PhD diss., Wilfrid Laurier University, Waterloo, Canada.
- Conliffe, Alexandra. 2011. Combating Ineffectiveness: Climate Change Bandwagoning and the UN Convention to Combat Desertification. *Global Environmental Politics* 11 (3):44–63.
- Cooley, Alexander, and James Ron. 2002. The NGO Scramble: Organizational Insecurity and the Political Economy of Transnational Action. *International Security* 27 (1):5–39.
- Cotgreave, Peter, and Irwin Forseth. 2002. *Introductory Ecology*. Malden, MA: Wiley-Blackwell.
- Eberlein, Burkard, Kenneth W. Abbott, Julia Black, Errol Meidinger, and Stepan Wood. 2014. Transnational Business Governance Interactions: Conceptualization and Framework for Analysis. *Regulation and Governance* 8 (1). Available from <<http://onlinelibrary.wiley.com/doi/10.1111/rego.12030/abstract>>. Accessed 17 August 2013.
- Eckstein, Harry. 1975. Case Studies and Theory in Political Science. In *Handbook of Political Science*. Vol. 7, *Political Science: Scope and Theory*, edited by Fred I. Greenstein and Nelson W. Polsby, 94–137. Reading, MA: Addison-Wesley.
- Einhorn, Jessica. 2001. The World Bank's Mission Creep. *Foreign Affairs*. Available from <<http://www.foreignaffairs.com/articles/57235/jessica-einhorn/the-world-banks-mission-creep>>. Accessed 8 July 2013.
- Falkner, Robert. 2003. Private Environmental Governance and International Relations: Exploring the Links. *Global Environmental Politics* 3 (2):72–87.
- Fuchs, Doris, and Agni Kalfagianni. 2010. The Causes and Consequences of Private Food Governance. *Business and Politics* 12 (3). Available from <<http://www.degruyter.com/view/j/bap.2010.12.3/bap.2010.12.3.1319/bap.2010.12.3.1319.xml>>. Accessed 15 August 2013.
- Gourevitch, Peter. 1978. The Second Image Reversed: The International Sources of Domestic Politics. *International Organization* 32 (4):881–912.
- Green, Jessica F. 2010a. Private Authority on the Rise: A Century of Delegation in Multilateral Environmental Agreements. In *Transnational Actors in Global Governance: Patterns, Explanations and Implications*, edited by Jonas Tallberg and Christer Jönsson, 155–176. New York: Palgrave Macmillan.
- . 2010b. Private Standards in the Climate Regime: The Greenhouse Gas Protocol. *Business and Politics* 12 (3). doi:10.2202/1469-3569.1318.
- . 2013. Order Out of Chaos: Public and Private Rules for Managing Carbon. *Global Environmental Politics* 13 (2):1–25.
- . 2014. *Rethinking Private Authority: Agents and Entrepreneurs in Global Environmental Governance*. Princeton, NJ: Princeton University Press.
- . 2015. Blurred Lines: Why Do States Recognize Private Carbon Standards? Paper presented at the International Studies Association, February, New Orleans, LA.

- Green, Jessica F., and Jeff Colgan. 2013. Protecting Sovereignty, Protecting the Planet: State Delegation to International Organizations and Private Actors in Environmental Politics. *Governance* 26 (3):473–97.
- Gutner, Tamar. 2005. Explaining the Gaps Between Mandate and Performance: Agency Theory and World Bank Environmental Reform. *Global Environmental Politics* 5 (2):10–37.
- Hale, Thomas, and Charles Roger. 2014. Orchestration and Transnational Climate Governance. *Review of International Organizations* 9 (1):59–82.
- Hannan, Michael T., and Glenn Carroll. 1992. *Dynamics of Organizational Populations: Density, Legitimation, and Competition*. New York: Oxford University Press.
- Hannan, Michael T., and John Freeman. 1989. *Organizational Ecology*. Cambridge, MA: Harvard University Press.
- Haufler, Virginia. 2001. *A Public Role for the Private Sector*. Washington, DC: Carnegie Endowment for International Peace.
- Helfer, Laurence. 2004. Regime Shifting: The TRIPs Agreement and New Dynamics of International Intellectual Property Lawmaking. *Yale Journal of International Law* 29 (Winter):1.
- Hsu, Greta, Michael T. Hannan, and Özgecan Koçak. 2009. Multiple Category Memberships in Markets: An Integrative Theory and Two Empirical Tests. *American Sociological Review* 74 (1):150–69.
- Jinnah, Sikina. 2011. Climate Change Bandwagoning: The Impacts of Strategic Linkages on Regime Design, Maintenance, and Death. *Global Environmental Politics* 11 (3):1–9.
- Johnson, Tana. 2014. *Organizational Progeny: Why Governments Are Losing Control over the Proliferating Structures of Global Governance*. Oxford, UK: Oxford University Press.
- Johnson, Tana, and Johannes Urpelainen. 2012. A Strategic Theory of Regime Integration and Separation. *International Organization* 66 (4):645–77.
- Jupille, Joseph, Walter Mattli, and Duncan Snidal. 2013. *Institutional Choice and Global Commerce*. New York: Cambridge University Press.
- Kahler, Miles. 2009. Global Governance Redefined. In *Challenges of Globalization: Immigration, Social Welfare, Global Governance*, edited by Andrew Carl Sobel, 174–98. New York: Routledge.
- Keohane, Robert O. 1984. *After Hegemony: Cooperation and Discord in the World Political Economy*. Princeton, NJ: Princeton University Press.
- . 1988. International Institutions: Two Approaches. *International Studies Quarterly* 32 (4):379–96.
- Keohane, Robert O., and David G. Victor. 2011. The Regime Complex for Climate Change. *Perspectives on Politics* 9 (1):7–23.
- Keohane, Robert O., and Joseph R. Nye, Jr. 1974. Transgovernmental Relations and International Organizations. *World Politics* 27 (1):39–62.
- Keohane, Robert O., and Joseph S. Nye, Jr. 1972. *Transnational Relations and World Politics*. Cambridge, MA: Harvard University Press.
- . 1977. *Power and Interdependence in World Politics*. 2nd ed. Boston: Little Brown.
- . 2001. *Power and Interdependence*. Boston: Longman.
- Lake, David A. 2009. *Hierarchy in International Relations*. Ithaca, NY: Cornell University Press.
- Lattanzio, Richard K. 2013. *International Climate Change Financing: The Green Climate Fund (GCF)*. Washington, DC: Congressional Research Service.
- Locke, Richard M. 2013. *The Promise and Limits of Private Power: Promoting Labor Standards in a Global Economy*. New York: Cambridge University Press.
- March, James G., and Johan P. Olsen. 1998. The Institutional Dynamics of International Political Orders. *International Organization* 52 (4):943–69.
- Michonski, Katherine, and Michael Levi. 2010. *Harnessing International Institutions to Address Climate Change*. New York: Council on Foreign Relations. Available from <[http://www.cfr.org/publication/21609/harnessing\\_international\\_institutions\\_to\\_address\\_climate\\_change.html](http://www.cfr.org/publication/21609/harnessing_international_institutions_to_address_climate_change.html)>. Accessed 30 October 2015.
- Monteiro, Nuno P. 2014. *Theory of Unipolar Politics*. New York: Cambridge University Press.
- Newig, Jens, and Oliver Fritsch. 2009. Environmental Governance: Participatory, Multi-level—and Effective? *Environmental Policy and Governance* 19 (3):197–214.
- Pattberg, Phillip. 2007. *Private Institutions and Global Governance: The New Politics of Environmental Sustainability*. Northampton, MA: Edward Elgar.



- Pattberg, Philipp, and Johannes Strippel. 2008. Beyond the Public and Private Divide: Remapping Transnational Climate Governance in the Twenty-first Century. *International Environmental Agreements* 8 (4):389–408.
- Pauwelyn, Joost, Ramses Wessel, and Jan Wouters. 2012. *Informal International Lawmaking*. 1st ed. Oxford, UK: Oxford University Press.
- Peters-Stanley, Molly, and Katherine Hamilton. 2012. *Developing Dimension: State of the Voluntary Carbon Markets 2012*. Washington, DC: Eco.
- Pontikes, Elizabeth G. 2012. Two Sides of the Same Coin: How Ambiguous Classification Affects Multiple Audiences' Evaluations. *Administrative Science Quarterly* 57 (1):81–118.
- Prakash, Aseem, and Matthew Potoski. 2006. *The Voluntary Environmentalists: Green Clubs, ISO 14001, and Voluntary Environmental Regulations*. Cambridge, UK: Cambridge University Press.
- Raustiala, Kal, and David G. Victor. 2004. The Regime Complex for Plant Genetic Resources. *International Organization* 58 (2):277–309.
- Schalatek, Liane, and Smita Nakooda. 2013. *The Green Climate Fund*. Washington, DC: Heinrich Böll Stiftung North America. Available from <<http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8683.pdf>>. Accessed 30 October 2015.
- Scott, W. Richard. 1998. *Organizations: Rational, Natural, and Open Systems*. Upper Saddle River, NJ: Prentice Hall.
- Secretariat of the Convention on Biological Diversity. 2003. *Interlinkages between Biological Diversity and Climate Change. Advice on the Integration of Biodiversity Considerations into the Implementation of the United Nations Framework Convention on Climate Change and Its Kyoto Protocol*. (CBD Technical Series no. 10). Montreal: SCBD. Available from <<https://www.cbd.int/doc/publications/cbd-ts-10.pdf>>. Accessed 3 December 2015.
- Shanks, Cheryl, Harold K. Jacobson, and Jeffrey H. Kaplan. 1996. Inertia and Change in the Constellation of International Governmental Organizations, 1981–1992. *International Organization* 50 (4):593–627.
- Slaughter, Anne-Marie. 2004. *A New World Order*. Princeton, NJ: Princeton University Press.
- United Nations (UN). 1972. *Gathering a Body of Global Agreements*. New York: UN General Assembly. Available at <<http://www.un-documents.net/a27r2997.htm>>. Accessed 30 October 2015.
- United Nations Framework Convention on Climate Change (UNFCCC). 2014a. Updated Compilation of Information on Mitigation Benefits of Actions, Initiatives and Options to Enhance Mitigation Ambition FCCC/TP/2014/3. 2 June 2014. Available from: <http://unfccc.int/resource/docs/2014/tp/03.pdf>>. Accessed 10 December 2015.
- . 2014b. Climate Action Portal to Capture and Catalyze Climate Action in Support of 2015 Agreement. Available from: <http://newsroom.unfccc.int/lima/new-portal-highlights-city-and-private-sector-climate-action>>. Accessed 10 December 2015.
- Vabulas, Felicity, and Duncan Snidal. 2013. Organization Without Delegation: Informal Intergovernmental Organizations (IIGOs) and the Spectrum of Intergovernmental Arrangements. *Review of International Organizations* 8 (2):193–220.
- Viola, Lora Anne. 2015. Orchestration by Design: The G20 in International Financial Regulation. In *International Organizations as Orchestrators*, edited by Kenneth W. Abbott, Philipp Genschel, Duncan Snidal, and Bernhard Zangl, 88–113. New York: Cambridge University Press.
- Waltz, Kenneth. 1959. *Man, the State, and War: A Theoretical Analysis*. New York: Columbia University Press.
- . 1979. *Theory of International Politics*. Reading, MA: McGraw-Hill.
- Wilson, James. 1989. *Bureaucracy: What Government Agencies Do and Why They Do It*. New York: Basic Books.
- Wong, Wendy H. 2012. *Internal Affairs: How the Structure of NGOs Transforms Human Rights*. 1st ed. Ithaca, NY: Cornell University Press.
- Zelli, Fariborz, and Harro van Asselt. 2013. Introduction: The Institutional Fragmentation of Global Environmental Governance: Causes, Consequences, and Responses. *Global Environmental Politics* 13 (3):1–13.