

Institutional Adaptation in Slow Motion: Zooming In on Desertification Governance

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Abstract

The ability of multilateral environmental agreements (MEAs) to keep pace with their changing circumstances is crucial for a more effective global environmental governance. Yet, we know little about how new institutional design features are taken up by MEAs, allowing them to evolve over time. Building on Kingdon's multiple streams theory, I conceive the development of new institutional design features as the association between streams of problems, solutions, and political receptivity at critical moments. I apply this framework to two features introduced within the United Nations Convention to Combat Desertification (UNCCD) framework and find that the main design entrepreneurs were the UNCCD Secretariat and independent scientists. The article provides important insight into characteristics that can make MEAs more adaptive. Namely, treaty bodies able to generate feedback about problems, push for solutions, and provide windows of opportunity for advocates to present and revise their proposals are found critical to the development of new design features.

Multilateral environmental agreements (MEAs) govern a variety of fast-evolving issues and gather countries with fluctuating preferences. Some MEAs remain unaltered over time despite ongoing shifts in their political, socioeconomic, and biophysical environments. Others are updated through protocols, amendments, or Conference of the Parties (COP) decisions (Bodansky and Diring 2010; Gehring 2008). These gradual institutional changes, which I label "institutional adaptations," follow a two-stage process consisting of *design development*, that is, the generation of new design features and their introduction on an MEA political agenda, and *decision-making*, that is, bargaining and arguing processes among delegates to adopt the new design features.

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This article concentrates on the first stage of MEA adaptation. It seeks to explain *how actors have generated and introduced new design features within a specific MEA framework*: the United Nations Convention to Combat Desertification (UNCCD). The UNCCD is the third MEA agreed upon at the 1992 Rio Conference, along with the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). Numerous studies have documented the evolutionary trajectories of the UNFCCC (e.g., Bodansky and Diringer 2010; Schiele 2014) and the CBD (e.g., Le Prestre 2002; Morgera and Tsoumani 2010). In comparison, the UNCCD has received far less international relations scholarly attention than its sister conventions. Moreover, its difficult initial negotiations have attracted more interest than its subsequent adaptation (e.g., Chasek 1997; Corell 1999; Najam 2004).

Yet, the UNCCD legal framework has evolved on two main fronts that can add to our knowledge of agenda-setting processes of MEA adaptation: its scope has expanded, and its science-policy interface has been strengthened. I focus on the development of design features underlying these adaptations for two main reasons. First, these cases represent distinct dimensions of MEA adaptation. Expanding the UNCCD's scope to include commitments beyond drylands is a substantive adaptation. By contrast, creating a new institution to improve the way decision-makers receive scientific advice is a procedural adaptation. Therefore the two cases allow me to investigate whether different types of institutional adaptations follow similar patterns of design development. Second, it took almost two decades after the conclusion of the UNCCD for delegates to adopt both changes, which allowed me to collect more robust data on the design development process.

This article relies on three sources of data. The first is official documents available on the convention's website. Second, I conducted twenty-eight semi-structured interviews with key informants, including the two former UNCCD executive secretaries, long-standing secretariat employees, and national focal points (the [online Appendix](#) contains more details on the interviews). The third source I used is the *Earth Negotiations Bulletin* (ENB) reports, which provide detailed coverage of UNCCD negotiations. These various sources of data increase the validity of case study findings. Archival documents reflect official internal discussions; interviews enlighten processes, which are less traceable in formal written records; and the ENB offers the perspective of an expert external observer.

In this article, I rely on "disciplined interpretive case studies," which consist in "[interpreting or explaining] an event by applying a known theory to the new terrain" (Odell 2001, 163). Specifically, I build on Kingdon's (1984) multiple streams theory (MST) to interpret UNCCD design development processes. MST expects new policy ideas to rise on a political agenda when a window of opportunity allows policy entrepreneurs to bring together three relatively independent streams: problems, solutions, and political receptivity. This theoretical argument has several advantages over alternative accounts of institutional

change. First, MST “seek[s] to understand why some subjects become prominent on the policy agenda and others do not, and why some alternatives for choice are seriously considered while others are neglected” (Kingdon 1984, 3). As such, it emphasizes the agenda-setting process of institutional change, which rationalist theories tend to overlook. Second, by assuming independence between the streams, it contrasts with sequential accounts of institutional change. Third, the concept of opportunity window is not limited to exogenous and exceptional shocks, which are the point of departure of most theories of institutional change. For these reasons, MST is more suitable to explaining how MEA actors develop new design features and may allow existing studies on isolated MEAs to be tied together.

MST was originally elaborated to investigate cases of domestic policy change. Applications at the multilateral level are still scarce (Jones et al. 2016, 22), with the notable exception of Lipson (2007) on UN peacekeeping. Applying MST at the global level requires theoretical refinements relevant to the specific context of international environmental negotiations, which this article aims to provide. The focus on agenda-setting processes of MEA adaptation permits me to go beyond state-centric-only explanations of change by offering a broader picture of the complex environment in which MEAs strive to survive. In particular, the findings of this article shed light on the critical role of other international agreements and organizations, the UNCCD Secretariat, and scientists. To be sure, institutional adaptation does not guarantee improved effectiveness. Nevertheless, with more than 1,300 MEAs to date (Mitchell et al. 2020) and worsening environmental degradation across the planet, it seems crucial to understand the processes that *may* reduce the gap between the design features and changing circumstances of existing MEAs.

The remainder of this article proceeds as follows. The next section discusses competing accounts of institutional change and points to their shortcomings in explaining design development within an MEA setting. The third section presents MST. Then, the two subsequent sections each explore one UNCCD adaptation. Last, the article concludes by outlining avenues for future research.

Existing Accounts of Institutional Change

The three “new institutionalisms” distinguished by Hall and Taylor (1996)—rational choice, historical, and sociological institutionalisms—and the fourth new institutionalism proposed by Schmidt (2010)—discursive institutionalism—have all investigated how institutions change. However, their different conceptions of both institutions and change have led to various understandings of the phenomenon. To clarify these understandings, I disentangle four dimensions of institutional change: its extent (*incremental* vs. *radical*); sources (*endogenous* vs. *exogenous*); level (*domestic* vs. *international*); and stage (*agenda setting* vs. *decision-making*).

Regarding the extent of change, the four institutionalisms have long focused on *radical* transformations (Mahoney and Thelen 2009). Most

theoretical accounts rely on “punctuated equilibrium models,” which anticipate that short episodes of abrupt change break long periods of stability (e.g., Colgan et al. 2012; Lundgren et al. 2018). This conception of institutional change as radical and rare does not fit well with the incremental approach that characterizes environmental lawmaking (Gehring 2008, 495).

To explain radical changes, rational and historical institutionalists usually turn to dramatic *exogenous* sources (Mahoney and Thelen 2009). In sociological and discursive institutionalist approaches, which share many elements with constructivist theories in IR, critical junctures can be *endogenous* to an institution. They stem from internal entrepreneurs’ reframing of organizational cultures (Chwioroth 2014). However, myopically focusing on one source of institutional change provides only partial explanations of the phenomenon. In some cases, external factors, such as power shifts (Daßler et al. 2019) or global conferences (Manulak 2020), may adequately explain MEA adaptation. Yet, ignoring endogenous drivers of change leads to overlooking critical internal processes occurring within treaty bodies, such as COPs, secretariats, and stakeholder committees. Therefore both sources of change should be investigated more systematically.

Recently, historical institutionalists have more thoroughly theorized *gradual* and *endogenous* change. According to Mahoney and Thelen (2009), incremental change results from the strength of veto possibilities vis-à-vis an institution and the extent of the institution’s discretion in enforcement and interpretation. However, unlike domestic institutions and international organizations, treaties have no such discretion. Their changes entirely depend on state actors’ decisions.

Turning to the level of change, the four new institutionalisms have disproportionately investigated cases of *domestic* policy change. However, the actors and dynamics that characterize the negotiations of changes to *international* agreements differ from the more hierarchical processes of *domestic* politics (Lundgren et al. 2018, 551). Thus it is not clear that theoretical frameworks based on the examination of national cases should automatically generate accurate explanations for MEA adaptation. At the very least, this requires theory testing. As an exception to the general focus on *domestic* institutions, sociological institutionalists have explained shifts in international norms (e.g., Finnemore and Sikkink 1998). Nevertheless, their emphasis on dramatic systemic changes makes it difficult to derive theoretical expectations relevant to the treaty level.

Last, the four institutionalisms do not pay the same level of attention to the different stages of institutional change. While increasingly relaxing the full rationality assumption, rationalists in IR still tend to concentrate on strategic coalition building and power games to explain institutional change (Colgan et al. 2012; Daßler et al. 2019; Jupille et al. 2013; Morse and Keohane 2014). To be sure, such *decision-making* processes cannot be omitted from accounts of institutional change. However, these theories leave *agenda-setting* processes unclear, that is, where the new design features come from and why some of them reach the political agenda while others do not. In addition, these accounts tend to neglect the role of nonstate actors. Sociological and discursive

institutionalisms provide more insight into *agenda setting* (for a detailed review, see Schmidt 2010). Nevertheless, their focus on the elusive and polysemous concepts of ideas and beliefs raises important definitional, methodological, and empirical challenges. These abstract constructs create confusion over what is observed and how to observe it.

MST, which Schmidt (2010) associates with discursive institutionalism, analyzes *agenda setting* as a result of the opening of a window of opportunity giving a chance to policy entrepreneurs to attach their favored solutions to specific problems and decision maker receptivity. One of the main advantages of MST over alternative accounts of institutional change is that, in contrast with other problem-oriented approaches (e.g., Colgan et al. 2012; Jupille et al. 2013; Morse and Keohane 2014; Rose 1991), MST suggests that the streams of problems, solutions, and political receptivity are relatively independent and not chronological. In other words, MST does not conceive institutional change as a process whereby decision makers first identify a problem and then try to find a solution. Solutions may also be looking for problems and waiting for shifts in political receptivity (Kingdon 1984, 88). I contend that the nonsequential order of the three streams better captures the nonlinearity of the real world.

Other advantages of MST include the concepts of opportunity window and policy entrepreneurs. First, the concept of opportunity window encompasses both *exogenous* and *endogenous* drivers of change. It also ranges from unpredictable and abrupt events to predictable and inconspicuous circumstances. Second, similarly to constructivist accounts in IR, MST sheds light on the role of entrepreneurs, which can be but are not necessarily state actors (Checkel 1997; Finnemore and Sikkink 1998).

For these reasons, MST seems best tailored to help us understand the design development processes of MEA adaptation. However, as with most theories of institutional change, MST has been developed and mainly applied to investigate cases of *domestic* policy change. Consequently, some of its concepts and variables are ill fitted to the international phenomenon under study. In the following section, I provide some revisions to Kingdon's model to apply it to the new terrain of MEA adaptation. Figure 1 summarizes the argument schematically.

A Multiple Streams Approach to Treaty Adaptation

The Problem Stream

Treaty delegates, personnel, and other stakeholders (hereinafter referred to as actors) often become aware of problems through *INDICATORS* and *FEEDBACK* (Kingdon 1984, 100–101). Various MEA provisions can enhance these mechanisms. For instance, some MEAs provide for periodic monitoring procedures to assess environmental impacts or progress on implementation (Mitchell 2003). MEAs may also include public participation provisions to receive feedback from

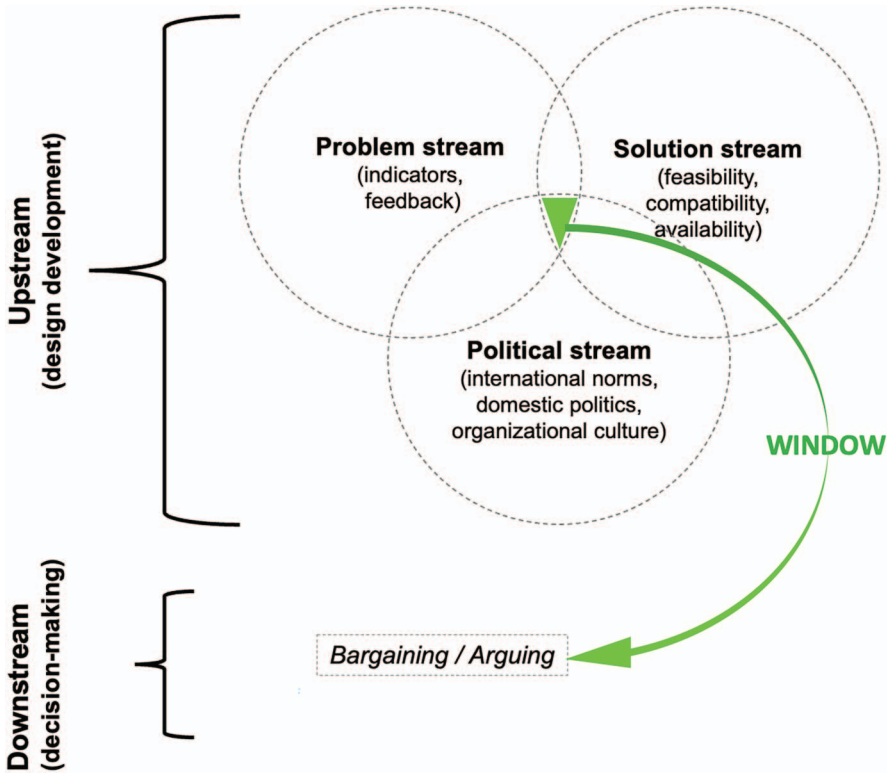


Figure 1
MEA Adaptation Process

civil society (Ebbesson 1998). Such feedback can bring all kinds of problems to actors' attention. For instance, additional polluting substances may need to be controlled or existing indicators may be inadequate to measure progress.

This article assumes that the ability of actors to process information is limited. Their bounded rationality prevents them from processing all the feedback they receive (Simon 1972). Hence conditions often "need a little push" for actors to consider them problematic (Kingdon 1984, 94). Some "stressors," such as changes in the biophysical environment (Young 2010) or endogenous changes in preferences (Hale 2017), may transform one condition (among many) into a problem. In sum, problems rarely reveal themselves automatically in an MEA setting.

The Solution Stream

While "any actor can be involved in any stream, and some of them actually are involved in several" (Kingdon 1984, 87), solutions are selected and advocated

by a specific type of actor that I label “design entrepreneurs.” Kingdon presents three qualities of successful entrepreneurs: having some claim to a hearing (which I refer to as *CREDIBILITY*), political *CONNECTIONS* or negotiating skill, and *PERSISTENCE*. At the domestic level, *CREDIBILITY* has one of three sources: expertise, an ability to speak for others, and an authoritative decision-making position (Kingdon 1984, 180). In global governance, however, leadership is less hierarchical and centralized. International authority is not necessarily based on decision-making position or power but rather implies consent to be ruled (Green 2013, 41). Therefore, although powerful states (or a powerful coalition of states) are often well positioned to advocate solutions (Colgan et al. 2012, 120; Daßler et al. 2019; Jupille et al. 2013, 37), entrepreneurs may also include nongovernmental organization (NGO) representatives, scientists, or treaty secretariats (Finnemore and Sikkink 1998; Haas 1992).

Kingdon (1984) offers a natural selection metaphor to explain why some design solutions prosper and are taken more seriously by advocates than others. He identifies three main selection criteria for a solution to be considered: its *FEASIBILITY*, its *COMPATIBILITY* with the values of entrepreneurs, and the anticipation of future *CONSTRAINTS*, such as public acceptance and budget (Kingdon 1984, 131–139). Boundedly rational design entrepreneurs cannot scan every potential solution. They do not look for the optimal solution but select the first satisfying option (Simon 1972). Therefore, beyond Kingdon’s (1984) selection criteria, I expect design entrepreneurs to use cognitive shortcuts to identify their favored solutions.

A major heuristic is the *AVAILABILITY* of solutions, that is, “the ease with which relevant instances come to mind” (Tversky and Kahneman 1973, 207). In an MEA setting, the most immediate sources of solutions are the system’s internal flow of information and the MEA’s recent history (Rose 1991, 13). For instance, documentation prepared by a treaty body may contain a salient solution. Similarly, recent adaptation experience may provide valuable lessons on the success and failure of specific design features.

As well established in the policy diffusion literature, another available source of solutions is the proximate external environment (e.g., Meseguer 2006). In some cases, the most easily accessible solution is to use an existing alternative institution, such as other treaties, international organizations, or informal institutions (Abbott and Faude 2021; Jupille et al. 2013; Morse and Keohane 2014). When *FEASIBILITY* or value *COMPATIBILITY* prevent directly selecting alternative institutions, the latter can still constitute inspiration for design entrepreneurs. The *AVAILABILITY* heuristic makes entrepreneurs less likely to identify solutions from distant or relatively low-status institutions though. Therefore one can expect that they draw solutions from other international institutions with which MEA personnel and parties frequently interact or which are highly visible (Gehring and Oberthür 2009).

Once entrepreneurs select a solution, the latter goes through a reframing process. Entrepreneurs “float their ideas as trial balloons, get reactions, revise

their proposals in the light of reactions, and float them again" (Kingdon 1984, 205). During this trial-and-error process of "SOFTENING UP," a solution is progressively accepted by a larger number of actors to the point of becoming commonplace in a community of experts (Kingdon 1984, 140).

The Political Stream

In MST, the three components of the third and last stream, the political stream, are the national mood, organized political forces, and the composition of the government (Kingdon 1984, 146). These domestic factors do not line up with MEA political dynamics. Therefore I borrow from Lipson's (2007) conception of the political stream as actors, interests, and ideas at three levels: GLOBAL normative-ideational shifts, DOMESTIC POLITICS within member states, and ORGANIZATIONAL CULTURE within an MEA setting. The first level of the political stream corresponds to the general normative context of a given period. Over-arching international norms on how environmental issues should be addressed include, for instance, liberal environmentalism (Bernstein 2001) and state sovereignty. The second level corresponds to national-level politics, including executive or ministerial changes and pressures from domestic interest groups or the public. The third level corresponds to divisions within an MEA bureaucracy, its different departments, and its relationship with parties. These revisions of MST are in line with constructivist theories of institutional change, which emphasize the influence of normative orientations and organizational culture (Lipson 2007, 96). The existence of three levels instead of one leads us to expect that POLITICAL RECEPTIVITY to problems and solutions is more challenging to trigger in the multilateral context than domestically. International design entrepreneurs need to find solutions that both "fit" extant social structures (Bernstein 2001) and can satisfy a group of decision makers with heterogeneous domestic interests and preferences.

Windows of Opportunity

Before any decision-making process can unfold among country representatives, the new design feature needs to find its way to the political agenda. This is where the "window" concept comes into play. A window is an opportunity for pushing one's proposal. This opportunity can be exogenous or endogenous. The most obvious endogenous opportunity in an MEA setting is the meeting of the COP. COPs bring together country representatives regularly. This provides a chance to discuss problems and solutions, which would be far less frequent otherwise, especially among large numbers of parties.¹ Other opportunities include

1. To be clear, a COP is not a sufficient condition for a new design feature to rise on an MEA political agenda. Without a specific platform for entrepreneurs to push their proposals, political recognition of the problems, or political receptivity to solutions, a COP becomes a lost opportunity.

shifts in dominant international norms, focal events such as global conferences (Manulak 2020), changes in MEA leadership, or scheduled reviews of the MEA's operations. In such critical, short-lived periods, the three previously separate streams can come together: "a problem is recognized, a solution is available, the political climate makes the time right for change, and the constraints do not prohibit action" (Kingdon 1984, 88). Design entrepreneurs perform this function of coupling the previously separate streams: "they hook solutions to problems, proposals to political momentum, and political events to ... problems" (Kingdon 1984, 182).

In summary, this article conceptualizes design development as the selection, reframing, and combination of design solutions with various problems in a trial-and-error fashion. Importantly, MST suggests that the three streams are relatively independent and do not necessarily follow one another in sequential order. Design entrepreneurs may develop proposals and then wait for decision makers to recognize a problem to which they can connect their solution.² They may also wait for a shift in the political stream that renders their design proposal more likely to be adopted (Kingdon 1984, 88). Therefore the main theoretical expectation from MST is that design solutions are gradually attached to different problems and proposed in various fora rather than developed as a response to a unique problem. The following two sections interpret UNCCD design development processes in light of MST.

Going Global: The Development of Land Degradation Neutrality (LDN) Targets

The Problem Stream

Although, arguably, all MEAs are confronted with several problems, calls for "major surgery"³ and warnings against risks of "sclerosis" (Ortiz and Tang 2005, 9) illustrate how this is particularly true of the UNCCD. In 2005, some problems were made more salient to delegates through informative FEEDBACK from the Joint Inspection Unit (JIU), an independent external oversight body of the UN. In a bleak report on the activities of the UNCCD, JIU inspectors lamented the "failure and/or unwillingness to recognize the Convention in its proper perspective," which is "one of land degradation" (Ortiz and Tang 2005). The report also underlined the low-ranking national officials in charge of UNCCD affairs, the lack of transparency in selecting accredited NGOs, and the absence of clear long-term objectives.

2. An actor certainly can, but does not necessarily, occupy both positions of design entrepreneur and decision maker.
3. ENB summary report, CRIC-11, 2013, 10, available at: <https://enb.iisd.org/events/11th-session-committee-review-implementation-convention-cric-11-unccd/summary-report-15-19>, last accessed March 2, 2023.

According to most interviewees, the UNCCD's narrow focus on land degradation in "arid, semi-arid, and dry sub-humid areas,"⁴ usually shortened as drylands, constitutes its main substantive problem. Whereas all countries on earth face land degradation on their territory, drylands cover approximately 46 percent of global land area, 70 percent of which is located in Africa and Asia (Intergovernmental Panel on Climate Change 2019, 251–254). The resulting "perceived marginality" of the UNCCD has contributed to low financial support and commitment from developed countries (Thomas et al. 2012, 124).

The limited-scope problem stems from strong disagreements about the causes and effects of desertification during UNCCD negotiations. Negotiators from developed countries were dubious of the need for a global convention on what they perceived as a "cluster of local ... environmental issues" (Corell 1999, 75). At COP4 in 2000, only a few donor countries recognized desertification's causes and effects as global.⁵ Yet, in the same year, a fifth regional implementation annex for Central and Eastern European countries was added to the UNCCD. Eleven of these seventeen countries had no dryland on their territory (Safriel 2017, 11), which further exacerbated the limited-scope problem.⁶

The Solution Stream

MEA secretariats, including their executive secretaries, enjoy a privileged position to act as design entrepreneurs. They perform crucial functions, such as brokering knowledge, drafting COP decisions, and proposing new agenda items (Jinnah 2014, 21). The UNCCD 2008–2018 strategic plan of implementation even requires a "strengthening of the core servicing, advocacy, and agenda-setting functions" of the secretariat.⁷ However, the CREDIBILITY of MEA secretariats to advocate new design features should not be taken for granted.⁸ For instance, in the early years of the UNCCD, recurrent allegations of lack of transparency from the secretariat motivated the JIU assessment.⁹ Such distrust toward the secretariat and executive secretary Hama Arba Diallo back then lowered parties' RECEPTIVITY to secretariat design proposals (Bauer 2006, 82).

Luc Gnacadja started his mandate as the second UNCCD executive secretary with a mission to implement the JIU report recommendations, as formalized in the UNCCD 2008–2018 strategic plan. The first solution Gnacadja considered was to amend the convention to expand its scope beyond drylands.¹⁰ However,

4. Article 1.

5. ENB summary report, COP4, 2000, 15, available at: <https://enb.iisd.org/events/unccd-cop-4/summary-report-11-22-december-2000>, last accessed March 2, 2023.

6. Int-7.

7. Decision 3/COP8, 2007, available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-08/3COP8_0.pdf, last accessed March 2, 2023.

8. Int-10.

9. ENB summary report, COP6, 2003, 14, available at: <https://enb.iisd.org/events/unccd-cop-6/summary-report-25-august-6-september-2003>, last accessed March 2, 2023.

10. Int-16.

this idea quickly faded away because of its PRACTICAL INFEASIBILITY. Interviews indicate that any formal adaptation of the UNCCD through amendment has become taboo. According to one national focal point, the common understanding among parties is “don’t open the convention because it’s a can of worms and you are going to change the entire thing.”¹¹ Additionally, any amendment would need to be ratified by at least two-thirds of the parties to enter into force, which would likely take years, if not decades.

Gnacadjia then initiated “horizon scanning for tools to invigorate the UNCCD” (Safriel 2017, 4). Several interviewees describe the UNCCD Secretariat and executive secretaries as entrepreneurs who bridge the UNCCD and its external environment, particularly the UN agenda and the sister conventions on climate change and biodiversity.¹² This points to the use of AVAILABILITY heuristics: the offsetting features adopted in the Kyoto Protocol to the UNFCCC and targets introduced in the climate and biodiversity regimes turned out as salient and proximate sources of inspiration for Gnacadja. He generated the concept of a “zero net land degradation (ZNLD) target,” which involved “reducing the rate of further degradation of land and offsetting newly occurring degradation by restoring the productivity and other ecosystem services of currently degraded lands” (Lal et al. 2012, 14). As its name suggested, ZNLD was not restricted to drylands. As such, it could have been immediately adopted as a ready-made solution to the UNCCD’s limited-scope problem. Yet, as MST expects, the absence of political RECEPTIVITY and OPPORTUNITY WINDOW required a trial-and-error development of Gnacadja’s proposal in multiple venues.

The Political Stream

The long-standing questioning of the global nature of land degradation and high North–South tensions in UNCCD fora have created an unfavorable political context for fleshing out desertification governance. One interviewee mentions one of the UNCCD’s unflattering nicknames: the “Cinderella Convention, the one that did not make it to the ball.”¹³ This marginality is particularly visible at the GLOBAL LEVEL of the *political stream*. The eight millennium development goals (MDGs) adopted in 2000 by UN member states deal with biodiversity loss, access to safe drinking water, and improving the living conditions in slums worldwide. However, they do not refer to land degradation or desertification.

In addition, DOMESTIC POLITICS concerns have long inhibited any attempt to expand the UNCCD’s scope beyond drylands. Specifically, Brazil has frequently reminded parties that the UNCCD is “not the land convention.”¹⁴ African countries, for their part, have claimed openly that they would make sure that the

11. Int-14.

12. Int-9; Int-10; Int-26; Int-27.

13. Int-16.

14. ENB summary report, COP9, 2009, 5, available at: <https://enb.iisd.org/events/unccd-cop-9/summary-report-21-september-2-october-2009>, last accessed March 2, 2023.

priority the convention attributes to Africa is maintained.¹⁵ Several interviewees point out that expanding the UNCCD's scope from drylands to global land worried some African delegates, for it could divert the limited resources for implementation to other regions.¹⁶ Last, expanding the scope to global land degradation would entail new obligations for developed countries, which some of them, such as the United States, have relentlessly resisted.¹⁷ This hostile internal context led Gnacadja to attach his ZNLD target solution to a problem transcending UNCCD frontiers.

The Sustainable Development Goal (SDG) Window of Opportunity

As Kingdon (1984, 127) remarks, entrepreneurs do not solve problems; they start the discussion of their proposals and push their solutions in different fora so that they progressively become commonplace. The Rio+20 conference, which set the stage for a renewal of MDGs, constituted a timely opportunity for Gnacadja to frame ZNLD as a solution to "correct the mistake the international community made in 2000" by ignoring land degradation in the MDGs.¹⁸ The UNCCD Secretariat commissioned a report to provide scientific backup to the ZNLD concept (Chasek et al. 2015). This document contended that lessons learned from the operation of the CBD, the UNFCCC, and poverty alleviation targets could help operationalize a ZNLD target (Lal et al. 2012, 16).

During the Rio+20 conference, Gnacadja's proposal went through a SOFTENING UP process. The "zero net" wording spurred disagreement¹⁹ and was thus replaced with the LDN concept, a reframing that sounded less restrictive and alarming to some countries (Safriel 2017, 6). Delegates finally endorsed LDN in paragraph 206 of the Rio+20 outcome document, *The Future We Want*.

In 2015, the UN adopted the 2030 Agenda for Sustainable Development, which outlined seventeen SDGs. Of particular importance for the UNCCD was target 15.3, which picked up the Rio+20 wording and involved "striving to achieve a land degradation-neutral world" by 2030. These favorable international circumstances provided the needed impetus to push the LDN solution within UNCCD fora. Monique Barbut, then UNCCD executive secretary, learned from her predecessor's advocacy experience and parties' feedback. According to several interviewees, she presented the UNCCD COP with a "fait accompli"²⁰ so

15. ENB summary report, INC-10 (resumed), 1997, available at: <https://enb.iisd.org/events/resumed-10th-session-ccd-intergovernmental-negotiating-committee-inc/summary-report-18-22>, last accessed March 2, 2023.

16. Int-18; Int-26.

17. Int-6; Int-10; Int-16.

18. Int-12.

19. ENB summary report, Rio+20, 2012, 14, available at: <https://enb.iisd.org/events/uncsd-rio20/summary-report-13-22-june-2012>, last accessed March 2, 2023.

20. Int-10; Int-21.

that “the only answer was yes for the COP.”²¹ Beyond coupling the LDN solution with the limited-scope problem, she also framed LDN as a solution to the convention’s lack of a “clear goal around which it could rally.”²² She hooked this design solution to the political momentum generated by SDGs. Not endorsing target 15.3 would have been “a real vote of no confidence” in the UNCCD.²³ Barbut also exposed the results of a pilot study on LDN targets to address parties’ concerns in terms of *FEASIBILITY* (United Nations Convention to Combat Desertification [UNCCD] 2016b). Last, as former CEO of the Global Environment Facility, she ensured that funds would be available for LDN projects and pulled the strings to create an independent impact investment fund.²⁴ Counterfactual thinking about what might have happened to the ZNLD target proposal had the SDGs not been endorsed is arduous. Nevertheless, ENB reports and interviews provide *prima facie* evidence that political *RECEPTIVITY* to LDN targets increased significantly following the adoption of SDGs.

The Decision-Making Outcome

As a result of the secretariat’s and executive secretaries’ advocacy, a “break-through agreement” was reached at COP12 (UNCCD 2016a, 2). Decision 3/COP12 recognized target 15.3 of the SDGs as a strong vehicle for driving the implementation of the UNCCD and invited parties to formulate LDN targets. Importantly, decision 8/COP12 noted that “a significant proportion of land degradation occurs beyond arid, semi-arid and dry sub-humid areas” and that “parties may use the UNCCD when striving to achieve LDN.” As of today, 129 countries have committed to setting LDN targets.

To sum up, the LDN target solution was mainly developed independently from UNCCD’s internal problems, which is consistent with MST expectations and casts doubt on problem-driven approaches to institutional change. Executive secretaries advocated their solution in venues other than the UNCCD. They framed ZNLD as a “new sustainable development goal” for the international community (Lal et al. 2012). Then, fortified by new political receptivity, advocates were able to return to the UNCCD confines to associate the LDN solution with the UNCCD’s problems of limited scope and lack of long-term vision. The strong inspiration from UNFCCC and CBD tools and the trial-and-error reframing of the ZNLD concept support the bounded rationality assumption. Design entrepreneurs have not developed an optimal solution from scratch, and there is no evidence that they have considered a high number of solutions.

21. Int-4.

22. ENB summary report, CRIC-15, 2016, 11, available at: <https://enb.iisd.org/events/15th-session-committee-review-implementation-convention-cric-15-unccd/summary-report-18-20>, last accessed March 2, 2023.

23. Int-16.

24. Int-4; Int-10; Int-21.

Going Science Based: The Development of the Science–Policy Interface (SPI)

The Problem Stream

Beyond substantive problems related to the scope and objectives of the UNCCD, the convention also faces procedural challenges. Specifically, the way decision makers receive scientific advice quickly appeared problematic.²⁵ This function was intended to be performed by the Committee on Science and Technology (CST) created by the UNCCD.²⁶ However, already at COP4, some delegates and the secretariat stressed the problem of the CST's ineffectiveness.²⁷ As in the case of the scope expansion, the problem was further made evident through *FEEDBACK* from the JIU. UN inspectors questioned the simultaneous holding of CST and COP meetings, noting low assimilation of CST outputs in COP decisions. In addition, the report underlined that “the CST does not always get the scientists it needs,” as it is “composed of government representatives” (Ortiz and Tang 2005, 2). In a follow-up to the JIU report, the UNCCD Secretariat also warned that “much scientific work on all aspects of land degradation currently takes place outside the realm of the UNCCD.”²⁸

The CST ineffectiveness problem materialized even more at COP9. In 2007, the COP requested the CST to advise how best to measure progress on strategic objectives of the 2008–2018 strategic plan. The CST consulted affected countries and identified eleven impact indicators.²⁹ The COP then adopted two of these: first, the proportion of the population in affected areas living above the poverty line and, second, land cover status.³⁰ According to two interviewees, the COP's selection of the indicators “based only on common use, not on relevance” crystallized long-growing exasperation. It made CST members realize that a revamping of CST operations was inevitable.³¹ So while decision makers recognized the CST's ineffectiveness early on in the UNCCD's life, the problem became more acute with the negative experience of stakeholders primarily concerned with it.

25. Another procedural problem that is not unique to the UNCCD includes the default rule of consensus-based decision-making. This rule significantly hampers progress for large MEA memberships (COP(11)/16, 2013, 5, available at: https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP11_16/16eng.pdf, last accessed March 2, 2023).

26. Article 24.

27. ENB summary report, COP4, 2000, 9, available at: <https://enb.iisd.org/events/unccd-cop-4/summary-report-11-22-december-2000>, last accessed March 2, 2023.

28. COP(8)/INF.5, 2007, available at: https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP8_INF.5/inf5eng.pdf, last accessed March 2, 2023.

29. COP(9)/CST/4, 2009, available at: https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP9_CST_4/cst4eng.pdf, last accessed March 2, 2023.

30. Decision 13/COP9, 2009, available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-08/13COP9_0.pdf, last accessed March 2, 2023.

31. Int-22; Int-24.

The Solution Stream

When the Intergovernmental Negotiating Committee for the Elaboration of the UNCCD (INCD) was formed in 1993, some participants proposed the creation of a new, independent scientific body on desertification, in vain:

Some delegates thought that a greater infusion of scientific and technical expertise, along the lines of the [Intergovernmental Panel on Climate Change; IPCC], would have maintained a better balance between science and politics. However, when the INCD was formed, many maintained that over 50 years of research had already been done on this subject, obviating the need for a new intergovernmental scientific body to support the negotiations.³²

Given the convention's specific emphasis on Africa and its side objective of eradicating poverty,³³ many delegates from advanced economies have long considered the UNCCD a development convention rather than an environmental treaty (Bauer and Stringer 2009, 251). This may partly explain why the creation of a scientific body was initially sidelined. Instead, the INCD created a seventeen-member International Panel of Experts on Desertification, which exerted very little impact on the negotiations and ceased to exist after the adoption of the UNCCD (Corell 1999, 136).

A few years later, when the COP undertook to improve the CST's effectiveness,³⁴ some countries, such as Switzerland, pushed the solution of an "independent scientific panel" again.³⁵ However, this solution received little attention from decision makers. A plausible explanation is that Switzerland's proposal was still marginal and novel at that time. Therefore Switzerland alone may have lacked the authority to be a successful design entrepreneur, and PERSISTENCE was logically absent. Rather than considering a new design feature, the solution initially adopted by decision makers was to reshape the CST (Kohler 2019). In 2007, the COP decided that future ordinary sessions of the CST would be organized in a conference-style format focusing on one thematic topic.³⁶ However, the three scientific conferences held to this day failed to strengthen the weak scientific basis of the convention (Chasek 2019, 25; Kohler 2019, 110).

In parallel, a more coordinated group of design entrepreneurs formed under the name of DesertNet International. This association was created in 2005 to merge European scientific networks on desertification, which earned

32. ENB summary report, 1994, INC-5, available at: <https://enb.iisd.org/events/5th-session-intergovernmental-negotiating-committee-international-convention-combat/summary>, last accessed March 2, 2023.

33. Article 4.

34. Decision 17/COP4, 2000, available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-08/17COP4_0.pdf, last accessed March 2, 2023.

35. COP(5)/3/Add.2, 2001, available at: https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP5_3_Add.2/3add2eng.pdf, last accessed March 2, 2023.

36. Decision 13/COP8, 2007, available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-08/13COP8_0.pdf, last accessed March 2, 2023.

it a high degree of CREDIBILITY and authority.³⁷ In a white paper submitted to UNCCD COP9, the Dryland Science for Development Consortium, cochaired by DesertNet International, recommended an “international science panel or body” in support of the UNCCD (Akhtar-Schuster et al. 2010, 106). The use of AVAILABILITY heuristics is, here again, particularly apparent: the white paper presented lessons drawn from “an examination of a few of the most relevant” scientific bodies servicing other MEAs. Relevant bodies mentioned in the paper included the IPCC, Montreal Protocol Assessment Panels, and the proposed Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). This call for the creation of a comparable scientific panel at the service of the UNCCD also echoed a growing number of scientific publications (e.g., Bauer and Stringer 2009; Grainger 2009; Thomas et al. 2012). Thus, as expected by MST, entrepreneurs initially pushed for the scientific panel solution independently from the recognition of the UNCCD’s scientific-foundation problem. Inspired by the close and salient climate regime, their solution took time and persistent advocacy efforts to reach the UNCCD COP’s agenda.

The Political Stream

Since the 1990s, political RECEPTIVITY toward science-based decision-making has undergone profound changes at the three levels of the *political stream*. Originally, having government representatives in the UNCCD CST was a demand from developing countries that “felt threatened by science, seeing it as a tool for promoting the interests of developed countries” (Grainger 2009, 420).³⁸ Over time, delegates have gradually recognized and embraced the role science could play in devising more effective indicators and making sound decisions.³⁹ At the GLOBAL LEVEL, as one participant notes, “all of the conventions improved significantly since the 2000s on their flow of science in.”⁴⁰ Progressively, decision makers have improved or established science advisory bodies in other environmental domains with the IPCC model in mind (Kohler 2019, 26). A telling example is the negotiations of the IPBES initiated in 2005.

Within the UNCCD ORGANIZATIONAL CULTURE, although many delegates expressed “envy” of the IPCC and IPBES, there was a strong reluctance from donor countries to the solution of a new scientific body at the service of the UNCCD.⁴¹ Donor countries gave priority to avoiding redundancy and additional costs and thought that the IPCC, and, later, the IPBES, would provide

37. Int-28.

38. See also ENB summary report, INC-5, 1994, available at: <https://enb.iisd.org/events/5th-session-intergovernmental-negotiating-committee-international-convention-combat/summary>, last accessed March 2, 2023.

39. Int-10.

40. Int-22.

41. ENB summary report, CST S-2, 2011, 20, available at: <https://enb.iisd.org/events/unccd-cric-9-and-2nd-special-session-committee-science-and-technology-cst-s-2/summary-report>, last accessed March 2, 2023.

the scientific knowledge that the UNCCD needed.⁴² However, scientist design entrepreneurs argued that the equal emphasis on nature and people was unique to the UNCCD and thus required a distinct scientific body to communicate science to both decision makers and local communities affected by land degradation.⁴³ This argument gained traction in the minds of delegates, thereby increasing political RECEPTIVITY to the creation of a scientific body for the UNCCD. With the recognition of the problem, the existence of a solution, and progressive shifts in the political stream, the only missing ingredient was, according to MST expectations, the opening of a window of opportunity.

The Ad Hoc Working Group on Scientific Advice (AGSA) Window of Opportunity

In 2009, the UNCCD COP requested the CST to assess how to organize scientific advice in the UNCCD framework.⁴⁴ Following scientist advocacy, the CST considered existing external options and the creation of a new scientific panel on land and soil. However, CST members failed to agree on the solution to recommend to the COP.⁴⁵ The political composition of the CST made it difficult for delegates to overcome disagreements. African countries, among others, supported the creation of a new panel. Others, such as Ecuador, preferred strengthening existing mechanisms. The United States and Norway suggested using the IPBES. Many other delegates supported the coordination of regional scientific networks.⁴⁶

In light of the CST members' failure to reach a consensus, the tenth COP established the AGSA.⁴⁷ The AGSA was composed of twelve independent scientists, several of them members of DesertNet International. This created a window of opportunity for design entrepreneurs to hook their favored solutions to the CST ineffectiveness problem. Their detailed report, introduced at COP11, took into account delegates' concerns about FEASIBILITY, financial implications, and potential duplication of scientific panels.⁴⁸ The report recommended a mechanism consisting of three core modules: an SPI, an independent

42. ENB summary report, CST S-2, 2011, 20, available at: <https://enb.iisd.org/events/unccd-cric-9-and-2nd-special-session-committee-science-and-technology-cst-s-2/summary-report>, last accessed March 2, 2023; Int-7; Int-10; Int-16; Int-19; Int-26; Int-28.

43. Int-6; Int-22; Int-28.

44. Decision 18/COP9, 2009, available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-08/18COP9_0.pdf, last accessed March 2, 2023.

45. COP(10)/CST/6, 2011, available at: https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP10_CST_6/cst6eng.pdf, last accessed March 2, 2023.

46. ENB summary report, CST S-2, 2011, 12, available at: <https://enb.iisd.org/events/unccd-cric-9-and-2nd-special-session-committee-science-and-technology-cst-s-2/summary-report>, last accessed March 2, 2023.

47. Decision 20/COP10, 2011, available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-08/20COP10_0.pdf, last accessed March 2, 2023.

48. COP(11)/CST/INF.2, 2013, available at: https://www.unccd.int/sites/default/files/sessions/documents/ICCD_COP11_CST_INF.2/cstinf2eng.pdf, last accessed March 2, 2023.

nongovernmental group of scientists, and regional science and technology hubs. The independence of AGSA members from political considerations and their thorough scientific assessment of potential solutions likely facilitated the rise of the SPI solution on the COP's agenda.

The Decision-Making Outcome

Given the UNCCD's tight budget constraints, only one of the three design features proposed by the AGSA survived the decision-making process. Indeed, the COP only agreed on creating the SPI,⁴⁹ to which the CST now assigns various scientific tasks. Despite its small size and scant financial resources resulting from the bargaining power of donor countries, UNCCD delegates have expressed overall satisfaction with the SPI outputs.⁵⁰ Therefore COP13 extended its mandate to COP16.⁵¹

The SPI case provides further support to the argument of independent streams combined through a trial-and-error process. The SPI solution existed prior to the creation of the CST, which, once again, brings into question problem-driven conceptions of institutional change. Over the years, design entrepreneurs advocated their solution at different occasions and venues. They also participated in the recognition of the CST ineffectiveness problem while building up political receptivity to their solution in the light of parties' reactions until the opening of an endogenous window of opportunity.

Conclusions

In retrospect, a critical observer could comment that little has changed in the UNCCD framework in almost three decades. However, as Roberts and St John (2021, 14) remark, "academics are often utopians with limited understanding of how change occurs in practice or the obstacles that [actors] face when pushing for change." Despite severe financial and political constraints (Johnson et al. 2006), UNCCD stakeholders have demonstrated their ability to connect, at critical moments, solutions drawn from the experience of other environmental treaties to various internal problems. In the case of the UNCCD, the findings show that the most readily available models to draw from are the UNFCCC and the CBD. This conforms to expectations, as the three conventions share a common historical background and are in regular interaction.

49. Decision 23/COP11, 2013, available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-08/23COP11_0.pdf, last accessed March 2, 2023.

50. ENB summary report, COP13, 2017, 17, available at: <https://enb.iisd.org/events/13th-session-conference-parties-unccd-cop-13/summary-report-6-16-september-2017>, last accessed March 2, 2023.

51. Decision 19/COP13, 2017, available at: https://www.unccd.int/sites/default/files/sessions/documents/2019-08/19COP13_0.pdf, last accessed March 2, 2023.

Overall, the empirical evidence on both the substantive and procedural adaptations points to the relative independence of streams, the bounded rationality of actors, the crucial advocacy role of entrepreneurs, and the necessity of opportunity windows, which can be endogenous to an MEA framework. The development of solutions relatively independently from problems and the use of availability heuristics suggest that the development of new UNCCD design features was neither fully rational nor problem driven. Therefore the results demonstrate the applicability of MST to design development within MEA settings. Future research should nonetheless examine if multiple-stream patterns hold for other MEAs with different historical legacies, memberships, problem structures, and institutional apparatuses.

This article presents a theory-guided interpretation of two cases rather than a formal test of MST. However, this research provides some lessons about the conditions under which MST is most likely accurate. First, appropriate monitoring and feedback mechanisms are key to unraveling problems. Without provisions on impact assessments, periodic reporting on implementation, or stakeholder committees, decision makers are less likely to become aware of problems. In addition, a bureaucracy in charge of centralizing such information is expected to facilitate problem recognition (Jinnah 2014). In the case of the UNCCD, the feedback that got the most attention from decision makers was arguably the JIU report and secretariat documentation. However, monitoring mechanisms are plentiful in environmental governance. Investigating other design development cases would likely contribute to identifying other effective feedback provisions.

Second, treaty bodies tasked with advocacy duties or providing opportunities for actors to advocate solutions contribute to multiple-stream patterns. My findings shed particular light on the advocacy role of the secretariat, but other institutions with advisory and advocacy duties are frequent in international environmental law. Furthermore, treaties that require regular meetings among party representatives, such as the UNCCD COP, create periodic windows of opportunity for design entrepreneurs to advocate their proposals. Last, the SPI case exemplifies that even when the original treaty does not create a full-fledged institutional apparatus, delegates can still decide to set up new institutions along the way. Therefore the role and strategies of treaty bodies in transforming environmental governance should be investigated more comprehensively. This would allow IR scholars to draw a broader picture of the various design entrepreneurs and strategies that can make MEAs more dynamic and potentially more effective.

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References

- Abbott, Kenneth W., and Benjamin Faude. 2021. Choosing Low-Cost Institutions in Global Governance. *International Theory* 13 (3): 397–426. <https://doi.org/10.1017/S1752971920000202>
- Akhtar-Schuster, Mariam, Harriet Bigas, and Richard Thomas, editors. 2010. Monitoring and Assessment of Desertification and Land Degradation: Knowledge Management, Institutions and Economics. White paper of the DSD Working Group 3. Available at: <https://hal.inrae.fr/hal-02818457/document>, last accessed March 2, 2023.
- Bauer, Steffen. 2006. The United Nations and the Fight Against Desertification: What Role for the UNCCD Secretariat? In *Governing Global Desertification*, edited by Pierre-Marc Johnson, Karel Mayrand, and Marc Paquin, 73–88. Aldershot, UK: Ashgate.
- Bauer, Steffen, and Lindsay C. Stringer. 2009. The Role of Science in the Global Governance of Desertification. *Journal of Environment and Development* 18 (3): 248–267. <https://doi.org/10.1177/1070496509338405>
- Bernstein, Steven. 2001. *The Compromise of Liberal Environmentalism*. New York, NY: Columbia University Press. <https://doi.org/10.7312/bern12036>
- Bodansky, Daniel, and Elliot Diringer. 2010. *The Evolution of Multilateral Regimes: Implications for Climate Change*. Arlington, VA: Pew Center on Global Climate Change. <https://doi.org/10.2139/ssrn.1773828>
- Chasek, Pamela. 1997. The Convention to Combat Desertification: Lessons Learned for Sustainable Development. *Journal of Environment and Development* 6 (2): 147–169. <https://doi.org/10.1177/107049659700600204>
- Chasek, Pamela. 2019. Linking Scientific Knowledge and Multilateral Environmental Governance. In *Contesting Global Environmental Knowledge, Norms, and Governance*, edited by Mildred J. Peterson, 17–32. New York, NY: Routledge. <https://doi.org/10.4324/9781315166445-2>
- Chasek, Pamela, Uriel Safriel, Sem Shikongo, and Vivian Futran Fuhrman. 2015. Operationalizing Zero Net Land Degradation: The Next Stage in International Efforts to Combat Desertification? *Journal of Arid Environments* 112 (A): 5–13. <https://doi.org/10.1016/j.jaridenv.2014.05.020>
- Checkel, Jeffrey T. 1997. *Ideas and International Political Change: Soviet/Russian Behavior and the End of the Cold War*. New Haven, CT: Yale University Press.
- Chwieroth, Jeffrey M. 2014. Controlling Capital: The International Monetary Fund and Transformative Incremental Change from Within International Organisations. *New Political Economy* 19 (3): 445–469. <https://doi.org/10.1080/13563467.2013.796451>
- Colgan, Jeff D., Robert O. Keohane, and Thijs Van de Graaf. 2012. Punctuated Equilibrium in the Energy Regime Complex. *Review of International Organizations* 7 (2): 117–143. <https://doi.org/10.1007/s11558-011-9130-9>

- Corell, Elisabeth. 1999. *The Negotiable Desert: Expert Knowledge in the Negotiations of the Convention to Combat Desertification*. Doctoral dissertation, Linköpings Universitet.
- Daßler, Benjamin, Andreas Kruck, and Bernhard Zangl. 2019. Interactions Between Hard and Soft Power: The Institutional Adaptation of International Intellectual Property Protection to Global Power Shifts. *European Journal of International Relations* 25 (2): 588–612. <https://doi.org/10.1177/1354066118768871>
- Ebbesson, Jonas. 1998. The Notion of Public Participation in International Environmental Law. *Yearbook of International Environmental Law* 8 (1): 51–97. <https://doi.org/10.1093/yiel/8.1.51>
- Finnemore, Martha, and Kathryn Sikkink. 1998. International Norm Dynamics and Political Change. *International Organization* 52 (4): 887–917. <https://doi.org/10.1162/002081898550789>
- Gehring, Thomas. 2008. Treaty-Making and Treaty Evolution. In *The Oxford Handbook of International Environmental Law*, edited by Daniel Bodansky, Jutta Brunnée, and Ellen Hey, 467–497. Oxford, UK: Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199552153.013.0020>
- Gehring, Thomas, and Sebastian Oberthür. 2009. The Causal Mechanisms of Interaction Between International Institutions. *European Journal of International Relations* 15 (1): 125–156. <https://doi.org/10.1177/1354066108100055>
- Grainger, Alan. 2009. The Role of Science in Implementing International Environmental Agreements: The Case of Desertification. *Land Degradation and Development* 20 (4): 410–430. <https://doi.org/10.1002/ldr.898>
- Green, Jessica F. 2013. *Rethinking Private Authority: Agents and Entrepreneurs in Global Environmental Governance*. Princeton, NJ: Princeton University Press. <https://doi.org/10.23943/princeton/9780691157580.001.0001>
- Haas, Peter. 1992. Epistemic Communities and International Policy Coordination: Introduction. *International Organization* 46 (1): 1–35. <https://doi.org/10.1017/S0020818300001442>
- Hale, Thomas. 2017. Climate Change: From Gridlock to Catalyst. In *Beyond Gridlock*, edited by Thomas Hale and David Held, 184–204. Cambridge, UK: Polity Press.
- Hall, Peter A., and Rosemary C. R. Taylor. 1996. Political Science and the Three New Institutionalisms. *Political Studies* 44 (5): 936–957. <https://doi.org/10.1111/j.1467-9248.1996.tb00343.x>
- Intergovernmental Panel on Climate Change. 2019. *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems*. Available at: <https://www.ipcc.ch/srccl/>, last accessed March 2, 2023. <https://doi.org/10.1017/9781009157988>
- Jinnah, Sikina. 2014. *Post-treaty Politics: Secretariat Influence in Global Environmental Governance*. Cambridge, MA: MIT Press. <https://doi.org/10.7551/mitpress/9780262028042.001.0001>
- Johnson, Pierre-Marc, Karel Mayrand, and Marc Paquin. 2006. Conclusion: The UNCCD at a Crossroad. In *Governing Global Desertification*, edited by Pierre-Marc Johnson, Karel Mayrand, and Marc Paquin, 195–204. Aldershot, UK: Ashgate.
- Jones, Michael D., Holly L. Peterson, Jonathan J. Pierce, Nicole Herweg, Amiel Bernal, Holly Lamberta Raney, and Nikolaos Zahariadis. 2016. *A River Runs Through It*.

- A Multiple Streams Meta-review. *Policy Studies Journal* 44 (1): 13–36. <https://doi.org/10.1111/psj.12115>
- Jupille, Joseph, Walter Mattli, and Duncan Snidal. 2013. *Institutional Choice and Global Commerce*. Cambridge, UK: Cambridge University Press. <https://doi.org/10.1017/CBO9781139855990>
- Kingdon, John. 1984. *Agendas, Alternatives and Public Policies*. New York, NY: HarperCollins.
- Kohler, Pia M. 2019. *Science Advice and Global Environmental Governance: Expert Institutions and the Implementation of International Environmental Treaties*. London, UK: Anthem Press. <https://doi.org/10.2307/j.ctvq4bzt8>
- Lal, Rattan, Uriel Safriel, and Ben Boer. 2012. Zero Net Land Degradation: A New Sustainable Development Goal for Rio+20. Available at: https://catalogue.unccd.int/991_Zero_Net_Land_Degradation_Report_UNCCD_May_2012.pdf, last accessed March 2, 2023.
- Le Prestre, Philippe, editor. 2002. *Governing Global Biodiversity: The Evolution and Implementation of the Convention on Biological Diversity*. Aldershot, UK: Ashgate.
- Lipson, Michael. 2007. A Garbage Can Model of UN Peacekeeping. *Global Governance* 13 (1): 79–97. <https://doi.org/10.1163/19426720-01301006>
- Lundgren, Magnus, Theresa Squatrito, and Jonas Tallberg. 2018. Stability and Change in International Policy-Making: A Punctuated Equilibrium Approach. *Review of International Organizations* 13 (4): 547–572. <https://doi.org/10.1007/s11558-017-9288-x>
- Mahoney, James, and Kathleen Thelen, editors. 2009. *Explaining Institutional Change: Ambiguity, Agency, and Power*. New York, NY: Cambridge University Press. <https://doi.org/10.1017/CBO9780511806414>
- Manulak, Michael W. 2020. A Bird in the Hand: Temporal Focal Points and Change in International Institutions. *Review of International Organizations* 15 (1): 1–27. <https://doi.org/10.1007/s11558-018-9315-6>
- Meseguer, Covadonga. 2006. Rational Learning and Bounded Learning in the Diffusion of Policy Innovations. *Rationality and Society* 18 (1): 35–66. <https://doi.org/10.1177/1043463106060152>
- Mitchell, Ronald B. 2003. International Environmental Agreements: A Survey of Their Features, Formation, and Effects. *Annual Review of Environment and Resources* 28 (1): 429–461. <https://doi.org/10.1146/annurev.energy.28.050302.105603>
- Mitchell, Ronald B., Liliana B. Andonova, Mark Axelrod, Jörg Balsiger, Thomas Bernauer, Jessica F. Green, James Hollway, Rakhyun E. Kim, and Jean-Frédéric Morin. 2020. What We Know (and Could Know) About International Environmental Agreements. *Global Environmental Politics* 20 (1): 103–121. https://doi.org/10.1162/glep_a_00544
- Morgera, Elisa, and Elsa Tsoumani. 2010. Yesterday, Today, and Tomorrow: Looking Afresh at the Convention on Biological Diversity. *Yearbook of International Environmental Law* 21 (1): 3–40. <https://doi.org/10.1093/yiel/yvr003>
- Morse, Julia C., and Robert O. Keohane. 2014. Contested Multilateralism. *Review of International Organizations* 9 (4): 385–412. <https://doi.org/10.1007/s11558-014-9188-2>
- Najam, Adil. 2004. Dynamics of the Southern Collective: Developing Countries in Desertification Negotiations. *Global Environmental Politics* 4 (3): 128–154. <https://doi.org/10.1162/1526380041748100>

- Odell, John S. 2001. Case Study Methods in International Political Economy. *International Studies Perspectives* 2 (2): 161–176. <https://doi.org/10.1111/1528-3577.00047>
- Ortiz, Even F., and Guangting Tang. 2005. Review of the Management, Administration and Activities of the Secretariat of the United Nations Convention to Combat Desertification. United Nations Joint Inspection Unit. Available at: <https://digitallibrary.un.org/record/576290?ln=fr#record-files-collapse-header>, last accessed March 2, 2023.
- Roberts, Anthea, and Taylor St John. 2021. Complex Designers and Emergent Design: Reforming the Investment Treaty System. *American Journal of International Law* 116 (1): 96–149. <https://doi.org/10.1017/ajil.2021.57>
- Rose, Richard. 1991. What Is Lesson-Drawing? *Journal of Public Policy* 11 (1): 3–30. <https://doi.org/10.1017/S0143814X00004918>
- Safriel, Uriel. 2017. Land Degradation Neutrality (LDN) in Drylands and Beyond—Where Has It Come from and Where Does It Go? *Silva Fennica* 51 (1B): 1–19. <https://doi.org/10.14214/sf.1650>
- Schiele, Simone. 2014. *Evolution of International Environmental Regimes: The Case of Climate Change*. Cambridge, UK: Cambridge University Press. <https://doi.org/10.1017/CBO9781107358553>
- Schmidt, Vivien A. 2010. Taking Ideas and Discourse Seriously: Explaining Change Through Discursive Institutionalism as the Fourth “New Institutionalism.” *European Political Science Review* 2 (1): 1–25. <https://doi.org/10.1017/S175577390999021X>
- Simon, Herbert A. 1972. Theories of Bounded Rationality. In *Decision and Organization*, edited by Charles B. McGuire and Roy Radner, 161–176. Amsterdam, Netherlands: North-Holland.
- Thomas, Richard, Mariam Akhtar-Schuster, Lindsay Stringer, María José Marqués, Richard Escadafal, Elena Abraham, and Giuseppe Enne. 2012. Fertile Ground? Options for a Science–Policy Platform for Land. *Environmental Science and Policy* 16: 122–135. <https://doi.org/10.1016/j.envsci.2011.11.002>
- Tversky, Amos, and Daniel Kahneman. 1973. Availability: A Heuristic for Judging Frequency and Probability. *Cognitive Psychology* 5 (2): 207–232. [https://doi.org/10.1016/0010-0285\(73\)90033-9](https://doi.org/10.1016/0010-0285(73)90033-9)
- United Nations Convention to Combat Desertification. 2016a. Achieving Land Degradation Neutrality at the Country Level. Available at: https://knowledge.unccd.int/sites/default/files/inline-files/Building%20blocks%20for%20LDN%20target%20setting_0.pdf, last accessed March 2, 2023.
- United Nations Convention to Combat Desertification. 2016b. Scaling Up Land Degradation Neutrality Target Setting from Lessons to Actions: 14 Pilot Countries’ Experiences. Available at: https://www.unccd.int/sites/default/files/documents/18102016_LDN%20setting_final_ENG_0.pdf, last accessed March 2, 2023.
- Young, Oran R. 2010. Institutional Dynamics: Resilience, Vulnerability and Adaptation in Environmental and Resource Regimes. *Global Environmental Change* 20 (3): 378–385. <https://doi.org/10.1016/j.gloenvcha.2009.10.001>