United Nations Beyond the State?

Interactions of Intergovernmental Treaty Secretariats in Global Environmental Governance

vorgelegt von / by

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To my grandfather.

I wish I could share this moment and many others with you.

CONTENTS

Page

LIST OF FIGURES

Page

LIST OF TABLES

Page

ABBREVIATIONS

AI	Artificial Intelligence
CAMDA	Climate Action Methodologies Data and Analysis
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COP	Conference of the Parties
CSS	Carbon Capture and Storage
ENB	Earth Negotiations Bulletin
FAO	Food and Agriculture Organization
GCA	Global Climate Action
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IO	International Organization
IPA	International Public Administration
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
LDN TSP	Land Degradation Neutrality Target Setting Programme
LPAA	Lima-Paris Action Agenda
MEA	Multilateral Environmental Agreement
NAZCA	Non-State Actor Zone for Climate Action
NBS	Nature-based Solutions
NBSAPs	National Biodiversity Strategy and Action Plans
NDCs	Nationally Determined Contributions
RCP	Rio Conventions Pavilion
UN	United Nations
UNBL	United Nations Biodiversity Lab
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

UNFCCC	United Nations Framework Convention on Climate Change
WEO	World Environment Organization
WHO	World Health Organization
WTO	World Trade Organization

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CHAPTER 1. INTRODUCTION

United Nations (UN) environmental institutions[1] are at a crossroads: Since the formation of the ozone regime, multilateralism has been insufficient to cope with the complex challenges posed by a changing environment. In fact, incremental progress and diverging interests among national governments on political, economic, and socio-technical issues have sparked debates about an imminent crisis of multilateralism. Scientific and policy communities have increasingly called for reforming or modernizing UN environmental institutions to bring about much-needed societal transformations (e.g., Roch and Perrez 2005; Conca 2015; Mingst, Karns, and Lyon 2022). Such propositions have centered on different priorities for reform, for example, pertaining to design characteristics of institutions in dealing with issue linkages among transboundary environmental problems, how to liaise ambitious non-state action with intergovernmental approaches for more effective treaty implementation, addressing key concerns relating to power asymmetries and issues of environmental equity and justice ingrained in UN environmental institutions, or growing concerns about depoliticization and implementation gaps.

Confronting these complex challenges requires coordination and collaboration of actors and institutions beyond the state, including public and private domains and spanning across governance levels and scales. This thesis focuses on the role of international bureaucracies, specifically UN treaty secretariats,[2] as actors that may address such challenges and facilitate reform of UN treaty organizations from within. For mere observers of global environmental politics, UN treaty secretariats may initially seem insignificant given their primary task to provide technical and administrative support to national governments within the context of multilateral environmental agreements (MEAs). However, studies have pointed to an increasing autonomy and influence of treaty secretariats beyond traditional principal-agent relationships. Despite the confines of limited mandates and resources, treaty secretariats have taken on functions previously only in control of

[1] Throughout this thesis, 'UN environmental institutions' is used as an umbrella term refer to distinct institutional arrangements set up by national governments under the UN, including normative legal frameworks (i.e., treaties such as conventions and related accords, protocols, or other agreements), member states, and intergovernmental treaty secretariats in specific policy domains in global environmental politics (Yamin and Depledge 2004; Zelli 2011). See also Chapter 3 for an elaboration of and distinction from related terms.

[2] In the following, the terms 'international bureaucracy' and 'treaty secretariat', being a kind of international bureaucracy, are used interchangeably. See also the subsequent section on treaty secretariats in global environmental governance.

national governments. They have become increasingly authoritative actors who pursue their own agendas and exert influence on policy-making in many issue areas of global environmental governance (Biermann and Siebenh ner 2009b; Jinnah 2014; Hickmann et al. 2019b).

Research on treaty secretariats, or international bureaucracies more broadly, has advanced our understanding about the role and function of these agencies within their organizational and – to some lesser extent – their broader institutional environments. Yet, we know little about the mechanisms and related consequences with which treaty secretariats reach out and coordinate with actors beyond national governments to improve institutional responses towards dealing with transboundary environmental problems. Adopting an actor-centered perspective on institutional interplay, this thesis explores such secretariat coordination at two levels: First, it investigates how treaty secretariats may improve the effectiveness of institutional responses by strategically engaging with non-state actors to raise the ambitions of governments in addressing transboundary environmental problems (*horizontal-non-governmental level*). These actors, referred to in this thesis as non-state actors, may comprise a diverse set of non-governmental organizations, civil society- actors, business organizations, financial institutions, epistemic communities, or transnational partnerships and networks.

Second, this thesis examines how treaty secretariats may improve the coherence among institutional responses to interdependent environmental problems through means of joint interplay management by coordinating with the secretariats of other UN environmental institutions (*horizontal-governmental level*). The study comprises a collection of four research articles: The first article reviews the literature on institutional interplay and lays some of the conceptual underpinnings for this thesis as well as identifies relevant research avenues I aim to address. Employing qualitative case-study research, the remaining three articles provide conceptual as well as empirical contributions on interactions of and between UN treaty secretariats in the policy domain addressing transboundary climate change, biodiversity loss, and desertification.

The thesis is structured as follows: the remaining introductory chapter sets the scene on current challenges for UN environmental institutions within the broader discourse of contested multilateralism and institutional reform. I will then briefly introduce treaty secretariats and the relevant scholarship this thesis builds upon, leading towards the overall research aim and questions as well as an overview of the manuscripts included in this dissertation. Chapter 2 elaborates on the empirical scope of the thesis. Chapter 3 presents the conceptual and theoretical framework, before detailing my approaches to methodology as well as data collection and analysis in Chapter 4. I will

then present key findings of the individual paper contributions and draw some interim conclusions. Chapter 5 contains a discussion of the thesis' results in a wider context, including implications for theory and policy. In the final chapter, I will point out some of the limitations and conclude by outlining potential avenues for future research.

Setting the Scene: UN Environmental Institutions at a Crossroads

Considering the continuous worsening of the environment and ecosystems, the UN has been ill-equipped to deal with the challenges of transboundary environmental problems (Falkner 2013: 252). Apart from the *Montreal Protocol on Substances that Deplete the Ozone Layer* in 1989, most multilateral environmental processes under the UN have failed to deliver on their overarching policy goals. This can partly be explained by an increasing institutional and problem complexity as well as diverging political and economic interests among key member states on issues like climate change, biodiversity and desertification. Further, a lack of comprehensive enforcement mechanisms as well as the forum-shopping behavior by some nation states have posed challenges for the effectiveness of UN environmental institutions (Kellow 2012).

The UN itself is by definition a state-centric institution, but member states have not been as united on many of the issues addressed as suggested by its name. In fact, there has been a growing scholarly debate about a crisis of multilateralism (e.g., Hale, Held, and Young 2013; Morse and Keohane 2014; Zürn 2021). In recent years, we have witnessed a rise of nationalist movements, xenophobia, populism, and economic isolationism in many UN member states, which has gone hand-in-hand with decreasing support for multilateral cooperation. In view of a changing world order (e.g., Mingst, Karns, and Lyon 2022), the benefits of international institutions have been called into question by (increasingly) powerful nation states that are dissatisfied with the distribution of cooperation gains – even threatening to revoke membership. In the case of the international climate change regime, for example, the United States declared its withdrawal from the Paris Agreement in 2017, which jeopardized the sufficient funding of the organization (Zhang et al. 2017). Such developments have negatively affected the authority and legitimacy of the UN, even if the root cause of these dynamics might not be causally linked to the subject matter or governance targets that UN institutions aim to address. In this context, some scholars have argued that there is an inevitable mismatch between intent and outcome engrained in the institutional design of MEAs, due to the perpetual prioritization of state interest towards sovereignty and securitization (Fox and Sneddon 2007).

Since the Bertrand study in 1985 (Bertrand 1985) and the widely cited Brundtland Report in 1987 (World Commission on Environment and Development 1987), structural challenges faced by UN institutions in the domain of environmental politics have caused discourse among scholars and policy-makers alike, calling for comprehensive institutional reforms and a modernization of the UN (e.g., McLaren 1980; Andresen 2007; Ivanova 2012; Kanie 2014; Andresen 2015; Ivanova 2021). Such propositions have ranged from radical approaches, such as a World Environment Organization (WEO) replacing other agencies (e.g., Biermann 2000; Charnovitz 2005), to pragmatic solutions (e.g., Chambers and Green 2005), such as upgrading the United Nations Environmental Programme (UNEP) while maintaining a decentralized system (e.g., Ivanova 2010; 2021). The challenges, or dilemmas, raised in such debate include, amongst others, the expanding needs for governance versus the UN's limited capacity, the proliferation of actors versus the centrality of state sovereignty, demands for leadership, or the need for inclusiveness versus persistent inequalities (Mingst, Karns, and Lyon 2022: 14-18).

This thesis adds to the debate about institutional reform[3] in terms of the need to address coordination gaps by directing particular attention towards two current developments within (and beyond) the context of UN environmental institutions: (1) the hybrid makeup of environmental governance architectures and the need for enhancing coordination among intergovernmental and transnational institutions and actors in dealing with transboundary environmental problems, and (2) the urgency for enhanced coordination and management among UN environmental institutions to address issue-linkages of transboundary environmental problems.

First, the architectures of global environmental governance domains are characterized by a high degree of fragmentation and complexity with an ever-increasing number of institutions and actors spanning intergovernmental and transnational realms.[4] Over the past decades, non-state action on the environment has flourished with exponential growth of initiatives and pledges (Biermann 2009). Great hopes have been set on non-state action to close governance gaps or improve the inclusiveness of UN environmental institutions in dealing with environmental

[3] I understand institutional reform as a process wherein mobilizing actors take necessary steps required to changing the "rules of the game" (North 1990; Mahoney and Thelen 2009), that is, structural change of rules and norms of authority with long-term, often unpredictable effects on governments, politics, and society (Faguet and Shami 2022).

[4] Governance architectures can be defined as "the overarching system of public and private institutions, principles, norms, regulations, decision-making procedures and organizations that are valid or active in a given area of global governance"(Biermann and Kim 2020). See also Chapter 3 for a more detailed explication of the hybrid setup of global environmental governance.

problems (e.g., Bäckstrand et al. 2017; Kalfagianni, Partzsch, and Widerberg 2020). Only in recent years, the UN has 'opened up' to actors other than national governments (Tallberg, Sommerer, and Squatrito 2013; Tallberg et al. 2014). For example, the Paris Agreement under the UNFCCC has first recognized 'non-party stakeholders' as an elemental part for its implementation, where non-state actors were previously recognized merely as 'observers'. This shift in recognition has carried over to other UN processes, such as the CBD or UNCCD. However, the actual stake of non-state actors in the UN has been limited, as they have no formal seat at the negotiation table. Non-state action in intergovernmental processes has largely remained sidelined, exemplified by a clear separation between zones at the Conferences of the Parties (COP) (Hermwille et al. 2017; Hermwille 2018).

Second, the specialization and independent status of different UN processes has proven inadequate in dealing with the complexity posed by transboundary environmental problems. For over three decades, national governments have negotiated within siloed framework conventions to deal with these issues separately. Such institutional making has largely been influenced by previous experience with addressing environmental problems through intergovernmental cooperation, as demonstrated by the ozone regime (Breitmeier 1997). However, in contrast to the ozone problem, solving these issues through international cooperation has turned out to bear unprecedented challenges requiring deep transformations of political, economic, and socio-technical systems (Burch et al. 2019). Climate change, biodiversity loss, and desertification, for example, rank not only among the most advanced problems in terms of "leaving a safe operating space for humanity" (Rockström et al. 2009), there are also significant ecological interdependencies and issue-linkages between them. Although there are reasons for the establishment of specialized framework conventions to deal with these problems separately, such as potential inefficiencies and policy blind spots resulting from clustering institutions, concerns about centralization and leadership, or an overall state reluctance to grant authority and resources that might impede sovereignty and welfare,[5] the current design of UN environmental institutions is, however, not adequately set up to deal with these interlinkages. As a result, there remains a risk of conflict due to incompatible

[5] See for example Oberthür (2002) on the benefits and drawbacks for clustering of institutions as well as the debate about the formation of a WEO (e.g., Najam 2003; Oberthür and Gehring 2004; Biermann 2005; Charnovitz 2005; Najam 2005).

governance goals, but also untapped synergetic potentials for implementing solutions that speak to multiple problems.

Treaty Secretariats in Global Environmental Governance

Intergovernmental treaty secretariats are a specific type of international bureaucracy or international public administration (IPA). In the literature, these terms are sometimes conflated with international organizations (IO), and a distinction between them can be fuzzy: Used in different contexts, it can be difficult for defining where IOs end and bureaucracies start (Bauer and Weinlich 2011; see also Fleischer and Reiners 2021). Both entail normative structures and specific legal frameworks under which they operate, and both possess actor qualities - including a physical location and staff members. However, in contrast to international bureaucracies, IOs are generally understood as broader institutional arrangements that combine a normative framework, member states, and a bureaucracy (Biermann and Siebenh ner 2009b). Consequently, throughout this dissertation, the term international bureaucracy will be used to refer to treaty secretariats, whereas the term IO will be used to refer to the organizational structures in which treaty secretariats and other member bodies are embedded.

UN environmental institutions function through treaty secretariats as their administrative bodies. Secretariats are peculiar entities: Set up by national governments, they are endowed with a mandate and provided with financial and personnel resources to facilitate intergovernmental negotiations and administer MEAs. Biermann and Siebenhühner (2009b: 7) have prominently defined these public agencies as groups of "hierarchically organized […] civil servants who are expected to act following the mandate of the organization and the decisions of the assembly of member states". However, different in seize, staff, budget, and field of activity, they fall outside the regulatory control of one single government once they are set up (Wit et al. 2020). Their formal ties to intergovernmental processes make them a public agency. However, their limited mandates exclude them to actively influence or participate in intergovernmental processes. Akin to sub- and non-state actors, they have no official seat at the negotiation table.

Since the creation of the first international institutions at the beginning of the last century, the relevance of international bureaucracies, including treaty secretariats, for world politics has been regarded as rather insignificant. An early wave of research on international bureaucracies argued that the role and function of these actors was limited merely to technical and administrative support of principal nation-states. This view correlates with traditional International Relation

theory, particularly neorealism (Waltz 1979). Historically, this line of thought has been associated with the post-World War II era, during which international relations were conjectured as an international system marked by anarchy and uncertainty, in which power-seeking nation states were the only decisive and legitimate actors. The end of the Cold War marked a paradigm shift and paved the way for institutional and constructivist theory which question the immutable effects of anarchy and the pursuit of power and security as the guiding principle for international politics (Keohane 1984; Wendt 1992). The assumption of state hegemony within International Relations was challenged by a growing interest among scholars in 'new entities,' such as IOs, regimes, and actors beyond national governments.

Compared to related research on international institutions and regimes, scholarship on international bureaucracies and treaty secretariats in International Relations is still relatively small, but evolving. There are two main streams of research on international bureaucracies: A first wave of studies has examined bureaucracies largely through the lens of principal-agent theory, which assumes that states, as principals, create international bureaucracies as agents and entrust them with specifically mandated tasks and functions. These studies have provided answers to questions such as why states delegate certain responsibilities to international bureaucracies (Pollack 1997); how principals retain control over bureaucracies after responsibilities have been delegated (Hawkins et al. 2006b); or what consequences may arise from discrepancies between mandates and performance of international bureaucracies (Nielson and Tierney 2003). Although scholars of this research camp grant some relative autonomy to international bureaucracies, they are still seen as functionaries of states, primarily created to enforce delegated tasks.

A second, subsequent stream of research has dealt with the influence of international bureaucracies beyond principal-agent relationships. Here, researchers have examined international bureaucracies as authoritative actors (Barnett and Finnemore 2004b; Busch and Liese 2017) with some degree of decision-making capacity beyond their narrow mandates (e.g., Betsill and Corell 2001; Bauer 2006; Biermann and Siebenh ner 2009b; Bauer and Ege 2016; Fuhr 2016). In fact, research on international bureaucracies has branched out to various sub-disciplines of Political Science, including, amongst others, perspectives from the congenial study of IOs (e.g., Liese and Weinlich 2006; Biermann and Koops 2017; Koops 2017) and public administration (e.g., Ege and Bauer 2013; Bauer, Knill, and Eckhard 2017). In International Relations specifically, debates revolving around the general significance of international bureaucracies in international politics

have yielded a research agenda exploring *how* they matter (e.g., Barnett and Finnemore 2004a; Johnson 2013; Fleischer and Reiners 2021).

Despite cross-disciplinary differences relating to theoretical, methodological, and analytical approaches, scholars concerned with the study of international bureaucracies have commonly argued that these public agencies have taken on a multitude of important tasks and functions previously under sole authority of nation states. International bureaucracies have emerged as actors in their own right and pursue political agendas that may affect policy-making in many issue areas of global environmental governance (e.g., Bauer 2006; Depledge 2007; Widerberg and van Laerhoven 2014; Jörgens, Kolleck, and Saerbeck 2016). They do this, for instance, through agenda-setting, institution building activities, or shaping state preferences through development and provision of expertise in line with their interest (Wit et al. 2020).

In sum, these studies have significantly broadened our understanding about the influence international bureaucracies have in shaping political outcomes – most often in the context of their immediate organizational environments. To some extent, this research is thus in close conversation with the study of Public Administration, for example regarding the inner workings of bureaucracies or questions of coordination and management in multi-level governance settings (e.g., Benz 1994; Hooghe and Marks 2001; Benz 2004; Jann and Wegrich 2004; Peters 2018). Yet, this thesis adopts a dedicated International Relations perspective with a focus on the agency of international bureaucracies within broader institutional settings, which has only recently attracted wider scholarly attention (e.g., Steffek 2013; Tallberg, Sommerer, and Squatrito 2013; Jinnah 2014; Jörgens et al. 2017; Knill, Eckhard, and Bauer 2017; Littoz-Monne 2017). Thereby, I aim to fill a research gap by exploring the means, mechanisms, and consequences with which international bureaucracies interact with actors beyond national governments to steer or shape institutions within hybrid governance architectures.

Research Aim and Questions

Due to their hybrid nature of featuring both public and non-state characteristics (Bauer and Weinlich 2011), treaty secretariats present a 'gateway' to intergovernmental processes for other non-state actors. They are thus strategically placed at the intersection between intergovernmental and transnational governance, which – in theory – allows them to interact with both state and non-state actors beyond their respective organizational environments. As discussed more thoroughly in Chapter 2, I have limited the empirical scope of the analysis to treaty secretariats and their UN

environmental institutions in three particular policy areas: climate change, biodiversity loss, and desertification. The three issues are addressed under the *United Nations Framework Convention on Climate Change* (UNFCCC), the *Convention on Biological Diversity* (CBD), and the *United Nations Convention to Combat Desertification* (UNCCD). Due to their rapid progression of each of these environmental problems, including the ecological linkages between them, providing integrated, coherent, and effective governance solutions at a global scale is urgently warranted. Within the overall system of UN environmental institutions, the UNFCCC, CBD, and UNCCD represent the largest MEAs considering the total amount of dedicated finance and the number of participants including both national delegations as well as non-state actors.

My overarching research aim is to understand if and how UN treaty secretariats, by coordinating with other actors beyond national governments, can improve institutional responses towards dealing with collective action problems in the area of global environmental governance. Asking about a potential improvement of institutional responses as an outcome of the secretariats' coordination activities bears a normative perspective which connects to the ongoing political and scholarly debate on reform of UN environmental institutions (e.g., Biermann 2005; Ivanova 2012; 2021; Mingst, Karns, and Lyon 2022). As pointed out in the previous section, calls for such reform have encompassed a range of different propositions. This thesis speaks to two particular facets in this debate: (1) the need for better integration of non-state actors and transnational governance initiatives in political processes of the UN and (2) the need for more coherence among specific UN environmental programs that speak to the ecological linkages of transboundary environmental problems. In both instances, I explore how international bureaucracies may address these dilemmas through coordination and outreach activities beyond their organizational boundaries. Considering the overall research aim and the empirical scope of this theses, I pose the following research questions which combine both normative and analytical aspects:

> ***Research question 1:*** *What are the means and mechanisms through which UN treaty secretariats coordinate with non-state actors, and what are the consequences in terms of improving the effectiveness of institutional responses to climate change, biodiversity loss, and desertification?*

This research question focuses on the *horizontal-non-governmental dimension* examining strategies adopted by treaty secretariats to facilitate effective linkages between transnational and

intergovernmental actors and initiatives. Here, I intend to compare different approaches of the UNFCCC, CBD, and UNCCD Secretariats to catalyze action on these issues by coordinating with various non-state actors, including transnational networks, non-governmental organizations, businesses, or civil society. Particular, I intend to identify different means and mechanisms through which such coordination may be achieved. Mechanisms are what link cause and outcome. In this thesis, I follow an holistic understanding of 'mechanisms as systems,' that is, a cause-effect relationship between specified initial causes and specific outcomes that are connected through distinct steps in a sequence of events (Beach and Pedersen 2013). A mechanism can be conceived as a "process in a concrete system, such that it is capable of bringing about or preventing some change in the system or in some of its subsystems" (Bunge 1997). In the context of the research questions posed in this thesis, mechanisms are intended to open a 'black box' revealing a real-world process that may, under certain conditions, causally link secretariat interplay to improved institutional responses.[6]

Research question 2: *What are the means and mechanisms through which UN treaty secretariats coordinate with the secretariats of other UN processes, and what are the consequences in terms of improving the coherence among institutional responses to climate change, biodiversity loss, and desertification?*

The UNFCCC, CBD, and UNCCD respectively address the problems of climate change, biodiversity loss, and desertification. However, due to the independent nature of the three problem areas, there are also areas of institutional overlap and political interdependencies between the three institutions. In other words, the course and development of one institution might impact the development of the others, which holds potential for both conflict and synergies between interacting institutions.[7] This research question thus focuses on a *horizontal-governmental dimension* examining strategies adopted by treaty secretariats to further coherent institutional responses to climate change, biodiversity loss, and desertification. Again, this question also foregrounds the means and mechanisms with which such inter-secretariat coordination may be

[6] See also Chapter 4 detailing the use of mechanisms in process-tracing methodologies.
[7] See also Chapter 3 on institutional interplay.

accomplished and identify the pathways linking secretariat interplay to institutional coherence as an outcome.

Manuscript I will lay some of the relevant theoretical and conceptual groundwork for this dissertation, focusing on the lessons learned thus far in the study of institutional interplay. The article will also provide entry points for future research, some of which will be addressed by the other publications contained in this thesis. *Manuscript II* and *III* will examine the first research question, while *manuscript IV* will tackle the second research question (see also Figure 1; own illustration based on Biermann and Kim (2020)). The four manuscripts together will provide insights to the overarching research aim – which is to understand if and how interactions of treaty secretariats may improve institutional responses to dealing with collective action problems in the area of global environmental governance. Against this backdrop, Chapter 6 will synthesize the research findings and discuss their broader implications within the context of theory and policy. Specifically, it will shed light on the ongoing discourse about institutional reform of UN environmental institutions, aiming to contribute to the wider scholarly and practical dialogue on enhancing global ambition in addressing transboundary environmental problems.

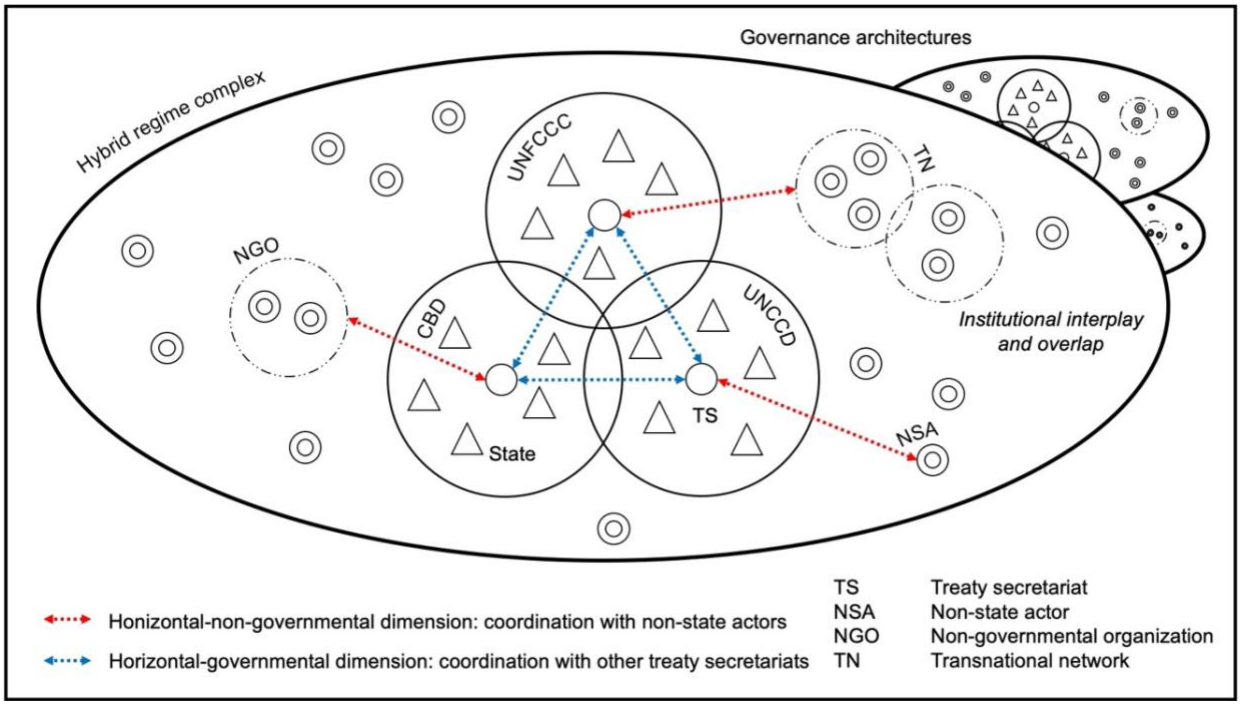

Figure 1. Interactions of UN treaty secretariat in the hybrid regime complex of climate change, biodiversity loss, and desertification.

Overview of the Manuscripts and Author Contributions

The following table provides a brief overview of the manuscripts included in this dissertation, outlining my individual contribution to each (see Table 1).

Table 1. Overview of manuscripts and author contributions

No	Publication[8]	Authors' contributions
I	**Elsässer, Joshua Philipp**; Hickmann, Thomas; Jinnah, Sikina; Oberthür, Sebastian; Van de Graaf, Thijs (2022). Institutional interplay in global environmental governance: lessons learned and future research. *International Environmental Agreements 22*, 373–391; DOI: https://doi.org/10.1007/s10784-022-09569-4	Joshua Philipp Elsässer had the lead on the introduction, conceptualization, data collection, analysis, discussion, and conclusion of the paper. He also had the lead in writing, editing, and revising the manuscript. The co-authors supported revising elements of the manuscript during phases of writing the first draft and in the review process. The co-authors assisted in re-aligning the research focus and provided conceptual and intellectual input for the article.
II	Hickmann, Thomas; **Elsässer, Joshua Philipp** (2020). New alliances in global environmental governance: how intergovernmental treaty secretariats interact with non-state actors to address transboundary environmental problems. *International Environmental Agreements 20*, 459–481; DOI: https://doi.org/10.1007/s10784-020-09493-5	Both authors equally contributed to the design and writing of the paper. Joshua Philipp Elsässer had the lead on data collection and analysis. He also drafted the article's discussion. Thomas Hickmann had the lead on introduction, conceptualization, and conclusions. Both authors equally contributed to revising the manuscript throughout the publication process.
III	Mai, Laura; **Elsässer, Joshua Philipp** (2022). Orchestrating global climate governance through data: The UNFCCC Secretariat and the Global Climate Action Platform. *Global Environmental Politics* 22 (4): 151–172; DOI: https://doi.org/10.1162/glep_a_00667	Both authors equally contributed to the design and writing of the paper. Joshua Philipp Elsässer put more focus on the conceptualization of the article, while Laura Mai led the empirical analysis. The authors jointly compiled the first draft of the manuscript. Both authors equally contributed to revising the manuscript throughout the publication process.
IV	**Elsässer, Joshua Philipp** (under review in *Environmental Policy and Governance*): Managers of complex change? How intergovernmental treaty secretariats jointly govern institutional interplay in global environmental governance	Joshua Philipp Elsässer had sole responsibility for authorship.

[8] Order of authors according to the submitted/published manuscript.

CHAPTER 2. EMPIRICAL SCOPE OF ANALYSIS

This chapter provides a brief overview of the empirical scope of analysis, including an explanation of the case selection rationale. Moreover, the chapter includes some of the thesis' underlying views towards the urgent and complex challenge of addressing transboundary environmental problems.

The Urgency and Complexity of Transboundary Environmental Problems

Transboundary environmental problems pose one of the greatest challenges for the global community in the 21st century. The urgency with which some of these problems need to be tackled is underscored by the concept of planetary boundaries. Rockström and colleagues (2009) have identified nine planetary boundaries, which endanger the stability of our ecosystems and thus the long-term survival of humanity if overstepped (see also Steffen et al. 2015a). Particularly with the problems of climate change, biodiversity loss, or land degradation, these researchers have argued that a 'safe operating space' for humanity that has already been exceeded and we are steering towards an unforeseeable future. Such findings have been repeatedly echoed by international scientific bodies, such as the *Intergovernmental Panel on Climate Change* (IPCCC) or *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (IPBES), which provide guidelines for policymakers through regular assessment reports.

Effectively addressing such transboundary environmental problems individually present wicked challenges for global society (Levin et al. 2009; Hoffmann 2011). However, these tasks are even more complex considering the ecological interdependencies between global environmental problems. For example, climate change accelerates the extinction of species or contributes to land degradation, leading to significant crop losses in different regions of the world (WBGU 2001). Recent scientific reports have increasingly pointed to the importance of addressing transboundary environmental problems in conjunction. Both the IPCCC and IPBES, for example, have highlighted that neither climate change nor biodiversity will be successfully resolved unless both are tackled together (IPBES 2019; IPCC 2022). These findings were echoed by working group 2 of the IPCCC, which provided evidence of the critical role climate change plays in exacerbating biodiversity loss and pointed towards integrated solutions, such as carbon sinks (IPCC 2017a). Working Group 3 of the IPCCC emphasized the importance of reducing emissions in the agriculture, forest, and land-use sector. They highlighted the potential benefits of employing nature-based solutions to enhance the effectiveness of mitigation and adaptation measures by

harnessing the co-benefits of integrated approaches to environmental protection (IPCC 2017b). In summary, there is ample scientific evidence indicating the severity and complexity of transboundary environmental problems, particularly regarding their ecological interdependecies.

Case Selection Rationale

The environment can be considered a global common good and its transboundary nature makes environmental protection an issue of collective action. As such, transboundary environmental problems are also a subject of international politics. Since the UN World Conference in Stockholm and the founding of UNEP in 1972, the UN has played a prominent role in global environmental cooperation. Within the UN system of institutions, there is a large number of entities that work on environmental issues, such as the *United Nations Development Programme* (UNDP), the *Food and Agriculture Organization* (FAO), the *World Health Organization* (WHO), the *United Nations Educational, Scientific and Cultural Organization* (UNESCO), or the World Bank. In fact, the International Environmental Agreements Database Project lists 282 MEAs associated with the UN (Mitchell 2023).[9] This larger population of UN entities includes framework conventions and related amendments, protocols, programs, or other specific declarations. As some of these institutions are not primarily geared towards addressing environmental problems as their primary target, there are also dedicated framework conventions and IOs that specifically deal with certain environmental problems. Beyond UNEP as an umbrella program for the environment, these include the UNFCCC, CBD, UNCCD, the *Ramsar Convention*, the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES), the *Minamata Convention on Mercury*, and others. Mingst and colleagues (2022) list a total 18 major UN environmental institutions, all of which are administered by respective treaty secretariats (*universe of cases*).

This thesis deals with the UNFCCC, CBD, and UNCCD Secretariats as cases, all of which belong to dedicated UN framework conventions that aim to solve specified environmental problems (*scope conditions*). The rationale for selecting the three agencies under scrutiny particularly pertain to the nature, timing, and embeddedness of the bureaucracies and their relating framework convention, the agencies' delegated powers, and extent of research and available

[9] The database currently identifies over 3.000 multilateral and bilateral agreements on environmental issues (see also Mitchell et al. 2020).

information about them.[10] As presented above, the severity of climate change, biodiversity loss, and desertification, including their ecological interdependencies, highlight the timeliness and political relevance of examining them in detail. At the infamous *Earth Summit*[11] in Rio de Janeiro in 1992, three independent framework conventions were adopted: the UNFCCC, CBD, and UNCCD. Due to their common genesis, they are commonly referred to as the three Rio Conventions. With near universal membership, the Rio Conventions are amongst the largest MEAs at a global level.

Besides sharing a common date and place of birth,[12] there are some fundamental commonalities in the institutional design features that allow for cross-case comparison between the three Rio Conventions, including the respective Secretariats. Like many other MEAs under the UN, the Rio Conventions all share similar design characteristics, which can be largely attributed to the ozone case and the *Vienna Convention for the Protection of the Ozone Layer* (1985) and its *Montreal Protocol* (1987). Historically, international cooperation on ozone depletion has been widely recognized as a success for international cooperation on environmental problems (Breitmeier 2009). As a consequence, the ozone case has served as a blueprint for subsequent negotiations on other environmental issues, which have resulted in similar design features for the creation of highly specialized institutional frameworks under the UN.[13] This also applies to the functions and mandates of the Secretariats in focus, which are tasked to further develop the international treaty and support its implementation as specified under the goals of the conventions, mainly through offering administrative services to member states. Importantly, the initial delegation of powers in terms of autonomy and authority of these secretariats belonging to 'second generation institutions' has been relatively weak compared to secretariat mandates of those institutions that have been established during phases of institutional growth between the 1970s and 1990s (Zürn 2018a; Zürn, Tokhi, and Binder 2021).

[10] Chapter 4 more thoroughly expands on the overall research design, methods, and data. This also includes an elaboration of the types and selection of cases for the individual case studies encompassed in this thesis.

[11] Officially known as the *United Nations Conference on Environment and Development* (UNCED).

[12] All three conventions were negotiated at the Earth Summit in 1992 and the UNFCCC and CBD were open for ratification the same year. The UNCCD followed in 1994 (Grubb et al. 1993).

[13] There are many other factors, of course, that have determined institutional design, such as the number of concerned states and their varying vulnerability and sensitivity to environmental problems (Koremenos, Lipson, and Snidal 2001).

Table 2. Overview of the three Secretariats of the Rio Conventions

	UNFCCC Secretariat	CBD Secretariat	UNCCD Secretariat
Number of staff[14]	approx. 450	approx. 110	approx. 50
Annual budget[15]	30.98[16]	18.44[17]	8.22[18]
Location	Bonn, Germany	Montreal, Canada	Bonn, Germany
Parent organization	UN	UNEP	UN
Year of secretariat foundation	1996	1993	1998
Number of Parties	199	196	197
Year opened for ratification	1992	1992	1994
Year entered into force	1994	1993	1996

The cases were also selected in this thesis on the grounds of the large body of existing knowledge on UN specialized agencies. The UNFCCC Secretariat has been most studied in comparison to the other two, which is indicative of some of the differences between the three Secretariats. For example, they vary in their overall seize in terms of annual budgets and number of employed staff members. Despite similarities in the institutional design characteristics of the three Rio Conventions, the different problem structure of dealing with climate change, biodiversity loss, and desertification direct some procedural and technical variations across the three agencies (e.g., relating to the number and nature of different agenda items negotiated under each convention). Lastly, the Secretariats differ in terms of their embeddedness within the larger institutional context and organizational structure. For example, the CBD is formally operating under UNEP as a host institution, whereas the UNFCCC and UNCCD are considered as independent conventions under UN auspice (see Table 2).

[14] All information sourced from secretariat websites or expert interviews with secretariat staff.

[15] In Mio US Dollars. Comprises core and supplementary budgets.
[16] Annual budget for 2023 (Source: UNFCCC 2022b).
[17] Annual budget for 2022 (Source: CBD 2021a).
[18] Annual budget for 2023 (Source: UNCCD 2022a).

CHAPTER 3. CONCEPTUAL AND THEORETICAL FRAMEWORK

This chapter outlines the relevant theory and concepts utilized in this dissertation. First, a concise overview of the literature pertinent to the overall research aim and questions will be presented. This encompasses the concept of global (environmental) governance - including international institutions, regimes, and architectures - as a structural component and conditioning framework for this thesis. Second, I will elaborate on several important theoretical perspectives for studying the interactions of and among actors within global environmental governance. I thereby draw on the study of institutional interplay, particularly interplay management, and orchestration theory as policy interventions aimed at inducing institutional reform. These perspectives are primarily based on a literature review included in this dissertation (*manuscript I*), which synthesizes previous contributions and identifies knowledge gaps in the study of institutional interplay. Finally, I will also explicate my understanding of institutional effectiveness and coherence as two evaluative themes for analyzing potential improvements of institutional responses to transboundary environmental problems.

Global (Environmental) Governance: International Institutions, Regimes, and Architectures

A key concept underpinning this work is the notion of global governance, which has gained significant attention in academic and policy debates since the late 1980s. The end of the Cold War prompted a shift in International Relations theory, as new perspectives emerged to challenge traditional realist assumptions that prioritized state power and security as the sole determinants of international politics, as discussed in the previous chapter (Waltz 1959; Waltz 1979). The concept of global governance, as first articulated by Rosenau (1992; 1997), does not adopt a preconceived hierarchy of politics and types of actors. The term 'global,' as opposed to 'inter-*national*,' reinforces the assumption that governance is not confined to national boundaries (Dingwerth and Pattberg 2006a: 188). Instead, a nuanced understanding of global governance recognizes the importance of a diverse set of actors next to national governments, including, for example, non-state organizations, transnational networks, or civil society groups (Messner and Nuscheler 2003: 6-8). Global governance can thus be summarized as "all coexisting forms of collective steering of social affairs, by public and private actors, that directly or in their repercussions, transcend national

frontiers" (Zelli 2018). Research on global governance aims to understand the interrelationships of such actors and groups of actors across different scales of politics and examines how specific governance approaches correspond with one another across local, national, regional, and global levels. There are two main strands of research on global governance which correlate to an empirical-analytic and a normative perspective. In a nutshell, the former is concerned with mapping or explaining such interrelationships, while the latter views global governance as a political program,[19] posing practice-oriented questions, such as how to effectively solve global problems while considering the interests and capacities of various sub-state entities against the background of a decentralized international system (Dingwerth and Pattberg 2006b: 382).

International institutions, both intergovernmental or transnational, are major building blocks of global environmental governance. They are the 'rules of a game' for a particular issue area and can be understood as "relatively stable sets of related constitutive, regulative, and procedural norms and rules that pertain to the international system, the actors in the system (including states as well as non-state entities), and their activities" (Duffield 2007). Similarly, Keohane's (1989) commonly cited definition adds that institutions "prescribe behavioral roles, constrain activity, and shape expectations" among actors (however, leaving out non-state actors). Institutions can be both formalized 'negotiated orders' set up by governments or other actors to influence behavior and policy outcomes, or informal 'spontaneous orders' that emerge from practice and interaction (Young 1982). International Relations literature has predominately focused on negotiated institutions as an object of study, as they are created consciously to induce certain outcomes and bring about change. Stokke and Oberthür (2011: 2) discern two necessary components for negotiated international institutions: First, they stipulate rules and obligations that promote desirable behavior which may impact the behavior of those they address and the particular issue at hand. Second, negotiated institutions establish procedures for decision-making, implementation, or changes to substantive provisions. Such procedural components play a crucial role for the ability of negotiated institutions to adapt and respond, which makes them different from spontaneous institutions (see also Young 1999).

International regimes and IOs can be considered specific types of formal international institutions. Huntington (1973: 333) defines an IO as a "relatively large, hierarchically organized,

[19] This normative understanding of global governance dates back to the Our Common Neighborhood report by the UN Commission on Global Governance (1995).

centrally directed bureaucracy [which] performs a set of relatively limited, specialized, and […] technical functions […] across one or more international boundaries" that – similar to regimes - govern specific issue areas. However, they differ from regimes in that IOs have 'actor qualities,' i.e., they typically have a physical location, a staff of employees, and usually a legal personality (Young 1986: 110). International regimes, in turn, are "implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations" (Krasner 1982: 2). The climate regime, for instance, not only consist of the UNFCCC as its institutional core, it is embedded in a larger complex featuring multilateral fora on energy and climate, other environmental institutions and organizations (such as the CBD or UNCCD), and international non-environmental institutions and organizations (Biermann et al. 2009; Zelli 2011). Zooming out, an even broader perspective across multiple levels of governance and the overarching system of public and private institutions, including "principles, norms, regulations, decision-making procedures and organizations that are valid or active" has been commonly referred to as the governance architectures of a particular area in global (environmental) governance (Biermann, Pattberg, and Zelli 2010: 15).

Against the background of a growing number of active institutions and actors populating regimes in global environmental governance, such a bird's-eye view has initiated a research agenda concerned with the fragmentation of governance architectures that encompass multiple policy domains (Bernstein and Ivanova 2007; Oberthür and Stokke 2011a; Van de Graaf 2013; Zelli and van Asselt 2013; Asselt 2014; Gupta, Pistorius, and Vijge 2016). Fragmentation, a main driver of institutional complexity, is impelled by the proliferation of public and private institutions in a particular policy area, which can result in overlapping mandates and jurisdictions that may impact the effectiveness of institutional responses. Adding to the example above, climate change is no longer solely governed by the UNFCCC, but also addressed by the WTO, the UN Security Council, the International Civil Aviation Organization (ICAO), and the International Maritime Organization (IMO) – all of which were not originally intended to address climate change (Keohane and Victor 2011; van Asselt and Zelli 2014).

Over the past decades, a rich literature has developed exploring questions pertaining to the relationships between different regimes, which have been studied as regime complexes, that is, an "array of partially overlapping and non-hierarchical institutions governing a particular issue area" (Raustiala and Victor 2004: 279). These studies have furthered our understanding, amongst others, about the potentially positive and negative effects of such regulatory clusters towards the

coherence, integration, or effectiveness of regimes (Gehring 2011; Hackmann 2012; Kuyper 2013; Orsini, Morin, and Young 2013; Morin and Orsini 2014; Green and Auld 2016). Within the field of International Relations, it is this particular line of research has most notably addressed questions related to institutional reform by exploring various approaches to centralize or decentralize regime complexes and cluster MEAs as means to enhance the overall effectiveness of institutional responses to transboundary environmental problems (e.g., Oberthür 2002; Biermann and Bauer 2005; Najam 2005; Ivanova 2021).

Scholarship on regime complexes is still ongoing. In its most recent iteration, research inquiries have aimed to make sense of the diversity of institutions and actors in global environmental governance today, spanning interstate-processes and intergovernmental organizations, transitional initiatives and networks, public-private partnerships, or actors from business and civil society (e.g., Andonova 2017a; Gordon 2020; Vabulas and Snidal 2020). To capture the growing importance and recognition of transnational governance vis-à-vis inter-state relations, new concepts have emerged, such as hybrid multilateralism (Bäckstrand et al. 2017), or hybrid regime complexes (Abbott and Faude 2021). Such hybrid setting has rejuvenated the debate about whether regime complexity and fragmentation ultimately poses benefits or disadvantages to effectively combating transboundary environmental problems. Despite extensive mapping exercises of existing regime complexes (e.g., Dias Guerra et al. 2015; Widerberg 2016), we still need to better understand the interactions between 'traditional', intergovernmental institutions and 'new', hybrid institutions, including transnational governance initiatives. This pertains particularly to questions of agency and the ways actors are able to navigate such 'new' institutions to shape politics and political outcomes.

Institutional Interplay and Management

Institutional interplay broadly refers to situations in which the performance and/or development of one institution is affected by another institution (Oberthür and Stokke 2011a). The study of institutional interplay has been historically linked to inquiries into the development and effectiveness of *individual* institutions. In global environmental governance, scholars have considered the universe of institutions, ranging from broad framework arrangements (e.g., Young 1989: 13), to substantively and/or geographically limited regimes (e.g., Krasner 1982), to specialized cooperative international and transnational institutions (e.g., Barnett and Finnemore 1999). However, institutional interplay renders propositions about inter-institutional relationships

and its consequences *across* issue areas and governance domains. For the past decades, global environmental governance – being one of the most dynamic areas of institutional growth in world politics - has served as fertile ground for exploring different kinds and effects of interactions between both intergovernmental and transnational institutions (Biermann, Siebenhüner, and Schreyögg 2009). Within this body of interdisciplinary scholarship, institutional interplay has been examined through the lens of international environmental law, public policy, international political economy, international security studies, IOs, IPAs, and complexity theory in social sciences.[20] For inquiries into institutional interplay, a general distinction can be drawn between systemic and actor-centered research approaches (Oberthür and Gehring 2011). Both approaches involve institutions and/or actors as units of analysis, linking dependent and independent variables for different research inquiries (Oberthür and Stokke 2011a: 42-46; Oberthür and Van de Graaf 2020).

First, systemic approaches focus on the interactions *among* institutions. For systemic research strategies, the activities of actors play a subordinate role. Systemic approaches can also focus on different kinds of interaction settings beyond dyadic relationships between institutions. Such inquiries can range from sets of three or more institutions (e.g., with a focus on regime complexes) to even broader institutional settings within a given policy area (e.g., with a focus on governance architectures) (see also Raustiala and Victor 2004; Biermann et al. 2009). The complex interplay between the WTO and various MEAs concerning trade restrictions, for example, may only be understood when considering a range of different cases exhibiting distinct mechanisms through which these institutions influence each other (Palmer, Chaytor, and Werksman 2006). Research into such interactions and linkages between institutions has provided valuable insights for a more comprehensive understanding of the patterns and functioning of governance systems. In this regard, the study of institutional interplay also serves as a starting point for exploring questions of institutional complexity and fragmentation, with scholars asking questions about the effects of institutional interplay on governance architectures (e.g. Alter and Meunier 2009b), or consequences of fragmentation beyond a normative comparison between polycentric governance systems and centralized institutional settings (Biermann et al. 2009; Zelli and van Asselt 2013).

Second, actor-centered approaches focus on the interactions *between* institutions *and* actors. Scholars with an actor-centered approach are interested in the way actors affect (or are

[20] See also Zelli, Gerrits, and Möller (2020) or Hollway (2020) on complexity in regimes or other, more loosely coupled governance networks.

affected by) the interplay between institutions, placing actors as either the dependent or independent variable. This includes, for example, studying the phenomenon of 'forum shopping,' whereby actors seek to realize their preferred policy objectives in a given policy arena by exploiting the interplay between institutions (Kellow 2012; Murphy and Kellow 2013), or interplay management (also 'overlap management'), wherein actors seek to influence the policy outcomes of overlapping institutions (Jinnah 2014; Zelli et al. 2020). Similar to systemic research strategies, actor-centered approaches may also seek to investigate more complex interactions by asking about the means and potential effects of interactions between actors and institutions that spread influence beyond dyadic relations within a given governance system (Oberthür and Gehring 2011: 45-46).

By investigating the role of treaty secretariats for improving institutional responses through coordination and outreach with actors beyond national governments, this thesis contributes to such actor-centered research on institutional interplay. In so doing, I draw on aforementioned research on interplay management – an area of study that has received relatively little scholarly attention. Within this domain, scholars have begun to unpack the conditions and factors that shape actors' ability to exert influence through interplay management. A notable example is the work of Jinnah (2014), who demonstrates that secretariats are particularly adept in managing overlapping institutions, especially when state preferences are weak and/or secretariat expertise enjoys low substitutability. Generally, interplay management refers to agent-based control over inter-institutional relationships or, more precisely, "any deliberate efforts to improve the interaction of two or more institutions that are distinct in terms of membership and decision-making but deal with the same issue, usually in a non-hierarchical manner" (Stokke 2020: 208). Oberthür (2009) first introduced the concept of interplay management and differentiated between four levels based on the extent of communication and coordination of actors involved: (1) overarching institutional frameworks (e.g. clustering MEAs), (2) joint interplay management (the creation of horizontal structures between sectoral regimes), (3) unilateral management by individual institutions (independent collective action and decision-making within one or more of the interacting institutions), and (4) autonomous management (individual decisions taken by governments, civil society organizations, or businesses at national and regional levels with ramifications for international institutions).

This thesis builds specifically on the concept of joint interplay management for investigating how multiple treaty secretariats, by coordinating with each other, can improve coherence across their respective institutions (*research question 2*). Joint interplay management

investigates the consequences of joint interventions as a policy response to jurisdictional overlap to harness synergies among interacting institutions (Oberthür 2009). Studying situations of joint interplay management, and interplay management generally, always bears a normative component when asking about 'improving institutional interplay' as an outcome of such management activities. Scholars have frequently centered on 'coherence' as a particularly desirable state of institutional interplay, which may pertain to the elemental institutions or to a larger governance architecture (e.g., Gehring and Faude 2013; Morin and Orsini 2014). Besides an in-depth empirical illumination of secretariat-led joint interplay management efforts, this thesis aims to further our understanding about the mechanisms that link joint interplay management with improved inter-institutional relationships as a consequence of such interventions.

Orchestration

Actors in global environmental governance frequently face a dilemma situation: They have ambitious goals, but cannot enforce their interest due to limited governance capabilities. This is especially true for international bureaucracies, or intergovernmental treaty secretariats, who lack power to delegate in view of restricted mandates and resources. Their primary task is to serve designated functions by state principals, such as providing technical services, the organizing and facilitating major conferences, and coordinating with relevant party and non-party stakeholders. Yet, as pointed out in the introductory section, International Relations scholars have attested to a growing authority and autonomy of international bureaucracies in recent years, arguing that these actors have become increasingly important for many issue areas within global (environmental) politics (e.g., Bauer 2006; Depledge 2007; Jinnah 2014; Widerberg and van Laerhoven 2014; Jörgens, Kolleck, and Saerbeck 2016).

This thesis aims to investigate the strategies employed by treaty secretariats to address these challenges by coordinating with non-state actors. By doing so, they aim to overcome financial limitations, elude state oversight, and - to a certain extent - influence state behavior in order to enhance the effectiveness of institutional responses to pressing transboundary environmental problems such as climate change, biodiversity loss, and desertification (*research question 1*). I here turn to orchestration theory as a prominent approach to capture the way in which treaty secretariats may achieve their interests. According to Stokke (2020: 211), orchestration can be seen as a particular variant of interplay management, which describes an alternative, indirect mode of governance compared to more hierarchical rule. Abbott and Snidal (2009) first conceptualized

orchestration on the premise that traditional state-centric governance systems have yielded a multi-actor, polycentric structure over the past decades, with a surging number of sub-national and non-state actors setting new norms and rules vis-à-vis intergovernmental institutions. Arguably, this shift away from 'Old Governance' (Abbott and Snidal 2009: 564) has led to a diversification of political authority away from national governments and for the benefit of sub- and non-state actors (Biermann et al. 2009; Ostrom 2010; Keohane and Victor 2011; Green 2014; Abbott, Green, and Keohane 2016; Hickmann 2017).

Orchestration as a concept has mainly evolved from research in the area of global governance, IPA, and transnationalism. Aiming to develop a universal theory of governance, Abbott and Snidal propose a concept spanning both across political units and scales of governance. In contrast to principal-agent approaches, orchestration basically describes an interaction setting in which an orchestrator, such as an IO, engages with intermediary actors to impact target actors in pursuit of reaching its own governance goals. More specifically, since the orchestrator has restricted governance capabilities (i.e., limited financial or ideational resources) and thus cannot reach its target on its own, she seeks to mobilize a second party on a voluntary basis (an intermediary or intermediary group) with compatible governance goals and appropriate capabilities to govern a third party (a target or target group). Ways in which an orchestrator can influence an intermediary include, amongst others, technical assistance, endorsement, or coordination. It is through the intermediaries that orchestrators can *manage* or *bypass* their targets, thus, in theory, omitting "time-consuming, high-level political approval" to reach their governance goals (Abbott and Snidal 2009: 564).

Figure 2. The O-I-T model

Abbott and colleagues have conjectured four distinct modes of governance in order to distinguish orchestration from alternative modes of governance (see Table 3; adopted from Abbott et al. (2015b: 9)). Unlike hierarchy or collaboration, an orchestrater-intermediary-target setting (see Figure 2; adopted from Abbott et al. (2015b: 4)) is an indirect mode of governance. Similar principal-agent theory, it follows the logic that in order to govern a target by proxy, a governor

turns to a third-party actor (or a group of third-party actors). However, unlike a principal-agent relationship, with orchestration, governing a target by proxy does not rely on delegation, that is, "a conditional grant of authority from principal to agent that empowers the latter to act on behalf of the former" (Hawkins et al. 2006b: 7). Rather, due to the inherent capability deficits of the governor over her targets, the orchestrator is dependent on intermediaries that are intrinsically motivated and have some capabilities to reach compatible targets to those of the orchestrator. In contrast to hierarchy and delegation, orchestration is also a soft mode of governance because it relies on inducements, nudging, and voluntary support, as the orchestrator lacks hard control over the intermediary (Abbott et al. 2015a: 723). Moreover, it differs from other modes of soft governance (e.g., collaboration). Governors (IOs, or international bureaucracies) often rely on orchestration instead of collaboration due to the asymmetrical distribution of capabilities as well as the (in)ability to directly access targets in the private or domestic sphere - an area which is often constrained by state control (Abbott et al. 2015b: 11).

Table 3. Four modes of governance

	Direct	**Indirect**
Hard	Hierarchy	Delegation
Soft	Collaboration	Orchestration

Institutional Effectiveness and Coherence

There are a number of possible measures to consider for research concerned with queries related to strengthening global environmental governance. Scholars have employed various criteria to analyze, measure, and evaluate different aspects of an institution's performance. These assessments aim to identify potential drivers and consequences, particularly in relation to addressing issues such as overlap, duplication, or inefficiencies. Amongst others, these range from goal attainment, integration, or compliance with regards to the implementation of rules, an institution's accountability, comprehensiveness, coherence, efficiency, legitimacy, or effectiveness (e.g., Young 1999; Helm and Sprinz 2000; Hooghe and Marks 2001; Stokke 2001; Underdal 2004; Held and Koenig-Archibugi 2005; Steffek 2007; Chambers 2008; Mitchell 2008; Kramarz and Park

2016; Zelli et al. 2020). While many of these criteria are interrelated,[21] they nonetheless speak to specific aspects of environmental policy-making.

In this thesis, institutional effectiveness and coherence are of particular importance as evaluative themes for assessing potential improvements of institutional responses as a result of secretariat interplay. Similar to the canopy of criteria for evaluating aspects of performance, there are different notions and conceptualizations for effectiveness and coherence. My understanding of these terms is largely derived from the literature on international regimes (see preceding sections). Following Underdal (1992) or Sprinz and Helm (1999), effectiveness essentially looks at whether regimes have been *successful* at developing and implementing cooperative solutions towards solving the problem they were established to solve in the first place. Simply put, the degree to which regimes are effective depends on the fulfillment of their purpose. To more systematically approach the concept of effectiveness, Underdal (1992; 2004) went on to differentiate between three levels - output, outcome, and impact - which has been applied not only for *systemic* research on regimes or the interactions between international institutions (e.g., Oberthür and Gehring 2006a; Gehring and Oberthür 2009), but also more *actor-focused* research, such as inquiries into bureaucratic influence or IO performance (e.g., Biermann and Siebenh ner 2009b; Tallberg et al. 2016).

Drawing on the latter, (1) *output* refers to the actual activity of an actor or group of actors (e.g., in terms of productivity and enactment of rules, policies, or programs), which may lead to an observable change in the behavior (e.g., policy implementation) of targeted societal actors as an (2) *outcome* of such activity. An understanding of effectiveness that combines both output and outcome dimensions and takes into account the entire policy process, including policy adoption and implementation, is often referred to as 'goal attainment.' (3) *Impact*, in turn, refers to problem-solving effectiveness, that is, an observable change in the overarching governance target that can be causally linked to an outcome (e.g., a quantifiable impact on the problem itself). With regards to a potential improvement of the effectiveness of institutional responses to climate change, biodiversity loss, and desertification, I focus particularly on the output and outcome dimensions. An effective outcome is one that not only achieves its intended objectives in terms of behavioral change, but also considers whether an output achieves such outcome in accordance with the

[21] Scholarship on institutional complexity has put efforts in exposing the linkages and differences between these criteria. For example, the 'double e/double c approach' (Roch and Perrez 2005), or distinguishing different criteria according to the level of analysis (i.e., micro, meso, macro level) (Zelli et al. 2020).

strategy planned at the outset. While studies have frequently looked at behavioral change for determining effectiveness only (e.g., Biermann and Siebenh ner 2009b), I argue that both dimensions, output and outcome, need to be considered to not only understand *if* an activity has become effective in an ex-post analysis, but also understanding the process of *how* it becomes effective. For one, output is a necessary condition for behavioral change. Data for output indicators is relatively easy to generate and has the advantage of allowing the comparison of different activities between or across the actors that perform them. Tallberg and colleagues (2016) further argue that inferring causality for pathways linking output to outcome is less complex than doing the same for outcome to impact, which could be influenced by a wide array of external factors that need to be controlled when making causal claims.

Akin to effectiveness, coherence has served as an evaluative indicator for institutional performance. In the regime literature, the term commonly refers to a harmonious alignment of institutions in which complementary and synergistic capacities can be utilized to achieve compatible policy objectives (e.g., Morin and Orsini 2014; Zelli et al. 2020). Coherence is not necessarily a final state, but rather a matter of degree (there can be more or less coherence), it has a relational aspect (coherence can only be assessed across two or more connected decision-making systems), and a normative connotation (coherence is about synergy) (Gebhard 2017). Thus, coherence has played a prominent role in the study of institutional interplay and it can be assessed along the same dimensions as effectiveness (output, outcome, and impact). As institutions are created for addressing distinct targets, coherence would be achieved if institutions, including their technical or procedural components, are mutually reinforcing in terms of decision-making, planning, and implementation, thus leading to synergistic institutional relationships (see also Biermann et al. 2009). In this context, coherence can be understood as a form of effectiveness if it reduces transaction costs from duplication or resolves coordination gaps in situations of institutional interplay. Coherence among institutions at the international level (also coined horizontal coherence) can be distinguished from forms of coherence at (or across) other levels of governance, including national or sub-national levels. For example, the notion of coherence utilized in this thesis differs from widespread use of 'policy coherence' to refer to strategic and policy-related implications which frequently involve national governments and concern issues of compliance, solidarity, reconcilability of single policies, or the integration of bottom-up commitments (also coined vertical coherence) (Gebhard 2017).

As a particularly desirable outcome for institutional interplay, coherence is frequently associated to the conscious efforts of actors to improve institutional relationships though interplay management (see also preceding sections). Coherence can be disaggregated to specific governance tasks for those actors in pursuit of furthering coherence, which includes cognitive and regulatory components as well as behavioral adaptations (e.g., Stokke 2012). In a nutshell, cognitive coherence describes a state in which scientific assessment and knowledge on issues that concern the policy domains of several institutions are equally recognized as credible and legitimate (*output*). Based on this shared understanding, regulatory coherence translates to compatible or supportive rules adopted under separate institutions, which may induce behavioral adaptations for providing solutions to the issues at hand. Such adaptations may be observable if separate institutions provide necessary resources (e.g., finance, staffing, or technology) to promote a desired outcome, or adapt measures to counter non-compliance (*outcome*) (Stokke 2020: 210-211).

CHAPTER 4. RESEARCH DESIGN, METHODS, AND DATA

This chapter presents an overview of the overarching research design, including different methods used and data collected to conduct analysis throughout the different articles. The methodological approaches are closely linked to the relevant theoretical entry points laid out in the previous chapter. Table 4 provides an overview of the overall research design.

Research Design

The overarching research objective of this thesis is to understand if and how international bureaucracies, by reaching out and coordinating with other actors beyond national governments, can induce improvements of institutional responses towards dealing collective action problems. In terms of designing the research project, I set out to conduct small-n qualitative case study research and limited the empirical scope for the empirical analysis on UN environmental institutions and their treaty secretariats with particular focus on the issue areas of climate change, biodiversity loss, and desertification. With an x-centered research design, I aim to make correlative and/or causal inferences explaining if and how (or under what conditions) changes in the value of the independent variable (i.e., interactions of treaty secretariats with actors beyond national governments) cause changes in the value of the dependent variable (i.e., improvement of institutional responses in terms of coherence and effectiveness) (Geschwend and Schimmelfennig 2007; Panke 2018). I selected comparative analysis as well as process tracing methods for the within-case analysis of the different case studies. Choices made for the overall research design will be further explained throughout this chapter, beginning with general ontological and epistemological positions.

At a metatheoretical level, this research connects to an older, dichotomous debate about the relationship between agency versus structure in International Relations (e.g., Wendt 1987), explaining social behavior in terms of the relation between actors, or agents, and societal structures. With a focus on international bureaucracies, I prioritize a perspective on agency, understood as the transformative capacity of actors[22] to reproduce or transform the social world by purposefully choosing different courses of action (Cohen 1989). However, by recognizing that agency and

[22] All actors within the international system generally have the capacity for agency (both state and non-state), yet forms of agency may vary due to the different structures through which they are shaped, including variations in knowledge and access to resources that actors have (O'Neill, Balsiger, and VanDeveer 2004).

structure are inherently linked, this research follows a 'new institutionalist' paradigm which views institutions beyond an aggregation of individual preferences. Essentially, new institutionalism is concerned with the *interaction* between institutions and individuals as opposed more 'traditional' institutional approaches in political science, which have viewed institutions as an embodiment of 'good governance' or unidirectional structures that determine political behavior (Rhodes 1995; Peters 1998; 2019). New institutionalists are guided by a "set of theoretical ideas and hypotheses concerning the relations between institutional characteristics and political agency, performance, and change" (March and Olsen 1984; 2006), investigating, for example, questions of values and power relationships within institutions, or better understanding obstacles and opportunities confronting institutional design characteristics.

Varying research perspectives among new institutionalists have led to the development of different camps of scholarship. Most prominently, these are rational choice, historical, normative, and sociological institutionalism, which all foreground different ontological and epistemological assumptions as well as theoretical and methodological choices (e.g., Meyer and Rowan 1977; March and Olsen 1984; Hall and Taylor 1996; Schofer et al. 2012). My underlying research approach in this thesis rests on the premise that institutions may influence social behavior by "providing a structure for situations" in which individuals select strategies to pursue their preferences (Lowndes 2018: 58). Put differently, (international) institutions are human constructions designed to solve collective action problems and thus prescribe a set of guidelines predicting the likeliness of actors' future behavior, including (dis-)incentives for different courses of action. This general approach may best fit with rational choice institutionalists.

However, as propagated by Hall and Taylor (1996: 955), the different strands of institutionalism should not be understood as siloed paradigms, but researchers can take advantage of the plurality of approaches to adopt positions pertaining to the questions they want to pursue. For example, asking about the role treaty secretariats play through their outreach and coordination activities with myriad actors across institutional contexts rests on the assumption that regularized, and often informal interactions between individuals or groups may shape the political behavior of institutions and those acting within them – this line of thought is closely connected to the camp of sociological and network institutionalists, as outlined by March (1994) or Marsh and Rhodes (1992). Such outreach and coordination activities within institutional contexts also entail questions of inclusion and exclusion of different actors and the means with which this is achieved. Thus, issues of institutional design, reform, and evolution are prescribed and shaped by values and power

relationships – questions commonly addressed by normative institutionalists (e.g., Pierre 1999: 390). Against this background, this thesis follows a 'pragmatic' ontological approach towards new institutionalism that may speak to different camps of new institutionalist scholarship.

Despite disciplinary variations, new institutionalists share a variety of conjectures: (1) institutions do not have to be organizations – they are seen as sets of rules that guide or constrain the behavior of actors; (2) institutions can entail both informal conventions as well as formal rules; (3) institutions are both dynamic and stabilizing, that is, "stable, valued and recurring patterns of behavior" (Huntington 1968: 12) which may persist as long as they serve the interests of those participating; (4) institutions embody values and power which shape societies; and (5) institutions are not independent entities – they are always emended within wider institutional contexts across levels and scales of governance, including linkages with neighboring institutions (Lowndes 2018: 54-64). Methods within the toolbox of new institutionalists are diverse and determined by the specific inquiry. They range over mathematic modelling, game theory, experimental methods, ethnography, narrative analysis, case study research, or process tracing (Lowndes 2018: 68).

Table 4. Research design

Research design	
General ontological/epistemological position	International institutions are human constructions designed to solve collective action problems; they are shaped through interactions between individuals or groups and prescribe a set of guidelines predicting the likeliness of actors' future behavior; they reflect values and power relationships with consequences for institutional design and the inclusion and exclusion of actors
Overall research aim	Can UN treaty secretariats, by coordinating with other actors beyond national governments, improve institutional responses towards dealing with collective action problems in global environmental governance and if so how?
Research questions	***Q 1.*** *What are the means and mechanisms through which UN treaty secretariats coordinate with non-state actors, and what are the consequences in terms of improving the effectiveness of institutional responses to climate change, biodiversity loss, and desertification?* ⇨ *(horizontal-non-governmental dimension)*
	Q 2. *What are the means and mechanisms through which UN treaty secretariats coordinate with the secretariats of other UN processes, and what are the consequences in terms of improving the coherence among institutional responses to climate change, biodiversity loss, and desertification?* ⇨ *(horizontal-governmental dimension)*

Manuscript	Question	Case description	Type of case	Theoretical/conceptual approach	Method	Data
I	*What are lessons learned in the study of institutional interplay and what are remaining research gaps for further advancing this line of inquiry?*	-	-	Institutional interplay	Literature review	Primary: Publications with *International Environmental Agreements* Secondary: IR literature on institutional interplay
II	*How and with what effects do the UNFCCC, CBD, and UNCCD Secretariats coordinate with non-state actors to orchestrate for more effective institutional responses action on climate change, biodiversity loss, and desertification?* ⇨ Relating to ***Q1***	Participation of UNFCC, CBD, and UNCCD Secretariats in reaching out to non-state actors and designing joint initiatives to increase the overall effectiveness by raising the ambitions of state actors in addressing climate change, biodiversity loss, and desertification	Comparative case study, typical cases	Orchestration	Structured, focused comparison	Primary: Document analysis Secondary: Scholarly literature Tertiary: Expert interviews
III	*How do the UNFCCC Secretariat and non-state actors utilize data-governance to orchestrate for more ambitious action in the global climate regime?* ⇨ Relating to ***Q1***	Participation of the UNFCCC Secretariat in data governance (pre- and post UNFCCC COP21) as means/instruments to increase the participation of non-state actors for a more effective and legitimate UNFCCC.	Single case study, crucial case	Orchestration	Process tracing	Primary: Document analysis Secondary: Expert interviews Tertiary: Participant observation
IV	*How and with what effects do the UNFCCC, CBD, and UNCCD Secretariats engage in joint interplay management to advance the coherence of institutional responses to climate change, biodiversity loss, and desertification?* ⇨ Relating to ***Q2***	Participation of UNFCCC, CBD, and UNCCD Secretariats in joint interplay management activities to harness synergies and increase the coherence between the three Rio Conventions	Single case study, typical case	Institutional interplay and joint interplay management	Process tracing	Primary: Document analysis Secondary: Expert interviews Tertiary: Participant observation

Case Study Research

As mapped out in the previous chapters, this thesis employs case study research to investigate the interactions of and between UN treaty secretariats to improve institutional responses to climate change, biodiversity loss, and desertification. Depending on the particular research question at hand, I have used different approaches pertaining to case selection, engagement with theory, and choices for analysis. The following section elaborates on these approaches, while the use of data and materials are detailed thereafter.

In contrast to experiments, case studies are observational tests (usually small-n) that involve a thorough investigation of a contemporary phenomenon within its real-life context (Yin 2008: 18). Case study research is particularly suitable for answering questions that seek to understand how and why things happen. Typically, such research strategies rest on predefined theoretical assumptions and rely on multiple sources of evidence for collecting and analyzing data. The benefit of using case studies is that they provide a detailed and comprehensive understanding of a social phenomenon by testing and inferring explanations that define how independent and dependent variables are linked (Van Evera 1997: 54). Table 5 illustrates the causal chain connecting independent and dependent variable for each manuscript, including the mechanism under investigation. It is important to note that case studies do not necessarily provide definitive solutions – there is always a trade-off between specificity (internal validity, that is, sound evidence at the with-in case level) and generalizability (external validity, that is, extrapolating evidence to a wider population of cases) (Panke 2018).

Table 5. Linking independent and dependent variables

Manuscript	Independent variable	Mechanism under investigation	Dependent variable
II	Interactions between (1) UNFCCC Secretariat and non-state actors (2) CBD Secretariat and non-state actors (3) UNCCD Secretariat and non-state actors	→ Orchestration style	Institutional effectiveness (*output-outcome*): Non-state actor participation for leveraging pressure on intergovernmental negotiations within UNFCCC, CBD, and UNCCD
III	Interactions between (1) UNFCCC Secretariat and non-state actors (before Paris Agreement)	→ Orchestration style (by means of data governance)	Institutional effectiveness (*output-outcome*): Non-state actor participation for (1) leveraging pressure on intergovernmental negotiations within UNFCCC

	(2) UNFCCC Secretariat and non-state actors (after Paris Agreement)		(2) animating implementation activity within UNFCCC
IV	Interactions between UNFCCC, CBD, and UNCCD Secretariat	→ Joint interplay management	Institutional coherence (*output-outcome*) across UNFCCC, CBD, and UNCCD *Indicators:* (1) knowledge and discourse (2) norm-building, regulation, capacity building (3) joint implementation

Manuscript II used the method of structured, focused comparison for investigating the engagement of three treaty secretariats with non-state actors in the climate, biodiversity, and desertification regime. Employing this method means asking a set of standardized, general questions pertaining to certain aspects of each case that guide the process of data collection, thereby "making systematic comparison and cumulation of the findings of the cases possible" (George and Bennett 2004: 61). Based on the concept of orchestration (e.g., Hale and Roger 2014; Abbott et al. 2015a), we asked whether and how the three secretariats used different orchestration styles (*mechanism*) for coordinating with non-state actors (*independent variable*) to exert pressure on intergovernmental negotiations for more ambitions responses to the respective transboundary environmental problem (*dependent variable*). We thus used theory testing to probe theoretically derived hypothesis (intergovernmental treaty secretariats as orchestrators) against empirical data to examine the veracity and scope of these assumptions. At the within-case level, we set out to identify similarities and variances in the way orchestration actually worked in a given case, thus refining previous theoretical assumptions. This included an extensive mapping exercise of existing channels of interaction with non-state actors for each secretariat through primary and secondary sources (e.g., official documents, reports, scholarly literature). The results were complemented by 10 semi-structured interviews with secretariat staff. The interviews helped to substantiate findings from the previous mapping exercise and content analysis as well as identify further initiatives between secretariat and non-state actors. Although some non-state actors were consulted throughout phases of data collection (e.g., informal talks at events) and relevant information has fed into the analysis, the study could have further benefitted from a more detailed perspective of and on non-state actors (see also Chapter 7 on limitations and future research).

The cases were chosen mainly on the grounds of the empirical scope set for this thesis and its focus on the area of climate change, biodiversity loss, and desertification. However, in terms of

generalizability of results, we also kept in mind a population of cases which is not explicitly referenced in the paper (i.e., treaty secretariats of UN environmental institutions). Comparison is thus based on most similar design characteristics across background conditions (i.e., mandated functions, organizational structures, institutional environment) that might be relevant to the outcome of interest (i.e., orchestrated non-state action enhancing the ambitions of national governments within the context of the UNFCCC, CBD, and UNCCD). The cases differ on the independent variable (i.e., coordination between the three Secretariats and non-state actors), and the mechanisms under investigation (i.e., different orchestration styles linking cause and outcome).

Manuscript III is a follow-up study which builds on particular findings of *manuscript II*. This single case study investigates more in-depth whether and how the UNFCCC Secretariat, by coordinating with different non-state actors (*independent variable*), orchestrates for a more inclusive, effective, and legitimate international climate change regime (*dependent variable*). Specifically, it traces these orchestration dynamics by focusing on data-driven governance as novel means intended to inform and guide policy-making within the UNFCCC (*mechanism*). The theoretical and methodological approach is similar in that we also use theory testing to analyze and assess the role of the Secretariat (and data providers) as an orchestrator. Our research interest with this case studies lies not only on the Secretariat and third-party actors that may induce such orchestrated outcomes, but also investigates how data governance can generally play an intermediary role in global climate governance (also labeled a 'meta-intermediary' by Bäckstrand and Kuyper (2017) dealing with a similar case). Data governance here revolved around the evolution of a specific data platform, the *Global Climate Action* (GCA) portal,[23] which was explored as a 'crucial' case with unique configurations of the independent variable (Seawright and Gerring 2008; Yin 2014: 47). While the GCA was certainly not the only data platform tracking climate pledges and actions at a global scale (see Widerberg and Stripple 2016), it has significantly outgrown its competitors in terms of entries and registries (UNFCCC 2021b). Further, the GCA have been continuously updated and are officially connected to the inter-state negotiation process. Due to its size and political relevance, the GCA portal offers an appropriate single case to explore the role of data-driven governance in the UN climate regime.

[23] Formerly known as the *Non-state Actor Zone for Climate Action* (NAZCA) (see also Chapter 5 for a more in-depth explanation on the NAZCA and GCA platform).

For the within-case analysis, we used process tracing to explore a causal pathway as a "series of parts composed of entities engaging in activities" (Beach and Pedersen 2013: 6). Following a mechanistic understanding of process tracing, we have inferred causality based on the *productive* relationship linking causes and outcomes as a result of these activities (Beach 2022).[24] The objective was to reconstruct the mechanisms underlying the orchestration dynamics of the NAZCA and the GCA portal, specifically examining their evolution and operation between 2013 and 2021, with particular attention to the periods preceding and following the adoption of the Paris Agreement in 2015 (George and Bennett 2005). While we spelled out such activities and actor roles linking orchestrators, intermediaries, and targets, we refrained from theoretical sense-making by explicitly fleshing out a mechanistic theory of the orchestration dynamics. While this may be a methodological shortcoming in the eyes of some process tracing scholars (e.g., Beach and Pedersen 2018), we accepted this weak point for a more thoroughly focus on the empirical manifestation of activities for conceptualizing and assessing data-driven governance throughout the remaining article. Similar to *manuscript II*, we gathered and analyzed data from primary and secondary sources as well as interview data and field nots from participant observation. This included 9 interviews with secretariat staff, 6 interviews with GCA data providers, i.e., organizations that supply non-state climate action data to the GCA portal, and 10 interviews with non-state actors registered in the GCA portal who are undertaking climate action data reporting on behalf of their organizations.

Manuscript IV is a single case study examining how the three Secretariats coordinate amongst each other (*independent variable*) to improve institutional interaction through joint interplay management (*mechanism*) in the hybrid regime complex of climate change, biodiversity loss, and desertification. The conceptual approach in this study builds upon existing notions of joint interplay management, also known as overlap management. However, this phenomenon lacks comprehensive scholarly exploration and analysis in both theoretical and empirical terms. Building on the regime interplay literature (e.g., Underdal 2004; Stokke 2012; Stokke 2013), I first set out to define what an improvement of institutional relationships means as an outcome of interplay management activities along three dimensions of coherence (*dependent variable*): (1) knowledge

[24] Beach (2022) distinguishes three variants for making causal claims through process tracing: (1) mechanisms as counterfactual claims; (2) mechanisms as productive relationships of actors engaging in activities that link causes and outcomes; and (3) interpretive variants inferring causality if mechanisms are able to capture how social actors (re-)construct the social reality they are part of.

and discourse, (2) norm-building processes and regulation, (3) building capacity and joint implementation. The three dimensions serve as indicators for assessing the type and degree of institutional coherence achieved throughout the succeeding analysis, which closely investigates the actual activities of secretariats in pursuing interplay management (output) as well as behavioral adaptations of targeted actors as a result of such activities (outcome). Similar to the other case studies included in this thesis, I sourced data from primary and secondary sources, expert interviews and participant observation. The aim of this study was not only to provide empirical evidence of joint interplay management and its effects, but also make a theoretical contribution to show how joint interplay actually works at the within case level. I followed an inductive, theory-building process tracing methodology to identify patterns in empirical data in order to conjecture a mid-range mechanistic theory that could be applied to a wider population of cases (i.e., UN treaty secretariats engaging in joint interplay management).

According to Beach and Pedersen (2018), when aiming to make inferences about how X (*interdependent variable*) is linked to Y (*dependent variable*) in mechanism-centered research designs, researchers should only select cases where a relationship between X and Y can in theory be present. I thus set out to examine this case as a typical case, irrespective of whether there was enough evidence a priori to theorize that X is a sufficient condition of Y (Beach and Pedersen 2018). Akin to approaches by Oberthür and Gehring (2006b) and Jinnah (2014), my focus was on different instances of joint interplay management as the independent variable, rather than on secretariats themselves as the unit of analysis. This unusual strategy has the advantage of tracing different interplay management activities to see whether and how these are linked to an outcome (improved institutional interlay). Based on the results from the empirical analysis, I conjectured a three-step mechanism linking joint interplay management activities to improved coherence among the interacting institutions involved, including four variables that may intervene this pathway (mandates, resource allocation, leadership priorities, politicization and timing).[25] For the mechanism identified through inductive reasoning, I have made a conscious decision to raise the level of abstraction from a case-specific, very detailed mechanistic theory to a mid-range theory. I have done so to increase the level of external validity to allow future research to test and amend the process for other cases against the backdrop of scarce knowledge about this kind of horizontal

[25] See *manuscript IV* and Chapter 5 for a more thorough description of the identified mechanism and intervening variables.

coordination amongst UN treaty secretariats out there (see also Chapter 7 addressing these choices alongside their limitations and opportunities for future research).

Data and Material

Characteristic of qualitative case-study research, I have used three main sources of data for the collection of different material: (1) Primary sources by means of official documents from UN processes and agencies (2) secondary materials ranging from reporting services, such as the *Earth Negotiations Bulletin* (ENB), to scholarly literature, and (3) expert interviews and participant observation involving secretariat staff and other relevant actors. For each case study, I have triangulated empirical data sources to increase the overall validity of results (Rothbauer 2008; Yin 2014: 114-116). My approach typically included an in-depth desk study to review existing scholarly work followed by a systematic content analysis of primary sources. Preliminary findings were then used to inform interview guidelines and cues for participant observation during field work. All collected data, including interview transcripts and field notes, were then compiled through dedicated data management tools or coding software to build comprehensive case study bases and identify central themes and patterns relevant to the research questions (Braun and Clarc 2006: 82; Yin 2014: 118-122). In the following, I will briefly elaborate on my approaches and experiences with primary and secondary data sources, interviewing, and participant observation.

Primary and Secondary Data

This thesis sourced and analyzed data from various text material as primary resources. This includes official documents, such as negotiation drafts and decisions from the different intergovernmental processes or various websites published and administered by the Secretariats of the three Rio Conventions. Furthermore, some gray literature was consulted, including meeting notes, think tank reports, pamphlets, or other legislative documents. In particular, the ENB, a major reporting service of intergovernmental negotiations, has served as an important data source, documenting and publishing meeting notes of relevant COP side events. Primary sources were complemented by previous research on the Secretariats for the individual case studies (see also the previous section on case study research). Consulting scholarly literature on the secretariats, particularly including actor-centered perspectives of institutional interplay, was particularly relevant for the literature review (*manuscript I),* which has provided the conceptual underpinnings of this thesis and identified some of the knowledge gaps addressed within the case studies.

Interviews

Interviews are commonly used in qualitative research to gather data for case study analysis. By asking interviewees questions, listening to their responses, and capturing their expressions, researchers employing interviews generally assume that information about the social world can be obtained and knowledge can be constructed (Becker et al. 2002). The interviews for the case studies were conducted in a semi-structured style, that is, interviewing that is both guided by preformulated questions allowing for comparison of responses and open dialogue to include the situational and contextual conditions. Interviews are also a feasible method for (dis-) confirming data from primary and secondary sources or generating new knowledge on issues with limited information.

In the context of this thesis, interviews have been crucial to find out what secretariats actually do, especially with regards to how secretariats interpret and act upon mandated tasks delegated by national governments. The information acquired has been sensitive, as these tasks frequently inhabit a certain degree of arbitrariness where secretariats use such leeway to interpret and strategize activities according to their own preferences. Uncovering such principal-agent relationships entails significant responsibility on the side of the researcher, including biases of both interviewer and interviewees (Thies 2002). Interview partners were selected using purposive sampling (e.g., Ritchie, Lewis, and Elam 2003: 78) on the grounds of stated expertise or broad areas of work that could relate to my inquiry. Through desk-research, identifying relevant interview partners was a relatively straight-forward process. However, getting positive responses was a fairly timely endeavor in the beginning stages of the dissertation project, which often required multiple requests to be able to get an audience, particularly with senior secretariat staff. However, through networking at larger conferences and a snowballing effect from previous interviews (e.g., Noy 2008), I was fortunate to have had the opportunity to talk to those people relevant for this thesis, including Executive Secretaries and other executive staff from the Secretariats.

Table 6. Overview of conducted interviews

Respondents	**Manuscript II**	**Manuscript III**	**Manuscript IV**
Secretariat staff	6	4	12
Non-state actors	1	5	
Number of interviews	7	9	12
Total			**28**

A total of 47 semi-structured expert interviews were carried out for this thesis, of which I conducted 28 interviews (see Table 6). Of these 28 interviews, 9 were held with secretariat staff at the sidelines of intergovernmental conferences, or during field visits to the headquarters of the three Secretariats (see also following section on participant observation). A total of 13 interviews with secretariat staff were conducted virtually – not least due to the restrictions towards meeting in person during the COVID19 pandemic. While I initially thought virtual meetings to be limitations to having meaningful discussions, they turned out to be quite beneficial as sessions could be scheduled beforehand and were usually uninterrupted and more focused compared to meetings at conferences. Additionally, a number of background talks were held at other side events which involved participation of secretariat staff and/or relevant non-state actors (e.g., collaborative events between the UNFCCC and the United Nations Association of Germany held in Berlin).

All interviews usually lasted between 30 to 90 minutes and were held under Chatham House Rules. During the first interviews, anonymity was usually requested by secretariat staff, which initially surprised me. However, I quickly came to realize that this allowed for a more open exchange, especially when touching on sensitive topics, such as mandated functions or agendas. I included a set of scripted questions pertaining to the overarching research questions as well as current state of research of particular paper projects. Usually covering about half of the intended interview time, this script was designed to provoke a more explorative discussion of topics in the other half, which also allowed for opportunities to react to information received.

As the main focus of this thesis lies with secretariats, a majority of interviews were conducted with secretariat employees. As all manuscripts also feature an explicit transnational component, as smaller number of 6 interviews were held with non-state actors to complement the perspectives of secretariats. Voices from this camp of actors could have been given an overall more prominent role throughout the manuscripts. However, this would have significantly widened the scope of the thesis, but could serve as a promising entry point for future research (see also Chapter 7 on this point).

Participant Observations

Participant observations were important sources complementing interview data to gather information about some of the main sites of analysis. This included particularly large intergovernmental conferences, such as the UNFCCC COP 26 (Glasgow, Scotland) and COP 27 (Sharm-El Sheikh, Egypt) as well as virtual participation in CBD COP 15 (Montreal, Canada).

These conferences are not only about inter-state negotiations, but also serve as a place where non-state actors can share their experiences and latest scientific knowledge relating to climate change, biodiversity loss, and desertification, or other environmental problems at side events. Crucially, these side events serve as a forum for discussion, networking, but also influencing, as the contributions and messaging coming from side events is hoped to transcend to the close-by negotiation process (Hjerpe and Linnér 2010). However, as Schroeder and Lovell (2012) have claimed, the format and purpose of these events being 'on the side' does not offer sufficient coordination between the work of non-state actors and the official negotiation processes. It was therefore particularly interesting to investigate the interactions between the three Secretariats and non-state actors in the context of this thesis. At the COPs, I had the opportunity to access and observe specific side events organized by the Secretariats, such as such as the *Rio Conventions Pavilion* (RCP) or events related to the GCA portal.

At the side events, notes were taken on who was invited to events, what was discussed, and how the Secretariats interacted with non-state actors, including colleagues from other Rio Conventions. Several of the panels visited also featured high-level participants, such as COP Presidencies, delegates from national governments as well as Executive Secretaries of other UN conventions. Attending the conferences and witnessing the side events has contributed to my contextual knowledge and provided a deeper understanding of the subject matter and research environment, ultimately benefiting the development of the manuscripts. The observations did not follow a strict research methodology, but they were conducted in a systemic or structured way, that is, gathering data in a defined and procedural manner without direct exchange between researcher and participants in order to maintain objectivity as best as possible (Gillespie and Michelson 2011; Guest, Namey, and Mitchell 2013).

CHAPTER 5. FINDINGS: INTERACTIONS OF INTERGOVERNMENTAL TREATY SECRETARIATS IN GLOBAL ENVIRONMENTAL GOVERNANCE

This chapter presents the thesis' main results in the context of the overarching research aim and questions. The study started from an observation that current institutional responses to transboundary environmental problems are insufficient to cope with these challenges in a coherent and effective way. On paper, many UN environmental institutions have transitioned from phases of negotiation to implementation with comprehensive protocols, such as the Paris Agreement under the UNFCCC or the Global Biodiversity Framework under the CBD, defining ambitious targets for achieving environmental protection and outlining courses for action. Member states have agreed to prepare, communicate, and maintain contributions to these targets and pursue domestic measures to achieve them. Yet, most countries have fallen short of realizing their pledges, let alone ratcheting up ambitions to assure the intended progression of targets formulated within national planning frameworks, such as the Nationally Determined Contributions (NDCs) under the UNFCCC, National Biodiversity Strategy and Action Plans (NBSAPs) under the CBD, or targets set under the UNCCD Land Degradation Neutrality Target Setting Programme (LDN TSP).

Broader trends of economic protectionism, bilateral treaty-making, and the overall changing power dynamics in international politics have negatively impacted the authority of such institutions. Powerful governments have openly questioning their legitimacy, proposing funding cuts or even seeking withdrawal options.[26] A pandemic and rising military conflict around the world has warranted swift reaction from nation states who juxtapose international cooperation on environmental concerns against arguably 'higher politics' of security and welfare, which has reinvigorated neorealist arguments in recent years (e.g., Alhammadi 2022). In sum, intergovernmental responses to transboundary environmental problems, including those dedicated institutions set up to provide solutions to these problems, have thus far failed to deliver. Considering broader trends beyond as well as developments within global environmental governance, diverging interests among states on political, economic, and socio-technical issues have gridlocked urgently needed advancement to halt environmental destruction, which has fueled a debate about an immanent crisis of multilateralism.

[26] See also Chapter 6 for a discussion of these wider trends.

However, at the international level, governing the environment is not only dictated by relations between states. UN environmental institutions are embedded within larger, issue-specific regimes and architectures that deal with transboundary environmental problems. Research on international regimes has been increasingly concerned with questions about fragmentation and complexity against the background of rules and practices beyond those negotiated by national governments (see also Chapter 3). Within these larger institutional settings, there is constant interaction between public and private actors and networks, multilateral agreements, IOs, and bureaucracies, which has led to new dependencies for the flow of information, technology, or finance. In this regard, *manuscript I* has reviewed the existing literature on institutional interplay and argued that scholarship has not sufficiently engaged with the transnational turn in global environmental governance. We identified three emergent areas of research on institutional interplay and transnational environmental governance which speak to the overall research aim of this thesis: (1) exploring and better understanding the relationship, (2) drivers, and (3) consequences of the increasing interplay between intergovernmental institutions.

With a steep rise in transnational governance initiatives, which for a long time were seen as a countermovement or alternative approach to intergovernmental governance, we have witnessed a growing convergence of transnational and intergovernmental approaches in recent years (e.g., Tallberg, Sommerer, and Squatrito 2013; Roger and Dauvergne 2016; Andonova, Hale, and Roger 2017a). The literature review (*manuscript I)* revealed that this convergence has created additional opportunities for issue-linkages and strategic bargains among governments and non-state actors. While many transnational initiatives appear to operate autonomously from the multilateral context, relevant actors frequently position their own activities in ways that generate close interactions between them. This also amplifies the necessity for coordination among an increasing number of agents in a decentralized system of authority in global environmental politics (Pattberg and Stripple 2008; Pattberg et al. 2014). In this regard, scholars have alluded to the potential of non-state actors to strengthen state's ambitions within UN environmental institutions, arguing that a high degree of access of non-state actors enhances the willingness of states to cooperate for the joint implementation of MEAs (Böhmelt and Betzold 2013; Hermwille 2018).

Moreover, a growing body of research has focused on questions relating to agency and the interplay between intergovernmental and transnational institutions. As outlined in the introductory chapter of this thesis, some (limited) attention has been paid to the role of international bureaucracies, including intergovernmental treaty secretariats, in managing overlap between

interdependent institutions, thereby shaping political outcomes (e.g., Biermann and Siebenh ner 2009b; Jinnah 2014; Hickmann et al. 2019b). These key studies have highlighted the need to further explore how actors may influence the relationship between intergovernmental and transnational institutions and actors to harness synergies for dealing with transboundary environmental problems. This finding coincides with the second identified stream of research, which has focused on the different drivers for the interplay between transnational and intergovernmental institutions. *Manuscript I* identified a dearth of conceptual research to understand factors determining which type of interplay arises in a given context and at what level and scale. Speaking to the need for more research on the role of actors in advancing inter-institutional relationships in transnational environmental governance, the concept of interplay management seems particularly promising to revisit and shed light on the different strategies, means, and mechanisms with which actors seek to improve such relationships between intergovernmental and transnational institutions (e.g., Orsini, Morin, and Young 2013; Stokke 2020).

These findings, or rather knowledge gaps, have motivated the overall research aim this thesis seeks to address. Continuing along this line of inquiry, the following chapters will present the results pertaining to my overarching research questions. In the following section, I will present the findings of each case study related to the question of the *means and mechanisms through which UN treaty secretariats coordinate with non-state actors, including the consequences in terms of improving the effectiveness of institutional responses to climate change, biodiversity loss, and desertification* (*manuscript II*, *III*). Subsequently, the focus will shift to examining the *means and mechanisms through which UN treaty secretariats coordinate with the secretariats of other UN processes, including the consequences in terms of improving the coherence among institutional responses to climate change, biodiversity loss, and desertification* (*manuscript IV*). After a summary and interim conclusion of the findings to these questions, Chapter 6 will examine the broader implications of the thesis for theory and policy. It will specifically center on the role of actors and explore questions related to collective agency within international institutions, as well as emerging trends and challenges for these institutions in light of the contestation and reform of multilateralism.

Secretariat Interactions and Institutional Effectiveness

Manuscript II focuses on the *horizontal-non-governmental dimension* and demonstrates that secretariats have built alliances with non-state actors to *manage*, or rather increase, the ambitions

of national governments, thus aiming to improve the overall effectiveness of UN environmental institutions. More specifically, the UNFCCC, CBD, and UNCCD Secretariats enlist different non-state intermediaries to shape the knowledge, preferences, beliefs, or behavior of states in accordance with their own interests. In so doing, they use different styles of orchestration tailored to specific kinds of non-state actors with which they initiate and maintain joint initiatives. While some of these initiatives can be linked back to decisions taken during intergovernmental negotiations that delegated secretariats broad areas for engagement with non-state actors, crucially, orchestration has allowed the secretariats to take advantage of agency slack, that is, the ambiguity of delegated tasks to pursue governance goals that may conflict with those of some member states (see also Abbott et al. 2015b: 29). Other initiatives have even been launched by the Secretariats themselves or co-facilitated with non-state partners.

The UNFCCC Secretariat, for instance, has been directed to coordinate the participation of the growing number of 'observers' in the time period leading up to the Paris Agreement (Schroeder and Lovell 2012). In interpreting this mandate, the UNFCCC Secretariat has undertaken different endeavors to directly involve non-state actors into a policy dialogue on climate change. To avoid objection and oversight from national governments regarding the provision of financial resources, the agency has sought to access private funding to identify and award particularly progressive non-state actor initiatives that provide innovative solutions for climate change, including those addressing wider economic, social, and environmental challenges in a given geographical area (e.g., with the *Momentum for Change Initiative* launched in 2011). In other instances, the Secretariat has teamed up with some influential governmental actors, such as COP Presidencies, to mobilize a variety of sub- and non-state actors, showcasing the importance of these actors for the future functioning of the UNFCCC in the run up to the COP-21 in Paris (e.g., with the 2014 *Lima-Paris Action Agenda* (LPAA) or the 2014 NAZCA). Particularly with NAZCA, the UNFCCC Secretariat has built a large data platform with support from non-state data providers that registers and tracks commitments to limit GHG emissions made by both state and non-state actors (see also Chan et al. 2015).

Compared to the UNFCCC Secretariat's strategy to engage with a wide gamut of different non-state actors to support institutional responses to climate action, the CBD Secretariat has focused on outreach to actor groups that are particularly conducive for the conservation, sustainable use, and fair sharing of biodiversity. The CBD Secretariat has thereby focused predominately on the linkages between biodiversity and the business sector. Their rather loosely formulated mandate

for non-state actor engagement has allowed the CBD Secretariat to be 'entrepreneurial' (Jinnah 2011) in hosting different event series to convene and facilitate dialogues between state representatives, businesses, civil society groups, and other stakeholders (e.g., the *Business and the 2010 Biodiversity Challenge,* the 2018 conference on *Biodiversity and Ecosystem Finance*, or expert workshops concerning the mainstreaming of biodiversity in sectors with substantial participation of private actors). Similar to its counterpart at the UNFCCC, the CBD Secretariat has put emphasis on award-giving activities in conjunction with private actors to identify outstanding non-state contributions to biodiversity conservation across local and global levels (e.g., the *Midori Prize for Biodiversity*). In addition, the public agency has developed a database to promote regulatory standards for businesses, enhance the exchange and management of knowledge, and facilitate the sharing of best practices (e.g., the *Global Platform for Business and Biodiversity*).

The UNCCD Secretariat has prioritized capacity building and knowledge provision in its orchestration efforts with non-state actors to deal with land degradation and desertification. In this regard, the Secretariat has initiated the *Knowledge Hub*, an online knowledge-management system and platform designed to launch campaigns, initiatives, and tools together with non-state actors. Originally designed as an internal organizational working tool for the UNCCD, the Secretariat extended its area of operation to external stakeholders to further synergies and integration among national governments and non-state actors. This is done through various initiatives launched together with non-state actors, most notably the *Great Green Wall* project or the *Global Land Outlook*, which have raised attention to the issue of land degradation through means of large-scale media campaigns, online reports, or scientific working paper series. In comparison to its sister Rio Conventions, the UNCCD Secretariat, mainly through the UNCCD's Global Mechanism, has assumed a distinct role in engaging directly with public and private actors through tailored training programs at the local level. For example, the *Soil Leadership Academy*, launched by the UNCCD Secretariat in 2014, is a structured training for emerging decision-makers in countries prone to desertification which equips them with knowledge and tools to impact policy processes at both national and regional levels.

Table 7. How intergovernmental treaty secretariats interact with non-state actors

	UNFCCC Secretariat	CBD Secretariat	UNCCD Secretariat
Key initiatives	Momentum for Change Initiative Lima-Paris Action Agenda Non-State Actors Zone for Climate Action	Business and Biodiversity Forum Global Partnership for Business and Biodiversity Midori Prize for Biodiversity	Knowledge Hub Soil Leadership Academy Global Land Outlook
Activities	The UNFCCC Secretariat engages sub- and non-state actors into a policy dialogue and supports the development of their initiatives to enhance the global level of ambition	The CBD Secretariat maintains strong relations to the private sector through meetings, events, and multi-stakeholder forums to build up a pool of reliable business measures	The UNCCD Secretariat seeks to strengthen the capacities of different stakeholders by spreading information, providing best practice cases, and raising awareness
Predominant orchestration style	Facilitating a groundswell of action: the UNFCCC Secretariat acting as manager and information hub, co-leading institution and spearheading actor	Fostering reliable business tools: the CBD Secretariat acting as co-hosting and award-giving institution, convening body, and distributer of good practices	Raising awareness of different stakeholders: the UNCCD Secretariat acting as awareness raising body, knowledge broker, and bridge builder between stakeholders

Overall, the findings from *manuscript II* reveal that the Secretariats have all used different styles of orchestration to engage with non-state actors within their respective policy domains. They do so by facilitating exchanges with these actors to further public knowledge, offer guidance, or share best practices for dealing with the underlying issues. The identified styles of orchestration further provide conceptual nuance to orchestration theory, which has largely focused on hypothesizing the causes and consequences for IOs engaging in orchestration to manage or bypass states (Abbott et al. 2015b). By launching different initiatives, the three Secretariats have sought to engage with different actors from civil society, non-profit organizations, and the private sector, thereby raising global ambitions levels for action on climate change, biodiversity loss, and desertification. Table 7 provides an overview of the different initiatives undertaken by each secretariat, highlighting their activities and identifying a predominant orchestration style as a mechanism for engaging with non-state actors. Through these different priorities and styles of orchestration, secretariats and non-state actors seek to exert influence on national governments within the UNFCCC, CBD, and UNCCD, aiming to elevate their ambitions towards more effective policy-making on the underlying issues.

The study thus confirms previous scholarly findings that secretariats have some degree of autonomous influence beyond providing technical assistance and services to national governments.

It also demonstrates how secretariats have utilized information and communication technology as new means of coordinating with non-state actors to improve the effectiveness of institutional responses towards addressing transboundary environmental problem. They have developed digital platforms and databases that illustrate non-state action in specific domains to leverage state behavior towards more ambitious policy-making (e.g., NAZCA, the Global Partnership for Business and Biodiversity, and the Knowledge Hub). Thereby, the Secretariats have directly collaborated with non-state data providers. While the Secretariats, who maintain the platforms, rely on the technical expertise and data input of these actors, non-state data providers benefit from the clout of legitimacy that engagement with the Secretariats offers. *Manuscript II* concludes that new alliances between secretariats and non-state actors are evolving, which in some instances signal a shift from orchestrator-intermediary relationships towards forms of collaboration marked by a division of labor, which may be the result of prolonged interactions in areas marked by mutual benefits for interacting parties.

Departing from these findings, *manuscript III* more closely investigates these novel means, or instruments, with which treaty secretariats aim to enhance institutional responses to transboundary environmental problems. In particular, we take a more in-depth look at the way in which the UNFCCC Secretariat has engaged with non-state actors through NAZCA and its predecessor, the so-called GCA data platform. We argue that the shift in the role of non-state actors and their participation in the global climate regime enacted through the Paris Agreement at UNFCCC COP21 has been directly related to the Secretariats' orchestration activities and utilization of data governance, thus signaling behavioral change in targeted member states. Specifically, NAZCA has served as a kind of 'meta-intermediary' (see also Abbott and Bernstein 2015; Bäckstrand and Kuyper 2017) to enhance the visibility of non-state actors for injecting momentum, and thus exerting pressure, on intergovernmental negotiations. In fact, the UNFCCC Secretariats' efforts with NAZCA as a 'recognition hub' can be seen as a significant contributor to successfully reaching the Paris Agreement at COP21, which scholars argued would not have been possible without transnational governance initiatives and non-sate actors (e.g., Hale 2016; Höhne and Drost 2016; Higham 2017). Not only did non-state actors signal their readiness to bridge emission gaps, offer implementation options, or provide finance, more importantly, they ensured that governments made substantial "commitments that they do not know they can meet, and for which the cost is unknown" (Jacobs 2016). In the words of Bulkeley and colleagues (2018: 69), these developments can be viewed as a "major departure" from previously held positions, where

"governments in Paris instituted the NAZCA portal as an ongoing system to track, support and accelerate subnational/non-state climate action going forward". NAZCA became a formally endorsed element of the UN climate regime with specific reference in the Paris Decision.

Post-Paris, the UNFCCC Secretariat has led the subsequent development of NAZCA away from a platform showcasing non-state actor pledges towards tracking progress of actors in actualizing their commitments. As a result, NAZCA was relaunched and rebranded as the GCA in 2018. The overhauled platform intends to function as an implementation tool by providing policy-relevant information, linking progress in non-state climate action to targets put forward by national governments, including the NDCs (see Figure 3). According to a press statement by the UNFCCC Secretariat, the GCA is designed to "offer governments, policymakers and other users a snapshot of climate action undertaken at a national level, which can inspire the replication of initiatives in other countries and help identify the potential for further collaboration across other sectors of society" (UNFCCC 2019).

Crucially, pre- and post-Paris, the UNFCCC Secretariat has followed distinct logics in its orchestration efforts: While the NAZCA aimed at augmenting intergovernmental negotiations towards more ambitious and inclusive agreements through displaying the readiness of non-state climate action, the GCA has served as an orchestration instrument to further implementation activities specified under the Paris Agreement, thereby 'managing' the relationship between both Parties and non-party stakeholders (Abbott et al. 2015b: 11). In these new orchestration dynamics, we show that the UNFCCC Secretariat, taking on the role of a political orchestrator, directly collaborates with various non-state data providers (see also *manuscript II*) as technical orchestrators, including the so-called Climate Action Methodologies Data and Analysis (CAMDA) community (see *manuscript III* for a more detailed explanation and illustration of these orchestration dynamics). In this setting, both orchestrating parties are mutually dependent: Without non-state data providers and CAMDA, the GCA would not have any data to display. In addition, there would be a lack of technical expertise to develop relevant methodologies and metrics. Likewise, without the authority and legitimacy offered by the UNFCCC Secretariat, the portal would have to find other ways to gain visibility and resonance in the global climate regime.

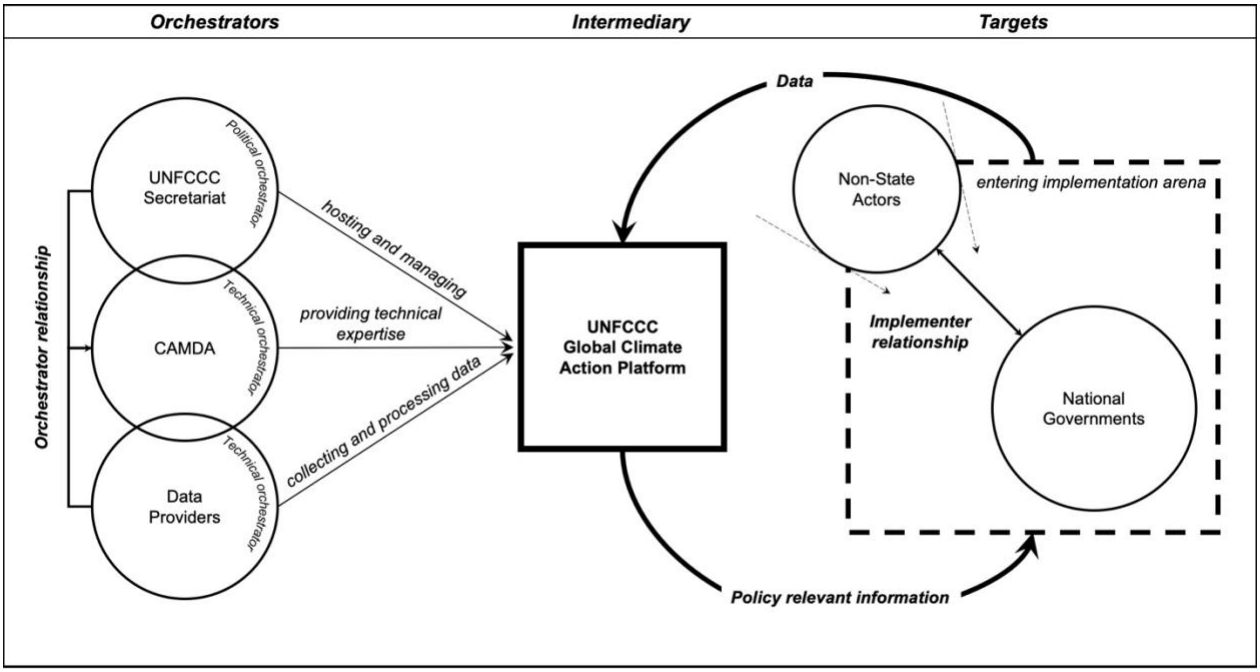

Figure 3. Data-driven orchestration dynamics in the Post-COP21 international climate change regime

Going beyond gathering data reflecting ex ante information about non-state actor commitments, interviewees from the UNFCCC Secretariat confirmed that the GCA will ideally offer a means for monitoring ongoing implementation efforts, thus providing accountability to commitments once they are made. However, while UNFCCC Secretariats' orchestration efforts have led to behavioral adaptations of state actors as exemplified by the Paris Agreement, the impact effectiveness in terms of mutually reinforcing implementation activities remains yet to be seen. Despite the overall promising outlook, there are a number of limitations and ongoing challenges for data-driven governance. For both NAZCA and the GCA, there have remained various conceptual and technical issues. For example, how to avoid double counting and patchy reporting, how to effectively localize emissions reductions, or how to address data gaps – particularly in the context of the Global South, where inadequate financial resources and technical expertise may hinder the development of suitable metrics and reporting methodologies (Hsu et al. 2016). Put differently, the input and use of data has to be accurate, meaningful, and globally inclusive to potentially increase the effectiveness and legitimacy of institutional responses to climate change.

Secretariat Interactions and Institutional Coherence

UN treaty secretariats also contribute to improving coherence among UN environmental institutions by coordinating with other UN agencies at the *horizontal-governmental dimension*. *Manuscript IV* investigates how the three Secretariats of the three Rio Conventions engage in joint interplay management to create horizontal structures across the three framework conventions to improve institutional interplay and address the ecological and political interdependencies between climate change, biodiversity loss, and desertification.

The case study investigates coherence across three different dimensions: First, it considers advancements in knowledge and discourse asking how secretariats' joint interplay activities may change the ways in which targeted actors perceive and speak about the interlinkages between climate change, biodiversity loss, and desertification. Second, it examines how secretariats may steer norm-building processes towards furthering regulatory coherence among the three Rio Conventions by initiating meetings with key decision-makers or otherwise targeting influential actors. Third, it explores the effects of joint interplay management towards building capacity and supporting joint implementation, with particular focus on the national and sub-national level. Contrary to previous research on bureaucratic influence (e.g., Biermann and Siebenh ner 2009b), *manuscript IV* not only looks at coherence as an outcome of joint interplay management carried out by multiple secretariats.[27] Through process-tracing, it also investigates the actual activities of secretariats to better understand *how* joint interplay management works in the investigated case, thus identifying intervening variables that may prevent behavioral adaptations.

On advancing knowledge and discourse, the results demonstrate that the three Secretariats have carried out a large number of joint interplay management activities. This includes releasing various kinds of information material, online monitoring and communication tools, or partnerships with researchers to disseminate up-to date knowledge on the linkages between climate change, biodiversity loss, and desertification to national focal points under each convention. Most notably, the Secretariats have taken proactive measures to shape discourse by facilitating dialogues between non-state actors and governments. They have accomplished this through organizing side events at intergovernmental conferences, such as the RCP. These initiatives have successfully mobilized and inspired collaborative action on matters of common interest. The agenda, line-up, and planning of

[27] Following Oberthür and Gehring (2006b: ; see also Chapter 3), an outcome is understood as observable behavioral change of targeted actors as a result of an activity (output) of an actor or group of actors.

these events lies with the responsibility of the Secretariats who have the power to push certain issues and narratives that align with their interest. Moreover, the Secretariats have launched several joint communication strategies. This includes, for example, scripting messages to be included in public communication by the Executive Secretaries of the Rio Conventions which emphasize the importance of the interlinkages in such a way that it resembles the language of decision text. According to secretariat staff, such messaging is hoped to get picked up and inserted in intergovernmental negotiations. Moreover, the Secretariats have targeted civil-society actors through joint outreach campaigns to raise awareness to the tripartite environmental challenge (e.g., through the 2021 *Restoring Balance with Nature* campaign). Despite numerous activities highlighting the Secretariats' ambitions to influence knowledge and discourse, which in some cases has even led to observable behavioral adaptations of targeted actors, progress towards a joint agenda has been frequently hindered by a lack of sustained funding, varying degrees of recognition of commonalities between specific issue areas, and overall differences in the level and pace of politicization across the three conventions.

The influence of joint interplay management activities that can be causally linked to policy outcomes is generally difficult to trace, as secretariats do not have a direct mandate to participate in inter-state negotiations. This controversial mode of engagement is often concealed by orchestration strategies, as secretariats seek intermediary support from state- and non-state actors as means to promote the interlinkages agenda. In this context, the development on policy around nature-based solutions (NBS) particularly stands out. During recent COPs of all Rio Conventions, the theme of NBS has emerged prominently in RCP programs with non-state actor participation. In interviews, secretariat staff has recognized this development as a turning point for breaking intergovernmental gridlock, where Parties had previously been reluctant to move forward in fear of preempting negotiations on higher prioritized agenda items, especially within the UNFCCC. The secretariats have also targeted influential COP Presidents and high-level champions to discuss draft negotiation text as well as offer guidance on policy items relating to NBS and other areas of common interest. Moreover, the effects of joint interplay management activities can be found within national planning frameworks, including the NCDs, NBSAPs, or LDN targets. Here, the Secretariats have hosted workshops, offered technical guidance, and reviewed drafts, bringing to attention the synergetic potential to governments in simultaneously addressing the interlinked problems through these targets. Although the overall evidence for significant impact on norm-building processes is limited, the Secretariats have been most impactful when relying on

intermediary support to facilitate norm-building processes at early stages, or when timing activities to catalyze developments as they already move along.

To some extent, the Secretariats have also succeeded to build capacity and support joint implementation in their efforts to further institutional coherence among the three Rio Conventions. A close relationship to major financial mechanisms, such as the Global Environmental Facility (GEF) and the Green Climate Fund (GCF), has allowed the Secretariats to identify windows of opportunity for directing financial flows in favor of national-level project proposals that speak to climate change, biodiversity loss, and desertification alike. Moreover, the agencies carried out a number of workshops with relevant stakeholders aimed at harmonizing regional and national action plans or supporting joint work on forests and forest ecosystems. However, as secretariats are not implementing agencies, efforts to intensify capacity-building efforts, including fund-raising activities, have been repeatedly blocked by governments. Proposals for supporting project preparation at the national level, akin to the UNCCD's *Global Mechanism*, illustrate the differences (and interpretations) of the three Rio Conventions Secretariats' mandates.

The evidence provided from the collaborative activities among secretariats and their effects in terms of improving coherence across UN environmental institutions allow for extrapolating a mechanistic process theory: First, secretariats engage in continuous information-sharing, covering a broad range of topics that include specific instructions from national governments, detailed insights relating to political processes, and accounts of non-state action or implementation experiences. Second, this exchange of information serves as a basis for strategizing activities aimed at addressing systemic failures or identifying opportunities for synergy across institutional boundaries. Taking into consideration the particular interests of each secretariat, executive staff members identify strategic themes for collaboration, which are then presented to relevant units within the agencies to explore and develop opportunities for joint initiatives. Strategizing describes a process from abstract concepts to concrete action, requiring careful planning for resource allocation in terms of financial and staffing capacities. Finally, secretariats rally and convene relevant stakeholders to move forward with joint activities. This phase may also involve enlisting third-party actors as intermediaries, such as non-state actors, if their involvement is perceived to enhance the likelihood of achieving more impactful outcomes (see Figure 4).

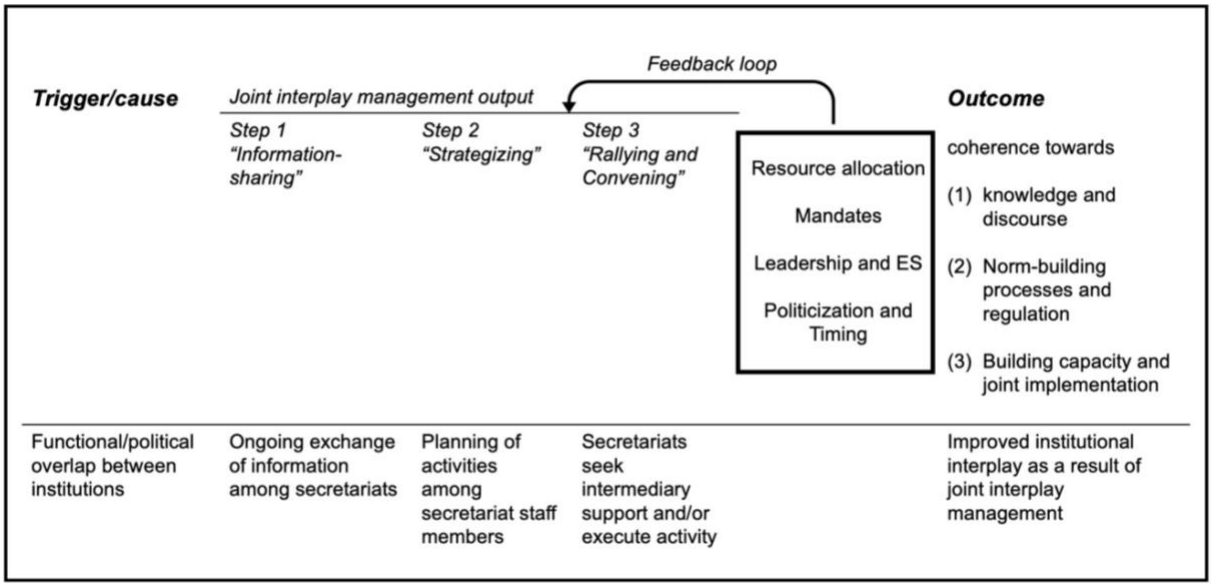

Figure 4. A mechanism for joint interplay management

However, the results of the analysis demonstrate that phases of strategizing and rallying and convening are frequently intervened by the following variables: (1) difficulties for secretariats to allocate necessary resources, including sustained finance for activities; (2) differences in mandates; (3) particular leadership priorities and the role of Executive Secretaries who (de-)prioritize the interlinkages depending on the degree of (4) politicization and timing. Executive Secretaries have given precedence to the work on synergies mainly if the political risks for drawing pushback from states have been low. The varying degree and pace of politicization here refers to the awareness of secretariats to push a certain agenda or narrative, thereby judging their leeway for maneuvering political arenas and weighing the stakes for negatively impacting intergovernmental negotiations. It also alludes to strategic decisions by secretariats to rally non-state advocacy in different political arenas, as some non-state actors have been gravitating away from UNCCD and CBD towards the UNFCCC. It is only when these variables align that joint interplay management activities may trigger behavioral adaptations in targeted actors (as exemplified by the Secretariats' activities on NBS, see *manuscript IV*).

Summary

The case studies have examined the interaction of and among the three Secretariats of the Rio Conventions at the *horizontal-non-governmental dimension* and *horizontal-governmental*

dimension. Specifically, *manuscript II* and *III* have looked at the means and mechanisms with which the secretariats coordinate with non-state actors in the policy domain of climate change, biodiversity loss, and desertification. *Manuscript IV* has focused on interactions across institutional boundaries exploring different collaborative activities among secretariats of distinct, yet interdependent, UN processes. All case studies have utilized the concepts of orchestration and joint interplay management, which are closely associated with actor-centered approaches in the study of institutional interplay. In light of this, *manuscript I* has identified existing knowledge gaps concerning the relationship, drivers, and consequences of the growing interactions between intergovernmental and transnational institutions – a research area that the case studies included in this thesis have aimed to address.

The overall research questions have asked about the means and mechanisms of the different interactions under scrutiny. Here, all case studies have tested and further added conceptual nuance to the different modes of engagement through empirical evidence. In the case of orchestration, it is the mechanism of 'intermediary support' that links the governance targets of the orchestrator with those of her target group. This relatively abstract 'one-liner' has been further explored towards a more 'systematized conceptualization' through case study research (Adcock and Collier 2001). For example, *manuscript II* has identified different, tailored styles of orchestration with which secretariats engage with non-state actor groups. Amongst other examples, the UNFCCC Secretariat has prioritized the facilitation of policy dialogues with non-state actors, the CBD Secretariat has fostered a close relationship with actors form the private sector, while the UNCCD Secretariat has focused on raising awareness with non-state actors to strengthen the capacities of different stakeholders to combat desertification. Through these findings, orchestration as a mechanism can be further distilled to illuminate how the investigated actors engage with intermediaries through different activities.[28] The varying roles that secretariats take up to engage with non-state actors share strong similarities with those previous identified by Biermann et al., who conceptualized international bureaucracies as knowledge brokers, negotiation facilitators, or capacity builders (Biermann and Siebenh ner 2009b).

By the same token, *manuscript IV* explored inter-secretariat coordination as joint interplay management – a mode of engagement that has not received much scholarly attention. In the case study on the three Rio Conventions Secretariats, I have conjectured a three-step mechanism linking

[28] See also Table 7 in this chapter.

functional overlap between interacting institutions to the improvement of such interactions through joint interplay management. Regarding the generalization of this mechanism, the empirical analysis indicated that reaching intended governance targets (e.g., coherence among interacting institutions) as outcomes of joint interplay management activities may be hindered by various intervening variables when conducted by international bureaucracies. These include obstacles concerning the allocation and continuity of resources, differences in mandates, leadership and individual priorities of executive staff, and the varying degree and pace of politicization as a result of the different problem structure across policy domains. Therefore, it remains to be seen whether the identified mechanism will hold up in similar cases within (and beyond) the specified universe of cases.[29]

In carrying out their activities, secretariats have also utilized novel means with which they coordinate with actors beyond national governments. Importantly, they actively engage in the field of information and communication technology. In collaboration with non-state actors, they collect, manage, and disseminate data intended to inform policy-making processes. In so doing, the three secretariats of the Rio Conventions have built databases and web-services for engaging actors - including national governments - showcasing global action on the underlying transboundary environmental problems. These new means of data-drive governance have important implications for information-sharing and knowledge management practices within UN environmental institutions, as the 'datafication' of real-world problems is rarely as 'neutral', complete, or accurate as assumed, raising questions about inherent uncertainties, biases, and false assumptions.[30]

The case studies have examined not only the means and mechanisms of actor coordination, but also focused on linking them to specific, normative outcomes. With *manuscript II*, *III*, and *IV*, I have explored potential improvements regarding the effectiveness and coherence of institutional responses as a result of the interactions of and among treaty secretariats. Reverting to the conceptualization of institutional effectiveness and coherence, the case study results indicate that these performance indicators primarily manifest at the output level. Put differently, there have been numerous activities intended at exerting pressure and boosting ambitions of state actors in intergovernmental negotiations. In some instances, there has been an observable shift in the behavior of state actors vis-à-vis previous positions that can be causally linked to secretariat interactions. Such goal attainment can be recognized, for example, by the inclusion of non-state

[29] See also Chapter 2.
[30] See also Chapter 7 for a brief discussion of these open questions.

actors through NAZCA and the GCA, which has received formal recognition in COP decisions under the UNFCCC. Likewise, the coordination among the Rio Conventions Secretariats and the supporting role of non-state actors for NBS indicates that secretariats are adept in influencing integrated policy-making. Based on the illustrative examples provided throughout the case studies, my findings merely suggest a trend beyond single-case evidence. If one considers behavioral changes in a broader sense, which also includes non-state actors, improvements to the coherence and effectiveness of institutional responses may paint a different picture. In this regard, it has to be noted that there could be more behavioral changes even with the instances of interaction under scrutiny, as a majority of these activities are still ongoing. Tracing and identifying behavioral changes can be a time-consuming and methodically difficult endeavor - especially considering the role of treaty secretariats as agents to principal nation states - but could be further explored in future studies.[31]

In summary of the overall findings presented in this chapter, UN treaty secretariats have indeed contributed to improving the effectiveness and coherence of institutional responses by coordinating with actors beyond national governments. Interaction across the *horizontal-governmental* and *horizontal-non-governmental dimension* has been enacted through soft modes of governance: On the one hand, secretariats have influenced institutional performance indirectly by employing different styles of orchestration with non-state actors. With a particular emphasis on the generation and use of data as a critical means to govern transboundary environmental problems, the public agencies have adopted innovative instruments and strategies to support the overarching governance goals of their conventions.

On the other hand, secretariats have engaged in joint interplay management across institutional boundaries to steer overlap and address ecological and political interdependencies. They have done so through strategizing and executing joint activities aimed at addressing systemic failures as a result of continuous information-sharing among secretariat staff. Interestingly, coordination between secretariats and non-state actors is not limited to the expected *horizontal-non-governmental dimension*, but also extends to the *horizontal-governmental dimension*. Where secretariats engage in joint interplay management, they frequently rely on third-party support from non-state actors to promote coherence among their respective institutional frameworks. These

[31] See also Chapter 7 on potential avenues for future research.

findings indicate that secretariats rely on orchestration practices and support from non-state actors as a makeshift solution to enhance institutional performance.

CHAPTER 6. WIDER IMPLICATIONS FOR THEORY AND POLICY: UN ENVIRONMENTAL INSTITUTIONS BEYOND THE STATE?

In the following chapter, I will revisit some of the thesis' findings and reflect on their wider implications for both theory and policy. I will do so by focusing on the elemental components that this thesis has aimed to address: actors and their role within international institutions. First, I will present some additional views towards theory building aspects that could be further developed as a result of this thesis. This also includes some critically reflections on the orchestration concept – an approach that both the case studies and the overall theoretical approach have built on. Returning to the overarching research aim of better understanding the connections between actor interactions and potential improvements in institutional responses towards dealing with collective action problems, I will reflect on some emerging challenges and unresolved questions that bear relevance to policy-making. In so doing, I will also discuss secretariat interactions in the context of contested multilateralism and the dynamics of a changing world order.

The Role of Actors in International Institutions

Contrary to sceptics who have doubted the relevance of treaty secretariats for the course of politics (e.g., Drezner 2007), this thesis - above all - demonstrates that treaty secretariats play a key role in the evolution of UN environmental institutions. Drawing on Weber's (1947) infamous ideal type construct of a rational-legal bureaucracy, structures of bureaucratic systems of administration determine the type and content of their activities and their organizational behavior. They create and disseminate symbols, meanings norms, rules, and even formulate new interests for states (Prokhorenko 2023). The perspective that this research offers is that the generation of new ideas, social knowledge, and influence in international institutions is not reliant on the bureaucracy as an agent alone. Rather, their secretariats interact with actors beyond the state and extend their area of influence past organizational boundaries. These interactions frequently rest on informal coordination aimed at alliance-building among secretariats and non-state actors, which also set up avenues for formal communication and negotiations for adopting binding international decisions among states. It is through these coordination mechanisms that treaty secretariats contribute to overcoming institutional inertia and inducing reform from within.

In this way, treaty secretariats are neither neutral, nor straightjacketed, as studies have previously suggested (e.g., Busch 2009; in response see also Hickmann et al. 2019b). With regards to agency slack, they perform a balancing act of respecting their mandates while simultaneously utilizing the leeway in interpreting open (or ambiguous) commands, revealing the intricate relationship between principals and agents. As indicated in various examples provided throughout this thesis' case studies (*manuscript II-IV*), the secretariats have frequently reached out to non-state actors if presented with an opportunity to do so, thereby substantiating their own preferences through intermediaries.

This notwithstanding, becoming too entrepreneurial and overstepping the boundaries of their mandates comes with a high cost that may impede intergovernmental negotiations or lead to state pushback. Former CBD Executive Secretary Ahmed Djoghlaf serves as an illustrative example: During his tenure, Djoghlaf took a risk by openly advocating for a joint intergovernmental conference format between the three Rio Conventions as well as putting great emphasis on non-state actor engagement. In effect, he is credited for the establishment of the RCP as an offspring of this priority. However, his high profile and rather broad interpretation of mandate also sparked differences of opinion among Parties to the CBD, which "contributed to his downfall" (Interview with senior staff from the CBD Secretariat; see also *manuscript IV*).

Non-state actors and transnational initiatives are often believed to be well placed for filling in governance gaps to advance solving transboundary environmental problems (e.g., Green 2014; Green and Auld 2016; Zelli, Möller, and van Asselt 2017). Likewise, they may play an important role as a connecting link between international and national levels, facilitating information flow, policy diffusion, and inter-organizational learning (Renckens 2015; Cao and Ward 2017). The case studies confirm that secretariats have acted as major drivers for 'opening up' their respective organizations for the involvement of non-state actors, such as business actors, non-governmental organizations, civil society, or scientific communities (Tallberg, Sommerer, and Squatrito 2013; Andonova 2017a). This is particularly prevalent in the international climate change regime, where the Secretariat has played a decisive role in orchestrating non-state climate action for a more ambitious Paris Agreement in 2015. A resulting shift in recognition from 'observers' to 'non-party stakeholders' essentially meant that public and private actors across transnational and sub-national scales have formally gained a stake in the implementation of policy targets under the UNFCCC (Hsu et al. 2015; Hale 2016).

Transnational actors have made big pledges to tackle transboundary environmental problems. However, many pledges have remained promises that have yet to materialize. Some scholars have voiced skepticism of the impact of non-state action to significantly improve the implementation of governance targets specified under UN framework conventions. For example, Michaelowa and Michaelowa (2017) have challenged the assumption that transnational governance initiatives serve as an opportunity to make up for insufficient intergovernmental action, as the ambitions of private firms, subnational governments, or non-governmental organizations is overall too low to close regulatory gaps, specifically under the UNFCCC. Others have depicted the relationship between non-state actors and national governments a one-way street with little evidence that "successful transnational governance resonates positively in the intergovernmental negotiations" (Hermwille 2018: 460).

Even though synergistic interaction between non-state actors and transnational initiatives and the intergovernmental process of MEAs has generally remained limited, it may still be too early for final judgements about the consequences of non-state action in terms of impact effectiveness. Whereas casting doubt over the impact effectiveness of non-state actor participation in environmental regimes may be adequate, this thesis – alongside other scholarly evidence (e.g., Kuyper, Linnér, and Schroeder 2018; Dzebo 2019; Streck 2021) – demonstrates a different trend: Non-state actors not only play a complementary role to intergovernmental processes within the context of regimes (e.g., transnational institutions), they cast influence on intergovernmental processes through direct engagement and alliance-building with treaty secretariats. We hence witness signs of a growing convergence between public and private institutions, which is largely driven by secretariats and non-state actors.

Nation states play an increasingly ambiguous role in hybrid environmental regimes. With a rise in transnational governance, national governments no longer have exclusive regulatory global authority. There is, however, little evidence of fading power and influence of nation states in the current international system as they still fulfill vital functions in international policy-making – particularly within those institutions set up by national governments (Falkner 2013; Zürn 2018b). From a rational perspective, for some states, active involvement in UN environmental institutions may increase their authority and influence. Meanwhile, for other states aiming to assert their regional and global leadership, participation in these structures offers an opportunity to exert leverage by 'pushing' or 'dragging' processes of consensus-building (Sprinz and Vaahtoranta 1994; Dingwerth and Pattberg 2009). Problems arise, for example, if powerful actors within these

institutions question their legitimacy by engaging in forum-shopping behavior to realize policy objectives in those policy fora that best suit their preferences (and exiting those that do not), or retreating institutions if the cost of cooperation outweighs means of alternative, unilateral policy-making (Murphy and Kellow 2013). Some case study examples suggest that while some governments have openly encouraged increasing coordination between the secretariats and non-state actors, such as the Peruvian and French government in the case of LPAA under the UNFCCC, or the Japanese government supporting the Midori Prize for Biodiversity under the CBD (see *manuscript II*), interviewed staff from the secretariats have frequently alluded to the deliberate lack of engagement from some governments towards proposals that are feared to interfere with national interests and state sovereignty. At the extreme end, this even involves considering options to strip the secretariats of specific mandated functions as a means to circumvent their capacity to exert influence in policy-making processes (see also Dimitrov 2019).

Re-thinking Agency in Institutional Theory

The changing roles of actors indicates that UN environmental institutions are not static. Instead, they evolve and gain forms of collective agency as they become aware of their role as essential structures for addressing global common goods as collective action problems (see also Prokhorenko 2023). They serve as arenas where the politicization and contestation of such problems take place. Through these processes, international institutions project the perception as entities capable of devising and implementing strategies that determine the behavior of actors. Understanding the functioning of institutions has been the central focus of institutional theory, which has been amongst the most applied ontological approaches in International Relations to explain and predict the course of world politics. This research has drawn on a number of these assumptions throughout the manuscripts included in this dissertation.

While normative and sociological institutionalists (e.g., Meyer and Rowan 1977; DiMaggio and Powell 1991; Keck and Sikkink 1998) as well as some liberal institutionalists (e.g., Keohane and Nye 1972; Keohane 1984) have acknowledged the mutually constitutive nature of actors and institutions, the prevailing emphasis on macro-level processes and structures in institutional theory has limited the exploration of its micro-foundations. Specifically, new institutionalism should more comprehensively engage with the role of collective agency in (inter-) institutional spaces as well as the underlying mechanisms of interaction activities carried out by actors (see also Gehring and

Marx 2023). By paying more attention to these aspects, we can gain a better understanding of the dynamic evolution both within and among international institutions.

Against this backdrop, this thesis stands in tradition with scholars such as Oberthür (2009) or Jinnah (2014; 2015) who have sought to grasp such mechanisms of interplay and coordination involving actors, which have not only advanced empirical knowledge, but also allow for deriving theory-enriched assumptions about how and why institutions are subject to change. For example, Stokke (Stokke 2000; 2001) or Oberthür and Gehring (Oberthür and Gehring 2006a) have spearheaded conceptual progress for identifying causal mechanisms of institutional interplay, including cognitive, normative, or behavioral aspects. With regards to collective agency, the challenge for institutional analysis may not only be about including variables in more proximity to agency rather than structure, but to make further conceptual and analytical headway for understanding institutional change through ways of the interpretations, interests, identities, and representations of (collective) agents.

Theorizing Institutional Vortices

The overall empirical findings and the reflections on collective agency presented above provide a foundation for further theory-building regarding the dynamic nature of UN environmental institutions and the role of actors beyond national governments within these institutions. As noted by Bunge (1997: 440-441), most mechanistic explanations involve a combination of agency and structure, including processes that may either drive or hinder change at one or both levels. This thesis is no exception to this observation: Coordination with non-state actors has alleviated the agency of treaty secretariats. Specifically, secretariats have used different orchestration styles not only to intersperse their interest with intermediary support from non-state actors vis-à-vis national governments. Through the interactions with non-state actors and their resulting integration within institutional structures, secretariats alter the overall performance of international institutions inducing change. In the following section, I will conjecture a four-step cyclical pattern of a so-called institutional vortex, delineating how the interactions between treaty secretariats and non-state actors may overcome institutional inertia towards reform through integration. The pattern linking inertia and integration reveals the presence of 'traditional' mechanisms commonly found in sociological and neoliberal institutionalism, such as norm-spreading, learning effects, or processes of preference shaping and maximization (e.g., Powell 1993; Moravscik 1997; Greif and Laitin 2004). The concept of institutional vortices demonstrates how these mechanisms come into

play within spaces of institutional interaction, where actors beyond national governments pursue different governance strategies ranging from orchestration to collaboration.

Trigger/cause: Institutional inertia. Once established, shared sets of norms, rules, regulations, and decision-making procedures among actors participating in international institutions can be 'sticky' (Kapur 2002). In other words, processes of institutional change are characterized as slow-paced, gradual, and incremental, as international institutions are frequently trapped cycles of reinforcing existing structures and practices – even if they are ineffective. There are a number of factors that drive such cycles, including actors' resistance to change, the distribution of power, high levels of uncertainty, or lack of available resources to achieve overarching governance targets (Pierson 2004). In effect, international institutions may become increasingly disconnected from the changing needs and expectations of its participants resulting in gridlock – a state that has been described as institutional inertia (e.g., Kahler 1999; Wilkinson 2001; Aksom 2022). For example, scholars have found the policy domain addressing transboundary climate change a particularly illustrative example of inertia and resistance to urgent (and often promised) mitigation and adaptation action within international institutions set up by governments (Munck af Rosenschöld, Rozema, and Frye-Levine 2014). In this setting, inertia serves as a trigger or cause for the dynamic that impels institutional vortices.

Stage 1: Bypassing and strategic outreach. Identifying states of inertia and gridlock, treaty secretariats strategically seek to engage and convene with actors beyond their organizational realms. Relatively low levels of state oversight and somewhat weak control mechanisms are preconditions that allow treaty secretariats to become entrepreneurial and use orchestrion in order to bypass state actors, particularly those that may hold conflictive positions vis-à-vis the governance targets pursued by the public agencies (Abbott et al. 2015b: 12; see also Oksamytna 2018). Strategic outreach centers on those non-state actors that secretariats expect to possess necessary capabilities in terms of ideational or material resources for overcoming situations of institutional gridlock and inertia. Various results from this thesis demonstrate that treaty secretariats generally reach out to non-state if they believe that such engagement will support their aims and interest (and vice versa), which results in competition, bargaining, and mutual learning among interacting parties.

Stage 2: Competition, bargaining, and mutual learning. Global environmental governance has witnessed a steep growth in numbers of active non-state actors over the past decades. Particularly in the issue area of climate change, biodiversity loss, and desertification, this growing complexity has also increased the density of social networks – a favorable and well-researched condition linked to the evolution of institutions as social processes (e.g., Meyer and Rowan 1977; Turner and Baker 2019; Eilstrup-Sangiovanni and Westerwinter 2022). Remarkably, staff from various treaty secretariats have frequently noted in interviews that the proposals for collaboration from non-state have changed over time, becoming more in line with secretariat interests as well as making it easier to collaborate while minimizing risk of state objection. A rise in numbers of active non-state actors have led to increased competition amongst non-state actors. This trend has created more opportunities for collaboration with non-state actors who possess the desired capabilities sought by secretariats. As a result, the growing number and competition among non-state actors have bolstered the bargaining power of the secretariats. Likewise, intensified coordination between secretariats and non-state actors has enabled processes of preference alignment, knowledge exchange, and different forms of mutual learning (e.g., Haas 1997; Siebenhüner 2008; Littoz-Monne 2017; Esguerra and van der Hel 2021).

From the perspective of non-state actors, coordination with treaty secretariats offers a clout of legitimacy and recognition for their actions due to their close proximity to intergovernmental processes. This proximity grants non-state actors access and influence to policy-making within international institutions. On the side of secretariats, alliance-building with non-state actors entails potential benefits in terms of accelerating and/or better aligning intergovernmental processes (e.g., through joint advocacy with non-state actors). We can observe this kind of behavior, for example, from the interactions between the UNFCCC Secretariat and non-state actors within NAZCA, or with regards to the joint interplay management activities carried out by the Secretariats at the RCP. My findings demonstrate that secretariats mobilize non-state actors to augment state preferences throughout the policy cycle: non-state actors help to raise awareness and define a particular problem, thus impacting discourse in the initiating stages of a policy. In some cases, discourse may influence stages of policy drafting (e.g., providing policy-relevant information) and implementation (e.g., monitoring and tracking progress by means of data governance) (see also Knill and Bauer 2016; Ege, Bauer, and Wagner 2021).

Stage 3: From orchestration to collaboration. If intended governance objectives are successfully reached, orchestration may lead to positive demonstration effects among actors within the target group (national governments), thus increasing secretariat authority to deepen engagement with non-state actors. At this stage, indirect modes of governance may change over to direct ones, as collaboration requires higher levels of authority granted by governors. Orchestration, in comparison, does not necessitate the same level of authority from source actors, as orchestrators rely on the authority of intermediaries.[32] For example, the shift from orchestration to collaboration has been most visible with the GCA under the UNFCCC, where states have acknowledged the importance of the platform as a policy instrument to strengthen the implementation efforts between the Parties and non-party stakeholders (see also *manuscript III*). As a result, the work under the GCA – including direct collaboration between the UNFCCC Secretariat and non-state actors – has become an official and integral part of the UNFCCC's modus operandi in the Post-Paris era.

However, positive demonstration effects not only matter for treaty secretariats and intergovernmental institutions at the international level, but are underpinned by cascades of norm-spreading and learning effects vis-à-vis non-state actors on the ground within domestic contexts (e.g., the UNCCD Secretariats engagement with non-state actors at the national level, which is officially mandated through the Global Mechanism to guide and realize projects related to fighting desertification). Spanning multiple levels of governance, this dynamic implies a multilayered vortex of institutional change, much like earlier theories depicting norm change within international institutions and transnational networks as 'boomerangs' or 'cascades', where non-sate actors at the local level bypass unresponsive states to exert pressure through their engagement with IOs (Finnemore and Sikkink 1998; Keck and Sikkink 1998; see also Pallas and Bloodgood 2022).

Stage 4: Reform through integration. At the final stage, the interactions between treaty secretariats and non-state actors evoke a convergence of public and private authority within international institutions.[33] In this context, integration can be understood as a reformative or evolutionary process in which the internalization of non-state actors has potential repercussions

[32] See also Chapter 3 on different modes of governance put forward by Abbott and Snidal (2009).

[33] In this context, the convergence of public and private authority aligns with similar findings from scholars who have examined the 'opening up' of IOs or the establishment of public-private partnerships (e.g., Tallberg, Sommerer, and Squatrito 2013; Andonova 2017a; Holthaus 2021).

with regards to the effectiveness, participation, accountability, legitimacy, or even justice within international institutions. Treaty secretariats and non-state actors thereby expand their activities into new domains previously in sole control of national governments, thus overcoming a previous state of institutional inertia (see also Littoz-Monnet 2021). Adding to the examples provided above, the successful orchestration efforts of the UNFCCC Secretariat through NAZCA and the GCA have played a decisively influence for the recognition of non-state actors as stakeholder under the Paris Agreement.

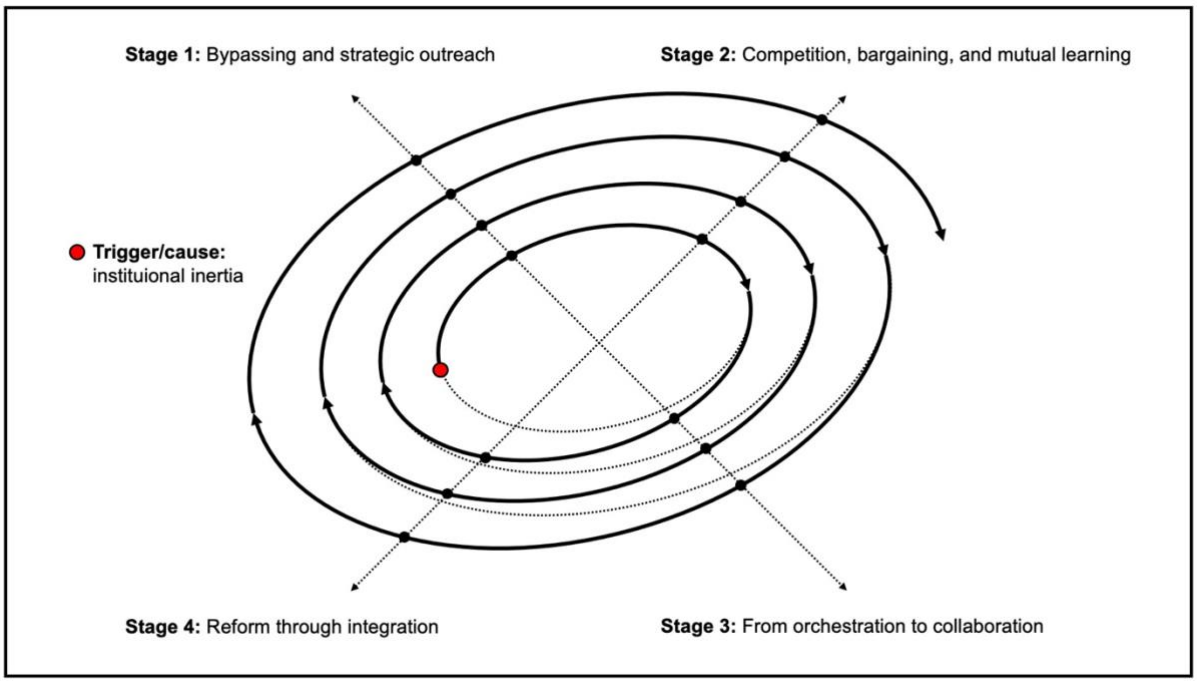

Figure 5. The dynamics of institutional vortices: From institutional inertia to reform through integration

The dynamic of the illustrated vortex (see Figure 5) represents a process where changes and adaptations occur from one stage to another in a cyclical, outward-spiraling pattern, unwinding layers from outreach to integration of actors within international institutions. As such, the vortex theory adopts a certain functionalist approach to different strands of institutionalism, which should not be understood in a way to dogmatically shield the theory from contradictory evidence. On the contrary, there are a number of limitations, caveats, and open questions to the different stages laid out above, some of which may serve as promising entry points to further explore institutional vortices. For example, it is yet unclear what are the conditions and causes for linking one layer of the vortex to the next one after integration is reached. In other words, how can integration be

sustained, what are the triggers for further bypassing and strategic outreach to avoid potential rebound effects to situations of institutional inertia, and how do deal with external, intervening variables that may impact various stages the vortex. The dynamics sketched out above should hence be studied not only from a perspective of international institutions alone, but also consider multi-level and polycentric elements, including feedback loops and spreading effects of vortex dynamics across various governance levels (e.g., Ostrom 1990; 2010; Bäckstrand, Zelli, and Schleifer 2018).

Future research may also explore inward-spiraling aspects regarding the influence of non-state actors to impact secretariats through diffusion of norms and interests that travel bottom-up, that is, from country-specific, domestic contexts to the international level. What are the consequences for vortex dynamics if transnational non-state actors exert too little versus too much influence in international institutions? In other words, what are implications for engagement with and integration of non-state actor agendas and interests, including the risk of endorsement by secretariats and related adverse effects towards legitimizing actions at odds with the overarching governance goals of UN environmental institutions (e.g., green washing practices of non-state actors). Finally, while orchestration and collaboration necessitate a level of intent and awareness of actors that aim to realize certain policy interests, further research is needed to understand the linkages to reform through integration as an intended or rather unintended, dynamic phenomenon of the engagement between treaty secretariats and non-state actors.

A Critique of the Orchestration Approach

The vortex theory as well as the case studies included in this dissertation have all build on the concept of orchestration in one way or another. As a soft and indirect mode of governance, orchestration has become quite popular among scholars to describe how IOs (and bureaucracies) operate to realize certain policy interests (e.g., Bäckstrand and Kuyper 2017; Gordon and Johnson 2017b; Widerberg 2017; Chan and Amling 2019; Hickmann et al. 2019a). Specifically, orchestration provides an appealing concept to explain how orchestrators can overcome governance deficits in terms of insufficient material and ideational resources or operational capacities simply by turning to intermediary actors for support. However, the findings demonstrate that the dynamics within orchestration settings are often complex and may evolve and change over time – a promising area of research that requires further attention going forward. On the one hand, what started out as orchestration may turn – under certain conditions - into novel forms of direct collaboration. From studying different orchestration settings, such conditions could entail

prolonged interaction with benefits for interacting parties, including positive feedback loops from those actors targeted through orchestration (e.g., national governments). This may render indirect forms of coordination into direct ones, thereby shifting orchestration towards collaboration.

On the other hand, the archetype roles of orchestrator and intermediary frequently lack a clear distinction beyond the conceptual realm. Following the analogy of an orchestra, an orchestrator is responsible for the direction of the ensemble, ensuring a harmonious, unified, and cohesive execution, while making active and conscious decisions regarding the dynamics and overall interpretation of a performance.[34] This suggests some level of hierarchy by the orchestrator vis-à-vis the intermediary, with the latter – ideally – following the lead of the instructions conveyed. Yet, it is sometimes challenging to discern who is taking up which role in an interaction setting – who is approaching and enlisting whom as intermediary and who orchestrates? Who steers, leads, or controls an interaction setting in terms of its overall performance, or even imposing sanctions for non-compliant behavior? While these open questions certainly demand further study, in many instances throughout this research, we primarily witness a division of labor between secretariats and non-state actors who engage in forms of coordination if such activities entail win-win situations for both parties. With orchestration and collaboration representing "extreme points of continua", Abbott and colleagues (Abbott et al. 2015b: 10) acknowledge that there are "degrees of '(in)directness'" for engaging actors in practice. However, the orchestration concept may ultimately be limited when used as a lens to study the evolving relationship between different administrative bodies of international regimes or organizations and non-state actors across various levels and scales of governance.

Implications for Policy: Trends and Challenges for UN Environmental Institutions

This dissertation also offers some implications for policy and practice that relate to some emerging – and some persistent – challenges for UN environmental institutions regarding the coordination and interaction of states, non-state actors, and treaty secretariats. Rather than prescribing direct advice or recommendations to policy-makers, I will discuss some trends and developments in light of the thesis' results that are expected to have relevance for both policy and practice going forward.

[34] See also Aykut and colleagues (2022) on their account on orchestration versus performances and dramaturgical interventions as novel form of soft coordination in global climate governance.

Above all, one of the major challenges for UN environmental institutions will be how they respond and adapt to a changing world order. With little controversy, it can be argued that it is predominately liberal norms, rules, and values evoked by powerful Western states that have dominated international politics in the post-Cold War era. However, over the past years, discussions surrounding an immanent crisis of multilateralism have gained significant prominence in both public and academic discourse (e.g., Sørensen 2011; Morse and Keohane 2014; Mearsheimer 2019; Zürn 2021). Driven by allegations of double standards, critique directed at liberal elites by populist movements, or quests of transnational non-governmental organizations seeking to gain access to intergovernmental processes, this crisis has often been framed as one of diminishing authority and legitimacy of international institutions (e.g., Buchanan and Keohane 2006; Zürn 2018b; Sommerer et al. 2022).[35] In terms of legitimacy, interventions through these institutions into national spheres of authority must be sufficiently legitimized. With climate change, biodiversity loss, and desertification, for example, there is increasing evidence that these complex problems, alongside pathways for sustainable development, necessitate profound transformations of political, economic, and socio-technical systems (Newell and Paterson 2010; Patterson 2010; Biermann et al. 2012b). However, transformations are commonly understood to imply changes in power relations which produces both winners and losers throughout its course, thus they are deeply contested (Burch et al. 2019).

Historically, national governments have failed justifying interventions through international institutions equally across (mostly) similar cases, pursuing those in line with the interests of major powers, while neglecting others. This alludes to a weakly established separation of powers within international institutions, which Zürn (2018b) has labeled as one of two defining features of global governance. The domain of international security is one fitting example for such asymmetries, where the UN has played an ambiguous role for conflict management and humanitarian intervention (e.g., Diehl, Reifschneider, and Hensel 1996; Makinda 1996; Roberts 2003). At a basic level, the stronghold of major powers over the UN may also be evident from the locality of associated entities within the UN system, including funds, programmes, specialized agencies, and related organizations, which are predominantly placed in countries of the Global North.

[35] According to Weber (2013: 450), authority and legitimacy are intrinsically linked, as increasing authority "is normally accompanied by the permanent attempt to arouse and nurse beliefs in legitimacy" (translation from Zürn 2018b: 63-64).

However, emerging economies, such as China, India, Brazil, Indonesia, or South Africa, are gradually shifting the distribution of power within international institutions. Within the context of the UNFCCC, for example, non-OECD countries are on the way of passing over 60 percent of global greenhouse gas emissions, excluding those emissions from land-use change and forestry (Global Carbon Project 2022; see also Marquardt, Fünfgeld, and Elsässer 2023). Given the growth, development, and consumption trajectories of these rising powers, their role in UN environmental institutions will be crucial for the successful implementation of MEAs.

These new players in global (environmental) governance will presumably have lasting influence on their design, operation, and evolution of UN institutions, which bears new challenges and open questions. For example, with apparent differences regarding democratic and autocratic systems of rule among member states, what will be the effects of these developments towards the norm foundations the UN is built on? How will this affect the use of data and knowledge as a basis for consensus- and decision-making?[36] What are the factors that can contribute to transcending the current state of heightened politicization and contestation for dealing with transboundary environmental problems in a safe and just way (Newell et al. 2023; Rockström et al. 2023)? And, finally, with a lack of central authority in international politics, how will the bureaucratic apparatus of UN environmental institutions respond to imminent power shifts, who will gain access and influence, and what are the effects in terms of the behavior of treaty secretariats vis-à-vis state principals (see also Heinkelmann-Wild and Jankauskas 2022)?

In the context of UN treaty secretariats, a question posed in McLarens (1980: 142) critique of the 'quixotic quest' for coordination among UN agencies might again become pertinent in a changing world order: "quis custodiet ipsos custodes? or, in the UN situation - who coordinates the coordinators?". While answers to this question may only be speculative, it will be key to understand how to further enhance the coordination of and among the treaty secretariats of UN environmental institutions. This becomes particularly significant given the functional linkages and interdependence of transboundary environmental problems. In some respect, this task is not new, as scholars and practitioners have identified coordination issues among UN agencies as early as the 1980s, such as "overlapping mandates and jurisdictions […]; independent sources for each agency of […] fund resources; the inability or lack of desire within the member-governments to coordinate their approaches toward the UN system as a whole" (McLaren 1980: 141; on the same

[36] See also Chapter 7 on a more detailed outlook on data and knowledge in UN environmental institutions.

issue see also World Commission on Environment and Development 1987). Despite the fact that specialized environmental MEAs and treaty organizations under the UN emerged only a few years after these observations, several of the points of criticism have persisted. Some case study results suggest that the joint interplay management activities of UN treaty secretariats exhibit obstacles relating to differences in mandates, resources, or a lack of engagement (and resistance) from some governments to follow up on opportunities for the synergetic implementation of governance targets across MEAs - while, paradoxically, these governments continue to individually contribute their membership dues to all of these processes.

Nevertheless, there have also been significant advances in coordination. For instance, UN treaty secretariats have been successful in overcoming barriers through strategic outreach to other UN agencies across institutional boundaries as well as joint advocacy with non-state actors to advance knowledge and discourse, shape norm-building processes, and ultimately exert influence on policy-making. This thesis has, above all, demonstrated that treaty secretariats are adept in coordinating with myriad actors beyond national governments, despite limited mandates and resources. They strategically orchestrate, collectively manage, or directly collaborate with actors and institutions, thus driving global ambition levels for action on transboundary environmental problems. Accordingly, interactions of and among treaty secretariats might improve the weak linkages between institutions, thereby merging loosely coupled spheres of authority, reversing a trend which Zürn (2018b) has defined as the second defining characteristic of the global governance system. The case studies illustrate that secretariat interactions aim to increase the inclusion of non-state actors in institutions set up by national governments, thus fusing private and public authority and inducing reform through ways of restructuring governance systems.[37] This suggests the emergence of new alliances, characterized by a division of labor, between non-state actors and the bureaucracies of UN entities spanning across intergovernmental and transnational levels. Essentially, through these interactions, treaty secretariats not only exert influence over policy matters but also shape dimensions of polity and politics within international institutions. Going forward, it will be crucial to further develop policy mechanisms to facilitate and maximize the effectiveness of these relationships.

Reverting to the debate on a changing world order, of course, the growing interactions between treaty secretariats and non-state actors might not fully alleviate contested multilateralism,

[37] See also previous section on institutional vortices.

let alone facilitate societal transformations. As Duit and colleagues (2010) have formulated nicely: "At the end of the day, governance solutions for many […] problems rooted in complex systems dynamics will, as always, consist in incrementally implemented, heterogenic, and piecemeal mixes of policy instruments, institutions, networks and organizations". However, the active inclusion of non-state actors through secretariats in UN environmental institutions can be interpreted as an indication towards restoring the authority and legitimacy of extant multilateral institutions, which may catalyze incremental towards more radical change (Green 2014; Tallberg 2014; Green and Auld 2016; Hale and Held 2017). Despite remaining gaps in coordination (and implementation), there are promising signs that transnational actors and institutions indeed strengthen global responses to transboundary environmental problems and generate a positive impact in terms of the evolution of UN environmental institutions.

CHAPTER 7. CONCLUSION: LIMITATIONS AND FUTURE RESEARCH

This thesis has embarked on an exploration of the interactions of and among various UN treaty secretariats in global environmental governance. Thereby, the focus was on the *horizontal-non-governmental* interactions between treaty secretariats and non-state actors, as well as *horizontal-governmental* interactions between various treaty secretariats of specialized, yet interdependent, UN environmental institutions. I have utilized institutional theory and related fields of study, including an actor-centered perspective on institutional interplay, the concept of interplay management, and orchestration theory to examine how UN treaty secretariats engage with actors beyond national governments. In so doing, I empirically assessed the means and mechanisms through which they coordinate for enhancing the effectiveness and coherence of institutional responses to address transboundary environmental problems, such as climate change, biodiversity loss, and desertification. The results from the case studies included in this dissertation illustrate a broader trend of increased non-state actor involvement within institutions set up by national governments, facilitated through strategic outreach of secretariats. Through these interactions, secretariats and non-state actors not only exert influence at policy-making, but also impact the polity and politics dimensions of international institutions. After a reflection on the wider implications of these dynamics for institutional theory and having discussed emerging trends and challenges policy, it is imperative to acknowledge some of the limitations inherent to this dissertation. These include, amongst others, challenges towards generalizing results from case study research as well as placing particular emphasis on some of the attributes and linkages of the scrutinized variables (while disregarding others) throughout this study. Ideally, these limitations may offer fruitful entry points for future research.

Importantly, case study methodologies come with some perennial challenges regarding the generalization of findings to a wider population and should thus always be interpreted with some caution. As laid out in the overall research design (Chapter 4), results drawn from specific cases may not necessarily translate to all other cases within the specified population, including some heterogeneity at the level of causes and outcomes in different contexts. This also holds true for mechanism-oriented research projects: while the identified mechanisms or parts of the mechanisms may apply to other cases of secretariat interaction within the population of UN environmental institutions (see also Chapter 2), they might differ in some empirical as well as conceptual aspects.

Moreover, controlling for variables not included in the research design can be challenging when conducting qualitative case studies.

In aiming to address these shortcomings, I investigated three cases representative of UN treaty secretariats in different domains of global environmental governance. Specifically, through the method of structured, focused comparison (*manuscript II*), I have compared the interactions of different treaty secretariats and non-state actors within the broader, hybrid regimes addressing the severe and complex problems posed by transboundary climate change, biodiversity loss, and desertification (*horizontal non-governmental dimension*). The three examined cases were examined as typical (or rather crucial) cases for which the outcome (change in institutional effectiveness/coherence) as well as the causes and known contextual conditions (interactions of treaty secretariats and non-state actors and interactions among treaty secretariats) are present. However, the results should also be complemented and compared with deviant cases to trace the identified mechanisms until they break down, i.e., cases where the outcome is not present. This might also entail some more dedicated focus for refining contextual conditions. For example, future research could more thoroughly investigate and define threshold levels for non-state actor participation in governance domains, which are likely to affect their interactions with treaty secretariats.

By following process-tracing methodologies and making mechanistic claims, researchers need to be aware the conflicting relationship between theoretical abstraction and internal/external validity of process theories. In a nutshell, if the level of theoretical abstraction is high (e.g., abstract 'one-liners'), this means that the level of internal validity is generally low (while external validity is high). Conversely, case-specific, very detailed mechanistic process theories entail a low level of theoretical abstraction, but a high level of internal validity (and a low level of external validity) (see also Beach 2022). With those case studies included in this dissertation that have employed process-tracing methods, particularly *manuscript IV*, I have aimed for a compromise of providing contingent, mid-range theoretical claims for the cases examined (i.e., keeping equal levels of theoretical abstraction and internal validity). More research is thus needed to further explore the identified processes in other cases that look similar at the cross-case level to expand both our empirical and theoretical knowledge on the means and consequences of secretariat interactions (both at the *horizontal non-governmental* and *horizontal governmental dimensions*).

In terms of the certainty and likelihood of the case studies' results towards institutional effectiveness and coherence as well as their wider implications for reform within UN

environmental institutions, existing evidence should be checked for competing or alternative explanations from unstudied cases within the population. The cases examined in this dissertation should thus be understood as illustrative examples of the ways in which secretariats interact with actors beyond national governments, which ideally lay the groundworks for future research to complement and strengthen existing evidence, particularly with regards to the consequences of these interactions for the dynamic evolution of international institutions in global environmental governance.

Beyond the limitations and avenues for future research addressed within the individual manuscripts as well as the preceding chapters, there are a number of overarching aspects in need for some final reflection. First, I departed from an overall assumption that secretariats are, by and large, rational and value driven actors that serve the overall purpose of implementing their respective MEAs. Due to the overall scope of the individual paper projects, some factors conditioning secretariat interactions (*independent variable*) were neglected. These include, for example, more theory-driven assumptions on secretariat behavior and interests which could help to better understand which actors are targeted, who is left out, and why. Process-tracing techniques and cross-case comparison could further be complemented by an expansion of methods, for example, through network analysis (e.g., Jörgens, Kolleck, and Saerbeck 2016; Kolleck et al. 2017). Some findings relating to the joint interplay management activities of secretariats indicate that the agencies should not be perceived of as unitary actors. Despite general commonalities, their strategic choices for autonomous action are influenced by obvious differences, for example, relating to the endowment of mandates and resources or the embeddedness within their larger organizational settings and institutional design characteristics that differ in terms of the overall problem structure and the degree of politicization within their respective policy domains (Cortell and Peterson 2022). In reality, coordination amongst secretariats, including interaction with non-state actors, resembles ongoing processes of competition and bargaining that may not always be as harmonious as some of the provided examples suggest. Future research should pay more attention to identifying the drivers of these processes that may or may not translate into coherent and effective strategies for addressing transboundary environmental problems. This also warrants a dedicated focus on the interactions detailed in this thesis from a perspective of non-state actors.

Second, more thorough attention should also be paid towards the relationship between secretariats and states. This thesis has primarily explored how states may be influenced through secretariat-led orchestration, which lays some of the empirical groundwork for future research on

the autonomy and independence of bureaucracies vis-à-vis state principals (see also Michaelowa and Michaelowa 2017). This implies a more comprehensive examination of the bureaucracies' mandates to identify in which instances and areas secretariat interactions are explicitly supported by direct injunctions from national governments as well as cases where bureaucracies engage in agency slack or even rogue behavior (e.g., Cortell 2006; Heldt et al. 2022). Conversely, less attention has been paid to some of the alliances between secretariats and states themselves. Findings on the coordination activities with COP Presidencies and Party Champions across the three conventions suggests that such relationships could be a worthwhile, but also challenging, endeavor for future research.

Third, one particularly interesting and unexpected finding relates to the use of data and data infrastructures, where UN treaty secretariats have been building expert knowledge over the past years. Besides the broader employment of information and communication technologies for various web-services, technology transfer, or distribution of education materials, the development and use of data platforms as policy-relevant tools deserve a particular mention. Although there remain looming questions with regards to data gaps, particularly in the Global South, these data platforms are important leverage instrument for international institutions to influence policy-making at various levels of governance, inform public-opinion, or facilitate the formation of expert communities spanning non-state data providers, scientists, or decision-makers. In this domain, the findings of this thesis provide empirical evidence that supports previous research on the power and influence of bureaucracies in relation to national governments. This aligns with Jinnah's (2014) assertion that bureaucracies exert influence when state preferences are weak and/or when their expertise cannot be easily substituted. In other words, the secretariats have taken advantage of the novelty and unregulated nature of data governance to become entrepreneurial and strategically use the leeway in their mandates to gain expertise through intermediary support from non-state actors.

Against this backdrop, the results point to an emerging, interdisciplinary field of research in need of more (critical) reflection, which is the role of data in governing transboundary environmental problems (e.g., Bigo, Isin, and Ruppert 2019; Johns 2021; Nost and Goldstein 2021; Gellers 2022; Gupta 2023). The generation, processing, and analysis of data are commonly seen as technical, universal, and often apolitical means that inform and guide governance processes. However, the growing dependence on advanced data processing methods and their utilization in policy-relevant decision-making, monitoring, and accountability instruments raises pressing concerns about the power and agency of data itself. For example, previous studies which have

labeled the UNFCCC's NAZCA and GCA as 'meta-intermediaries' allude to the kind of actor quality that data might develop.[38] This could become especially relevant in light of the growing integration of artificial intelligence (AI) technologies and autonomous spatial data systems. In this regard, interviewed staff from the UNFCCC Secretariat have discussed the possibilities for collaboration with private company firms, such as *Climate TRACE (2023)* or *AI for the Planet* (2023), concerning the future development of the GCA. Similarly, the CBD Secretariat has been actively involved in the establishment of the 2021 *UN Biodiversity Lab* (UNBL) - a partnership that seeks to utilize geospatial data for action and monitoring progress on biodiversity, climate change, and – more broadly – sustainable development (UNBL 2023).

Data and the related technologies for data collection and processing are employed to frame transboundary environmental issues as particular governable issues. This gives rise to crucial inquiries regarding the underlying assumptions that enable data-driven governance, the methods and motivations behind data production, the incorporation of data into governance processes, and the entities and actors that are empowered or disempowered by data, including considerations of legitimacy and in- or exclusion.

Against this background, the results from this thesis allude to a larger debate about the contestation of knowledge in international institutions (e.g., Daviter, Hustedt, and Korff 2016; Fuhr 2016; 2022). Given the wicked problems presented by transboundary environmental change, processes of dissent and agreement on credible knowledge need to be moderated and managed by institutions to facilitate societal and economic transformations going forward. In the UNFCCC, for example, some key mitigation options, such as carbon capture and storage (CCS) and negative emissions technologies, are still lacking common support under the UNFCCC Paris Agreement, with only few NDCs currently specifying such strategies for limiting carbon emissions (Maddahi 2019). In fact, such measures are highly contested regarding their acceptance not only at the international level, but in domestic contexts where we often witness a mismatch between state intent and public acceptance of such technologies (e.g., Wang et al. 2021; Nielsen, Stavrianakis, and Morrison 2022). Thus, international institutions have to develop robust verification and participatory strategies for identifying, validating, and legitimizing data and knowledge to inform decision-making (Esguerra and van der Hel 2021). These open questions are not only relevant for studying the evolution of international institutions from an International Relations perspective, but

[38] See e.g., Abbott and Bernstein (2015) or Bäckstrand and Kuyper (2017); also see Chapter 5.

may be relevant for broader, cross-disciplinary scholarship including Science and Technology Studies, Socio-Legal Studies, or Anthropogeography.

In conclusion, this thesis has made significant contributions to our understanding of the means, mechanisms, and outcomes of secretariat interactions in addressing transboundary environmental problems. However, in this exciting and evolving field of study, more work needs to be done. I hope that the outlined directions for research, considering their implications for advancing institutional theory and addressing emerging trends and challenges in policy, will inspire scholars to delve deeper into the dynamic interplay between actors and institutions in global (environmental) governance.

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APPENDIX: MANUSCRIPTS I-IV

Manuscript I: ***Institutional interplay in global environmental governance: Lessons learned and future research***

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Abstract

Over the last several decades, the proliferation of international institutions governing the global environment has resulted in much functional and normative overlap between rules, norms, and decision-making procedures across multiple regimes. This overlap results in institutional interplay, wherein the operation and/or performance of one institution is affected by another institution. Broadening our understanding about the different types, dimensions, pathways, and effects of institutional interplay, scholars have extensively analyzed the interactions and linkages between international institutions focusing on how they cooperate, manage discord, engage in problem solving, and capture synergies across multiple levels and scales. This article synthesizes the existing literature on institutional interplay with particular focus on papers published in *International Environmental Agreements: Politics, Law and Economics* over the past twenty years. As global environmental governance has become increasingly fragmented and complex, we recognize that recent studies have highlighted the growing interactions between transnationally operating institutions in the wake of polycentric governance and hybrid institutional complexes. However, we find that there is insufficient empirical and conceptual research to fully understand the relationship, causes, and consequences of institutional interplay between intergovernmental and transnational institutions. Overall, it remains inconclusive whether the increase of transnational institutional interplay has positive or negative effects for catalyzing the implementation of environmental governance, and to what extent transnational initiatives can close regulatory gaps or contribute towards mitigating the crisis of multilateralism.

Keywords: (4-6): *Institutional Interplay; Transnational Institutional Interplay; Global Environmental Governance; Transnational Governance; Multilateral Environmental Agreements*

1. Introduction

Following the growth of international environmental institutions from the 1970s, intergovernmental and transnational environmental governance has rapidly proliferated over the last few decades. As a result of this proliferation, domains of institutional competence increasingly overlap. This compounds the fragmentation and institutional complexity of global environmental governance, but also creates opportunities for productive interactions among institutions (Biermann et al. 2009; Oberthür and Stokke 2011a; Asselt 2014; Jinnah 2014; van Asselt and Zelli 2014). Not least due to diverging economic and power-related interests, cooperation among nation states in intergovernmental institutions (encompassing international organizations, treaty-based international regimes, and more informal cooperative fora and initiatives) has fallen short in addressing even the most pressing transboundary environmental challenges, such as climate change, biodiversity loss, or land degradation (e.g., Biermann and Pattberg 2012; Hale, Held, and Young 2013). Solving these problems now warrants coordination across a variety of institutions featuring many actors and encompassing different levels and scales of governance. It asks for complementary action by and within institutions exhibiting overlapping jurisdictions and spanning different policy areas, involving specialized agencies, governments, and a variety of non-governmental actors from business and civil society.

As the structures of global environmental governance have grown more complex, the study of institutional interplay has expanded and matured since the early 1990s. The literature has scrutinized such interplay under different terms and employing a wealth of concepts, such as 'institutional interaction', 'overlap', 'interlinkages', 'institutional management', 'institutional fragmentation', 'polycentric networks', 'institutional complexes', 'overlap management', and 'orchestration' (e.g., Chambers 2008; Biermann et al. 2009; Ostrom 2010; Oberthür and Stokke 2011a; Zelli 2011; Zelli and van Asselt 2013; Jinnah 2014; van Asselt 2014b; Abbott et al. 2015b). Various research streams have investigated institutional interplay, including the study of international regimes, international organizations, and international public administration. This research has enhanced our understanding of the interplay between institutions at different levels of organization and its consequences for – amongst others – the effectiveness, authority, and legitimacy of global environmental governance. *International Environmental Agreements: Politics, Law and Economics* (INEA) has been an important forum for this discussion.

We take the occasion of this Special Issue celebrating the twentieth anniversary of INEA to review progress of research on institutional interplay in global environmental governance.

We pay particular attention to research published in INEA – which is in close conversation with relevant research beyond the journal as well. Our focus is on distilling primary contributions made in research on institutional interplay as a basis for identifying remaining research gaps and potentials for further advancing this line of inquiry. We argue that research on institutional interplay has produced key insights and tools for understanding and managing related inter-institutional mechanisms, dynamics, and effects but, importantly, still has to grasp more fully the transnational turn of global environmental governance.

We pursue our analysis in four steps. First, we offer a few conceptual and methodological clarifications for our analysis (section 2). This is followed by a review of the institutional interplay literature in global environmental governance. We focus that review on three thematic clusters: types and dimensions, drivers and effects, and fragmentation and institutional complexity (section 3). Looking back at the advancements made in the study of institutional interplay, we find that linkages involving transnational environmental institutions remains an understudied phenomenon in this literature. In this emerging field of research, we argue that increased scholarly attention is needed to enhance our understanding of how transnational institutions impact interplay dynamics, including their broader implications for global environmental governance, particularly with regards to addressing the crisis of multilateralism (section 4). Finally, we synthesize our analysis and highlight potential avenues for the future study of institutional interplay (section 5).

2. Setting the stage: Conceptual clarifications and methodology

Institutional interplay broadly refers to situations in which the operation, performance, and/or development of one institution is affected by another institution (Jinnah 2010; Oberthür and Stokke 2011a). As noted above, scholars have studied institutional interplay using various terms and concepts, such as ‘interlinkages’, ‘institutional interaction’, ‘orchestration’, ‘overlap’, or ‘fragmentation’ and ‘complexity’. While some of these terms are merely duplicates of the same subject matter, others have added conceptual and analytical depth and nuance. All of these terms pertain to the same field of study in the sense that they recognize that individual institutions do not exist in isolation from each other but should be studied and situated within their wider ecosystems (Abbott, Green, and Keohane 2016). For the purposes of this article, we employ the concept of ‘institutional interplay’ as an umbrella term to capture this broader field of inquiry.

The variety of different terms and concepts that relate to institutional interplay testifies to the growing scholarly interest to study the ways in which institutions interact. Within this burgeoning body of scholarship, institutional interplay has been examined through the lens of various (sub-)disciplines, including international law, public policy, international political economy, international security studies, international organizations, international public administration, and international relations theory. As one of the most dynamic areas of institutional growth in world politics, global environmental politics has served as fertile ground for exploring different kinds and effects of interactions between international institutions for over two decades (Biermann, Siebenhüner, and Schreyögg 2009; Morin et al. 2013; Oberthür and Van de Graaf 2020).

Across these different disciplines, research on institutional interplay has been guided by different types of research questions (normative, conceptual, theoretical, and empirical) and a wide range of epistemological and ontological approaches. Essentially, existing research can be mapped along two key dimensions (Oberthür and Gehring 2011). First, a distinction can be drawn between *systemic* approaches, which focus on the relationship among institutions, and *actor-centered* research strategies, which see actors as either the independent variable or the dependent variable. In other words, studies following an *actor-centered* research strategy either focus on ways in which actors influence the interaction of institutions, or on how actors are influenced by institutional interplay. Second, we can differentiate between approaches which focus on different units of analysis for investigating interacting institutions, ranging from *dyadic relationships* between two institutions to *broader interaction settings* involving several dyadic cases of interaction and/or several institutions forming institutional complexes.

In reviewing this literature, we performed a comprehensive keyword analysis of INEA publications between 2001 and 2021[39]. By processing the results of our search string, we identified a total of 81 articles that have studied the interplay among international institutions in different ways. We then qualitatively coded this body of work to identify three thematic clusters, and arranged contributions within those clusters chronologically, in order to trace how the academic debate in each cluster has developed over time. Although we focus on contributions from INEA, we complemented the diachronic account of the thematic clusters with key contributions from other outlets that have been in close conversation with INEA discussions of this topic.

[39] Our search string included the following keywords: institutional inter*; institutional link*; institutional relation*; fragment*; institutional complex*; regime complex*; regime inter*; institutional overlap*; partnership*; institutional management; polycentri*; transnational; inter-organizational; inter-agency; orchestrat*; cluster*; nest*

3. Looking back: A review of institutional interplay

In this section, we look back and take stock of the scholarship on institutional interplay in global environmental governance, with a special focus on articles published with INEA. We identify both conceptual and empirical contributions in this area of research by systematically reviewing the literature as outlined in the previous section. Centrally, we recognize three thematic clusters of inquiry into institutional interplay, which have evolved over the past decades: (1) types and dimensions of institutional interplay; (2) pathways and effects of institutional interplay; and (3) fragmentation and institutional complexity. These categories are not entirely mutually exclusive, but contributions can typically be categorized by their primary theme of inquiry.

Thematic cluster 1: Types and dimensions of institutional interplay

Many studies on institutional interplay have sought to identify different types and dimensions of the phenomenon by introducing a plethora of taxonomies and conceptualizations. This cluster features prominently early scholarship throughout the 1990s, which was heavily influenced by research on international regimes, as scholars started to explore the consequences of regimes beyond questions of formation and change. With the term "regime interplay", Young (1996) conceptually differentiated between embeddedness (relationship to overarching principles), nesting (relationship to broader regimes based on functional or geographical linkages), clustering (relationship to other regimes based on deliberate coordination), and overlap (relationship to other regimes due to unintentional influence) when international regimes interact.

Building on Young (1996), a very basic distinction in most studies on institutional interplay is the level or scale of social organization at which interaction occurs. A bulk of studies on institutional interplay has investigated interactions between institutions at the same level of social organization, coined "horizontal institutional interplay" (e.g., Young 1996; Aggarwal 1998). By and large, these studies centered on institutional interplay involving intergovernmental institutions at the international level. INEA contributions have been instrumental in furthering our understanding about the horizontal linkages between international institutions, particularly pertaining to different reform strategies, such as the intentional grouping – or "clustering" - through merging, integrating, or combining multilateral environmental agreements (MEAs) to enhance the transparency, legitimacy, and efficiency of environmental governance (Oberthür 2002). Other INEA articles have illuminated intricate

inter-institutional relationships spanning across sectoral divides in light of overlapping jurisdictions. This includes the interplay between adjacent environmental institutions, such as the linkages between the Contention of Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC) on forest-related subject matters (Rosendal 2001), but also linkages between institutions from substantially different policy arenas, for example, interactions between various multilateral trade rules and the climate regime with regard to climate-related trade measures (Stokke 2004).

Beyond studying institutional interplay at the same level of organization, another stream of research focused on interplay across different levels and scales, coined "vertical institutional interplay" (Young 2002). These studies focus on multi-level interactions, spanning over the international/global, regional, national, and sub-national spheres. Skjærseth (2003), for example, argued that the effectiveness of international environmental regimes is contingent on the operations of domestic political and administrative institutions for North Sea pollution management. Similarly, in the case of Arctic marine transport, niched institutions at the regional level can influence the effectiveness of the international regime in which they are situated (Stokke 2013).

Thematic cluster 2: Pathways and effects of institutional interplay

From the 2000s onwards, studies primarily scrutinized the different drivers, pathways, and effects of the interplay between intergovernmental institutions. Scholars investigated causal relationships of institutional interplay by exploring "influence", which yielded insights into the means and conditions under which institutional interplay may occur. Building on Underdal's (2004) typology of regime effectiveness, Gehring and Oberthür (2009) developed a typology to help us better understand and analyze how and with what effects institutional interplay occurs along three dimensions: (1) output (interaction of rules and rule-making processes); (2) outcome, (interaction of group-behavior); and (3) impact (interaction of target variables of institutions).

Building on this typology, the authors conjecture four different causal mechanisms through which influence can run from a source institution to a target institution: first, *cognitive interaction* describes influence through knowledge and ideas, which manifests as a form of inter-institutional learning. Second, *interaction through commitment* renders influence through normative commitments taken under one institution and affecting another institution. Both of these mechanisms operate at the output level. Third, *behavioral interaction* captures influence through the interconnectedness of behavior across institutional domains, which may occur if

behavioral changes in the source institution impact the implementation of the target institution. *Behavioral interaction* operates at the outcome level. Fourth, *impact-level interaction* denotes influence through the interdependence of ultimate governance targets of institutions and operates at the impact level of the institutions involved (Gehring and Oberthür 2009; Oberthür and Stokke 2011a: 35-42). Several studies have drawn on these causal mechanisms and tested their validity for research investigating the different effects of institutional interplay (e.g., Böhmelt and Spilker 2016; Sanderink and Nasiritousi 2020).

There are also several important concepts that aim to capture different effects of institutional interplay, such as the kind of inter-institutional relationship that may result from both intentional and unintentional interplay between institutions. In this regard, a first wave of studies predominately investigated the negative effects of interplay, which was seen as a main cause for inter-institutional conflict. However, relevant contributions also demonstrated that institutional interplay can contribute to cooperative or synergistic inter-institutional relationships as well. This has led scholars to conceptualize and differentiate between conflictive, cooperative, benign, and synergistic interplay to apprehend its positive, negative, and/or neutral effects (King 1997; Oberthür and Gehring 2006b; Biermann et al. 2009; van Asselt and Zelli 2014; Bastos Lima et al. 2017). Importantly, scholars have posited on the conditions under which such outcomes are likely, including related structural and agent-based determinants of interplay outcomes (Selin and VanDeveer 2003; Oberthür and Gehring 2006b; Oberthür 2009; Jinnah 2014).

Research on institutional interplay has also alluded to central questions of power and domination between interacting institutions. King (2004), for instance, exposed how institutional interplay can have important implications for equity in global politics. Her exploration of vertical interplay between competing knowledge systems demonstrated how interplay between local and international institutions can promote certain knowledge systems over others. Importantly, she highlighted how this dynamic can lead to powerful international knowledge systems overriding less powerful traditional ones. Her study illuminated the mechanisms through which this occurs, especially when one institution has greater control over important regime processes, such as data collection, research agendas, and methods of information processing (King 2004: 174).

Scholars have also investigated effects of institutional interplay beyond dyadic relationships. These studies have focused either on the consequences of interplay between multiple institutions that cogovern particular issue areas within overlapping jurisdictions (regime or institutional complexes) or the effects of institutional interplay on the respective

overarching system of institutions for a given policy arena (governance architectures) (Alter and Meunier 2009b; Biermann et al. 2009; Biermann et al. 2010; Jinnah 2011; Oberthür and Stokke 2011a; Gehring and Faude 2013; Van de Graaf and De Ville 2013). By adopting such a perspective, a number of important questions have been addressed within INEA, such as whether and how institutional interplay can be strategically employed to steer environmental policy integration (e.g., Velázquez Gomar 2016), or how and to what degree interplay can drive institutional design characteristics within regime complexes (e.g., Böhmelt and Spilker 2016).

Against this background, Oberthür (2009) outlined the concept of interplay management, which refers to agent-based control of inter-institutional relationships. He differentiated between four types of interplay management operating at different levels. Importantly, in investigating the options for coordinating different MEAs for enhancing environmental policy integration he argued that actual interplay management has so far predominately promoted inter-institutional learning and assistance for the benefit of environmental institutions as well as facilitated mutual respect for specific environmental requirements towards long-term efficiency gains and an increased coherence of governance systems (Oberthür 2009: 386). Although interplay management, also referred to as 'overlap management,' remains understudied to date, some scholars have begun to unpack the conditions under which non-state actors are able to effectively engage and/or exert influence in overlap management. In her analysis of secretariat influence, for example, Jinnah (2014) demonstrated that secretariats are particularly adept in managing overlapping institutions, especially when state preferences are weak and/or their expertise enjoys low substitutability.

Thematic cluster 3: Fragmentation and institutional complexity

Many studies of institutional interplay have also converged on the theme of increasing fragmentation and institutional complexity within global environmental governance (Biermann et al. 2009; Zelli and van Asselt 2013; Pattberg et al. 2014). As a main driver for institutional complexity, fragmentation results from the proliferation of public and private institutions in a given policy area, which can have consequences for the effectiveness of interacting institutions due to overlapping mandates and jurisdictions. The regime complex of climate change, for example, is no longer governed exclusively by the UNFCCC as its institutional core, but also by institutions like the World Trade Organization (WTO), the UN Security Council, the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO) and many others, which are not geared towards addressing climate change as their primary governance target (Keohane and Victor 2011; Zelli 2011; van Asselt 2014b; van Asselt

and Zelli 2014). Such institutional configurations raise questions of institutional fit, if institutions face the two-fold challenge of achieving a purpose within one specific organizational context, although they were originally designed for a different purpose and implemented in another organizational context (Moltke and Mann 2001).

The fragmentation of global environmental governance architectures can have both positive and negative effects. For example, the interplay between the WTO and multiple MEAs has stepwise generated increasingly interlocking governance structures within the regime complex of trade and the environment, which can minimize regulatory competition and inter-institutional conflict (Gehring 2011). However, fragmentation can also have negative consequences, such as the emergence of conflicting institutional centers within regime complexes, which can hamper the formation of legally binding, internationally accepted regulation. This area of inquiry has been extensively covered by INEA contributions. The UNFCCC and International Maritime Organization (IMO), for example, have both addressed the regulation of GHG emissions from international shipping without consensus among key actors on a common approach towards resolving the problem (Hackmann 2012). Fragmentation can also lead to coordination gaps and a lack of policy coherence. For instance, global forest management can be rendered less effective by a lack of cooperation across key sectors, such as agriculture, energy, and forestry (Kalaba, Quinn, and Dougill 2014; see also Rodríguez Fernández-Blanco, Burns, and Giessen 2019); or expanding mandates under the REDD+ mechanism causing diverging realities in different contexts across both global and local scales (Gupta, Pistorius, and Vijge 2016).

As part of the debate on interplay management and in response to the increasing institutional complexity and fragmentation of global environmental governance, scholars have also discussed the formation of an overarching institutional framework as a means to improve institutional interaction, more effectively address transboundary environmental problems, and advance sustainable development (Biermann and Bauer 2005). While some have advocated for a new, overarching *World Environment Organization* (WEO) (Biermann 2000; Charnovitz 2005), others have been more skeptical and have instead argued for modifying existing decision-making procedures and/or institutional boundaries in order to enhance their effectiveness instead of creating new - likely dysfunctional - overarching frameworks (Oberthür and Gehring 2004). In this regard, UNEP was envisioned to take up a leading role in more centralized global environmental governance (Biermann 2005; O'Neill 2014: 61). However, UNEP has been widely considered as a weak international organization, as many institutional arrangements concerned with regulating environmental matters have become increasingly

independent of UNEP over the past decades, resembling a very loosely and sometimes poorly coordinated network (Mee 2005). Moreover, some opponents have doubted the effectiveness of a centralized overarching institutional framework to govern global environmental governance and law (Najam 2005). Hypothesizing that global environmental law exhibits key characteristics of a complex adaptive system, some contributions have in fact recommended embracing institutional fragmentation and strengthening the self-organizing capabilities of such a system while maintaining institutional diversity (Kim and Mackey 2014). Initiated by the discussion of the formation of a WEO, the debate about the potential prospects of centralization versus decentralization in light of increasing fragmentation as well as reforming existing institutions in global environmental governance has continued until today, as recent studies emphasizing the vital role of UNEP as a coordinator and catalyzer for an array of MEAs have demonstrated (Ivanova 2021).

Studying interplay beyond intergovernmental institutions

The studies presented in this section shaped our understanding of interplay over the past two decades, with INEA serving as a central node of knowledge development in this area. The third thematic cluster on fragmentation and institutional complexity is particularly crucial for future research on institutional interplay for several reasons.

First, most studies analyzed above focus on inter*governmental* institutions, which like traditional theories of International Relations, center states and national governments. This focus is at odds with recent studies on the fragmentation and institutional complexity of global environmental governance more broadly. This literature is increasingly focused on interactions between connected sets of rules and practices beyond those negotiated by national governments, paying particular attention to transnationally organized sub- and non-state actors. Second and related, global environmental governance is increasingly characterized by a proliferation of intergovernmental and transnational institutions; public and private actors and networks; and multilateral agreements, organizations, and bureaucracies, which have created new dependencies for information flows, technology, and finance. These broader inquires have paved the way for a new research on institutional interplay through interdisciplinary engagement between international relations, administrative sciences, organizational research, transnational governance, and beyond. The next section identifies preliminary interventions in this new transnational turn and its implications for future research on institutional interplay in global environmental governance.

4. The research frontier: institutional interplay and transnational environmental governance

Studying the interplay between international institutions in transnational (environmental) governance is not an entirely new field of scholarly inquiry. However, it has enjoyed growth in recent years with an increasing number of publications and important empirical and conceptual developments – a trend which can also be recognized with studies published with INEA. This line of research rests on the assumption that much of global (environmental) governance is neither governed exclusively by individual institutions, nor inter-state processes within regime complexes. Rather, the architectures of many governance domains are made up of both inter-state, formal and informal transnational institutions, as well as public and private actors (Biermann and Kim 2020), giving rise to the notion of hybrid governance and hybrid institutional complexes (Kuyper, Linnér, and Schroeder 2018; Abbott and Faude 2021). In this section, we point to emerging research trends and look in particular at the present research frontier for studying transnational institutional interplay[40] in global environmental governance. In so doing, we point to three broader research strands that have emerged in recent years, which we consider areas that deserve particular attention in future studies on institutional interplay.

Research strand 1: Exploring the relationship between intergovernmental and transnational institutions

Over the past few years, numerous scholars have analyzed the emergence of transnational institutions in the field of global environmental governance (e.g., Hale 2020; Kalfagianni, Partzsch, and Widerberg 2020). In this context, some authors have focused on the relationship between intergovernmental institutions and the wide array of transnational initiatives. Pattberg and Stripple (2008), for example, recognized the growing importance of non-state and transnational approaches towards climate change mitigation against the background of deadlocked intergovernmental negotiations. By mapping the field of transnational climate governance, they acknowledged that the growing interlinkages within and beyond the transnational climate arena increase the complexity of the overall governance architecture. This

[40] We define transnational institutional interplay as an interaction setting involving two or more internationally active institutions, of which at least one is considered a transnational institution.

offers “more possibilities for issues-linkages and strategic bargains” among both governments and non-state actors on the one hand, but also “increases the need for coordination among a growing number of agents in global climate governance” on the other (Pattberg and Stripple 2008: 385).This literature has continued to debate whether and how better coordination among these actors can be realized in the absence of a centralized structure of authority or compatible norms, rules, and procedures (Pattberg and Stripple 2008: 385; see also Pattberg et al. 2014).

With regard to the relationship between intergovernmental and transnational institutions, most scholars have argued that transnational initiatives, such as sharing best practices in city networks, environmental certification schemes of non-profit organizations, and corporate standard-setting to lower carbon footprints can be seen as complementary to intergovernmental institutions (Hickmann 2016; Bäckstrand et al. 2017; Bansard, Pattberg, and Widerberg 2017). They have argued that transnational initiatives promote the norms and rules established through international environmental agreements and contribute to their implementation. In a similar vein, authors have examined how transnationally organized non-state actors could help strengthen the ambitions of national governments to mitigate global environmental problems within and beyond existing intergovernmental institutions (Moncel and Asselt 2012; Hale 2013; Widerberg and Pattberg 2015; Hermwille 2018). Focusing on the actor-relationships within international and transnational institutions, Böhmelt and Betzold (2013) illuminate how non-state actor influence manifests in intergovernmental negotiations, arguing that a high degree of access of non-governmental organizations in such negotiations increases states’ ambitions under environmental agreements and enhances their willingness to cooperate for the joint implementation of such agreements.

Another emerging stream of research has focused on ways in which international bureaucracies, such as intergovernmental treaty secretariats, play an important role in managing regime overlap across intergovernmental and transnational institutions, thereby influencing political outcomes (Biermann and Siebenhüner 2009b; Jinnah 2010; 2014; Jinnah and Lindsay 2015; Skovgaard 2017; Hoch et al. 2019). In this context, studies have demonstrated that intergovernmental treaty secretariats can orchestrate, mobilize, and catalyze transnational initiatives to rally for more impactful intergovernmental policy-making and forge new alliances between public and private institutions to accelerate the transformation towards sustainable development (e.g., Hickmann et al. 2019a; Hickmann and Elsässer 2020).

Other scholars have recently begun to trace different spheres affected by institutional interplay, connecting intergovernmental and transnational governance (Andonova, Hale, and Roger 2017b; Cao and Ward 2017). They have investigated the pathways linking international,

domestic, and non-state regulation. In the context of hazardous e-waste trade, for example, Renckens (2015), has demonstrated how non-state regulation can play an intermediary role between international and domestic levels when non-state actors act as policy entrepreneurs and bridge regulatory gaps for domestic legislation.

These important studies signal the need for increased scholarship to further develop our understanding of the relationship between intergovernmental institutions and transnational initiatives. Despite advancements made in better understanding transnational environmental governance, its institutions, and actors (e.g., Hale 2020), there is still ample potential for fruitful engagement with the study of institutional interplay. A number of case studies indicate that some transnational initiatives operated by sub- and non-state actors may complement and synergize existing intergovernmental processes dealing with transboundary environmental problems. However, the vast majority of this research is concentrated on the policy domain of climate change. Other domains and pressing global environmental challenges have remained understudied. With regards to methodology, case studies remain the most widely used research approach to study institutional interplay in transnational environmental governance. Going forward, these could be complemented by both qualitative and quantitative studies, covering additional cases and issue areas, and employing innovative methodological approaches, such as network analysis, simulation modelling, or comparative analysis.

Research strand 2: Examining the drivers of interplay between intergovernmental and transnational institutions

Another emergent wave of research examines the drivers and different pathways for the increasing interactions between intergovernmental institutions and transnational initiatives. Two drivers are evident and often referred to in the literature (Hickmann et al. 2020: 123-124). First, the growing deterioration of the natural environment through human activity has led to substantial regulatory gaps in many domains of global environmental governance. In response to the slow, incremental progress made within intergovernmental institutions towards addressing transboundary environmental challenges, transnational institutions have evolved to provide new sets of voluntary standards in order to govern the behavior of environmental harmful industries, influence the design of renewable energy projects, or introduce private schemes for offsetting emissions (e.g., Bulkeley et al. 2014; Green and Auld 2016). The emergence of these new transnational initiatives has increased institutional density and resulted in new types of interactions.

Second, different types of sub- and non-state actors have played key roles in launching various new transnational environmental initiatives. These actors have a strategic interest to connect themselves to established intergovernmental institutions in order to access funding, influence decision-making, or offer their expertise (Alter and Meunier 2009a; Van de Graaf and De Ville 2013). Although many transnational initiatives seem to exist rather independently from the multilateral setting, these actors also position their own activities in ways that generate close interactions between them. Therefore, transnational institutional interplay can also have important implications for democracy and the legitimacy of global environmental governance – a particularly promising area for future research. While some scholars have raised concerns that private initiatives may undermine the democratic decision-making procedures and sovereignty of national governments (Kramarz 2016; Partzsch 2018), others argue that increasing civil-society involvement may in fact unsettle existing power structures and usher in a new wave of more inclusive and just international institutions (Dombrowski 2010; Kuyper 2013).

More research is needed on the drivers and pathways for intergovernmental-transnational interactions in global environmental governance. In particular, we do not know whether the findings from past research on the drivers for the growth of interactions between intergovernmental institutions hold for the interactions between intergovernmental institutions and transnational initiatives (e.g. regarding synergistic, cooperative, or conflictive inter-institutional relationships). In addition, we need to test existing causal mechanisms of institutional interplay (e.g. Gehring and Oberthür's (2009) four mechanisms for institutional interplay: cognitive interaction, behavioral interaction, interaction through commitment, or impact-level interaction) to see whether and to what extent these causal mechanisms vary in different subfields, or identify new drivers and causal pathways for the interactions between intergovernmental-transnational initiatives and institutions.

More conceptual research is also needed on the different types of transnational institutional interplay, including the factors determining which type of interplay arises in a given context and at what level and scale. In this regard, future research may revisit the concept of institutional management and its implications for transnational environmental governance. When non-governmental organizations seek to advance the implementation of intergovernmental institutions, or interplay managers within international organizations aim to influence the operations of private initiatives, we need to better understand how transnational institutional interplay can be managed by non-state actors to overcome conflicts, accelerate

synergetic effects, and advance the implementation of intergovernmental institutions (Abbott and Snidal 2010; Orsini, Morin, and Young 2013; Stokke 2020).

Research strand 3: Understanding the consequences of the increasing interplay between intergovernmental and transnational institutions

Finally, we need to better understand of the implications of the growth of transnational initiatives for the effectiveness of existing international environmental institutions and for long-term global environmental problem solving. We point to two particularly promising areas of inquiry for future research. First, in the context of polycentric governance and the formation of hybrid institutional complexes (Ostrom 2010; Abbott and Faude 2021), we urge additional research on the role transnational institutional interplay might play in mitigating the crisis of multilateralism .There is growing evidence that nation states are inadequately equipped to solve complex environmental problems through means of multilateral cooperation (Falkner 2013: 252), caused in particular through the mismatch between intent and outcome for state-centric MEAs, due to the perpetual prioritization of state interest towards sovereignty and securitization (Fox and Sneddon 2007). This trend has been aggravated by the fact that multilateral institutions have been prone to changing power dynamics within international politics that have impacted their authority, legitimacy, and thus their effectiveness. There is, however, little evidence of fading nation states in the current international system as they still fulfill vital functions in international policy-making (Falkner 2013).

From a functionalist perspective, transnational institutions and actors are presumed to advance transboundary environmental problem solving because they are well placed to strengthen weak institutions, promote inter-institutional cooperation, complement intergovernmental policy-making, or fill existing governance gaps (e.g., Abbott 2014; Andonova, Hale, and Roger 2017b). Indeed, some international institutions and organizations have opened up to increased non-state actor involvement, including from business actors and scientific communities (Tallberg, Sommerer, and Squatrito 2013). Intergovernmental treaty secretariats have also started to steer relevant sub-, non-state actors, and transnational initiatives towards compatible governance targets, thereby facilitating institutional learning effects at the international and national level (Hickmann and Elsässer 2020). At the same time, transnational institutions may play an important role in connecting international and national governance activities by facilitating information flow, policy diffusion, and inter-organizational learning (Renckens 2015; Cao and Ward 2017). More research is needed to better understand whether and how the interactions between intergovernmental and transnational institutions - including

transnationally organized actors - in hybrid regime complexes may help close governance gaps, enhance the overall effectiveness of global environmental governance, and alleviate the crisis of multilateralism.

Another of promising area of research should examine if intensified interactions between the intergovernmental, domestic, and transnational institutions may enable a synergetic division of labor and strengthen the effectiveness of global regulatory approaches (Betsill et al. 2015). While some studies indicate that the growing involvement of sub-national and non-state actors can compensate for governance deficits in some instances (e.g., Hermwille 2018; Chan and Amling 2019), generalizable results towards these critical questions remain inconclusive and need to be studied in more detail. In global climate governance, for example, the successful implementation of the 2015 Paris Agreement relies on transnational cooperative initiatives and sub-national and non-state actors to support and complement state-led policy-making under the UNFCCC (Chan et al. 2015; Hale 2016; Widerberg and Stripple 2016; Hsu et al. 2019). However, we still do not know whether this novel approach will apply enough leverage to successfully address climate change, nor do we have clear insights into the consequences and overall effectiveness of the increasing interlinkages between intergovernmental and transnational institutions in other policy domains of global environmental governance. This developing field of study is still in at an early stage and requires further conceptual and empirical research efforts.

5. Conclusions and future directions

Celebrating the 20th anniversary of INEA, we reviewed the journal's contributions to institutional interplay, an area where INEA has been an important site of empirical and theoretical development. We identified three thematic clusters of research on institutional interplay: (1) *types and dimensions*; (2) *pathways and effects*; and (3) *fragmentation and institutional complexity*. Informed by international relations theory and a primary focus on state actors, a majority of the studies on institutional interplay have thus far centered on the interactions between intergovernmental institutions. We found this out of synch with the broader literature on global environmental governance, which is increasingly characterized by a proliferation of intergovernmental and transnational institutions as well as public and private actors, initiatives, and networks.

The research frontier for institutional interplay must more fully engage with the transnational turn in global environmental governance. We identify three emerging strands of

research, which may serve as a point of departure for these inquiries. First, we need to further explore the relationship between intergovernmental and transnational institutions. Although progress has been made in mapping the links between intergovernmental and transnational institutions, we lack an in-depth understanding about the embeddedness of intergovernmental institutions with the wealth of transnational initiatives. While some studies indicate transnational initiatives and sub- and non-state actors within such initiatives may synergize intergovernmental processes, most of this research pertains to the policy domain of climate change. Other domains and pressing transboundary environmental problems remain understudied. In this context, innovative (quantitative) methodological approaches may be helpful to complement existing qualitative case studies to gain a broader perspective and new empirical insights in this area.

Second, future research should uncover drivers and different pathways for the growing interplay between intergovernmental and transnational institutions. In particular, we need to gain a better understanding about the synergistic, cooperative, or conflictive inter-institutional relationships that may results from such interplay. Moreover, it remains unclear how transnational institutions exert influence on intergovernmental decision-making or policy outcomes. Further evidence is needed about the causal pathways of transnational institutional interplay, through testing of existing mechanisms (e.g., Gehring and Oberthür 2009), or identifying new ones for different subfields of global environmental governance. Somewhat related are inquiries into new (or revised) conceptualizations on the different types and dimensions of transnational institutional interplay. For instance, how can institutional management in a transnational setting be employed to address conflicts or further promote synergies between interacting institutions?

Finally, in the context of polycentric governance and hybrid institutional complexes (Ostrom 2010; Abbott and Faude 2021), little is known about the long-term consequences and effects of transnational versus intergovernmental institutional interplay for dealing with transboundary environmental problems as well as governance challenges. Will the growing interactions between intergovernmental and transnational institutions pave the way towards a new division of labor to increase the effectiveness of multilateral regulatory approaches or fill in the governance deficits of existing MEAs to mitigate the crisis of multilateralism? As there are apparent barriers in the way of harnessing potential synergies that may result from the interplay between international and transnational institutions, such as low ambition levels of some transnational governance initiatives or limited recognition and participation of transnational institutions in intergovernmental decision-making (e.g., Dombrowski 2010;

Michaelowa and Michaelowa 2017; Hermwille 2018), structural changes within and outside UN institutions regarding the inherent design characteristics of MEAs towards a more integrated approach between transnational and international institutions may be needed. At this stage, we cannot predict whether the emergence of numerous new institutions to deal with transboundary environmental problems and the growing interlinkages between them herald a new generation of institutions built on transnational, democratic elements, such as a division of labor across levels and equitable stakeholder integration, or rather an opaque disorder of institutions which invite forum-shopping and free-riding.

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Manuscript II: ***New Alliances in Global Sustainability Governance: How intergovernmental treaty secretariats interact with non-state actors to address transboundary environmental problems***

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Abstract

The past few years have witnessed a growing interest among scholars and policy-makers in the interplay of international bureaucracies with civil society organizations, non-profit entities, and the private sector. Authors concerned with global environmental politics have made considerable progress in capturing this phenomenon. Nevertheless, we still lack in-depth empirical knowledge on the precise nature of such institutional interlinkages across governance levels and scales. Building upon the concept of *orchestration*, this article focuses on the relationship between different secretariats of international environmental agreements and actors other than the nation-state. In particular, we investigate how the climate secretariat, the biodiversity secretariat, and the desertification secretariat reach out to different types of non-state actors in order to exert influence on the outcome of international environmental negotiations. Our analysis demonstrates that the three treaty secretariats utilize various styles of orchestration in their relation to non-state actors and seek to push the global responses to the respective transboundary environmental problems forward. Moreover, our analysis points to a recent trend towards a closer collaboration between these actors which gives rise to the idea that new alliances between intergovernmental treaty secretariats and non-state actors are emerging in global sustainability governance.

Keywords (4-6): *Global Sustainability Governance; Institutional Interplay; Intergovernmental Treaty Secretariats; Orchestration; Rio Conventions; Non-State Actors*

1. Introduction

Over the past few years, it has become increasingly obvious that the existing global governance framework is not sufficient to cope with pressing transboundary environmental problems (Biermann et al. 2012a; Hale, Held, and Young 2013). With reference to the concept of planetary boundaries, it can be argued that humanity is at a critical juncture to identify new sustainability paths for the 21st century and beyond (Rockström et al. 2009; Steffen et al. 2015b). This seems to be most prevalent in the issue-areas of climate change, biodiversity loss, and land degradation. Consequently, structural changes in global sustainability governance are urgently needed both within and outside *United Nations* (UN) institutions, including fully-fledged international organizations, specialized bodies and programs, as well as secretariats of international environmental agreements.

In this regard, an important process currently underway is that the bureaucracies of international institutions have started to reach out to non-state actors in order to pursue distinct policy goals. A prominent approach to conceptualize this development is through 'orchestration' (e.g. Abbott and Snidal 2009; Abbott et al. 2015b). It can be understood as an indirect mode of governance whereby a given actor (e.g. international organizations or national governments) mobilizes one or more intermediaries to take influence on a certain target group (Hale and Roger 2014). Building upon that concept, the present article conceives of international bureaucracies as orchestrators that interact with non-state actors, such as civil society groups, non-profit entities, or the private sector to encourage national governments to agree on a more ambitious response to collective action problems in the realm of global environmental politics.

In this article, we focus on the institutional interactions between three intergovernmental treaty secretariats (the climate secretariat, the biodiversity secretariat, and the desertification secretariat) and non-state actors. Our analysis demonstrates that all three secretariats seek to enhance the overall effectiveness of the global responses to the respective environmental problems by coordinating the myriad initiatives launched and carried out by actors other than the nation-state. In particular, the secretariats utilize different styles of orchestration to initiate and maintain joint initiatives with their non-state partners driven by the overall goal to catalyze international cooperation and augment the global level of ambition to tackle transboundary environmental problems. This finding underlines the general and pervasive trend towards the involvement of non-state actors into global policy-making.

Furthermore, the case studies indicate that the interactions between intergovernmental treaty secretariats and non-state actors exhibit elements of collaboration without intermediation as a result of their sustained and matured relationships. All three secretariats have considerably invested in digital solutions to create databases and networks on issues related to their designated conventions. In this context, staff members of the secretariats work closely together with research institutes and business entities to create and sustain web portals with relevant data providing a public knowledge basis of the underlying environmental problems and available solutions. In this regard, our analysis highlights the dynamic interplay between international bureaucracies and their non-state counterparts. This gives rise to the idea that new alliances between intergovernmental treaty secretariats and non-state actors are emerging in global sustainability governance.

The article is structured as follows. In a next step, we summarize insights of the existing literature on the interplay between international bureaucracies and non-state actors in global sustainability governance. Then, we conceptualize intergovernmental treaty secretariats as orchestrators that interact with non-state actors to pursue distinct policy goals and describe our methods of data collection. After that, we turn to the empirical analysis and explore how the three secretariats under consideration interact with non-state actors and what kind of orchestration styles they deploy to accelerate the international negotiations on the respective transboundary environmental problem. Finally, we draw conclusions about the role and function of international bureaucracies in global (sustainability) governance and highlight avenues for further research.

2. The Interplay between International Bureaucracies and Non-State Actors

Numerous scholars dealing with global politics have recently devoted increasing attention to the inner workings of international organizations and studied the role and function of their bureaucracies. Some authors still question whether the administrative bodies of international regimes and organizations have any significant impact beyond that of technical assistance and services to national governments. Yet, a growing number of authors argue that international bureaucracies matter and indeed exert autonomous influence in various domains of global affairs (e.g. Barnett and Finnemore 2004b; Bauer 2006; Biermann and Siebenh ner 2009a; Trondal et al. 2010; Soonhee, Shena, and Lambright 2014; Bauer and Ege 2016). These scholars perceive international bureaucracies as actors with considerable agency and contend that they have attained important tasks in contemporary global policy-making.

The field of global sustainability governance is of particular interest for analyzing the evolution of international bureaucracies and their interactions with other actors. This domain has been characterized as "one of the institutionally most dynamic areas in world politics regarding the number of international institutions and actors that have emerged over the past three decades" (Biermann, Siebenhüner, and Schreyögg 2009: 9). The *International Environmental Agreement Database Project* currently comprises almost 1,300 multilateral agreements and over 2,200 bilateral agreements (Mitchell 2018). Several authors have conceptualized international environmental bureaucracies as bodies that pursue certain policies which cannot entirely be controlled by national governments and conducted numerous case studies about the leverage of different types of bureaucracies on policy outcomes (e.g. Bauer 2006; Depledge 2007; Jinnah 2014; Widerberg and van Laerhoven 2014; Jörgens, Kolleck, and Saerbeck 2016).

In this policy domain, researchers have made considerable progress in understanding the relationship between international environmental bureaucracies and their principals, i.e. national governments (Hawkins et al. 2006a). This strand of research has provided crucial insights into the rising importance and autonomy of international bureaucracies. However, the question of how these international public agencies interact with actors within the nation-state and transnational institutions has only lately attracted wider scholarly interest (e.g. Steffek 2013; Tallberg et al. 2013; Johnson 2016; Jörgens et al. 2017; Littoz-Monne 2017). This knowledge gap is important to fill given the increasingly prominent role that non-state actors have come to play in the global response to transboundary environmental problems (Pattberg and Stripple 2008; Andonova, Betsill, and Bulkeley 2009; Abbott 2012; Bulkeley et al. 2014; Green 2014; Andonova 2017b; Hickmann 2017).

On these grounds, the present article seeks to contribute to bridging this research gap in the study of international bureaucracies by focusing on the institutional interlinkages between intergovernmental treaty secretariats and non-state actors. In particular, the article builds upon the concept of orchestration and investigates how the climate secretariat, the biodiversity secretariat, and the desertification secretariat reach out to actors outside of the official negotiation arenas in order to raise the ambition levels and commitments of national governments to cope with the respective challenges. Thus, the main contribution of this article is an empirical illumination of the evolving relationship and interactions between specific types of international bureaucracies and non-state actors in the burgeoning field of global environmental politics.

3. Intergovernmental Treaty Secretariats as Orchestrators

In the past few years, authors have considerably advanced both conceptual and empirical scholarship on institutional interactions in global environmental governance (e.g. Young 2002; Oberthür and Gehring 2006b; Andresen and Rosendal 2009; Breitmeier, Underdal, and Young 2011; Oberthür and Stokke 2011b; Zelli and van Asselt 2013; van Asselt 2014a). They have devoted extensive efforts to study the interplay of international institutions at the same level of governance (i.e. linkages between different international environmental regimes or their regulatory overlap with other organizations). Only recently, authors have started to examine interactions between institutions and actors at different governance levels and scales (e.g. Green 2014; Betsill et al. 2015; Hickmann 2016; Gordon and Johnson 2017a). This article adds to this scholarship and takes an explicit focus on interlinkages across multiple levels and scales by examining the interactions between intergovernmental treaty secretariats and non-state actors operating in the environmental policy domain.

A prominent approach to capture such interactions is 'orchestration', a concept proposed by Abbott and Snidal in 2009. These two scholars claim that a new governance structure has emerged, signaling a shift away from the traditional state-centered system towards a more diverse, hybrid, and polycentric institutional landscape in which sub-national bodies and non-governmental organizations create innovative transnational norms and rules for the regulation of businesses (Abbott and Snidal 2009). In other terms, non-state and private standards are changing the global system from traditional modes of international governance towards a more heterogeneous system comprising several new forms of authority (Biermann et al. 2009; Ostrom 2010; Keohane and Victor 2011; Green 2014; Abbott, Green, and Keohane 2016; Hickmann 2017). Thus, international organizations may use these new actors and institutions to "attain transnational regulatory goals that are not achievable through domestic or international Old Governance" (Abbott and Snidal 2009: 564).

In general terms, orchestration can be understood as "a process whereby states or intergovernmental organizations initiate, guide, broaden, and strengthen transnational governance by non-state and/or sub-state actors" (Hale and Roger 2014: 60-61). Hence, the concept of orchestration moves beyond the classical sender-receiver model of conventional governance approaches. Instead, it suggests a so-called *O-I-T* model, in which an *O*rchestrator uses an *I*ntermediary to influence a certain *T*arget group (Abbott et al. 2015b: 6). The respective orchestrator has a wide range of techniques at its disposal to influence the intermediary, including

assistance, endorsement, or coordination. In theory, orchestrators can choose to *manage* or *bypass* their targets. In the case of international bureaucracies as orchestrators, they can thus fulfill their policy purpose without needing "time-consuming, high-level political approval" (Abbott and Snidal 2009: 564).

International bureaucracies rely on soft modes of governance to affect global and domestic policy-making due to their lack of coercive power compared to state actors that can enforce legally binding rules. In order to exert influence or pursue certain policy objectives, the secretariats of international organizations and regimes have to use their limited leeway and capacities in creative ways. Putting orchestration theory to work, this article conceives of intergovernmental treaty secretariats as orchestrators that interact with non-governmental organizations, non-profit entities, and businesses for setting a targeted impulse in international policy dialogues and promote ambitious outcomes. These bureaucracies seem to secure transnational support from various non-state entities that are active in the respective area to put pressure on national governments (Jörgens et al. 2017). With only a few studies on secretariats of multilateral environmental agreements around, little is known about the way in which these institutions act as orchestraters in global sustainability governance.

The literature on orchestration has remained largely at a conceptual level hypothesizing on how international organizations and bureaucracies can become facilitative orchestrators and provide material or ideational support, endorse and enhance the legitimacy of existing initiatives, or engage in knowledge production and distribution of relevant information (Abbott and Snidal 2009: 576-577). Yet, the concrete roles and functions adopted by international institutions as orchestrators vis-à-vis their intermediaries have thus far not been studied in enough detail. Against this backdrop, this article investigates the precise nature of how three different secretariats of multilateral environmental agreements adopt various orchestration styles in their outreach to non-state actors. We focus on the climate, the biodiversity, and the desertification secretariats whose origins date back to the *United Nations Conference on Environment and Development* held in Rio de Janeiro in 1992. Due to their common genesis at this conference, the three multilateral environmental agreements are also known as the *Rio Conventions* (Bauer, Busch, and Siebenh ner 2009).

For the empirical analysis, we build upon the *method of structured, focused comparison* which is well suited for the present study due to the similar mandates of the three secretariats, their largely identical organizational structures, and shared institutional contexts within the UN system

(George and Bennett 2004). Using the strategy of triangulation, we employed three methods of data collection (Rothbauer 2008). First, we did an extensive desk study of the existing scholarly work on the three secretariats. Second, we carried out a systematic content analysis of official documents, online material, and 'grey' literature released by the secretariats as well as their partners from the group of non-state actors. Finally, we conducted a series of 10 semi-structured interviews and expert talks with staff members of the secretariats and representatives of non-governmental organizations to trace the evolution of the different initiatives (see Annex).

4. Intergovernmental Treaty Secretariats and Non-State Actors

For a long time, the secretariats of multilateral environmental agreements have not been regarded as relevant actors. This has much to do with their limited resources as well as with the specific problem structure of the environmental policy domain. More precisely, powerful national governments fear that far-reaching international environmental agreements will have negative consequences on their economies. For that reason, they have endowed intergovernmental treaty secretariats with relatively narrow mandates (Bauer, Busch, and Siebenh ner 2009: 174-192). Nevertheless, in the past few years, it has become obvious that the secretariats analyzed in this study have acquired a more active role in global policy-making and considerably enhanced their interlinkages with non-state actors. The following analysis explores several initiatives in which these international bureaucracies interact with non-state actors, thereby focusing on their different styles of orchestration.

4.1 The Climate Secretariat: Facilitating a groundswell of action

Since the first *Conference of the Parties* (COP) to the *UN Framework Convention on Climate Change* (UNFCCC) in 1995, the climate secretariat has been coordinating the participation of the constantly growing number of observers of the international climate negotiations (Schroeder and Lovell 2012). In this context, it has taken responsibility of the administration of side-events conducted by all kinds of actors. By this means, the climate secretariat has created an open forum and facilitated the informal exchange between different stakeholders, thereby providing input to the UNFCCC and stimulating debates on a great variety of climate-related issues. While these activities can be considered as a rather technical enterprise, the climate secretariat has more

recently also been involved in a number of initiatives that seek to incorporate non-state actors more directly into a policy dialogue.

The secretariat as spearheading actor

A prominent example of such an initiative launched by the climate secretariat is the *Momentum for Change Initiative* which was officially presented to the public in 2011 (UNFCCC 2011). As envisioned by the by-then Executive Secretary Christina Figueres, the proclaimed goal of this initiative is "to shine a light on the enormous groundswell of activities underway across the globe that are moving the world towards a highly resilient, low-carbon future" (UNFCCC 2017b). To achieve this aim, the initiative recognizes so-called *Lighthouse Activities* that are described as innovative and transformative solutions addressing both climate-related aspects as well as wider economic, social, and environmental challenges in a given geographical area. According to the initiative's webpage, these particular activities are practical, scalable, and replicable examples of what societal actors are doing to cope with the problem of climate change (UNFCCC 2017b).

Interestingly, the Momentum for Change Initiative is not funded through the secretariat's regular budget as such activities would not have been covered by its mandate. Instead, the climate secretariat has established close contacts with private actors to gather financial support for the initiative. As a result, national governments could not easily object to the campaign as a staff member of the climate secretariat stated in a personal conversation (Interview 1). Since 2012, the initiative has been conferring the *Momentum for Change Awards* to particularly successful projects conducted by business and civil society actors from around the world. In the past few years, the secretariat has put considerable efforts into the further development of this initiative and established numerous partnerships with the private sector to raise public awareness on related bottom-up climate activities (UNFCCC 2014a; 2015; 2017c).

The secretariat as co-leading institution

Another example of the climate secretariat's interaction with non-state actors is the *Lima-Paris Action Agenda* (LPAA) that was launched in 2014. Its primary goal was to boost the positive dynamic created by various events which were organized by the UN Secretary General's Office throughout 2014 and involved numerous sub-national governments, non-governmental organizations, and private companies. The LPAA was jointly released by the Peruvian and French

COP Presidencies, the Executive Office of the UN Secretary-General, and the climate secretariat (United Nations 2015). The intention of this consortium of actors was to highlight the climate engagement spanning all parts of society and to build concrete, ambitious, and lasting initiatives to decrease *greenhouse gas* (GHG) emissions and promote measures to better adapt to climate change (Widerberg 2017).

While the climate secretariat played a relatively small part in the run-up to the LPAA, it became a central advocate throughout the following year 2015. Prior to the widely celebrated COP-21 to the UNFCCC in Paris, for instance, it published a policy paper that called for the initiative's further evolution (UNFCCC 2017c). Moreover, the secretariat supervised the initiative and occupied two seats in the steering committee responsible for the initiative's strategic development and implementation. The LPAA allowed the climate secretariat to explore new territory, as it involved a diverse set of actors, including cities and regions, indigenous peoples, academic institutions, and private investors (Interview 2). This mobilization of sub-national and non-state actors aimed at catalyzing climate action especially through demonstration effects towards the end of 2015 as well as supporting the international negotiations of a new climate agreement.

The secretariat as manager and information hub

The most prominent initiative of the climate secretariat to generate support from non-state actors for an ambitious negotiation outcome is the so-called *Non-State Actor Zone for Climate Action* (NAZCA). The climate secretariat launched this initiative in 2014 under the auspices of the COP Presidency of the Peruvian government. It consists of an online platform that coordinates the various climate activities of actors other than nation-states and registers their individual commitments to limit GHG emissions (Chan et al. 2015: 468). The basic goal of this initiative is to improve the visibility of climate actions undertaken by sub-national bodies and non-governmental organizations (UNFCCC 2017a). In particular, NAZCA should demonstrate how non-state climate action is rising and showcase the "extraordinary range of game-changing actions being undertaken by thousands of cities, investors and corporations" (UNFCCC 2014b). These efforts comprise GHG emission reduction pledges, renewable energy projects, internal carbon prices, and investments in green bonds.

In addition to maintaining the NAZCA platform, staff members of the climate secretariat regularly carry out consultations with different stakeholders on potential improvements of the

database (Interview 3). After the initial launch of the online platform, the climate secretariat has considerably increased its efforts to create a reliable knowledge basis on existing non-state climate initiatives. As a former senior official at the secretariat noted, without the input and the expertise from research-based think tanks, such an endeavor would not be possible due to the limited resources of the climate secretariat (Interview 4). This indicates that the climate secretariat has started to work with non-state actors in a more direct manner which, in certain fields, has led to collaborations on equal footing in the pursuit of the overarching aim to enhance the global level of ambition to address climate change.

4.2 The Biodiversity Secretariat: Fostering reliable business measures

With the adoption of the *Convention on Biological Diversity* (CBD) in 1992, non-governmental organizations have been granted an observer status in the international biodiversity negotiations. Next to their formal involvement in the intergovernmental process, the biodiversity secretariat has lately enhanced its outreach to actors below the level of national governments and sought to incorporate sub-national bodies, civil society groups, and private companies actively into the global response to biodiversity loss (Rosendal 2000). In particular, the secretariat organizes special events for non-state actors, provides platforms for the exchange of information among them, and confers awards to those actors that offer promising solutions for biodiversity conservation.

The secretariat as a convening body

The biodiversity secretariat has established a specifically strong relationship to the private sector and maintains close interactions with businesses through the organization of international, regional, and national workshops (Jörgens et al. 2017: 87). The starting point for this relationship goes back to a decision taken at COP-6 to the CBD when member states announced to intensify cooperation with "key actors and stakeholders, including the private sector" (CBD 2002). The biodiversity secretariat took this opportunity and issued a statement calling for further involvement of industries and businesses into the implementation of the Convention (CBD 2005). In subsequent years, the biodiversity secretariat organized the so-called *Business and the 2010 Biodiversity Challenge*, an event series which encompassed three consecutive meetings from 2005 to 2009. It started as a "small brainstorming meeting" (CBD 2018a) primarily for a small group of selected business actors

and companies at the first meeting in early 2005, but steadily grew into a momentous, large-scale partnership with over 200 participants at the third meeting in 2009 (Interview 5).

Beyond the *Business and the 2010 Biodiversity Challenge*, the biodiversity secretariat has hosted several other events. Most prominently, it established the so-called *Business and Biodiversity Forum*, a platform which was established in 2014 as a parallel event to the COPs to the CBD. It brings together state representatives, businesses, civil society groups, and other stakeholders. The main purpose of the platform is to initiate and foster debates on the question how the business sector can contribute and benefit from the implementation of the targets stipulated under the CBD (CBD 2018d). Other meetings in which the biodiversity secretariat played a supporting role include the *Biodiversity & Ecosystem Finance* conference that aimed to bring together industry experts and financial institutions as well as an *International Expert Workshop on Mainstreaming Biodiversity in the Sectors of Energy and Mining, Infrastructure and Manufacturing and Processing* taking place in 2018 (Biodiversity & Ecosystem Finance 2008; CBD 2018b). To support these events, the biodiversity secretariat has been publishing a *Business Newsletter* featuring certain case studies on issues related to the nexus between biodiversity and the private sector at irregular intervals (CBD 2018c).

The secretariat as a distributor of good practices

Following the initial integration of the business sector into the global response to biodiversity loss, member states commissioned the biodiversity secretariat in 2010 to establish "a forum of dialogue among Parties and other governments, business, and other stakeholders" (CBD 2010: 4). This was the signal for the biodiversity secretariat to set up the *Global Partnership for Business and Biodiversity* (Bhutani 2016: 40). In general terms, this partnership promotes the exchange of information among businesses and aims to engage the private sector with biological conservation (CBD 2017a). The different activities under the partnership are coordinated by the biodiversity secretariat. A key component is the *Global Platform for Business and Biodiversity*, which entails a webpage with a database and various online tools for businesses to address biodiversity loss. This platform provides various examples of good practices that intend to assist private companies mitigate their impact on biodiversity loss (CBD 2018e). In this endeavor, the biodiversity secretariat has directly worked together with companies to showcase biodiversity-friendly behavior and in this way "catalyzed" their involvement into biological conservation (Interview 5).

In addition, the secretariat has recently put growing efforts into the compilation of listings and reports from civil society groups and business associations dealing with biodiversity at the national level (CBD 2017b). The aim of this is to support knowledge exchange processes and inform existing initiatives about potential biological conservation activities. In this context, the biodiversity secretariat seeks to create a regulatory environment by setting boundaries for what companies may or may not do and establishes conditions that assist businesses in their efforts to become biodiversity-friendly. In particular, the secretariat highlights those projects that commit themselves to recognized standards, thereby supporting the mainstreaming and harmonization of effective measures to protect and conserve biodiversity (Interview 6). To advance these processes, the secretariat maps and advances relevant standards with the help of researchers and practitioners to avoid confusion and gaps in knowledge (CBD 2017a). This suggests that the biodiversity secretariat has been trying to build up a pool of reliable business measures to deal with the problem of biodiversity loss in recent years.

The secretariat as a co-hosting and award-giving institution

Another initiative of the biodiversity secretariat is the *Midori Prize for Biodiversity*. Together with the *AEON Environmental Foundation*, the secretariat organizes this biannual event in order to award three individuals who have made "outstanding contributions to conservation and sustainable use at local and global levels, and who have influenced and strengthened various biodiversity-related efforts, as well as raised awareness about biodiversity" (CBD 2018f). Established in 2010 at the occasion of the 20th anniversary of the *AEON Environmental Foundation* (AEON) and during the *UN International Year of Biodiversity*, the prize is funded by AEON and supported by the Ministry of Environment of Japan (Interview 5 and 7). The nominees of the award are selected under criteria based on their global contribution to safeguarding biodiversity, individual long-term viewpoints on this matter, input to conservation and sustainable practices, as well as efficacy and influence. The price winners receive a monetary reward of US-Dollar 100,000 dedicated to the further support of their work.

Some of the previous Midori Prize winners include Angela Merkel in her capacity as Germany's Federal Environment Minister in 2010; Rodrigo Gámez-Lobo, President of the Instituto Nactional de Biodiversidad in Costa Rica; and Yury Darman, Director of the Amur Ecoregion Program under the World Wide Fund for Nature in Russia (CBD 2018f). The former Executive

Secretary of the CBD, Braulio Ferreira de Souza Dias, stated at the second award ceremony in 2012 that "[t]he Secretariat is pleased to be a partner in the foundation and granting of the MIDORI Prize, an effective instrument that not only promotes public awareness but also encourages activities in support of the conservation and sustainable use of biodiversity" (CBD 2012). Besides the secretariat's representative function and its role in supporting the organization of the award, staff members of the biodiversity secretariat take part in the steering committee, with the Executive Secretary acting as one of the main judges for the award (AEON 2018).

4.3 The Desertification Secretariat: Raising awareness of different stakeholders

After the adoption of the *UN Convention to Combat Desertification* (UNCCD) in 1992, the desertification secretariat was formally established and took responsibility of the support of the COPs to the UNCCD and the related subsidiary bodies. Similar to the other two Rio Conventions, non-governmental organizations have no decision-making authority within international negotiations of the UNCCD – but have only been granted an observer status (UNCCD 2019). Yet, in the past few years, the desertification secretariat has considerably enhanced its engagement with different types of sub-national bodies and non-governmental organizations to cope with desertification, land degradation, and associated issues.

The secretariat as an awareness raising body

In its outreach to non-state actors, the desertification secretariat has placed special emphasis on capacity building and knowledge provision. In particular, the secretariat has created a so-called *Knowledge Hub*, an overarching platform under which it has launched different campaigns, initiatives, and tools to direct the attention of different sub-groups of non-governmental organizations to issues, such as land degradation neutrality, sustainable land management, and coping strategies with drought (UNCCD 2018a). The origins of this platform can be traced back to COP-9 to the UNCCD and a formal request towards the UNCCD's *Committee on Science and Technology* (CST) to implement a "knowledge management system" that entails both "traditional knowledge […] of the Convention text, best practices and success stories on combating desertification, land degradation and drought issues" (UNCCD 2009: 119). As a result, the CST forwarded this task to the desertification secretariat, which developed the preliminary architecture of the knowledge management system on the basis of a comprehensive survey.

In the further development of this initiative, the desertification secretariat extended the function of the system beyond its initially intended use as an internal working tool for the CST and other UNCCD bodies (Interview 8). In particular, it proposed an additional, external "integrated database on UNCCD-related information, including components on scientific and technical information, reporting and review of implementation, awareness raising and areas of synergy" (UNCCD 2010: 3). In this respect, the desertification secretariat presented a digital structure and format, which offered "an organized pathway to further information relating to desertification, land degradation and drought" [which] "could also serve as a forum for electronic exchanges, networking and even training" (UNCCD 2010: 3). This section was designed to integrate external stakeholders to foster synergies, broker scientific knowledge, and enable reporting activities (UNCCD 2011). At COP-10 to the UNCCD, the Parties welcomed the upgrade of the knowledge management system (UNCCD 2012: 102). With financial contributions from various national governments, this led to the launch of the *Scientific Knowledge Brokering Portal* in 2014, which then evolved into the *Knowledge Hub* as an improved version of the initial pilot portal (UNCCD 2015a; 2015b).

At its core, the *Knowledge Hub* aims at gathering, registering, and disseminating information to "support and enhance the capacity of every stakeholder" concerned with the UNCCD (UNCCD 2018d). By collaborating with different non-state partners, the platform features a number of essential "products and pillars", such as the *Capacity-Building Marketplace,* a so-called "one-stop shop" to serve all matters with regard to capacity building in the view of the implementation of the UNCCD and its different associated agreements (UNCCD 2018d) or the *Great Green Wall* campaign aimed at enhancing awareness in public spheres, in international, national and local policy debates, as well as in the media and cultural sectors in order to inspire long-term public and private investment (UNCCD 2018b). Beyond that, the *Knowledge Hub* links further important initiatives to the UNCCD process, such as the *Land Degradation Neutrality Target Setting Programme*, the *Global Land Outlook*, and the *UNCCD eLibrary* (UNCCD 2018d).

The secretariat as a knowledge broker

A further initiative launched by the desertification secretariat that involves non-state actors is the *Soil Leadership Academy*. It is a public-private partnership that seeks to equip decision-makers with comprehensive tools to guide policy processes and frameworks at both the national and

regional level and achieve one essential goal of the UNCCD: land degradation neutrality. In line with one of the key outcome statements of the Rio+20 conference in 2012 "to achieve a land-degradation neutral world in the context of sustainable development" and the related sustainable development goal, it came into being as a complementary means of achieving the UNCCD *10-year Strategic Plan and Framework* in early 2014, agreed upon at COP-11 to the UNCCD (Wagner 2013). Supported by the *World Business Council for Sustainable Development*, the partnership received considerable initial funding from governmental bodies as well as *Syngenta*, a multinational enterprise operating in the agricultural sector (Interview 9).

With its first session starting in mid-2014, the program has been designed and structured as a one-year training course in a workshop format with a curriculum that is guided by the special needs and priorities of its participants (UNCCD 2018e). These include, inter alia, private companies, research institutions, and intergovernmental organizations. In particular, the *Soil Leadership Academy* targets individuals with decision-making capacity, such as ministers, director generals, other civil servants, and high-level business actors (United Nations University 2018). In addition to its main objective, the initiative seeks to establish a network among its participants. Moreover, the general structure of the training features a simulation game character, in which participants are encouraged to apply their new knowledge at their respective spheres of influence. By this means, the desertification secretariat draws on the existing knowledge, available data, and various best practices of its institutional partners, and functions as a knowledge-broking body by providing concrete insights on ways to achieve land degradation neutrality and offering opportunities for direct cooperation among relevant actors in regions prone to desertification (UNCCD 2018c).

The secretariat as a bridge between stakeholders

Another initiative launched by the desertification secretariat that involves non-state actors is the *Global Land Outlook*. Designed as a strategic communication platform, it brings together international experts and various partner organizations. The initiative was established at COP-13 to the UNCCD in relation to sustainable development goal 15, which promotes "life on land" and aims at reversing land degradation (UN 2015). The *Global Land Outlook* has a two-fold objective: On the one hand, the platform intends to assess current trends on topics such as land conservation or degradation and loss, as well as to identify opportunities for sustainable land management

policies at both the international and national level. On the other hand, it adopts a wider focus on issues interrelated with the Convention by bringing together diverse experts in the fields of food, water, and energy security; climate change and biodiversity conservation; urban and infrastructure development; land tenure, governance and gender; and migration, conflict, and human security (UNCCD 2018c). In this sense, the initiative aims to "outlook" into possible future scenarios of change in relation to land use.

According to the UNCCD website, the *Global Land Outlook* draws upon the insights from its knowledge management system and will therefore have direct linkages to the *Knowledge Hub*. The key publication of this initiative presents knowledge on desertification and interrelated issues and is accompanied by online reports as well as a working paper series on best practices for sustainable land management (UNCCD 2017a: 7). In cooperation with UNCCD member states and a small expert group, the desertification secretariat is currently drafting a long-term framework for the initiative, called the *Global Land Index*, which is meant to be used both as a communication and awareness raising tool and a conjoint mechanism connecting other land indices that incorporate bio-physical and socio-economic dimensions of sustainable land management (Acosta, Alexander, and Munoz 2017; UNCCD 2017b). The initiative is maintained through a website that is formally coordinated by the desertification secretariat. Different partners of the secretariat have contributed to the platform – including, amongst others, the *Center for Development and Research*, *EcoAgriculture International*, the *Institute for Advanced Sustainability Studies*, and the *World Bank* (Global Land Outlook 2018). At present, the Secretariat advocates for further participation of individuals and organizations in this initiative on a regular basis (UNCCD 2018d).

5. Discussion

The previous analysis underscores that the three intergovernmental treaty secretariats have considerably extended their engagement with non-state actors over the past few years. Due to their restrictions in taking active roles in international negotiations, the secretariats interact with actors other than nation-states and use them as intermediaries in the pursuit of the overarching goal to catalyze international cooperation on transboundary environmental problems. To this end, they initiate and maintain joint initiatives with civil society organizations, non-profit entities, and the private sector and provide material and ideational support to mobilize, strengthen and steer their initiatives. We hence support the premise that these specific types of international bureaucracies

can no longer be regarded as technocratic bodies that solely offer services to national governments. In particular, the case studies in this article demonstrate that the secretariats of multilateral environmental agreements adopt different orchestration styles in their relation to non-state actors.

First, the climate secretariat has actively engaged non-state actors into a policy dialogue and had been involved in a number of initiatives which built momentum and showcased non-state actor support for COP-21 to the UNFCCC that led to the Paris Agreement in 2015. In this sense, the climate secretariat has been acting as a facilitator of the groundswell of climate initiatives carried out by a wide range of non-state actors. Second, the biodiversity secretariat convened a forum for dialogue between national governments and the business community with the aim of integrating companies into the implementation of the CBD Convention. To promote this, staff members of the biodiversity secretariat have lately put considerable effort into creating a pool of reliable business measures and good practices for biological conservation. Finally, the desertification secretariat brought together different societal stakeholders to establish an external knowledge management platform for promoting synergies among decision-makers from both the public and private sector. The overall aim thereby was to share information and raise awareness of the various issues regarding desertification and land degradation. This shows that all three secretariats have developed individual orchestration styles tailored to the challenges and the particular stages of the global responses to the respective transboundary environmental problems.

What is apparent in all three cases is that the interactions between the secretariats and non-state actors have steadily amplified in recent years. On the one hand, this is related to the ever-increasing number of non-state actors that propose their own solutions for issues such as climate change, biodiversity loss, and desertification since the measures taken by national governments and the norms and rules prescribed in international environmental agreements have so far yielded only limited results. According to a staff member of the desertification secretariat, the rise of non-state initiatives has led to both coordination and competition amongst them, hence changing the way in which non-state actors deal with multilateral environmental agreements. This development has made collaboration with secretariats more viable with ideas put forward by several non-state actors that are now more “realizable” and better suit the agenda of intergovernmental public agencies (Interview 8). This is in line with observations made by other scholars who recognize a streamlining of approaches towards more conclusive and attainable solutions as well an overall renewed sense of awareness and willingness to tackle transboundary environmental problems with the help of non-state actors (e.g. Betsill et al. 2015; Bäckstrand et al. 2017; Hermwille 2018).

On the other hand, many international (environmental) regimes have opened up to other kinds of actors below the central state level in order to restore the legitimacy of extant multilateral institutions (Tallberg et al. 2013; Hale and Held 2017). As our study underscores, intergovernmental treaty secretariats aim to contribute to this process and seek to foster the inclusion of non-state actors into global environmental policy-making. Thus, we see this shift in the modus operandi of multilateral environmental agreements as a possible reason for the growth in cooperative efforts between intergovernmental treaty secretariats and the broad array of non-state actors. Direct collaborations with non-state actors remain largely restricted within the boundaries of the secretariats' original mandates. But in initiatives marked by potential synergies for the secretariats and their non-state counterparts, they increasingly join forces and non-state actors bring in their resources and capabilities without third-party intermediation. Thereby, they engage in multi-actor institutional learning processes; share technical expertise; or co-organize events, workshops and training programs (Abbott et al. 2015b: 14-16).

Of particular interest in this regard is that all three secretariats in focus have capitalized on new technology and digital solutions in their approach to develop overarching, large-scale networks and databases with non-state actors. We recognize such partnerships for the climate secretariat with the further evolution of the NAZCA platform to the *Global Climate Action Portal* launched in 2018, the *Global Partnership for Business and Biodiversity* for the biodiversity secretariat, and the *Knowledge Hub* for the desertification secretariat. In these initiatives, the secretariats largely rely on the input and the expertise from research-based think tanks and other non-state actors that provide relevant data, maintain the platforms, and, most importantly, take part in these partnerships to raise awareness to the respective environmental problems (Interview 4 and 10). This finding points to the dynamic interplay between international bureaucracies and their non-state counterparts and indicates that this complex relationship cannot fully be captured by the concept of orchestration. Rather, we apparently witness the emergence of novel forms of direct collaboration between the secretariats of multilateral environmental agreements and non-state actors spurred by their common goal to accelerate national commitments and actions.

6. Conclusion

This article has explored the institutional interactions between three intergovernmental treaty secretariats and non-state actors in global sustainability governance. Building upon the concept of

orchestration, the article particularly investigated how the climate secretariat, the biodiversity secretariat, and the desertification secretariat are reaching out to actors outside of the official negotiation arena. The analysis stresses several activities undertaken by intergovernmental treaty secretariats which go beyond their basic duties of providing technical assistance and services to national governments. In general terms, the case studies in this article underscore that the secretariats of multilateral environmental agreements aim to incorporate non-state actors in different ways into the global responses to the respective transboundary environmental problems.

More explicitly, we contend that all three intergovernmental treaty secretariats under examination made use of their limited resources and developed different kinds of interlinkages with actors other than national governments. While the outreach activities of the secretariats have to some extent been backed or even initiated by decisions adopted in international negotiations, the staff members apparently avail themselves of their political leeway and strategically interact with non-state actors to induce Parties to the Conventions to take a more ambitious stance on combatting climate change, biodiversity loss, and desertification. In other words, the secretariats of multilateral environmental agreements seek to drive the intergovernmental process forward by facilitating exchanges with civil society organizations, non-profit entities, and the private sector. In particular, they assist these sub-groups of non-governmental organizations to comprehend the underlying problems; provide knowledge and good practices for dealing with the related challenges; endorse, coordinate and strengthen their initiatives; and increasingly collaborate with research institutes to establish online material to publicize existing actions on the ground.

These insights challenge conventional approaches to world politics which presume that national governments are the only relevant actors in global affairs. Our results demonstrate that intergovernmental treaty secretariats have gained agency and matter through their distinct styles of orchestration vis-à-vis their non-state counterparts. In this way, the secretariats of multilateral environmental agreements have pushed the confines of their mandates in creative ways and gained autonomous influence in global sustainability policy-making (e.g. Abbott et al. 2015b). At the same time, the analysis underscores the evolving relationship between international bureaucracies and non-state actors and entails several recent instances of direct collaboration without intermediation. This is especially evident in the field of digital solutions and the creation of databases and networks on issues related to the three conventions. Such direct forms of interaction seem to be the result of prolonged interactions in areas marked by mutual benefits for both parties.

To conclude, intergovernmental treaty secretariats aim to enhance the overall effectiveness of global sustainability governance by initiating and strengthening actions carried out by various kinds of non-state actors (van Asselt and Zelli 2014; Chan et al. 2015). This interplay between secretariats and non-state actors is at least partly maturing towards a division of labor (Betsill et al. 2015). Taking the deficiencies of existing global governance frameworks into account, this development bears important policy implications. When it comes to addressing transboundary environmental problems, international bureaucracies can steer the initiatives of non-state actors towards coherence and good practice and at the same time benefit from their input and expertise. This is especially relevant for policy areas that exhibit collective action dilemmas, wicked problems, and diverging interests amongst powerful actors (e.g. Abbott and Hale 2014). International bureaucracies might hence mitigate political gridlock by rallying support from transnational and sub-national actors or turning to non-state actors in order to mobilize advocacy, create demonstration effects, or otherwise nudge national governments towards more ambitious international agreements (Abbott 2014). Thus, there is a great potential for the further evolution of such new alliances between international bureaucracies and non-state actors in global (sustainability) policy-making.

Annex: List of expert interviews and talks conducted

Interview 1 with a Programme Officer of the UNFCCC Secretariat responsible for the Momentum for Change Initiative, 6 October 2016 in Bonn, Germany.

Interview 2 with a Programme Officer of the UNFCCC Secretariat in the area of Strategy and Relationship Management, 6 October 2016 in Bonn, Germany.

Interview 3 with a Programme Assistant of the UNFCCC Secretariat in the Global Climate Action Initiative, 5 October 2018, Berlin, Germany.

Interview 4 with a former staff member of the UNFCCC Secretariat working in the team led by former Executive Secretary Christina Figueres, 7 October 2016 in Bonn, Germany.

Interview 5 with a staff member of the CBD Secretariat in the area of Mainstreaming, Cooperation and Outreach Support, 24 September 2018 (via Skype).

Interview 6 with a research fellow and advisor to the German government working on topics related to biodiversity policy-making, 9 October 2018 in Berlin, Germany.

Interview 7 with a former staff member that used to work at the CBD Secretariat in the Implementation Support Division, 5 February 2019 in Berlin, Germany.

Interview 8 with a staff member of the UNCCD Secretariat in the area of External Relations, Policy and Advocacy, 26 October 2018 (via Skype).

Interview 9 with a staff member of the Dutch Environmental Assessment Agency in the department of Climate, Air and Energy, 28 October 2018 (via Skype).

Interview 10 with a former staff member at the UNFCCC Secretariat in the Non-State Actor Zone for Climate Change initiative, 28 October 2018 (via Skype).

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Manuscript III: ***Orchestrating global climate governance through data: The UNFCCC Secretariat and the Global Climate Action Platform***

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Abstract

Since the adoption of the Paris Agreement, the focus of the United Nations climate regime has shifted from forging consensus among national governments toward animating implementation activity across multiple levels. Based on a case study of the Global Climate Action Portal—an online database designed to document nonstate actor climate commitments and implementation efforts—we trace, conceptualize, and assess how the roles of data, data infrastructures, and actor constellations have changed as a result of this shift. We argue that in the pre-COP21 negotiation phase, the United Nations Climate Secretariat strategically used the database to orchestrate and leverage nonstate actor commitments to exert pressure on intergovernmental negotiations. By contrast, in the post-COP21 implementation phase, the Secretariat, in collaboration with climate data specialists, is seeking to develop the portal to track and animate implementation activity. Given these developments, we discuss the potential and limitations of data-driven climate governance and set out avenues for future research.

1. Introduction

During the period leading up to the twenty-first Conference of the Parties (COP21), the mobilization of public and private actors across transnational and subnational scales emerged as a key characteristic of the United Nations (UN) climate regime (Bäckstrand et al. 2017; Hale 2016; Higham 2017b; Hsu et al. 2015). These actors, referred to in this article as nonstate actors, comprise a diverse set of organizations, including businesses, subnational governments, financial institutions, and civil society groups. While not uncontroversial (Bakhtiari 2018), researchers have repeatedly argued that the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat (the Secretariat) has played, and should play, a central role in "orchestrating" nonstate climate action (see, e.g., Chan et al. 2015; Hale and Roger 2014; Hermwille et al. 2017; Hickmann et al. 2019). In this context, the Non-state Actor Zone for Climate Action (NAZCA), an online database set up by the Secretariat to document nonstate actors' climate commitments, has been characterized as an example of orchestration dynamics to rally for an ambitious Paris Agreement (Bäckstrand and Kuyper 2017; Chan et al. 2015).

While research has investigated the actor constellations involved in data-driven climate governance, it has not fully engaged with data as a *means* on which the Secretariat relies to influence actor preferences and governance outcomes. Our aim in this article is thus to introduce data into conversations about the role of the Secretariat and its efforts to orchestrate global climate governance within the UN climate regime. In so doing, we understand data not merely as a means of communicating information but as an intervening element that is deliberately mobilized to reconfigure the agency of, and relationships between, actors (Johns 2021). Adopting a case study approach, we empirically trace, conceptualize, and assess data-driven governance arrangements in the UN climate regime, focusing on NAZCA and its successor platform, the Global Climate Action Portal (GCA Portal).

Building on "orchestration" as a conceptual lens (Abbott et al. 2015; Abbott et al. 2016; Abbott and Snidal 2009), we engage with the following questions: Who are the actors involved in data-driven governance, what are their relationships, and how are these relationships shaped by data? How do data-driven governance arrangements operate, and which logics do they follow? And what is the potential and what are the limitations of data-driven climate governance? Engaging with these questions, this article adds to three strands of literature. First, it contributes to emerging research which has analyzed the interplay of transnational actors and intergovernmental institutions

(see, e.g., Elsässer et al. 2022). Specifically, we add a new perspective to research that has investigated nonstate actor involvement in the climate regime (e.g., Bäckstrand et al. 2017; Hale 2016; Mai 2018), with a particular focus on interactions between the Secretariat and these actors (Hickmann and Elsässer 2020; Saerbeck et al. 2020). Second, our analysis offers a governance perspective that complements research on how data-collection and -processing practices, and related technologies, knowledges, and infrastructures, are relied upon to make legible and respond to planetary change (e.g., Hsu et al. 2020). And third, we contribute to an emerging field of research that has started to examine the politics of data in governing changing planetary realities (e.g., Bigo et al. 2019; Nost and Goldstein 2021).

In the next section, we begin by setting out our conceptual starting points. In the following section, we describe our rationale for adopting a case study approach and detail our methods of data collection and analysis. Next, we recount the emergence of NAZCA from the period leading up to COP21 and trace its gradual evolution into the GCA Portal. This descriptive account provides the foundation for conceptualizing data-driven climate governance arrangements. Finally, we assess the potential and limitations of data-driven climate governance, before concluding and highlighting avenues for future research.

2. Conceptual Starting Points

Researchers investigating international organizations and multilateral processes have explored how nonstate actors gain access to, participate in, and influence intergovernmental institutions (Betsill and Corell 2008; Elsässer et al. 2022; Tallberg et al. 2013). In this context, international bureaucracies have been described to engage with transnational actors to animate more ambitious policy- and lawmaking (Betsill et al. 2015; Chan et al. 2015; Reinalda and Kille 2016). Contrary to skeptics (e.g., Drezner 2007), a growing number of authors have argued that international bureaucracies—such as intergovernmental treaty secretariats—have gained a relative degree of autonomy vis-à-vis principal nation-states that goes beyond the provision of technical assistance and administrative services (Biermann and Siebenh ner 2009; Jinnah 2014; Trondal et al. 2010). Using their limited mandates in innovative ways, international bureaucracies—and international organizations more broadly—rely on intermediary support to target actors over which they lack direct, hierarchical control (Abbott et al. 2015; Abbott and Snidal 2010; Hickmann and Elsässer 2020). This indirect mode of governance has been conceptualized as “orchestration” (Abbott and

Snidal 2009): an orchestrator with limited governance capacity (e.g., in terms of budget and/or staff) mobilizes an intermediary party with appropriate resources to govern third parties. It is through intermediaries that orchestrators *manage* or *bypass* target actors and reach their governance objectives (Abbott and Snidal 2009, 564). In the context of the climate regime, the Secretariat has been described as an orchestrator that, in the period leading up to COP21, sought intermediary support from nonstate actors to exert pressure on intergovernmental negotiations (e.g., Bäckstrand and Kuyper 2017). By contrast, following the Paris Agreement, nonstate actors have been described to "give substance to the aims, objectives, and modalities prescribed in the Paris Agreement", including by demonstrating implementation options, providing finance, enhancing representation, and contesting dominant policy practices (Bulkeley et al. 2018, 74–75). This shift in the role of nonstate actors raises questions of *how* the Secretariat has intervened to orchestrate nonstate actor activities in the pre- and post-COP21 periods, including by relying on data as a means of governance.

Our analysis thus takes as a starting point that with the adoption of the Paris Agreement, the UN climate regime has begun to move from "negotiation" to "implementation". While the negotiation phase, initiated by the Durban mandate in 2011, primarily focused on forging intergovernmental consensus to adopt a new, legally binding instrument,[41] in the post-COP21 implementation phase, the primary focus moved to "implementing what states have agreed" (Held and Roger 2018, 527). Accordingly, the adoption of the Paris Agreement marked a "turning point" in the development of the UN climate regime (see also Higham 2017a; Kinley 2017): it ushered in "the beginning of a new era . . . that offers the chance of more durable international cooperation" (Falkner 2016, 1108). After years of delay and almost collapse (Dimitrov 2010), the multilateral process produced a global, long-term, and durable legal framework that promises to end continuous renegotiation of governance aims and processes (Bodansky 2016). However, in practice, the shift from negotiation to implementation arguably unfolded as a gradual process. Even before COP21, specific aspects of the climate regime, such as Workstream II of the Durban Platform, were designed to animate and support implementation activity (see Higham 2017b),[42] and the negotiation of the "Paris Rulebook"—the ensemble of COP decisions setting out the operational details of the Paris Agreement—only began following COP21. Nevertheless, with the long-awaited

[41] UNFCCC, Decision 1/CP.17—Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action, paras. 2 and 4.
[42] UNFCCC, Decision 1/CP.17—Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action, paras. 7 and 8.

finalization of the Rulebook, "the UN climate change regime can now focus on implementation of the Agreement" (Rajamani and Bodansky 2019, 1025).

3. Case Study Approach and Methods

Based on our conceptual starting points, we set out to empirically describe, conceptualize, and assess data-driven governance arrangements that have evolved around NAZCA and the succeeding GCA Portal. To do so, we investigate the evolution of the portal as a single case (Gerring 2004). While NAZCA was not the only nonstate actor data platform emerging in the lead-up to COP21 (see Widerberg and Stripple 2016), it has significantly outgrown its competitors. As of early 2022, its successor, the GCA Portal, listed more than 26,309 "climate actions" (United Nations Framework Convention on Climate Change [UNFCCC] 2022). Furthermore, as we explain in the following section, the portal has been continuously updated and formally recognized in intergovernmental climate negotiations. No other data platform compares to its size, resources, and political relevance. Accordingly, the GCA Portal offers an appropriate single case. For our within-case analysis, we use a process tracing methodology (George and Bennett 2005) to reconstruct the evolution of the portal between 2013 and 2021, expounding actor constellations and tracing their activities (Beach 2016).

For data collection and analysis, we relied on triangulation. Specifically, we conducted an in-depth desk study of available documents, including COP decisions, UNFCCC reports, and "gray" literatures. Furthermore, we collected original field data at COP24, COP25, the Asia-Pacific Climate Week 2019, the New York Climate Action Summit 2019, and COP26, and we undertook 25 expert interviews. Using purposive sampling, we selected respondents who we expected would offer a "detailed exploration and understanding of the central themes and puzzles" that we sought to study (Ritchie et al. 2003, 78).[43] Using NVivo, we built a comprehensive case study database to code collected data and identify "themes" that captured patterns and meanings relating to our research questions (Braun and Clarc 2006, 82).

[43] Interviews were conducted between October 2018 and February 2020. Except for six online interviews, all interviews took place in person. Respondents comprised three groups: international climate policy experts involved in pre-COP21 negotiations and/or nonstate actor engagement in the post-COP21 implementation phase (respondents 1–9); technical staff at two GCA data providers (respondents 10–15); and staff at GCA-registered organizations across Europe, Latin America, and Asia with responsibility for climate data reporting (respondents 16–25).

4. Tracing the Evolution of Data-Driven Governance: From NAZCA to the GCA Portal

Our case study data reveal five stages in the development of the database: first, the emergence of NAZCA ahead of COP21; second, its official recognition at COP21; third, a period of planning, strategizing, and positioning ahead of COP22; fourth, the development of NAZCA into the GCA Portal between COP22 and COP24; and fifth, recent efforts to strengthen the portal's tracking capabilities. While in practice, transitions between these phases have been fluid, they highlight focal areas of activity that have characterized the evolution of the database.

Pre-COP21: The Emergence of NAZCA

At COP19, a portal on "cooperative initiatives" was launched. Hosted on the Secretariat's home page, this initial portal was intended to "enhance" the "understanding of non-state actor initiatives" and serve "as a platform for information exchange and for creating new cooperative interactions" (UNFCCC 2020). At COP20, the Lima–Paris Action Agenda (LPAA), a joint endeavor of the Peruvian and French COP presidencies, was announced to enhance the visibility of nonstate actors in the climate regime. It targeted actors that pledged quantifiable emission reduction targets and set out concrete steps for achieving these targets. Commentators have argued that, politically, these announcements played a central role in enabling the reaching of the Paris Agreement (Higham 2017b, 47–48). In parallel to the LPAA, the COP19 information hub was replaced with the first iteration of NAZCA. The focus of this initial version of the portal was to showcase the breadth of nonstate actor commitments, thus "injecting momentum into the negotiation process" leading up to COP21 (respondent 5). During this phase, workshops brought together nonstate actors, data specialists, supportive governments, the Secretariat, and observer organizations to discuss possible future roles of NAZCA (see Galvanizing the Groundswell of Climate Actions [GGCA] 2015).

COP21: Official Recognition of NAZCA

Whereas ahead of COP21, nonstate actor engagement had taken place on the sidelines and through informal channels, the Paris Decision—the formal decision capturing the outcomes of COP21—expressly "welcome[d] the efforts of all non-Party stakeholders [nonstate actors] to address and respond to climate change."[44] Furthermore, it encouraged governments to "work closely with non-

[44] UNFCCC, Decision 1/CP.21—Adoption of the Paris Agreement, para. 133.

Party stakeholders to scale up their climate actions to catalyze efforts to strengthen mitigation and adaptation action."[45] The Paris Decision thus made clear that governments, on their own, would not be able to implement the Paris Agreement or, more specifically, reach the goals formulated in Article 2. Importantly, the Paris Decision also "encouraged" nonstate actors to "register" their "climate actions" in NAZCA,[46] explicitly referencing the portal's URL in footnotes.[47] As such, with the Paris Decision, NAZCA became a formally endorsed element of the UN climate regime.

From COP21 to COP22: Planning, Strategizing, and Positioning of NAZCA

Following COP21, political and technical dialogues took place to scope options for further developing NAZCA. Political discussions were linked to the development of the Marrakech Partnership for Global Climate Action (MPGCA), a COP21-mandated initiative to foster collaboration between national governments and nonstate actors.[48] With the support of the Secretariat, political meetings were convened by the COP21 and COP22 presidencies under the aegis of the two High-Level Champions (the Champions), who were formally mandated to "engage" with nonstate actors.[49] These discussions focused on how to move NAZCA from showcasing nonstate actor pledges toward tracking progress of actors in actualizing their commitments (e.g., UNFCCC 2016a). Respondents explained that the intention was to shift NAZCA from capturing the readiness of nonstate actors to address climate change toward building a database that could show to what extent nonstate actor pledges were actually being implemented. To illustrate, respondent 2 described NAZCA in the pre-COP21 period as a "repository of good intentions" and a "recognition hub," while post-COP21, the platform was to gradually evolve into a "tracking tool" and make available information on nonstate actors' implementation efforts. Thus, the long-term vision for NAZCA, which emerged following COP21, was to develop the portal into an instrument that would meaningfully capture the progress of nonstate actors implementing voluntary commitments.

High-level discussions about the future of NAZCA were complemented by an official consultation process that invited submissions from governments and nonstate actors (UNFCCC 2016c). Informed by this process, the Champions set out tentative criteria, broadly defining which

[45] UNFCCC, Decision 1/CP.21—Adoption of the Paris Agreement, para. 118.
[46] UNFCCC, Decision 1/CP.21—Adoption of the Paris Agreement, para. 117.
[47] UNFCCC, Decision 1/CP.21—Adoption of the Paris Agreement, paras. 117 and 134.
[48] UNFCCC, Decision 1/CP.21—Adoption of the Paris Agreement, para. 120.
[49] UNFCCC, Decision 1/CP.21—Adoption of the Paris Agreement, para. 121.

commitments and actions would be eligible for registration (see UNFCCC 2016b, 4–5). During COP22, further informal consultations took place before the Champions released the MPGCA founding document (respondents 7 and 9), which confirmed the criteria communicated in the lead-up to COP22. Political consultations were flanked by technical discussions that convened organizations specializing in climate data processing, representatives from academia, and nongovernmental organizations. These discussions started to focus on resolving analytical, methodological, and conceptual difficulties developing NAZCA into a tracking tool, such as data gaps, issues around double counting, and options for linking nonstate actor data to Nationally Determined Contributions (NDCs) (see further Hsu et al. 2016b).

From COP22 to COP24: Developing NAZCA into the GCA Portal

Following COP22, NAZCA underwent major revisions. First, the portal was aligned with the LPAA "thematic areas", resulting in an overhaul of the portal's web interface (UNFCCC 2017). In a second step in late 2018, a further update of NAZCA resulted in the renaming of the platform—it became known as the GCA Portal. This rebranding was intended to evidence, and make explicit, the integration of the database into the Global Climate Action program—the section of the Secretariat that, following COP21, evolved as the focal point for coordinating nonstate actor engagement (respondent 4). In addition, the portal's background IT infrastructures were updated to improve data processing and allow for more granular filtering. Respondent 2 explained the significance of the 2018 update as follows:

> The revamp ties it [the GCA Portal] to the Paris Agreement . . . Originally, NAZCA was part of the effort to galvanize the groundswell of non-Party stakeholder commitments to help reach the Paris Agreement. And in this context, NAZCA played its role. Now that we have the Agreement, this groundswell is still important, but at this stage it is more about the implementation of the Agreement.

Despite the overhaul of NAZCA's web interface and supporting IT infrastructures, conceptual and technical issues remained. For example, questions around double counting and the localization of actions continued to prove problematic. Several respondents explained that one central issue of concern was the localization of emission reductions. In early 2019, respondent 8 frankly explained, "I think we need to go to the next level on data. I think it is insane that we are still struggling with those emission data boundaries." Furthermore, with nonstate climate action

and reporting taking place primarily in Europe and North America, it became evident that there were significant data gaps in the Global South (GGCA 2016a; Hsu et al. 2016b).

Following COP24, the GCA Portal was linked to NDCs by including "country profiles" that set out information about nonstate actor activities for each jurisdiction. Individual country profiles also included a link to the Secretariat's NDC portal (UNFCCC 2021b). The inclusion of country profiles made explicit that neither nonstate climate actors nor governments on their own have the capacity to reach the goals of the Paris Agreement. Rather, governments and nonstate actors are expected to work together. A press statement explained the rationale for linking nonstate actor climate data with national climate strategies:

> The intention is to offer governments, policymakers and other users a snapshot of climate action undertaken at a national level, which can inspire the replication of initiatives in other countries and help identify the potential for further collaboration across other sectors of society. (UNFCCC 2019c)

This statement evidences the core logic of data-driven governance in the post-COP21 implementation phase: by providing policy-relevant information, the intent now is to "manage" (see Abbott et al. 2015, 11), by way of animating and facilitating, implementation activity which involves both states and nonstate actors.

From COP25 to COP26: Operationalizing Tracking Capabilities

COP25 and COP26 witnessed renewed efforts to strengthen the portal's capabilities to "track" nonstate climate action, that is, to use data to demonstrate to what extent nonstate actors are actually implementing voluntary pledges. Our analysis indicates that developing tracking capacities is widely seen as key for nonstate climate action to be credible. However, in addition to data gaps and issues around localizing emissions, further factors have hampered the development of tracking capabilities. These include time lags between data collection, processing, and display; the lack of consistent metrics and baselines across various nonstate actor groups; and the incompatibility of relevant IT infrastructures (GGCA 2016b). In light of these issues, the Climate Action Methodologies Data and Analysis (CAMDA) community was officially formed at COP24 to support the Secretariat. Initially, CAMDA met as a loose collective of experts, academics, think tanks, funders, and supportive governments. At COP25, the group articulated the aim to "create a common framework for tracking progress that looks at targets, ambition, outputs and outcomes to

align with the Paris Agreement" (UNFCCC 2019b). Concomitantly, governments officially recognized the importance of developing tracking capacity, thus endorsing CAMDA's technical work.[50]

In the lead-up to COP26, CAMDA evolved into a more structured network, now referring to itself as the Climate Action Data 2.0 Working Group (CAMDA 2022). The expanded expert network meets regularly, makes available shared resources, and is formally structured into workstreams that address key issues in developing tracking capabilities. CAMDA's technical work is flanked by renewed political acknowledgment "to support accountability and track progress of voluntary [nonstate actor] initiatives".[51] In addition, the emphasis on accountability continues to be reflected in the strategic framework of the MPGCA, which explicitly acknowledges tracking as one of its "six key functions" for the 2021–2025 period (UNFCCC 2021a).

5. Conceptualizing Data-Driven Climate Governance: Comparing Pre- and Post-COP21 Orchestration Dynamics

Having traced the development of NAZCA into the GCA Portal, we now conceptualize how the shift from pre-COP21 negotiation to post-COP21 implementation affected the database. In so doing, we focus on data-driven governance as one specific aspect of the involvement of nonstate actors in the UN climate regime. As such, while we argue that ahead of COP21, the primary aim of NAZCA was to orchestrate intergovernmental negotiations, to some extent, nonstate actor engagement was already expected to directly achieve emission reductions, for instance, under Workstream II of the Durban Mandate (see section 2) and as part of the 2014 Climate Action Summit (see Chan et al. 2018). Conversely, even though we find that post-COP21, the GCA portal serves as a tool to orchestrate implementation efforts, nonstate actor activity arguably continues to affect intergovernmental processes. In the specific context of NAZCA and the GCA Portal, however, we identify two distinct governance logics, namely, orchestrating intergovernmental negotiations (pre-COP21) and orchestrating implementation activity (post-COP21).

[50] UNFCCC, Decision 1/CP.25: Chile Madrid Time for Action, para. 29.
[51] UNFCCC, Decision 1/CMA.3: Glasglow Climate Pact, para. 89; Decision 1/CP.26: Glasgow Climate Pact, para. 56.

Pre-COP21: NAZCA as a Recognition Platform to Orchestrate Intergovernmental Negotiations

In the pre-COP21 negotiation phase, NAZCA was primarily intended to showcase how nonstate actors supported, and in fact expected, national governments to reach agreement at COP21. Capturing the "breadth of non-state actor climate commitments" (respondent 9), NAZCA was used to raise awareness about nonstate actors' readiness and capacity to take action on climate change. In the pre-COP21 context, the database can thus be seen as a recognition platform that was intended to inject momentum into the intergovernmental negotiation process. As such, NAZCA was intended to discredit arguments that strong climate policy lacked support or was allegedly too costly, economically disadvantageous, or simply impossible. In this sense, NAZCA was designed to "inspire" governments and "provide confidence to decision makers" to "take a more ambitious and bolder stance on climate change" (respondent 8). Thus, in the pre-COP21 negotiation period, the aim of the portal was to "generate the right kind of mood music to make the Paris Agreement possible" (respondent 6).

In the effort to orchestrate intergovernmental negotiations, NAZCA displayed ex ante information, that is, data reflecting estimates of the mitigation potential of voluntary climate pledges. Thus, while NAZCA set out which climate actions would be possible, the portal did not display information about whether pledges had in fact been implemented (respondents 2, 11, and 13). Drawing on Abbott and Bernstein (2015, 229), NAZCA has been conceptualized as a "meta intermediary" with actor-like qualities that sets "standards for standard setters" (Bäckstrand and Kuyper 2017, 766–768). Our case study data, however, reveal a more granular picture. Aiming for inclusiveness rather than prescribing specific standards, in practice, the criteria set out by the Champions at COP22 were applied relatively flexibly. As such, in the pre-COP21 negotiation context, NAZCA functioned as a data-driven recognition platform. Its primary function was to make visible the breadth and scale of nonstate actor climate commitments. The logic was to leverage the readiness of nonstate actors to address climate change within their spheres of influence to orchestrate intergovernmental decision-making.

To position NAZCA as a data-driven recognition platform, the Secretariat had to navigate limitations evident in its mandate and resources (see also Hickmann and Elsässer 2020).[52] To do so, it turned to third-party actors—known as "data providers"—who, acting as intermediaries, provided technical infrastructures and expertise to maintain the database. Aiming to reflect the

[52] United Nations Framework Convention on Climate Change, Article 8.

diversity of nonstate actors, NAZCA received data from various data providers, each of which focused on a specific category of actors. For instance, the Global Covenant of Mayors for Climate and Energy provides information on city-level climate action, while the UN Global Compact and CDP (formerly known as the Carbon Disclosure Project) provide data on company- and investor-led actions (for an overview of data parters, see UNFCCC 2022). During this period, the Secretariat began to engage with data providers in numerous ways, including by inviting participation in surveys and engaging in technical discussions. Thus, in the pre-COP21 negotiation phase, a division of labor emerged: while the data providers made available technical know-how and infrastructures, the Secretariat set up, strategically positioned, and managed NAZCA (respondents 2 and 3).

Post-COP21: The GCA Portal as a Tracking Tool to Orchestrate Implementation Activity

While NAZCA was used to push for ambitious intergovernmental consensus at COP21, key questions in the implementation phase relate to how to garner political support for adequate and effective climate policies and programs. In this context, data are now used with a view to orchestrate implementation efforts. The shift in the logic of data-driven climate governance is reflected in the type of data that are needed: while NAZCA displayed information relating to the potential of mitigation commitments on the basis of *ex ante* projections, the GCA Portal is now intended to display "progress data", that is, information about the extent to which voluntary pledges have actually been acted upon (respondents 10, 11, and 13). Thus, post-COP21, the intention is to move the GCA Portal from a recognition platform to a monitoring tool that tracks implementation efforts. Respondent 2 explained:

> NAZCA served its initial function as a recognition hub. But at some point . . . surely you will ask: "Ok, but what happened to all these commitments?" So, there is a need to provide some sort of accountability what is happening once the commitments have been put in place.

A first step in developing the portal into a tracking tool was to include contextual information, for example, revenue and employee data for companies and population and geographical data for cities. Contextual information is intended to enable meaningful interpretation of data and comparison across actors (respondent 2). The inclusion of contextual information thus supports the intended move from "static information", which captures ex ante the emission

reduction potential of nonstate actor commitments, to "progress information", which evidences the actual progress of implementing these pledges over time (ex post). Respondent 3 described the vision for the GCA Portal as a tracking tool:

> Technical people working in relevant ministries should be able to look to the platform as a source of information about what is happening in their countries . . . That could provide enough information to guide action from [governments] in terms of which policies will need to be implemented.

Several respondents explained that data displayed by the GCA Portal could eventually help actors to "connect" (respondents 6, 8, and 13). As an intermediary, the platform is intended to create a feedback loop: it regularly receives and organizes data as policy-relevant information to "manage" (Abbott et al. 2015, 11), by way of animating and facilitating, state and nonstate activity in the implementation arena (see Figure 1). Specifically, ex post progress information is seen not only to increase transparency, accountability, and credibility but also to facilitate learning, knowledge integration, and collaboration (Hale et al. 2020). The implementer relationship, to be facilitated through orchestration activity, thus comprises cooperative partnerships between nonstate actors and national governments. This aligns with research suggesting that strong domestic climate policy supports nonstate climate action, and vice versa (Andonova et al. 2017; Kahler 2017). Respondent 9 explained how nonstate actors can inspire domestic climate action:

> They [nonstate actors] can be kind of an advance guard of where they want to go . . . These signals . . . can then push governments further and faster towards taking action on climate change than they otherwise would have done. That is the sort of a strange state of affairs, but that is how we found it to play out.

Thus, while states are tasked with incentivizing and supporting implementation through adequate regulatory frameworks, nonstate actors are expected to directly contribute to mitigation, adaptation, and financing efforts. As Falkner (2016, 1123) explains, "governmental regulation can provide a supportive regulatory framework, but it is companies that decide on the direction of technological innovation, R&D expenditure, and investment flows." As such, in the post-COP21 implementation phase, nonstate actors have entered the implementation arena, taking up an integral function next to national governments.

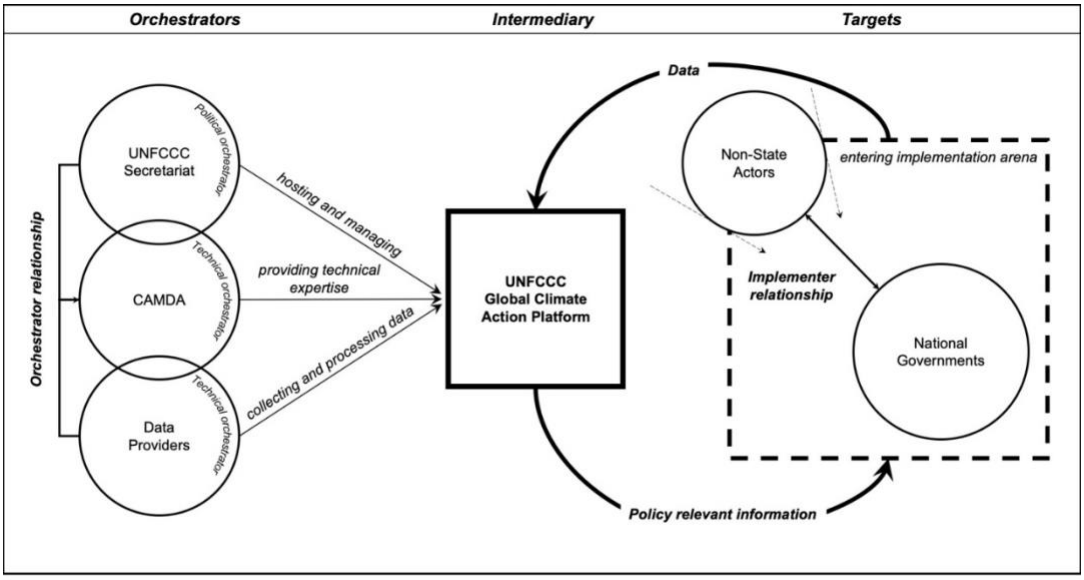

Figure 1

Data-Driven Orchestration Dynamics in the Post-COP21 Climate Regime

Building on the division of labor between the Secretariat and data providers that emerged pre-COP21, we conceptualize their roles in the post-COP21 orchestration setting as follows: while the Secretariat functions as the political orchestrator, data providers and CAMDA can be conceived as technical orchestrators (see Figure 1). Political orchestration involves providing authority and legitimacy, convening relevant stakeholders, managing the portal, and hosting it on the UNFCCC web pages. In so doing, the political orchestrator strategically positions the database and provides for global visibility. The clout of the Secretariat, as an international bureaucracy embedded in the UN system, is seen as key for successful political orchestration (respondents 7, 9, 17, and 20). Meanwhile, data providers and CAMDA, as technical orchestrators, provide know-how and resources to maintain the portal. As described in the preceding section, CAMDA functions as a forum that convenes technical experts, data providers, and Secretariat staff, who collaborate to develop methodologies and metrics to track nonstate actor implementation activity. Contrary to their role as intermediaries in the pre-COP21 period, data providers now directly work with the Secretariat through CAMDA and can therefore be perceived as orchestrators in their own right. Importantly, it is only if political and technical orchestrators work together that data-driven governance arrangements can be operationalized. Without data providers, the GCA Portal would not have any data to display, and without CAMDA, there would be insufficient technical expertise to develop required methodologies and metrics. Likewise, without the clout of the Secretariat, the

portal would have to find other ways to gain visibility and resonance in the climate regime. The relationship between orchestrating actors is thus best characterized as one of direct collaboration and mutual dependence.

6. Assessing Data-Driven Climate Governance in the Post-COP21 Implementation Phase

In the post-COP21 implementation phase, data-driven climate governance can foster collaboration between states and nonstate actors in two ways. First, progress data demonstrates—in quantitative terms—to what extent nonstate actor climate action contributes to reaching the Paris Agreement goals. Second, data explicates the extent to which nonstate actors are receptive to climate policies. A large number of registered actions signals a "can-do" attitude to political decision makers (respondents 2, 3, and 14). Accordingly, data-driven governance may allow national governments to learn about subnational and nonstate climate action and gain confidence that relevant political interventions will fall on fertile ground, thus creating the conditions for increasing political feasibility of ambitious domestic climate policy (see also Gilligan and Vandenbergh 2020; Hale et al. 2020). The theory of change underpinning data-driven governance can thus be described as a "virtuous cycle"—a dynamic of mutually reinforcing implementation activity that spans jurisdictions and scales of governance. Accordingly, data sharing by private-sector and government entities is intended to lead to increased confidence in the counterpart's readiness to take required action: "bold government policies and private sector leadership reinforce each other, and together take climate action to the next level" (Dickerson et al. 2018, 2).

However, it is yet to be seen how effective the GCA Portal will be in orchestrating implementation activity. A recent review of NDCs suggests that "there is scope for countries to broaden their linkages to NSAs [nonstate actors] . . . to further catalyze engagement" (Hsu et al. 2019, 443). When updating NDCs, national agencies could eventually use nonstate actor data to understand how economic sectors and subnational authorities can contribute to meeting domestic climate targets. If a future version of the GCA Portal provides such data, it will help countries—especially those that lack resources—to access relevant information (Röser et al. 2020, 421–423). Analytical and conceptual work to operationalize data-driven climate governance is ongoing. CAMDA has set itself the goal to develop "draft plans for a framework for tracking individual and cooperative actions" and to "increase interchangeability of data between providers" to "optimize

data flow" (UNFCCC 2019a). This requires the group to tackle both conceptual and practical issues that have to date been inhibiting the portal's progression into a tracking platform.

While data-driven governance entails opportunities for facilitating global efforts to respond to climate change, it is crucial to acknowledge its limits. First, it will be key to ensure that data are accurate, global, and meaningful. "Patchy reporting" and inconsistent metrics and disclosure methodologies mean that available data are not always comparable and up to date (Hsu et al. 2016a, 303). Addressing these issues requires suitable metrics and reporting infrastructures, that is, IT systems that allow the processing of large amounts of data (respondent 2). While progress has been made in formulating appropriate metrics and reporting methodologies (see Hale et al. 2020), it is still unclear how nonstate actors from countries with limited financial resources and little technical expertise can be supported (respondents 20, 21, and 22). Furthermore, it is essential to acknowledge that data-driven climate governance conforms to Western logics and as such is not universal. Respondent 5 noted:

> Disclosure is obviously very centered in the Western hemisphere. If you look at NAZCA, at the moment . . . you see a map that has a massive energy towards Europe and North America. When it comes to other regions, there are huge gaps.

Thus, strategic engagement with a more diverse set of actors is needed. If data-driven climate governance is to be effective, credible, and legitimate, ensuring participation across all regions and actor groups will be key.

The second limitation of data-driven governance revolves around the notion that data will not "do the job" on their own. Simply providing information cannot—by itself—shift the political and economic parameters by which decision makers allocate resources and formulate policy. As Aykut and colleagues (2020, 13) note, "It might be overly simplistic to assume that highlighting private climate action would automatically increase state ambitions. While the focus on businesses and cities may momentarily divert public attention away from state commitments, it clearly was not sufficient to unlock political stalemate." As such, in addition to data itself, facilitative mechanisms are needed. These could include regional and national programs that have the potential to link government and nonstate actor activities. As Chan and colleagues (2021, 10) convincingly argue, due to their proximity to "specific implementation contexts and policy demands", regional and national platforms and programs are likely to be more effective in encouraging and facilitating cooperation between governments and nonstate actors. Furthermore, data-driven climate

governance could be more explicitly linked to other policy priorities, highlighting, for instance, synergies with issues that are likely to resonate with both government and nonstate actors, including energy, food and water security, and human and ecological health (see Chan et al. 2021).

Finally, "datafication" processes are rarely as complete and accurate as may be assumed, thus raising questions about how to acknowledge and deal with inbuilt uncertainties, false assumptions, and prejudices. There is thus a need to critically engage with the assumption that data are "neutral"'. Data collection and processing activities are based on embedded normative judgments as to what counts and what does not. Data, therefore, are political and must be recognized as such (see Ellis 2020). Failure to do so risks undermining not only the effectiveness but also the credibility and legitimacy of data-driven climate governance. Furthermore, it is necessary to explicitly acknowledge that the GCA Portal currently privileges implementation actions that can be quantified, while other contributions, such as those relating to more lateral impacts (e.g., diffusing best practices, organizational learning, and knowledge transfer), may not be easily captured (van der Ven et al. 2017). An important question, thus, is how data-driven governance may be complemented with mechanisms that acknowledge implementation activities that do not fit standardized reporting formats (respondent 14).

7. Conclusions

In this article, we empirically investigated, conceptualized, and assessed data-driven governance arrangements in the UN climate regime. Adopting a case study approach, we traced the evolution of NAZCA and its successor, the GCA Portal, between 2013 and 2021. Our analysis details how the evolution of the portal reflects the broader trend of increasing nonstate actor involvement in the climate regime. Furthermore, it provides an empirical analysis of how the portal has evolved to account for the shift in focus that occurred with the adoption of the Paris Agreement at COP21: from orchestrating intergovernmental negotiations to orchestrating state and nonstate actor implementation activities. Seeking to conceptualize data-driven governance arrangements in the post-COP21 implementation period, we analyzed how the Secretariat, as a political orchestrator, strategically positions and manages the database, while data providers and CAMDA, as technical orchestrators, provide data, technical know-how, and IT infrastructure to support the platform. We suggested that, in the post-COP21 context, the portal is now intended to document state and nonstate actor implementation activity. Finally, we highlighted the potential of data-driven climate

governance, while also discussing important limitations, including those relating to participation, access, legitimacy, and effectiveness.

To conclude, we identify three lines of future research. First, in light of the ongoing evolution of the GCA Portal, empirical and conceptual questions will arise regarding the development of orchestration dynamics over time. For instance, with the recent reconstitution of CAMDA, it remains to be seen how the relationships and dynamics between orchestrating actors will further evolve. In addition, it will be key to investigate whether, and in what ways, the GCA Portal will relate to the first Global Stocktake— the next key milestone in implementing the Paris Agreement. Recent announcements by the Champions suggest that the GCA Portal will have a role to play in this respect (UNFCCC 2021b). Moreover, future research may provide insights regarding the pathways, impacts, and effects of data-driven governance. In this context, the global perspective provided in this article could be complemented with regional and local case studies. Second, as our assessment of the potential and limitations of data-driven climate governance shows, future research should include not only empirical and conceptual approaches but also critical perspectives. Specifically, it will be key to consider issues around participation and how to bolster the inclusiveness of data-driven climate governance. And third, technological advancements, such as real-time satellite-based emission tracking technologies and intelligent data-processing systems, including machine learning, will shift reference points as to what is regarded as technologically feasible. These developments will raise questions regarding the agency of data and data-processing infrastructures and their roles in developing adequate governance responses to planetary change.

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Manuscript IV: ***Managers of complex change? How United Nations treaty secretariats jointly govern institutional interplay in global environmental governance***

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Abstract

Research on international bureaucracies or treaty secretariats has predominantly focused on broadening our understanding of their role, function, and influence within their respective regulatory domains. However, the potential for treaty secretariats to manage institutional overlap by coordinating with other agencies across policy areas has remained understudied. This article offers new empirical and theoretical insights for studying collective agency and coordination mechanisms for instances of institutional interaction within hybrid regime complexes. Specifically, it investigates how the treaty secretariats of the so-called Rio Conventions under the United Nations employ joint interplay management as a means to improve institutional coherence within the hybrid regime complex governing climate change, biodiversity loss, and desertification. Collectively, the public agencies aim to advance knowledge and discourse, influence norm-building processes and regulation, or build capacity and support the joint implementation of policy objectives addressing the interlinked environmental problems. They do this by interacting with various actors across governance levels, including national governments, transnational initiatives, the private sector, or civil society. By tracing the process linking joint activities with effects of such interactions, this qualitative case study makes a conceptual contribution by extrapolating a mechanistic theory for joint interplay management. The article demonstrates that treaty secretariats have to contend with challenges of resource allocation, diverging mandates, leadership priorities, and the degree of politicization and timing intervening stages of strategizing and executing joint activities. The results highlight that joint interplay management can be most impactful when secretariats employ orchestration practices through joint outreach and advocacy to advance coherent institutional responses to transboundary environmental problems.

Keywords
Joint interplay management; institutional interplay; institutional overlap; coherence; treaty secretariats; global environmental governance

1. Introduction

For United Nations (UN) environmental institutions, delivering on their overarching governance targets has become increasingly challenging. They have been designed to regulate specific transboundary environmental problems despite apparent areas of ecological and political overlap which bears potential for synergy and conflict with other UN environmental institutions. Scholars and policy makers have therefore increasingly debated reforming UN environmental institutions to break up silo-thinking (Hale, Held, and Young 2013; Mingst, Karns, and Lyon 2022). Today, the architectures of most issue areas in global environmental governance are densely populated by an ever-increasing number of diverse actors. These architectures feature highly fragmented 'hybrid' regime complexes which consist of formal interstate institutions next to transnational networks, non-governmental organizations, public-private partnerships spanning across intergovernmental and transnational levels (Abbott and Faude 2021). This hybrid setting rejuvenates an older debate about the potentially positive or negative effects of such fragmented governance architectures, which renders institutional coordination and problem solving less straightforward for all actors (Obert nd Pożarowska 2013; Zelli and van Asselt 2013; van Asselt 2014b).

At their core, UN environmental institutions function through intergovernmental bureaucracies, or treaty secretariats. Over the past decades, scholarship on the role and function of UN intergovernmental bureaucracies in global environmental governance has burgeoned. Studies have shown that the activities of these public agencies go far beyond fulfilling delegated tasks by state principals. They have been labeled as knowledge-brokers, negotiation facilitators, or capacity builders, exerting various forms of influence on policy outcomes within their respective issue areas (Biermann and Siebenh ner 2009b: 47). Through extensive case-study research, we have gained a better understanding of the influence UN international bureaucracies have, rallying member states of their dedicated framework conventions (Michaelowa and Michaelowa 2013; Jörgens et al. 2017; Hickmann et al. 2019a), or engaging in forms of interplay management to address areas of overlapping jurisdictions, such as biodiversity and trade (Jinnah 2010; 2014; Jinnah and Lindsay 2015). Recent studies have shed light on the ways international bureaucracies reach out and connect with relevant sub- and non-state actors to build new alliances within their respective regimes (Bäckstrand and Kuyper 2017; Hickmann and Elsässer 2020).

However, we still know little about the potential of UN intergovernmental bureaucracies to address ecological and political overlap within fragmented, hybrid regime complexes. Informed by research on interplay management, this article fills a gap on the *means* and related *effects* with

which intergovernmental bureaucracies coordinate with the bureaucracies of other UN environmental institutions to advance coherent institutional responses to interrelated transboundary environmental problems. Using a qualitative case study approach, I focus on the three secretariats of the Rio Conventions, that is, the *United Nations Framework Convention on Climate Change* (UNFCCC), the *Convention on Biological Diversity* (CBD)*, and the United Nations Convention to Combat Desertification* (UNCCD). While each convention has distinct governance targets and maintains an independent legal status, there are also significant interrelations among them. They are operating within the same system of institutions - the UN - and resolving their underlying problems requires integrated solutions, particularly in areas of common interest, such as agriculture, forest, or land-use (IPBES 2019; IPCC 2022). This interconnectedness underscores the feasibility of conceptualizing them as a cluster. Overall, the article offers both an empirical and theoretical contribution and seeks to advance our knowledge on coordination mechanisms for studying instances and potential effects of institutional interaction within complex governance systems, thereby contributing to emergent research on collective agency in hybrid regime complexes.

In the following, I first conduct an empirical analysis of the effects of the secretariats' joint interplay management activities in fulfilling three governance tasks: advancing knowledge and discourse, influencing norm-building processes for regulatory coherence, and building capacity and supporting joint implementation. Second, based on the analysis, I extrapolate a mid-range mechanistic theory that explicates the process linking joint interplay management activities to these effects using process tracing methods. This step allows for identifying potential obstacles that may hinder the effectiveness of such activities in promoting coherence among interacting institutions. Against this background, I will conclude by assessing the potential and limitations of joint interplay management towards addressing ecological and political overlap as well as highlight avenues for future research.

2. Treaty secretariats as interplay managers within hybrid regime complexes

The study contributes to and connects three strands of literature in global environmental governance. First, this case study adds to broadening our understanding of the role, function, and influence of international bureaucracies in global environmental governance. Sceptics have argued that international bureaucracies merely fulfill administrative and technical services as agents to their principals, confined by the delegated powers of national governments (e.g., Drezner 2007).

However, more recent evidence suggests that bureaucracies can in fact act autonomously to a relative degree and exert influence on decision-making in many policy domains (e.g., Biermann and Siebenh ner 2009b; Jörgens et al. 2017; Hickmann et al. 2019a). Since hierarchical rule or the delegation of orders lie beyond their mandates, they do this in strategic and creative ways by leveraging their interests through soft and indirect modes of governance, often invisible to mere observers (Abbott et al. 2015b). For example, by coordinating and steering various transnational governance initiatives, bureaucracies have contributed to 'opening up' international organizations to actors other than national governments (Tallberg et al. 2013), thereby taking up the role of orchestrators and forging 'new alliances' with non-state actors to pressure target groups towards more ambitious governance targets (e.g., Bäckstrand and Kuyper 2017; Hickmann and Elsässer 2020), become active in agenda-setting, or otherwise advocate for policy change (Johnson 2016; Mai and Elsässer 2022).

Second and connected, this research adds to the literature on institutional interplay with particular focus on the area of joint interplay management. Institutional interplay generally pertains to situations in which the performance and/or development of one institution is affected by another institution (Oberthür and Stokke 2011a; Söderström and Kern 2017). Joint interplay or overlap management, as a particular form of institutional interplay, describes the deliberate efforts of two or more actors to improve the interplay between at least two institutions that are independent in terms of membership and decision-making processes, yet share political and/or functional interdependencies as they address the same issue area (Oberthür 2009; Jinnah 2010; Stokke 2020). Research on such interplay management investigates the effectiveness of joint interventions as a policy response to jurisdictional overlap to harness synergies among interacting institutions. Studies on interplay management, along with other actor-centric research strategies, have remained a less researched area in the literature on institutional interplay. This study contributes both empirically and theoretically to furthering our understanding about the mechanisms of joint interplay management and its implications for improved inter-institutional relationships as a consequence of such interventions.

Third, this article contributes to emerging literature on collective agency in hybrid regime complexes (e.g., Green and Auld 2016; Abbott and Faude 2021; Eilstrup-Sangiovanni and Westerwinter 2022). Situated within the broader architecture of a particular governance domain (Biermann and Kim 2020), regime complexes have traditionally been defined as an "array of partially overlapping and non-hierarchical institutions governing a particular issue area" (Raustiala

and Victor 2004: 279). Across environmental policy domains, governance architectures today are increasingly fragmented, encompassing a diverse mix of institutions and actors beyond interstate-processes and intergovernmental organizations, spanning transitional initiatives and networks, public-private partnerships, or actors from business and civil society (Andonova 2017a; Gordon 2020; Vabulas and Snidal 2020). This setting has given rise to the notion of "hybrid regime complexes" (Abbott and Faude 2021), which has rejuvenated an older scholarly debate about the question whether regime complexity and fragmentation ultimately pose benefits or disadvantages to effectively combating transboundary environmental problems. Despite extensive mapping exercises of existing regime complexes (e.g., Dias Guerra et al. 2015; Widerberg 2016), we still need to better understand the interactions between 'traditional', intergovernmental institutions and 'new', hybrid institutions, including transnational governance initiatives (Elsässer et al. 2022). This pertains particularly to questions of agency and the ways in which actors are able to navigate such 'new' institutions to shape political outcomes. Therefore, this study seeks to contribute to a new wave of research assessing the processes of and within of (increasingly) complex governance systems to improve institutional interplay through joint management activities (Zelli, Gerrits, and Möller 2020).

3. Research design and methods

By tracing the joint interplay management activities of intergovernmental secretariats within the climate-biodiversity-desertification complex, this qualitative case study seeks to provide answers to a twofold research question: *How* are secretariats jointly managing institutional interplay, and *what* are potential effects of such activities. By definition, a precondition or trigger for interplay management is a case of functional and/or political overlap between institutions addressing the same issue area (Stokke 2020). Although interdependence originates at the systemic, or macro level of institutions, it disperses at the level of actors, or the micro level. At the micro, joint interplay management involves horizontal coordination activities among actors across the institutions involved (Oberthür and Stokke 2011a; Jinnah 2014). At the macro level, a desired outcome of joint management interventions is per definition to "improve" inter-institutional relationships by harnessing synergies and avoiding conflict. As the independent variable, such normative outcome of institutional interplay has often been referred to as "coherence", understood as a state in which interacting institutions are well-aligned by utilizing complementary or synergistic capacities to achieve compatible policy objectives (Nilsson et al. 2012; Stokke 2020; Righettini and Lizzi 2022).

The literature on regime effectiveness has put forward general governance tasks that actors may engage in to increase coherence through interplay management. Such tasks include, amongst others, building knowledge, creating norms, enhancing capacity, or enforcing compliance (e.g., Stokke 2012; Hackmann 2016; Stokke 2020). Building on this research, I will analyze the outcomes of joint interplay management in a three-step heuristic: First, joint interplay management activities carried out by secretariats may *advance knowledge and discourse* through changing ways in which targeted actors perceive and speak about the interlinkages between climate change, biodiversity loss, and desertification. Such an outcome effect would be visible if the bureaucracies become active in generating new knowledge through joint publications and reports, strategy documents, dedicated websites, databases, or other communication tools. Knowledge dissemination may then transpire to discursive effects, if joint activities materialize through marketing campaigns, media coverage, or staging public debates with targeted actors to raise awareness. Second, joint interplay management activities might also *influence norm-building processes towards regulatory coherence*. This would be evident if the bureaucracies engage in joint outreach activities to initiate meetings with key decision makers, or otherwise target influential actors to build joint advocacy coalitions to steer norm-building processes towards coherent policy among the institutions involved. Third, outcome effects towards *building capacity and supporting joint implementation* would be visible if the secretariats impact the ability of respective state and/or non-state actors in implementing the three conventions, particularly at the (sub-) national level. Capacity building could be realized through hosting workshops and knowledge training programs with targeted actors, or utilizing financial or human resources from and beyond the secretariats to jointly develop or guide projects (see Figure 1).

As demonstrated by previous research on bureaucratic influence (e.g., Biermann and Siebenh ner 2009b), congruency-testing for conjectured outcomes will likely produce answers to the question of *what* the effects of joint interplay activities might be. These studies have frequently refrained from including the actual activities of the bureaucracies (output) in the analysis, arguing that output indicators alone are insufficient for demonstrating the effects of social interactions as behavioral changes in targeted actors. However, to understand a process of interplay management, it seems preferable to also include outputs for understanding non-effects, that is, potentially intervening variables that may hinder or set back pathways towards successful behavioral adaptations. Further, inferring causality for pathways linking output to outcome is less complex than doing the same for outcome to impact effects, which could be influenced by a wide array of

external factors that need to be controlled when making causal claims (see also Tallberg et al. 2016). I will thus combine both output and outcome in the analysis of joint interplay management (section 4) to illustrate the process of *how* joint interplay management actually works. In so doing, I will employ process tracing to theorize a mid-range mechanistic theory for joint interplay management (section 5) (George and Bennett 2005; Beach and Pedersen 2013).

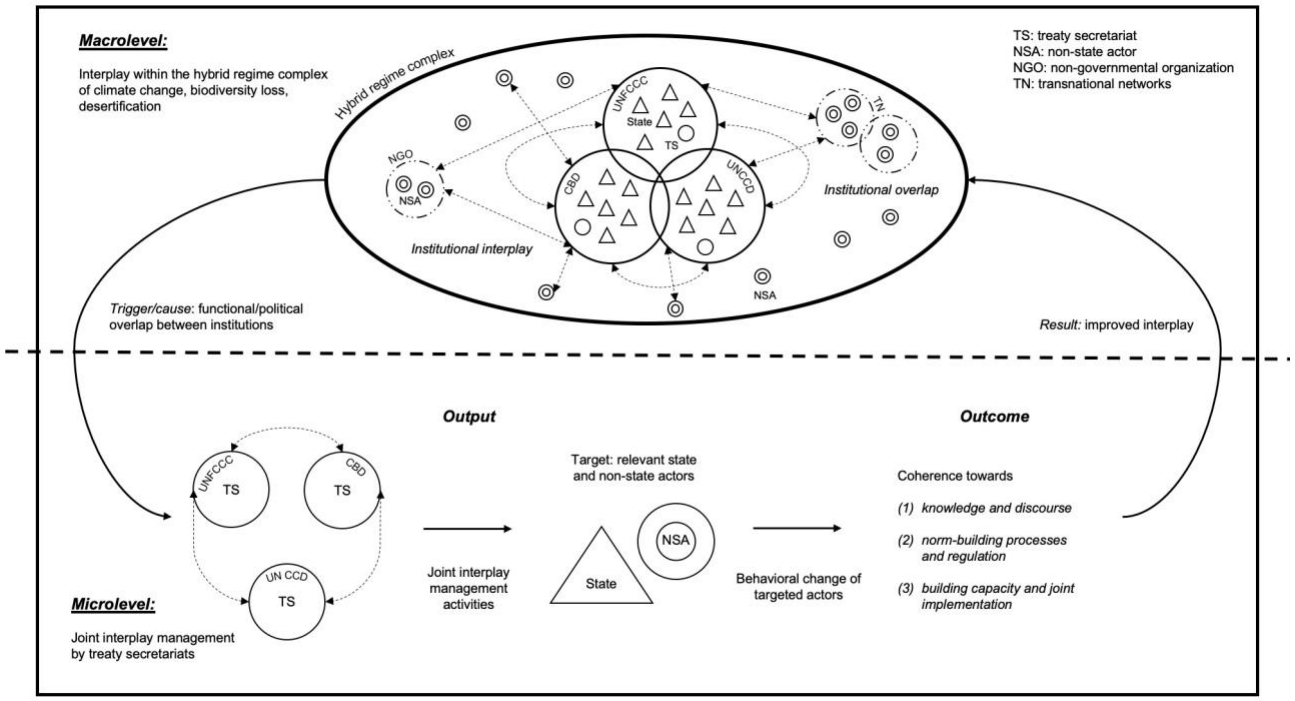

Figure 1: Joint interplay management in the regime complex of climate change, biodiversity loss, and desertification at the macro and micro level. Own figure based on Biermann and Kim (2020)

For the collection and analysis of data, I employ the strategy of triangulation (Rothbauer 2008). Besides carrying out an in-depth desk study on existing scholarly literature covering the UNFCCC, CBD, and UNCCD Secretariat, I conducted a systematic content analysis of over 50 official documents, such as negotiation drafts and decisions from the different intergovernmental processes or various online documents published by the three Secretariats in focus. Additionally, some "gray" literature was consulted, including meeting notes, think tank reports, pamphlets, or other legislative documents. These accounts were complemented by 12 semi-structured expert interviews with selected secretariat staff, of which 5 interviews were held in person and 7 interviews were conducted online (see appendix for more details). Next to interviews, I carried out various participant observations and background conversations with various stakeholders, ranging

from national delegates, secretariat staff, or various non-state actors. The observations and side conversations were realized at the headquarters of the secretariats as well as intergovernmental conferences, including UNFCCC COP26, UNFCCC COP27, and virtual participation in CBD COP15. All collected data, including interview transcripts and field notes, were then compiled through data management and coding software (MAXQDA) to build a comprehensive case study base and identify common themes and patterns for the joint institutional management activities of the UNFCCC, CBD, and UNCCD Secretariat.

4. From output to outcome: An analysis of secretariats' joint interplay management

4.1 Institutional context

Due to their common genesis at the 1992 UN *Earth Summit* in Rio de Janeiro, the UNFCCC, CBD, and UNCCD are often collectively referred to as the Rio Conventions. As UN environmental institutions, they exhibit a similar organizational structure, including the Conference of the Parties (COP), other subsidiary organs, and secretariats as permanent bodies. At the secretariat level, the organigram of these agencies features a hierarchical structure with the Executive Secretary (ES) and executive staff at the top, followed by various sub-divisions to provide implementation support, administrative services, or facilitate communications and outreach activities (Melikyan 2020; CBD 2021b; UNFCCC 2022c). As intergovernmental agencies, secretariats are demand-driven and they act upon request of national governments. Generally, the mandates of the three secretariats are fairly similar, with each secretariat tasked to coordinate the activities of their respective conventions. This entails primarily administrative functions, providing overall organizational support, technical expertise, as well as facilitating intergovernmental negotiations at COPs (CBD 2022; UNCCD 2022b; UNFCCC 2022a). On matters of collaboration and coordination, each secretariat has a rather broadly specified mandate enshrined in the respective convention text (UN 1992b; 1992a; 1994). In coordinating with other actors, such as intergovernmental as well as non-governmental organizations, transnational networks, and actors from business, civil society, and the media, the role of the secretariats is to identify and respond to systemic or market failures that might impede the overarching goals of the respective conventions (Respondent 1; 2; 4).

There are two formally recognized initiatives between the secretariats addressing the interlinkages between the Rio Conventions: The Joint Liaison Group (JLG) and the Rio Conventions Pavilion (RCP). The JLG is an internal working group among executive staff to exchange information and coordinate activities among the Rio Conventions. The group comprises

the ESs of all three conventions, senior staff members of the secretariats, and representatives from scientific subsidiary bodies (CBD 2023b). Responding to COP requests to facilitate cooperation and enhance synergies at the national and international levels, the JLG has identified three priority themes for joint interplay management activities: Adaptation, capacity building, and technology transfer (JLG 2013a). According to secretariat staff, "activities generally pass through the JLG at some point" and their input translates to the planning of activities, which is then further specified with relevant program staff within each secretariat respectively (Respondent 3). Based on a rotating chair principle, JLG meetings are to take place at least once a year (JLG 2013a). On public record, the JLG seemed to go dormant after its last report released in 2016. While staff admit that convening has been infrequent during that time, there was a resurgence of interest by the "highest level" in the secretariats since 2018, with recent meetings happening on a quarterly basis (Respondent 5). Public records of these meetings are said to exist, but have not been made available yet – in part due to the overwhelming workload of UNFCCC staff (Respondent 6).

The RCP is an initiative launched by the secretariats themselves. It serves as a COP side event and online platform to raise awareness and share information about the interlinkages between climate change, biodiversity loss, and desertification (Rio Conventions Pavilion 2023a). First discussed within the JLG among ESs and senior staff (JLG 2011), the Pavilion had its inaugural event at the 2010 CBD COP in Nagoya, Japan, as the so-called "Ecosystems Pavilion". Post Nagoya, the initiative was rebranded to the RCP, as it was believed that the approaches discussed at the events had to transcend the CBD across all three conventions (Respondent 3; 4). Due to its genesis within the CBD space, the biodiversity secretariat has always been the patronage of the initiative and requests are directed directly to designated CBD staff. The planning, programming, and execution has primarily been at the responsibility of the CBD and CCD Secretariats (Respondent 4). The UNFCCC Secretariat has "not had the same devotion to the platform", with a lack of capacity and available secretariat staff impeding greater support (Respondent 4; 7; 8).

Each secretariat is tasked to collect, disseminate, and share information as pertaining to their mandates on coordination. Therefore, there are various informal communication channels and exchange of information amongst the secretariats is ongoing and frequent. This also includes seconding personnel as a means of fostering inter-secretariat collaboration (JLG 2004). In fact, informal exchanges have steadily increased over the past years, with staff being acquainted with their counterparts from the sister conventions if in need for assistance (Respondent 1). Generally, there is no specific budget allocated by Parties for inter-secretariat initiatives, let alone informal

coordination. The financing for logistics as well as staff time required for the operation of the JLG is realized from the internal resources of each secretariat. Likewise, the RCP is funded by the secretariats to some extent, but increasingly relies on financing from external sources, such as the Global Environmental Facility (GEF), or the Green Climate Fund (GCF) (Respondent 8).

4.2 Advancing knowledge and discourse

When participating in joint public events or exploring the official websites of the secretariats, raising awareness and exchanging information on the interlinkages between climate change, biodiversity loss, and desertification has been a key priority. The secretariats have focused less on generating new scientific knowledge themselves, but bringing knowledge on the interlinkages and its associated risks to the forefront of discussions. In so doing, they have explored options for research partnerships to provide up-to-date information to national focal points under each convention on relevant assessments, ongoing research, or monitoring tools (JLG 2007b). The secretariats have also been active in enhancing the inter-operability of their web-services and databases, particularly pertaining to issues of technology transfer (JLG 2007b; 2007a), or issued various education materials pertaining to, amongst others, co-benefits for adaption, forests, and gender under the three frameworks (The Rio Conventions 2012b; 2012c; 2012a). Such knowledge-sharing practices have centered predominately on developing common messages and communication tools to highlight the synergetic potentials among the three environmental problems (Respondent 6).

The dissemination of such messaging has been most prominently amplified with the RCP as a space to mobilize and inspire relevant state and non-state actors (Rio Conventions Pavilion Bulletin 2012). The side event has witnessed a "resurgence at much greater interest in integrated approaches and the practical linkages" with six of a 21 total events over the past two years (Respondent 5). Thematically, the RCP has covered issues directly related to the enshrined goals of each convention, such as interlinked mitigation measures to climate change, nature-based solutions, land restoration and management, food systems, or finance. Some events have also focused on more peripheric, but equally important topics, such as the role of youth, local communities, health, or gender (Rio Conventions Pavilion 2023c). Besides responsibilities for planning and finance, secretariats are responsible for the line-up of the RCP. They set the agenda on the themes and invite selected COP participants. Such planning is anchored in strategic thinking about ways in which the conventions may reinforce perceptions of delivering common benefits

(JLG 2011). Through this forum for exchange, the secretariats have the power to push certain issues and narratives at a "practical, on-the-ground level" (Respondent 5). In discussions within the JLG, the RCP was even envisioned as a potentially useful tool to enable pre-negotiation of potential areas of common action by CBD ES Braulio Dias. However, due to conflicting views among ESs, the RCP has remained a side event (JLG 2016). With the overall goal to support implementation of the conventions in a coordinated manner, the RCP aims to facilitate conversations about the synergies, so that targeted actors keep them in mind when they move forward (Respondent 3).

The secretariats have also developed various joint communication strategies to approach different actor groups at the international level. For example, the three agencies have scripted a common approach at the level of executive secretariat staff. Lead by the UNCCD Secretariat, the strategy was set out as a one-page, non-public document to be included in communication by the ESs at meetings with both Parties and non-party stakeholders across the conventions. Based on past experiences with joint communication initiatives, the document was crafted to mimic "the language of text of our decisions" (Respondent 4). Through the "power of repeating" (Respondent 6), the summary should help to get a joint message across and amplify the significance and benefits of synergetic approaches towards climate change, biodiversity loss, and desertification. As secretariat staff notes, such insertions of text have been picked up frequently in intergovernmental negotiations within the CBD and UNCCD, but it has been more challenging in the UNFCCC (Respondent 1; 5). As a possible reason for this, secretariat staff have frequently referred to the high stakes and politicization in climate change negotiations (Respondent 1; 2; 12)

Other inter-secretariat initiatives have also aimed at raising awareness with civil society actors, such as the so-called *Restoring Balance with Nature* campaign, launched in 2021. The initiative has primarily targeted "upper middle-class actors" to showcase examples of pressures on ecosystems and nature which produce perverse results in everyday-life, while pointing towards solutions that can be implemented by changing small habits (Respondent 3). In its launching phase, there were two dedicated RCP events at UNFCCC COP27 which promoted the approach, including a high-level session with Ministers from India, China, and the UK (Rio Conventions Pavilion 2023b). Initiated by the UNCCD Secretariat, an external marketing company was hired to produce social media cards and joint video production for the campaign. However, a lack of funding had already suspended the campaign in 2022 and a potential resumption seems unlikely without external resources. Acquiring such funding may be complicated by the fact that the secretariats

have thus far been unsuccessful in developing metrics for measuring the overall impact of the campaign (Respondent 4; 6; 7).

In sum, the secretariats have carried out a large number of interplay management activities to advance knowledge and shape discourse about the linkages between climate change, biodiversity loss, and desertification. The agencies have strategically shared information through various communication channels and facilitated dialogues through events and outreach campaigns. Joint activities have played a crucial role in "encouraging its parties within the three conventions to *think* [emphasis added] about how to bring them together, without secretariats necessarily *saying* [emphasis added] that this is the new paradigm that we are all going to follow" (Respondent 5). In interviews, secretariat staff frequently noted that different levels politicization and the degree to which commonalities between certain issue areas are sufficiently recognized across the different systems frequently hinder progress with the joint agenda (Respondent 1; 2; 7; 9).

4.3 Influencing norm-building processes towards regulatory coherence

As administrative bodies, secretariats do not have a direct mandate to participate in inter-state negotiations or advise on policy. They are supposed to be impartial, neutral bodies (Hickmann and Elsässer 2020). Influence on norm-building processes towards regulatory coherence is thus notoriously difficult to trace, as it remains a controversial mode of engagement for secretariats. However, there are some examples of such influence, particularly those building on orchestration practices (e.g., Abbott et al. 2015b), such as joint advocacy and outreach. The secretariats have actively sought intermediary support from state- and non-state actors as means to promote the interlinkages agenda. For joint advocacy, the joint interplay management activities have had not only effects on knowledge and discourse, but also norm-building processes, which may be "forming the seeds of eventual policy work" (Respondent 5). This is visible particularly through the RCP as a space where ideas and themes are showcased that are hoped to make their way into inter-state negotiations. For change in political outcomes to happen, secretariats aim to "create those spaces where influential actors come together" (Respondent 4).

Nature-based solutions is one example of such effects on policy development, which was prominently featured in RCP programs and became a buzzword at recent COPs (Rio Conventions Pavilion 2023c). In previous years, considerations for ways in which nature can offer solutions in dealing with climate change was shut down by a number of Parties due to concerns towards preempting negotiations, especially within the UNFCCC (Respondent 9). According to secretariat

staff, the frequent dialogues and outreach activities with both state and non-state actors at the RCP can be seen as a "turning point" on bringing together solutions to the interlinked problems, which have carried over to the negotiation space (Respondent 3). While "it does not say it on the box, […] nature-based solutions are CBD and UNCCD – they just don't call it that" (Respondent 1). Particularly at the UNFCCC COP26, nature-based solutions to climate change was a core theme throughout the conference and featured prominently in the RCP program. Even though specific references to nature-based solutions was taken out after a final round of negotiations on the Glasgow Climate Pact (Respondent 9), there was recognition of the interlinkages with regards to the "critical role of protecting, conserving and restoring nature and ecosystems" (UNFCCC 2021a). Nature-based solutions was again on the agenda at the following UNFCCC COP27 in Egypt, where it is explicitly mentioned in the cover decision (UNFCCC 2022d). The example indicates the contested nature of integrated approaches across policy domains, which may be more profound than a particular wording. However, it also goes to show that the joint advocacy activities of the secretariats, such as the RCP, can be influential in driving the agenda on synergetic approaches forward.

For joint outreach, interplay management activities have focused particularly on engagement with high-level champions and COP Presidencies. On the occasion of the Rio +20 conference 2012, for example, ESs decided on convening sessions with incoming and outgoing COP Presidencies for all conventions as a means to share current information and proposals for addressing the interlinkages within intergovernmental negotiations (JLG 2011). ESs strategized how "to win some high level champions to support the draft negotiation text on synergies among Rio Conventions" (JLG 2011). Recently, the secretariats have offered guidance for an initiative led by the UK Presidency at UNFCCC COP26 who were devoted to getting towards a decision on nature-based solutions, including the land agenda (Respondent 5). In the run-up to the conference, the UK presidency consulted with the secretariats on drafting a compelling case and a high-level joint statement that would bring together different Presidencies under each convention beyond Glasgow (Respondent 2). Even though this tripartite initiative was "exceedingly close" to launch, it stalled in the final stages due to the limited time of the UK Presidency, which ended at UNFCCC COP27 (Respondent 4; 6). It has remained unclear how this initiative could be revitalized, but the secretariats anticipate a "loose interaction and mechanism" to enable a connection between the Presidencies of the COPs going forward (Respondent 5). The secretariats have also engaged COP Presidencies through the RCP. At COP27, for example, Yasmine Fouad, former CBD COP14

President and a leading negotiator at Sharm El-Sheikh, expressed her readiness to push for a partnership on nature-based solutions among Parties, supported by the Egyptian Presidency.

The secretariats have also aimed at addressing the linkages between climate change, biodiversity loss, and desertification within national planning frameworks. Priorities identified in inter-secretariat activities can be found in frameworks, such as Nationally Determined Contributions, National Biodiversity Strategy and Action Plans, or Land Degradation Neutrality Targets (Respondent 2). Proposals for coordinating national planning frameworks has dated back to discussions within the JLG (JLG 2004; 2007b). In some instances, functional overlap among planning frameworks was believed to be 70% (JLG 2010). By offering technical guidance or providing relevant background materials, the secretariats have supported the inclusion of targets for addressing the interlinkages in these frameworks (Respondent 9). As the secretariats are not authorized to support revisions in national action plans directly, e.g., through dedicated workshops, the agencies have acted "behind the scenes offering encouragement [and] helping to review drafts" (Respondent 9). For example, currently a total of 24 NDCs have elaborated on actions, plans, or strategies with co-benefits for biodiversity and ecosystems, and a total of 26 national targets under the CBD prioritize simultaneously addressing biodiversity, climate change, and desertification (CBD 2023a; Klimalog 2023).

In conclusion, there has been some limited evidence of interplay management outputs to impact norm-building processes and outcomes towards regulatory coherence. The secretariats have been most influential in joint advocacy and outreach to facilitate norm-building processes at early stages, or when timing activities to catalyze developments as they already move along. Such orchestrated processes have largely depended on intermediary support from other influential actors, such as high-level champions, COP Presidencies, or non-state actor involvement within the RCP. Some of these activities have even transpired towards integrated policy development in national planning frameworks, although such influence is difficult to causally relate to joint interplay management efforts as a sufficient explanation for an outcome.

4.4 Building capacity and supporting joint implementation

UN treaty secretariat budgets are generally limited to cover mostly costs. These constrains also hold true for the three Rio Conventions Secretariats, including the UNFCCC Secretariat, which is substantially better resourced compared to the other agencies (Respondent 3). Thus, the secretariats have to be innovative in how to obtain resources for activities, which is one reason for the "close

working-relationship" with multilateral development funds, such as the GEF and GCF (Respondent 3). As the main financial mechanism for the Rio Conventions, the GEF has for a number of funding rounds required that the three Conventions need to be considered within project proposals at the national level (Respondent 9). The secretariats have provided guidance to the GEF at the secretariat level to identify windows of opportunity for funding that the GEF then translates to Parties (Respondent 3; 12). In some instances, the agencies have offered advisory services to Parties to incorporate the synergies into their project development to take advantage of the "fungibility of [GEF] budget lines" (Respondent 1). Similarly, the secretariats can "make a case" to the GCF about financing projects across the three sectors to support implementation – a relationship that has evolved to be "more flexible" over recent years (Respondent 1). The three secretariats have also approached both the GEF and GCF as co-hosts to provide external funding for the RCP, which has become increasingly costly for the secretariats to carry out on their own (Respondent 3; 4).

In the past, there have been few capacity-building activities focused at the national and regional level carried out by the three agencies. Driven by the UNCCD, who launched a *National Synergy Workshops Programme* in late 2000, its secretariat convened a total of 24 workshops between 2000 and 2004 to compile information and insights regarding the development of synergistic efforts in the implementation of the three conventions, particularly aimed at harmonize regional and national action plans (UNCCD 2002; 2006). From 2003 to 2004, the three secretariats hosted other workshops, including events exploring synergies among the national focal points of all three conventions, or a regional-level workshops on forests and forest ecosystems or exploring benefits for addressing interlinkages particularly for African countries (CBD 2004b; 2004a; IISD 2004). Although ESs have expressed desire to do more regional and sub-regional workshops, the format has been discontinued (JLG 2013b). According to staff members, internal functional review process within the conventions sought to increase cost efficiencies, resulting in orders to "scale back" capacity-building practices of the secretariats, as other agencies, such as UNEP, UNDP, or FAO, were seen "in a better place to provide that kind of support" (Respondent 9). The secretariats have been regularly invited to complement capacity-building workshops through advisory services, but their role has been more "hands-off" (Respondent 9).

With its unique role in supporting project implementation through the Global Mechanism (see UNCCD 2023), the desertification secretariat has most vigorously pursued joint capacity-building efforts among the three Rio Conventions Secretariats. Under ES Monique Barbut, the UNCCD Secretariat proposed a "Project Preparation Facility" for the three secretariats in 2017 to

raise financial resources that would support the development of joint projects at the national level (JLG 2016; 2017). The proposal sought for each secretariat to raise approx. 6 mil USD in funding - a task most difficult for the small UNCCD secretariat (Respondent 1). However, the proposal was rejected by the ESs of the UNFCCC and CBD on the grounds of insufficient mandates and a lack of resources (Respondent 7). In response, the UNCCD Secretariat is currently planning to revamp the initiative as a "Project Preparation Partnership". The updated version would pool resources beyond the secretariats, including multilateral development funds, UN agencies, and private sector donors. These resources would then be made available for projects supporting national implementation if they fulfil two criteria: First, the projects have to be sustainable and scalable over time and, second, they must fulfill targets in accordance with all three Rio Conventions (Respondent 6; 7). The secretariats would actively guide project development to fast-track proposals, including assistance with early concept notes, feasibility studies, agenda analysis, or other expertise the secretariats can provide (Respondent 1). Senior staff from the UNFCCC and CBD expressed general agreement with the amendments, highlighting that the terminology of "facility" and "program" will make a decisive difference for gaining state support within their conventions (Respondent 2; 5). Ultimately, "when you talk about financial resources, then governments are becoming much more focused on what the secretariats are doing" (Respondent 2).

The challenges associated with capacity building and finance illustrate the constraints for secretariats to carry out joint activities, particularly those addressing interlinkages at the national level. The secretariats have orchestrated other multilateral financial institutions, such as the GEF and GCF, to secure funding for sustaining their joint activities, but also identify financing opportunities for joint implementation. A number of workshops indicate that secretariats have explored options for building capacity themselves, however, budget cuts and differences in mandates have complicated such endeavors. The UNCCD Secretariat, authorized to provide consultancy services and implementation support through the Global Mechanism, has advocated most prominently for joint capacity building, with secretariats playing a role in identifying potential donors and supporting project development at the national level. As one CBD senior staff member summarizes: "There has been a lot of discussion and recognition of the need of coordinated implementation, but more has to happen. The JLG and the work of the Executive Secretaries raises these issues, but it hasn't really carried out at national level, and a lot of that still has to start for this to happen" (Respondent 3).

5. Theorizing a process for joint interplay management

The analysis demonstrates that the three secretariats have addressed various aspects of the interlinkages between the Rio Conventions through joint interplay management activities. They have advanced knowledge and discourse to change ways in which relevant actors think and speak about issues. To some extent, the secretariats have been able to influence norm-building processes, advance integrated policy development, build capacities, or support efforts in joint implementation of the three Rio Conventions. To explain these effects, but also the variance between them, it is necessary to further assess *how* the output, that is, the joint interplay management activities carried out by the three agencies, may be related to such outcomes.

The activities investigated allow for extrapolating a general three-step pattern joint interplay management: First, secretariats continuously *share information* amongst each other, including specific instructions by national governments, granular information relating to political processes, non-state action, or experiences in implementation. Second, such information-sharing enables *strategizing* activities as means of addressing systemic failures or harnessing synergies across institutional boundaries. Taking the particular interests of each secretariat into account, executive staff identifies strategic themes for collaboration, which are pitched to relevant staff units within the agencies to detail and develop opportunities for joint activities. Strategizing describes the process from abstract ideas to concrete action, which also entails planning for required resources both in terms of finance and staffing capacities. Third, the secretariats *rally and convene* relevant actors and move forward with the joint activity. This final step may also include orchestrating third-party actors, such as non-state actors, if such alliances are perceived to bolster the chances for more impactful outcomes.

This process of coordination reflects a rather ideal-case scenario for joint interplay management. However, the analysis indicates more complex coordination scenarios and secretariats have to take a number of interrelated variables into account, which create feedback loops and intervene stages of strategizing and carrying out activities through rallying and convening. Based on the case study analysis and interview data, four variables can be identified: (1) resource allocation, (2) mandate, (3) leadership and the role of ESs, and (4) politicization and timing (see Figure 2).

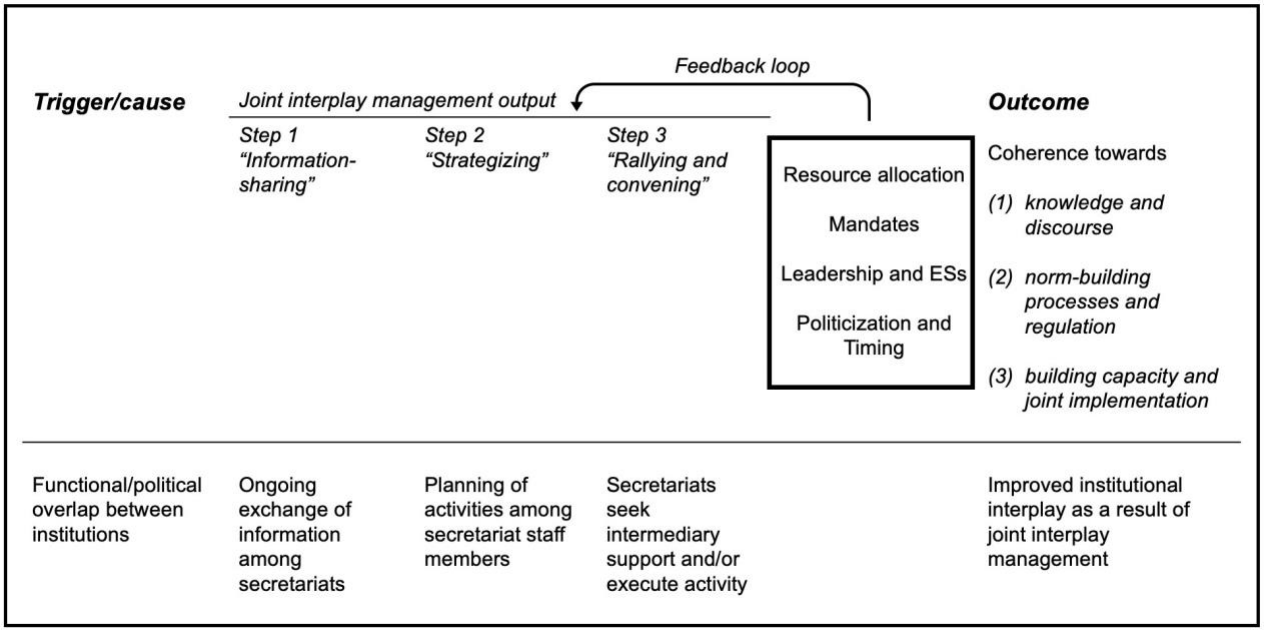

Figure 2: A mechanism for joint interplay management

First, the allocation and continuity of resources to carry out activities has a significant impact on joint interplay management approaches. This includes both financial resources and staffing for planning and executing joint activities. Secretariat funding has been routinely restricted as means to enhance cost efficiencies for Parties. The three secretariats have thus relied on external funding from third party actors, such as multilateral development funds, UN agencies, or specific governmental donors, to carry out joint activities. A lack of funding has been a particular issue for joint advocacy, including the *Restoring Balance with Nature* campaign, or the RCP. Secretariat staff admits that the latter has been "a little bit starved" since its last stand-alone event at COP21 in Paris (Respondent 6). Over the past years, the Pavilion has been steadily reduced from a full two-week program to four sessions co-hosted at the GEF/GCF Pavilion at recent COPs. For future endeavors, secretariats have also contemplated options for bringing in funding from the private sector, which would be a novel approach for both the CBD and UNCCD, having raised concerns of potential interference with private interests (Respondent 4; 11).

Second, mandates for UN treaty secretariats share various similarities. However, there are also distinct differences with direct implications for what they might be able to achieve when coordinating across policy domains. For example, the roles and mandates assigned to the JLG by each convention have not been fully aligned, which has frequently created disagreement among the secretariats when executing requested activities (JLG 2009). With a "deeper interest and

curiosity from Parties to explore the synergies" in recent years, secretariat staff have also expressed the need for more encompassing mandates, particularly regarding a focus for joint coordination at the national level (Respondent 10). Such visions have yet to transpire to COP decisions, to which secretariats are ultimately bound. The UNFCCC Secretariat has been particularly reluctant to engage in activities that target the national affairs in fear of state pushback and potential consequences for intergovernmental relations within its own process (Respondent 8). Consequently, the climate secretariat has been much more "straightjacketed" in joint activities as opposed to its counterparts (Busch 2009). By contrast, the analysis alludes to a more entrepreneurial role of the biodiversity and desertification secretariats in their efforts to steer institutional relations between the Rio Conventions.

Third, joint interplay management activities have been dependent on leadership and the role of particular ESs. While some ESs were considerably invested in the synergies agenda with innovative ideas, others were rather passive. According to secretariat staff, the impact ESs can have go long ways in promoting joint activities, but they also have to be mindful not to cross a line where it seems that they are fundraising for the other convention (Respondent 6; 11). For example, Ahmed Djoghlaf has been characterized as a particularly visionary ES, who saw his mandate "being much greater than other ESs" (Respondent 9). His priorities included, amongst others, exploring options for a joint COP format across the three conventions or greater engagement with non-state actors, which ultimately led to the establishment of the RCP (JLG 2010). However, his broad interpretation of mandate also sparked differences of opinion among Parties, which was "probably one thing that contributed to his downfall" (Respondent 5). Other ESs, such as Hamdallah Zedan (CBD) or Christina Figueres (UNFCCC), were remembered as leaders who prioritized a dedicated focus on filling in gaps within their respective programs of work, which meant that inter-agency coordination was "not much on their radar" (Respondent 3). In fact, Christina Figueres frequently alluded to "the political risks" of ambitious proposals, particularly those targeting state actors and implementation activities in the aftermath of the failed Copenhagen Accord in 2009 (JLG 2010; 2011). For ESs, prioritizing the work on synergies with the other Rio Conventions Secretariats would be weighing a decision towards potentially "tying yourself to the slowest moving horse" (Respondent 1).

Fourth, politicization and timing play a significant role for the success of joint interplay management. The analysis demonstrates that strategizing and executing joint activities between the three secretariats has often been influenced by macro-events – especially within the UNFCCC.

Compared to negotiations on biodiversity loss and desertification, the stakes of climate change have felt to be much higher due the overwhelming financial investment required to transform global economies away from fossil fuels, while keeping trade-offs for sustainable development at a minimum. The complexity of this process, also reflected in the myriad linkages among internal items, is much less in the other Rio Conventions (Respondent 7; 12). The rapid growth of the climate process has meant that the UNFCCC, including its secretariat, has prioritized agenda items that are achievable, thus being less attentive to the other processes with exceedingly circumcised room for maneuvering (Respondent 4). At the same time, politicization also plays a role in the way secretariats may utilize non-state advocacy, as some non-state actors have been gravitating away from UNCCD and CBD towards climate. These developments have compelled the secretariats to "jump on the wave of climate change" for advancing the synergies agenda and driving the three interrelated processes forward (Respondent 6; 7). As one CBD Senior staff member put candidly: "How can we open that space within the UNFCCC agenda so that issues such as ecosystems, genetic diversity, or land degradation have a role? […] The issue is, I don't think we've been incredibly successful in terms of getting into the climate process" (Respondent 3).

The varying degree and pace to which climate change, biodiversity loss, and desertification have been politicized links to timing as a crucial factor for collaborative efforts. Timing pertains to awareness of ongoing and developing politicization to strategically push emerging themes, or insert new ideas that originate within the secretariats at the right time to influence public discourse. Planning and executing joint activities is "not necessarily about one meeting or one discussion, but all of a sudden this new concept is going to emerge and blossom" (Respondent 9). As demonstrated by the example of nature-based solutions, secretariat interventions have been most impactful for advancing integrated approaches through orchestrated joint advocacy and outreach, if such activities are timed to coincide with interests of other relevant actors with compatible governance targets.

6. Conclusions and future research

This article has offered empirical and theoretical insights into the question of how and with what effects treaty secretariats can jointly manage and improve institutional interplay in the hybrid regime complex governing climate change, biodiversity loss, and desertification. Evaluating the effects of joint interplay management ultimately depends on the yardstick applied to measure outcomes. From a perspective of increasing coherence through the implementation of the

frequently talked about synergies across the three Rio Conventions, secretariats have not been able to "walk the talk". Such synergies have been slow to emerge in negotiated policy outcomes, as secretariats need to consider the allocation and continuity of resources, differences in mandates, leadership and individual priorities of executive staff, and the varying degree and pace of politicization in the three policy arenas relating to timing their joint activities. Certainly, such impact - or lack thereof - is to be expected from the primary function these agencies are tasked to fulfill, which is servicing requests within the confined mandates provided by national governments. With forum shopping behavior and differences in state membership under each process, some governments might be reluctant or even opposed towards efforts enhancing institutional coherence across regimes at the cost of sovereignty (Murphy and Kellow 2013). To some extent, the case study thus confirms the limitations of joint interplay management described by Oberthür (2009), which ultimately lack outcome effectiveness in face of the shadow of hierarchy posed by diverging state interests.

However, secretariats have nonetheless been able to shape preferences and behavior, revealing the balancing act of principal-agent relationships (Respondent 2). They have utilized the leeway within their mandates creatively and frequently avoided state objection, while "mobilizing and facilitating [..] in a way that becomes automatic and self-generating down the line" (Respondent 4). The secretariats do this by coordinating with influential actors beyond the agencies themselves, rallying support from COP Presidencies and party champions, raising financial resources with other agencies, or convening with non-state actors and transnational governance initiatives to build coalitions that further their common interest. The study thus substantiates previous findings that secretariats readily employ orchestration as a mode of governance to influence targeted actors in a "soft and indirect" way (Abbott et al. 2015b; Hickmann and Elsässer 2020; Mai and Elsässer 2022). In fact, such practices are used not only within their respective institutional environment, but across policy areas to govern the interactions of institutions within hybrid regime complexes. Particularly regarding the effects of joint interplay management towards advancing knowledge, discourse, norm-building processes, and building joint capacities, orchestration has been a work-around solution in face of limited mandates and resources to address the interlinkages through intermediary support. By taking advantage of actors and initiatives beyond the state, these results indicate that secretariats have nonetheless advanced management of the complex interlinkages to some degree.

The study has demonstrated that joint interplay management is an important, yet understudied mode of engagement for dealing with institutional overlap and interdependent policy fields. I thus conclude by outlining three fruitful avenues for future research. First, given the increasing convergence of intergovernmental and transnational governance in many areas of global environmental politics, we need to better understand the means and mechanisms with which different approaches can be harmonized. Transnational governance initiatives are viewed as crucial for filling governance gaps and driving ambitions of intergovernmental processes. In global climate politics, for example, the Paris Agreement stipulates non-state climate action as an integral part for its implementation. Future studies should thus focus on identifying (groups of) actors – also beyond intergovernmental bureaucracies - that are able to (jointly) manage different approaches for more effective and synergistic institutional responses to transboundary environmental problems. Such focus may also broaden our knowledge of potential consequences for (joint) interplay management, for example in overcoming treaty congestion or mitigating contested multilateralism.

Second, further conceptual research is needed to more thoroughly explore conditions for successfully managing the interplay between overlapping institutions. The process theory put forward in this article could serve as an entry point for investigating situations of interplay management in different cases. We also need to better understand what are intervening or extraneous variables for (joint) interplay management and how to address such variables to further opportunities for coherence and integration among institutions. This may include cases of mismanagement and competition, for example, if the alignment of preferences among managing actors may change over time. It is also unclear how interplay management may respond to and adequately deal with unintended systemic effects in hybrid regime complexes, such as environmental problem-shifting (Kim and van Asselt 2016).

Finally, except for some older accounts on ocean governance (e.g., Stokke 2012), research on interplay management has predominately focused on the policy areas of climate change and biodiversity loss – this study being no exception to this trend. There is an urgent need for future research to explore options for (joint) interplay management in other regime complexes and interfaces in environmental governance, such as the water-energy-food nexus, but also interactions including environmental and non-environmental institutions.

Appendix: List of interviews conducted

Respondent 1: Interview with a senior staff from the UNCCD Secretariat, 24 November 2022 (virtual).

Respondent 2: Interview with a senior staff member from the UNFCCC Secretariat, 05.12.2022 (virtual).

Respondent 3: Interview with a senior staff member from the CBD Secretariat, 08.11.2021, Glasgow, UK (in person).

Respondent 4: Interview with a senior staff member from the CBD Secretariat, 10.11.2022, Sharm El-Sheikh, Egypt (in person.

Respondent 5: Interview with a senior staff member from the CBD Secretariat, 10.11.2022, Montreal, Canada (in person).

Respondent 6: Interview with a senior staff from the UNCCD Secretariat, 24 November 2022 (virtual).

Respondent 7: Interview with a senior staff from the UNCCD Secretariat, 12 November 2022, Sharm El-Sheikh, Egypt (in person).

Respondent 8: Interview with a senior staff member from the UNFCCC Secretariat, 05.05.2022 (virtual).

Respondent 9: Interview with a senior staff member from the CBD Secretariat, 10.11.2022, Montreal, Canada (in person).

Respondent 10: Interview with a senior staff from the UNCCD Secretariat, 10 June 2021 (virtual).

Respondent 11: Interview with a senior staff member from the CBD Secretariat, 26.05.2021 (virtual).

Respondent 12: Interview with a senior staff member from the UNFCCC Secretariat, 10.05.2022 (virtual).

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