Making treaties work: The role of strategy, management, and operations in supporting
Exploring maternal health and maternity care in rural Nepal
effective multilateral treaty contributions to sustainable development

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Making Treaties Work: The Role of Strategy, Management, and Operations in Supporting Effective Multilateral Treaty Contributions to Sustainable Development

Thomas F. McInerney - 23 June 2022

Abstract

To address global sustainability challenges and humanitarian concerns, over the past 75 years states have developed hundreds of multilateral treaties. From climate change to human rights, these legal agreements have been ratified by large majorities of states. Given the perilous state of the planet and much of the global population, it is difficult to disagree with critics that existing treaty regimes have not delivered positive development results. Despite these assessments, innovations have been introduced in treaty practice that show potential for improving both global governance and development. This thesis examines these new approaches, which includes strategic management and the use of technology, by employing legal analysis, process tracing, and action research. The thesis is based on 14 published works of which eight are chapters in a monograph *Strategic Treaty Management: Practice and Implications* (Cambridge University Press, 2015).

The research makes three major contributions to knowledge. First, it provides an original detailed comparative analysis of treaty practice across multiple sectors and functional areas. The sectors include the environment (biodiversity, chemicals and wastes, climate change, fisheries), human rights, arms control, labour, and health. The functional areas include strategic planning at international and national levels, finance, synergies, science and technology, and performance management. Second, it identifies drivers of institutional change that these new practices have enabled or fueled. Third, it develops an interdisciplinary approach to research including international law, development studies, regulatory theory, and strategic management, which is used to develop guidance on good practices and can support future research.

Key findings are that the use of these new techniques of strategic management and technology have introduced greater flexibility, improved monitoring and performance management, enabled synergies across institutions and treaty regimes, and catalyzed diverse communities to advance treaty activities and shape agendas. Together these activities reflect complex adaptive system dynamics, which belie the assumptions of linearity on which the practices are ostensibly based. Notwithstanding these tentative positive assessments, careful consideration must be given to development and governance challenges including approaches to participation and engagement of diverse communities, the privileging of technical over other forms of knowledge, asymmetries in states' contributions to the work of treaty bodies, and continued weak results from existing treaty regimes.

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Abbreviations

AI	Artificial intelligence
CAS	Complex Adaptive Systems
CBD	Convention on Biological Diversity
COP	Conference of Parties
CTBTO	Comprehensive Nuclear Test Ban Treaty Organization
DAC	Development Assistance Committee
EOS	Earth Observational Satellite
EMG	Environmental Management Group
FCTC	Framework Convention on Tobacco Control
GEF	Global Environmental Facility
GBIF	Global Biodiversity Informatics Facility
HLPF	High-Level Political Forum
IUCN	International Union for the Conservation of Nature (IUCN)
IPCC	Intergovernmental Panel on Climate Change
IPBES	Intergovernmental Panel on Biodiversity and Ecosystem Services
ITS	Intelligent Treaty Systems
MEA	Multilateral Environmental Agreement
ML	Machine Learning
NDS	National Development Strategies
NTIS	National Treaty Implementation Strategies
OECD	Organization for Economic Co-operation and Development
SDG	Sustainable Development Goals
STM	Strategic Treaty Management
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIATF	United Nations Inter-Agency Task Force
WHO	World Health Organization

Statement

I hereby declare that this thesis has not been and will not be, submitted in whole or in part to another university for the award of any other degree.

As this is a PhD by Published Works, my thesis incorporates findings from existing academic publications. For ease of reference and to distinguish from other references in this paper, I refer to my individual published works sequentially as Paper 1, Paper 2, etc. A full list of my portfolio of published works is set forth in Annex 1.

I am the sole author of all these works.

Thomas F McInerney

24 June 2022

Introduction

By many accounts, the ability of humankind and the natural world to survive without significant changes being made to our societies and economies is in serious doubt. From climate change and environmental damage to human rights and weapons of mass destruction, the world has never experienced as many existential threats, especially not ones of humanity's own making. Increasingly, the need to address these issues globally has become clear. Concerted efforts of states to respond collectively and vigorously are critical to achieving a sustainable planet. International law, particularly treaties[1], have been a central feature of humanity's collective efforts to address these concerns. The subjects of these agreements cut across many topics in Development Studies and form the basis for significant international development programming. Yet there is widespread evidence that in many areas, results have been insufficient to stem or reverse the disturbing global trends, despite several decades of effort by the international community. To address these concerns, my overarching research question seeks to understand:

> *How do new strategic, managerial, operational, and technological practices affect* multilateral treaties pertaining to global problems and sustainable development?

This question is based on the expectation that if treaty strategic, managerial, operational, and technological practices can be improved, processes for addressing significant sustainable development challenges can be enhanced.

Despite states exerting significant diplomatic efforts and spending considerable sums, assessments of treaty results are decidedly mixed. Indeed, critics of the utility of international agreements as regulatory instruments abound, among persons both sympathetic and antagonistic to their aims. Chief among their charges is that nation-states have spotty records of compliance and often show weak implementation of their treaty obligations (Posner 2015; Moyn 2018). Another broader critique relates to the effectiveness of multilateral organisations to make decisions efficiently and to meaningfully improve

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[1] The term treaty refers to "an international agreement concluded between States in written form and governed by international law whether embodied in a single instrument or in two or more related instruments and whatever its particular designation." Vienna Convention on the Law of Treaties, Art. 2(1)(a), UN Treaty Series 1155 (May): 331.

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conditions; whether in relation to human rights, the environment, or maintaining peace and security (Hale et al. 2013; Weiss 2016; Mazower 2012; Goldin 2013). Other scholars render criticism from the opposite direction, asserting that multilateral treaties' utility is limited because they set the bar too low, which in turn makes it easy for states to agree to them in the first place (Downes, et al. 1996).

In response to such concerns and to understand the possibilities for realising improvements in the application and implementation of multilateral treaties for development, I have dedicated 12 years to the study of their role and functions in governance, management, and operational terms. In contrast to traditional international law scholarship, which has tended to focus on doctrinal analysis, legal textual interpretation, non-compliance, and treaty making, ratification, and amendment processes, I have sought to understand these agreements from the standpoint of their place, functions, and dynamics within social and political systems for global governance, regulation, and development. This orientation is based on the view that enhancing processes for the management and implementation of treaties cannot occur primarily through legal means but instead rests on many other contributing factors. Development considerations are a critical element of understanding treaties' role in global governance and sustainable development given that nearly 80 per cent of the world's population live in developing countries. My 20 years of experience as an international development professional in the rule of law field has oriented my thinking and helped me gain an understanding of the practical challenges and potential for treaties, particularly in the context of global governance and development.

Why treaties?

To illustrate the importance of multilateral treaties for global governance and development, a leading treaty law expert has written, "today, the treaty is *the* dominant instrument through which international law operates" (Hollis 2012: p43). Treaties are a significant feature of the international relations landscape and are central to the work of international institutions (Alvarez 2005). Treaties can be bilateral, plurilateral, or multilateral (Aust 2013). Multilateral treaties are often drawn to address global public goods and humanitarian concerns. Examples include the 1992 UN Framework Convention on Climate Change (UNFCCC), the International Covenant on Economic, Social and Cultural Rights,

the 1992 Convention on Biological Diversity, 1997 Anti-Personnel Mine (APM) Convention and the 2008 Convention on Cluster Munitions (CCM). These instruments play critical roles across major concerns in Development Studies and are the focus of this thesis.

Treaties are typically negotiated rigorously and entered into cautiously by states. Voluntarily ratified, international agreements constitute binding legal obligations for their state parties (Aust 2013). This binding character--often reinforced by reporting and compliance procedures--provides at least *prima facie* grounds to think they can contribute positively to addressing global development challenges (Ulfstein et al. 2007). Although we cannot assume the regulatory purposes served by treaties will be accomplished, in international law, the interpretive principle of *effet utile* provides for a presumption that treaty parties intend for treaties to address the underlying regulatory problems with which the instruments are concerned (Gardiner 2015; Ulfstein 2011).

I have chosen to pursue this research degree in Development Studies because development has been a dominant concern in my work and I wish to open dialogue on my research outside of the field of traditional legal studies. While literature in Development Studies has examined the application and role of specific treaties or groups of treaties, I seek to expand and deepen dialogue on this topic given the prevalence of treaties in global governance (which in turn affects development progress) and the significant amount of activity occurring at the national level to operationalize treaties.

Major multilateral treaties run through the field of Development Studies. To illustrate, research in Development studies has focused on treaties in relation to human rights (Rosser and van Dierman 2016), disability (Gartrell 2016), children's rights (Joireman 2018), the environment (Bizikova et al. 2017), climate change (Kasdan et al 2021), health (Immurana et al. 2021), and labour (Drange 2021). It has also engaged with international law generally (Natarajan et al 2016). In addition, multilateral agreements are implicit or explicit in many of the Sustainable Development Goals (SDGs) (Paper 11; Nolan 2020). Despite the recognition of treaties' relevance to Development Studies, the role of treaties as such has generally not been a focus. By exploring the specific functions and dynamics of treaties at both the international and national levels, I seek to contribute original insights into the importance of international law for development studies. I have focused specifically on

treaties over nonstate and voluntary governance frameworks, because many of such frameworks derive from international law and do not generally achieve the same scale or scope seen with treaties. In addition, through my development and application of tools and frameworks designed to improve processes for steering and implementing multilateral treaties, I aim to contribute to improvements in practice in the development field.

The challenge

My interest in the possibility for treaties to contribute to progress on major global governance and development challenges has led me to examine means of improving processes through which they are governed and applied. Rather than concentrating primarily on power politics and interstate bargaining as the basis for treaty adherence and impact (the typical focus of realist international relations scholarship), my work as a development practitioner oriented me more to the practical use of treaties as instruments for aligning and accelerating collective action and generating knowledge around shared goals and commitments, particularly in the development and global governance fields. In contrast to traditional international law, international relations, or political economy-based studies, I have sought to understand what techniques can be applied within the scope of agreements already reached. Although we cannot assume that existing treaty regimes are optimal means of addressing global problems, implementation and application of treaties by state parties, treaty secretariats, international organisations, NGOs, and technical and scientific experts are significant aspects of development programming today. Having worked for inter-governmental organizations and NGOs, I realized there were extensive activities occurring within and for treaty regimes that could affect their role in development planning and implementation yet were not fully accounted for in existing studies.

Traditionally, these types of activities have been referred to under the rubric of "implementation". Implementation includes adoption of legislation in the first instance, which is a legal-governance matter. These processes have sometimes been referred to as involving the "politics of translation" (Newell 2008). Unpacking the notion, we see that it also requires institutional structures needed to administer the laws. Supporting rules and regulations may also be needed. Monitoring capacities including statistical and data collection functions are important too. Typically, governments require capabilities for

compiling reports to treaty bodies as well (Creamer and Simmons 2019). There are also more intangible aspects such as fostering cultural sensitivity and awareness of norms. The combination of these various functions is referred to by McCall-Smith (2019: 429) as having a "collective nature". The range of activities and governmental functions encompassed by the notion of implementation can better be understood, I contend, as "operationalization".

Operationalizing treaties entails a variety of elements which are common problems in development. These include capacity constraints, national control and ownership of programs, strategy and planning, national budgeting and access to external financing, institutional strengthening, and coherence in assistance and programming. While well explored in Development Studies, these topics are generally not studied in law.

At the outset of my study of treaties and development, I began by examining the tendency of treaty bodies to apply strategic management to treaties in multiple functional areas and across diverse global governance institutions. To understand the use of these new techniques, I wrote the book *Strategic Treaty Management: Practice and Implications* (Cambridge University Press 2015), which is represented in my portfolio of Published Works (Papers 1 through 8 which correspond to Chapters 1-8 of the book). In subsequent years, I engaged in numerous projects, which pertained to the practical application of many of the approaches and practices identified in the book yet reflect the broader focus of operationalising multilateral treaties in a variety of functional areas. Papers 9 through 14 reflect this practical focus. Together, this portfolio of published work provides not only a detailed understanding of techniques used in multilateral treaties for advancing global commitments around sustainable development and change processes but also includes practical tools to enable their implementation.

My contribution to theory and praxis is based on the breadth, depth, comparative method, and constructive approach of my research and writing. While multilateral treaties are a central focus of my work, my approach seeks to focus on sustainable development in a cross-cutting way. Three elements are distinctive:

Multisectoral. I have directed my attention to treaties in multiple distinct fields of international law of particular importance to international development. These include

human rights, labour, the environment (particularly biodiversity, chemicals and wastes, and climate change), global health, fisheries, and arms control. By encompassing these diverse fields, I have been able to apply comparative analysis in all areas I have studied and worked. My approach to comparative research has involved novel juxtaposition of treaty instruments and regimes typically seen as unrelated (Dunoff and Trachtman 2009) International lawyers tend to specialize in one field of international law. In contrast, the breadth and depth of coverage enables me to gain unique perspectives and offer insights that transcend narrow fields of inquiry, which is particularly suited to an integrated approach to sustainable development.

Multifunctional. I have sought to extend my analysis across multiple functional areas including governance, planning, finance, evaluation, capacity building, science and technology, and development practice. Here, too, by applying a comparative analytical lens across these fields, I have been able to identify important similarities and differences between practices which have provided unique insights into the fields I have studied and in which I have worked.

Interdisciplinary. As described in my Literature Review section below, my research takes an original approach to integrating international law, development studies, regulatory theory, strategic management, organizational theory, international relations and global governance, and complexity theory. This approach follows a trend toward interdisciplinarity in relation to such topics as institutional interlinkages, for instance (Hickmann et al 2020).

An obvious question my research raises is: how I can approach, draw comparative lessons, and make generalisations between so many different fields of international law, given that they are the product of so many different political processes and negotiating dynamics? As an initial matter, it is important to clarify the scope of my research. Rather than choosing a single variable that I have sought to apply uniformly across multiple treaty regimes, I have instead employed qualitative empirical methods of process tracing and case study to understand activities in specific treaty regimes. I have used these specific readings as the basis for analysing treaty practices, inductively positing some general categories represented in those practices, and, to a limited degree, comparing those practices.

Doing comparative research on treaty regimes, particularly cross-sectoral, is generally difficult, however, the degree of difficulty varies depending upon what is compared. Roughly speaking, one can distinguish three types of comparative analysis for multilateral treaties. These are normative, regulatory, and process-oriented approaches. Normative comparisons relate to the specific conduct that treaties seek to encourage or curtail. Such comparisons can focus on the coverage of one treaty versus another in proscribing behavior or the way such behavior is defined. Regulatory comparisons seek to examine how treaties are designed to accomplish their normative purposes. Examples include compliance mechanisms, state reporting obligations, disclosure systems, requirements for safeguarding materials, capacity building, and technology transfer. The third approach is to compare processes. Matters such as strategising at the global level, national planning, budgeting, synergies and inter-regime relations, and governance practices constitute such relevant processes.

Of these approaches, normative comparisons between sectors are most difficult. The basic norms that treaties address are the product of such complex political dynamics as states' interests, the way problems are framed and understood, scientific knowledge, civil society pressures, and state, IGO, expert, and civil society understandings of the relative severity of the problems to be addressed. Drawing comparisons between regimes in terms of how norms are framed and agreed is generally outside the scope of my research, which takes treaties as the starting point of analysis.

Some, but not all, regulatory comparisons are affected by similar political considerations. Examples such as compliance mechanisms are clearly affected by states' political commitment to treaty purposes or their views of other states' likelihood of violating agreements. Other regulatory factors such as capacity building and technology transfer are less overtly political. Generally, my research has sought to compare these latter practices involving regulatory mechanisms that are not strongly defined by political considerations.

Finally, treaty processes represent the largest share of the comparisons and generalisations I have made. Specifically, processes for strategy, management, operations, and technology are the lenses through which I have sought to examine treaty regimes. Political factors have been proportionately weaker in deliberations on those matters than

during negotiations seeking agreement on the original treaty text. The practical activities constituting these processes are generally common to the regimes I have studied, even if the politics and negotiations giving rise to the agreements reflect distinctive tactical and strategic objectives of the participating states.

Notwithstanding the foregoing qualifications, even in relation to the processes I have studied, I am not making strong comparative claims. My use of qualitative methods of process tracing and case studies has helped identify commonalities in terms of practice, yet rather than generating uniform categories, my analysis has identified "family resemblances" (Wittgenstein [1953] 1958) between these practices. At this stage in my research and given the novelty of many of the practices I have studied, it is not possible to define strict analytic categories that can be used for rigorous comparative analysis. Having identified processes followed in specific treaty regimes, I have found that similar processes were also being used within other sectors. I am much more confident in judging intra-regime effects of practices like STM or ITS over time than inter-regime impact. This conclusion is consistent with the findings of Miles et al (2002) that comparative judgments of regime effectiveness across sectors was difficult, involved a degree of subjectivity, and less rigorous than assessing changes within regimes. Stronger comparative assessments between sectors (or sub-sectors) may be possible in the future, but at this stage, the practices I have studied involve small numbers of cases and are not sufficiently uniform to support such research.

While cross-regime comparative research on the processes I have studied is difficult, there is precedent for addressing different treaties simultaneously in the practices of international organizations. An underlying assumption of these approaches is that multiple treaties can be accommodated in a standardized approach. Examples include programming and planning within the United Nations System at the international level. Of relevance are strategic plans adopted by individual specialised agencies, departments, and programmes, which pertain to groups of multilateral treaties (e.g., ILO and UNHCHR). Likewise, strategies have been devised to support inter-agency collaboration within and across multiple sectors, which implicitly or explicitly reflect multilateral treaties. The SDGs constitute a unified framework to simultaneously advance common goals and targets, including implementation of treaty obligations across multiple sectors and subsectors (Harrington 2021). At the national level, national development strategies, sectoral development

strategies, MTEFs, and national, sectoral, and ministerial budgets provide a standardized approach for states to act upon multiple treaty obligations across diverse fields. UNDAFs provide common frameworks for UN system support for national implementation of multiple treaty obligations simultaneously. Given ongoing emphasis of the importance of coherence and synergistic policies and programming in international development and global governance, the use of these common frameworks to advance implementation of multilateral treaty obligations across multiple sectors supports the relevance and utility of my research approach.

Main contributions to knowledge and practice

My work makes three main contributions of importance to the field of Development Studies. First, I find that new **techniques for managing and operationalizing treaties** in diverse regulatory fields represent improvements in the application of treaties in global governance and in national development processes. These techniques are applied at both international and national levels including (a) strategic management, encompassing alignment with national development processes, creating synergies, employing new financing modalities, and monitoring of results (see Table 1); and (b) the application of new technologies to monitor results, determine the status of relevant underlying conditions, and support enforcement of multilateral treaties.

Table 1. Key STM functions and development concerns

Strategic Treaty Management Functions	Relevant Development Concerns
National Treaty Implementation Strategies	- National Development Strategies - National Ownership - Aid Effectiveness - Participation
Financing	- Public Sector Financial Management - Medium-Term Expenditure Frameworks - National Budgets - Alignment
Synergies	- Policy Coherence for Development - UN Delivering as One Framework
Science and Data	- Science-Policy Interface - Technocratic Bias - Exclusion of Indigenous and Local Community Knowledge - Real time, global monitoring

Performance Management	- Indicator Frameworks - Evaluation Frameworks (e.g., OECD Development Assistance Committee; Complexity-Based Approaches) - Adaptation/Correction - Management And Performance Auditing

Second, to understand the basis for my largely positive assessment of these developments, I have identified a variety of factors that explain ways in which these new techniques facilitate **organizational learning and institutional change** in governance and operations. These include both linear and nonlinear processes, which underscore the importance of treaty design as well as adaptation in their success. In addition, within the context of the strategic, managerial, and operational modalities I examine, I find ways in which COPs, secretariats, NGOs, and technical and scientific experts steer these processes to bring about institutional change in treaties and their applications by opening new deliberative processes, advancing new conceptual and issue framings, building on existing strategic frameworks, and self-organizing efforts to support scientific research and knowledge.

Third, based on the analysis of these new techniques in treaty practice, I have created **frameworks to support research and practice**. This contribution has three main prongs. First, in studying multilateral treaties, I take the interdisciplinary approach described below in my Literature Review. Second, I have developed typologies and categorizations based on an inductive analysis of the use of both strategic management techniques and technology within treaty regimes to enable an analysis of treaty practices and support comparative insights. Third, I have developed practical insights and guidance materials on how state and nonstate actors can apply and use new practices and techniques in international development, governance, and regulatory processes to advance sustainable development and social and economic justice.

Literature review

To understand the possibilities for improving processes for the application of multilateral treaties relating to sustainable development, a foundational inquiry has been to examine the legal and institutional environments in which they operate. Based on this

understanding, I have examined the nature and dynamics of institutional change involving multilateral treaties at both international and national levels. I have synthesised multiple literatures to support my creation of frameworks for study and practice.

A. Legal and institutional environment

Multilateral treaties are situated in complex legal and institutional environments, which condition and determine the ways in which they can be applied in global governance and development. I discuss the literature on the legal and institutional environments from the standpoint of multilateral treaties' organization-like nature, regime interactions and inter-organizational relations, fragmentation in international law and institutions, and development assistance.

Organization-like nature

In international law, treaties have often been considered akin to contracts (Razulov 2014). This understanding puts our focus on treaty norms and a binary understanding of compliance. Yet, with the advent of more complex regulatory treaties over the past 75 years and the emergence of international organizations as the fora in which they are negotiated and administered, the activities surrounding treaties in areas such as international environmental law "are dynamic in nature, that is, they feature decision-making systems...that continue to produce relevant norms and rules beyond their initial creation" (Hickmann et al 2020: 123). A key contributor to this trend is the fact that treaty bodies, particularly Conferences of Parties (COP) for instruments relevant to sustainable development and humanitarian concerns, have taken on the character of international organizations. Churchill and Ulfstein (2000) first captured this idea of COPs becoming organization-like. They found that traditional international legal doctrine with its contractual model of treaty (Shaw 2017) could not account for this phenomenon. A primary focus of their attention was the legal basis for COP activity, suggesting that international organizational law rather than the law of treaties should be relied on when determining the scope of their power.

Similarly, Brunnee (2002) examined the phenomenon of organization-like COP activities, addressing their law-making functions and raising legitimacy implications.

Wiersema (2007) too approached the topic from the standpoint of the legality of decisions within COPs, noting that many decisions reached did not require all parties to agree to them, thus falling short of traditional notions of hard international law whereby states become bound only by affirmatively agreeing to the choices. Ulfstein (2012) looked beyond multilateral environmental agreements (MEAs) to consider other sectors, yet also concentrates on the legal bases for dynamic COP practices, while raising questions about the deformalisation of international law occurring as these bodies develop new legal measures that do not fall within the recognized sources of international law stipulated in Article 38 of the Statute of the International Court of Justice. Among these authors, only Bowman (2013) approaches the question of the COP role from the standpoint of the effectiveness of treaty regimes.

Based on this conception of the organization-like quality of treaty bodies' activities, I have been able to formulate the notion of treaty management. In Papers 1-8, I extended the work of these earlier authors by moving past the question of the legality of COP practices to examine the modalities by which treaty bodies were increasingly carrying out their work. Ultimately, my work rests on the idea that if treaty bodies are becoming organization-like, then they require tools for strategy and management, which is, in fact, precisely what we see occurring in practice.

Regime interactions and inter-organizational relations

Significant research has been devoted to the development of interlinkages and interaction between regimes and institutions at the international level. A starting point for this research is the notion of regimes as defined by Krasner (1982: 186) as a set of "implicit and explicit principles, norms, rules, and decision-making procedures around which actor expectations converge in a given area of international relations." This understanding opened the way for many subsequent writers on international law and international relations to widen their analytical lens from a focus on individual treaties to encompass configurations of treaties as well as international organizations (Biermann and Kim 2020). This broader understanding has been conveyed through diverse metaphors such as "regime complexes" (Raustiala and Victor 2004; Gomez-Mera et al 2020), "clusters of regimes" (Stokke 1997; Rosendal 2001), "networks of regimes" (Underdal and Young 2004), and "institutional

linkages" in the context of polycentric governance theory (Hickmann et al 2020; Pattberg et al 2018). Employing increasingly popular terminology, Abbott et al (2016) and McInerney (2015) refer to these configurations of global regimes as "ecosystems". Following these developments, research has increasingly examined the nature and dynamics of interactions between regimes.

While there are some discussions of regime interaction in international law generally, much of that literature has focused on the issue of fragmentation, which is addressed in the next section. In terms of regime interrelations and interaction, scholarship in global environmental governance is by far the most developed area of international law (Stokke 2020; Gomez-Mera 2020; Pattberg et al 2018; Van de Graaf and De Ville 2013).

Research on regime interactions have examined multiple topics, including conditions favourable to their development, structural aspects, effects, and approaches to management. The conditions supporting the emergence of interrelations have been examined by (Jinnah et al 2014; Oberthür 2009; and Selin and Van DeVeer 2003). Structural considerations, including the distinction between horizontal interactions among institutions at the international level versus vertical interactions of regimes at the regional and national levels (Young 2002), have shaped research on the topics. Stokke (2020: 208) analyses "interplay management", which includes "any deliberate efforts to improve the interaction of two or more institutions that are distinct in terms of membership and decision making that deal with the same issue, usually in a non-hierarchical manner."

In terms of the dynamics and drivers of change in regime interplay, Bohmelt (2016) has studied these phenomena generally as well as in terms of regime design implications. Zelli et al (2012) studied how horizontal institutional interlinkages are constituted and driven by global norms, particularly liberal environmentalism. Oberthür and Gehring (2011) distinguished between systemic versus actor-centred approaches to studying institutional interactions. In terms of the latter approach, Betsill et al (2020) studied the role of agency as both shaping and shaped by regime interplay. The topic of conflictive versus synergistic (negative versus positive) regime interactions has fed into discussions of fragmentation.

My research, particularly Paper 5, has been shaped by the developments in scholarship on these topics. As described in that work, STM provides new tools for facilitating interplay, which is a topic deserving additional study.

Fragmentation

One of the challenges in governing and implementing multilateral treaties is their legal autonomy from other treaties and international organizations. The complexity of this network of institutions is compounded by the thousands of multilateral treaties in force (Hollis 2012). Indeed, under international law, each agreement is legally autonomous and subject to no hierarchy (Shaw 2017). One exception is the doctrine of *lex specialis* (ILC 2006).

The autonomy of treaties as legal Instruments is a key contributor to a significant concern in global governance and international law, namely fragmentation. Fragmentation, lack of policy coherence, and poor efforts to improve synergies between norms and policies have been ongoing concerns in international law, global governance, and development (Fernandez-Blanco 2019; Zurn Faude 2013). The understanding of global governance as a network rather than hierarchy is crucial to understanding treaties' place in the overall system (Castells 1996; O'Toole 2004; Woods and Martinez-Diaz 2009). This layered, non-hierarchical institutional landscape has been described as "polycentric governance", notably in the climate change context (Van Asselt and Zelli 2018). The proliferation of autonomous treaty bodies such as COPs has been viewed as a contributor to fragmentation (Ulfstein 2012).

The most authoritative study of fragmentation in international law was the International Law Commission study group report on the topic (ILC 2006). The ILC attributes a significant cause of fragmentation to "specialized law-making and institution building" taking place "with relative ignorance of legislative and institutional activities in adjoining fields" (ILC 2006: 11). Despite high expectations for the ILC report to identify practical solutions to the problem, it approached the topic as primarily legal in nature. Young (2012: 4) argues that the ILC report was "offered without regard to the institutional dimension of fragmentation." Its narrow focus on interpretation, adjudication, and conflict of

laws has almost nothing to say about the operational aspects of multilateral treaty regimes and their role in structuring the work of international institutions and national governments to implement treaty commitments. Dunoff (2012) explains the limitations of a litigation-centric conceptualisation of regime interaction. The lack of coherence in implementing treaty obligations at the national level is a significant burden on developing countries by creating unnecessary duplication of functions (something the Paris Declaration on Aid Effectiveness notion of alignment was intended to reduce).

In response to these challenges, various scholars have proposed approaches to creating synergies between different treaty regimes, particularly among MEAs. Scott (2011), for instance, proposes an approach to reducing fragmentation among MEAs through formal agreements and informal working arrangements between individual treaties. Biermann and Kim (2020) and Oberthür (2020) identify "interplay management" as an approach to reducing fragmentation and realizing synergies. These authors offer important insights into ways of reducing fragmentation and promoting synergies, yet have not discussed specifically the use of strategic plans to do so, despite their extensive use as governance tools among multilateral treaties and international organisations precisely as a means of creating synergies.

In contrast to this work, which is generally focused on international environmental law, I have sought to consider synergies across different sectors such as the environment, (including biodiversity, chemicals and wastes, climate change, and land degradation); labour; land mines and cluster munitions; and human rights. In addition, by centring on the use of strategy as a modality for synergies, my work identifies new approaches to addressing the challenge of fragmentation (Papers 5, 10, and 11). Of relevance to Development Studies, in Paper 3, for instance, I have tried to relate these legal developments to efforts among international institutions to foster coherence in development cooperation (OECD 2008).

National implementation and development assistance frameworks

Implementation at the domestic level is where international law and national development intersect most obviously. From a legal standpoint, states are obligated to implement treaties they ratify under the notion of *pacta sunt servanda* (Aust 2013).

Domestication of multilateral treaties often requires enactment of legislation and implementing regulations (Sloss 2012). Yet, in keeping with my focus on the operationalization of treaties across different functional areas, much more than adoption of laws and regulations is required (Lenchuca et al 2016). Creating effective government institutions responsible for administering the laws enacted pursuant to treaty obligations is a critical aspect (Subedi 2021). Doing so requires significant fiscal resources in many situations. For developing countries, these resources are often inadequate particularly for the upfront cost of treaty operationalization, which makes external financing a crucial element in the response.

Research in diverse areas suggest positive roles for implementation of treaties in national development processes. Examples include advancement of children's rights (CRC) (Mitchell and Maharjan 2020), inclusion of disabled people in society and reduction in poverty (CRPD)(Mahomed et al 2019; Gartrell et al. 2016), mobilizing taxation to prevent non-communicable diseases (WHO FCTC) (Immurana et al 2021), and biodiversity conservation and sustainable use (CBD) (McCoy and Lacher 2020). Treaties may also prevent actors from obstructing national legislation, policy, and strategies as seen with Article 5(3) of the WHO FCTC which calls on governments to counter tobacco industry interference (Wisdom et al. 2018).

An important factor is the role of official development assistance (ODA) frameworks in determining the ways in which financing for treaty implementation is delivered by international donors and the ways in which countries programme those expenditures. Dann (2013) provides insights into the legal structures for development cooperation, which provide a basis for the application of strategic management in treaty implementation at the domestic level. Building on these insights, I have studied the ways in which national development strategies interact with what I call "National Treaty Implementation Strategies" (NTIS), which most treaties require (Paper 3) and national public sector financial management systems (Paper 4). With the widespread adoption of national development strategies (NDS) in many countries, NTIS must be integrated in NDS to ensure they are operationalized (Paper 3; Dann 2013).

Another approach to integrating treaty obligations into national legal, institutional and policy frameworks is mainstreaming. It has been used in areas ranging from environmental law (Bizikova et al 2017), gender (Elson 2008), and climate change (Gupta 2010). While arguably a fine distinction, there is a question of whether mainstreaming gives sufficient emphasis to the normativity that treaties embody (Mwendwa 2009). Similar observations have been made with respect to children's rights in the context of the SDGs (Nolan 2020). Experience with disability rights shows the potential shortcomings of the approach. The belief that mainstreaming rights throughout programming or institutions obviates the need for special protection of specific groups such as disabled people, ignores the fact that their needs may not be given sufficient recognition (Kett 2009).

The financing requirements for multilateral treaties at the international level are an important, if often neglected, topic in international law, global governance, and development. Like international organizations, treaty bodies can be financed either with mandatory or voluntary contributions (Alesani 2014). Traditionally, contributions to intergovernmental organizations (IGOs) have been assessed based on a scale determined by the UN General Assembly in proportion to states' ability to pay based on their gross domestic product (GDP) (Alesani 2014).

An additional aspect of financing related to multilateral treaties pertains to financing of national implementation. The need for states in the developing world to receive support for their implementation activities is recognized in international law. This understanding is reflected in the principle of common but differentiated responsibilities in international environmental law, for instance (Stone 2004). An alternative concept is the right of states to seek and receive assistance as seen with the 1997 Anti-Personnel Mine (APM) Convention and the 2008 Convention on Cluster Munitions (CCM) (Maslen 2004). Likewise, the United Nations Framework Convention on Climate Change (UNFCCC) obligates states to provide financial and technical assistance to developing countries (Chazournes 2006). Finally, General Comment 5 of the Committee on the Rights of the Child noted that compliance with the treaty required states to adopt costed plans that are integrated in national development strategies (UNCRC 2003).

To enable states' ability to comply and implement their treaty obligations, financial mechanisms such as the Global Environmental Facility (GEF) have been created for treaties such as the Stockholm Convention (Kohler and Ashton 2010), UN Convention to Combat Desertification (UNCCD), the UN Convention on Biological Diversity (CBD), and UNFCCC (Chazournes 2006). In some cases, financial assistance has been made contingent on compliance (Metz 2006).

In Paper 4, I add to this earlier literature by analysing strategic approaches to mobilizing finance and directing expenditures. In addition, I have found that these approaches are often aligned to treaty strategic plans like the CBD's 2011-2020 Strategic Plan for Biodiversity, thus reinforcing the impact of those strategies.

B.   Institutional Change Processes

After studying the new techniques described above, I have sought to understand the mechanisms by which they can effect change in treaty regimes. In my work, I discuss institutional change processes that new treaty practices drive in terms of ideational and interpretative elements, the role of actors, structural drivers versus adaptive approaches, and regime effectiveness generally.

Ideational and interpretive elements

Although multilateral treaties are notoriously difficult to amend (an observation I have experienced painfully first hand), international law does recognize a role for modification of treaties over time, particularly through interpretation. The notion of evolutionary interpretation has been studied as a way of enabling such changes (Nolte 2013; Gardiner 2015). My research on treaty strategic planning suggests that it can be understood in part as a process of interpreting the meaning and purpose of treaties without amending the text itself. Yet, consistent with the notion of the structurational function of treaty strategies, these new interpretations have staying power and shape the application of treaties over time. At issue is the structure versus agency issue in sociology (See "Methodology" below).

It is widely recognized in international relations that ideas play important roles in shaping decisions. Ideas often emerge through epistemic communities as Haas (1989)

famously showed. Likewise, across the 13 areas of global business regulation surveyed by Braithwaite and Drahos (2000), they rated epistemic communities of actors as having "strong" influences on all regulatory regimes. In addition, while they were very much attentive to the intricacies of the regulatory mechanisms and rules, they contend that it is abstract principles, which are key to understanding global regulation (Braithwaite and Drahos 2000). These views are consistent with constructivist thought as actors develop shared ideas and conceptions around treaties, then act within frameworks created (Ruggie 1998; Epstein 2008). Drawing on regulatory theory and international relations literatures, Jacob (2021) shows how actors use processes of "regulatory contestation" to create mechanisms that advance more abstract norms and interpretations of existing rules. As described under "regime effectiveness" below, improved knowledge and learning is an important marker of effectiveness.

Work in historical institutionalism in political science and sociology helps illustrate the mechanisms involved in these change processes (described more in Methodology below).

I have found that strategic processes within and for treaty regimes can be explained as illustrations of these ideational processes. Strategic planning becomes a locus for the advancement of ideas within treaty regimes. The nature of strategy with an emphasis on aspirational and forward-looking concepts is largely consistent with the findings of Braithwaite and Drahos (2000) and Drahos (2015) on the influence of principles.

Actors

While the structurational function of treaties is central to their value and status in the international system, they are not impervious to change. As Mahoney and Thelen (2010) write, institutions always have within them the possibility of change through agents' activity. Actors engage with treaties in ways that seek to extend their influence and bring about institutional change. Treaty processes may also be used by dominant groups to maintain their power and further their interests.

At the national level, treaties have been shown to mobilize citizen and civil society actors to demand change. Simmons (2009) offer a compelling account of how mass publics

have relied on treaty obligations of their governments to demand national legal and political reform. Likewise, Sikkink (2017), shows the important role of legal scholars and civil society movements in the global South to demand human rights treaty development and adherence. Dai (2007) shows how environmental treaty obligations constitute a locus for political awareness raising and demand for reform among domestic constituencies. Finally, Grugel and Peruzzotti (2012) show the diversity of national experiences and contingent nature of change treaty implementation may drive.

As described in connection with ideational drivers, states are complex institutions composed of many individuals working in diverse functional areas. While international relations literature tends to assume singular purposes to states, Slaughter (2004) and Newell et al. (2019) show the need to disaggregate states to give sufficient credit to the role of individuals. Treaty parties, understood as individual state representatives, can change positions in response to new concepts or framings. Individuals within governments can advance treaty agendas, even if they push the envelope beyond what other government functions may prefer (Slaughter 2004).

From a development standpoint, while capacity constraints inhibit state participation in treaty regimes, states can also be understood to gain capabilities in working with treaty regimes. The accumulated knowledge of individual officials enable states to develop new understandings and learn through deliberation and deepened engagement with treaty regimes over time (Alvarez 2005). Creamer and Simmons (2019) illustrate this phenomenon in relation to treaty reporting.

In a contrary vein, treaty processes have been criticized for exclusivity and unrepresentativeness of multilateral decision-making processes. Work by Halliday et al. (2010), Halliday and Block-Lieb (2017) and Dezalay and Garth (1998) show how powerful interests such as elites can shape the development of international regimes, agendas, and outcomes for their own ends. Kennedy (2016) argues against the dominance of experts in international law and policy deliberation on the grounds that it privileges certain forms of knowledge and excludes many important constituencies. (Something I address in more detail in Paper 14). Similarly, Dutfield and Suthersanen (2020) find that "globalized localism" may allow small numbers of states to dominate global decision making. Hearson (2021) describes

power asymmetries and the role of epistemic communities in shaping global tax law and governance. Braithwaite and Drahos (2000) found that corporate interests have shaped negotiating positions of state delegations, notably the United States, during the World Trade Organization (WTO) Trade-related aspects of Intellectual Property (TRIPs) negotiations, although Dutfield (2005) challenges this reading of the events. Business interests are not the only nonstate groups exerting power in intergovernmental processes. Bridgewater and Kim (2021) show how interest groups such as NGOs have used the strategic planning process for the Ramsar Convention on Wetlands to divert attention from a primary concern of the treaty, that is, the protection of waterfowl species over wetland conservation.

Yet contrary to critiques that international law has been imposed on the Global South (Natarajan 2016), there is substantial evidence that state and individual actors from the Global South have made significant contributions to the development of major multilateral agreements. Achaya (2016) highlights the contributions of actors to reshaping global discourse on development, ecology, and security. Likewise, Sikkink (2017) shows the critical role of governments and scholar-advocates from the Global South in campaigning for international human rights treaties.

My research is consistent with Braithwaite and Drahos' (2000) conclusion that, while powerful (often economic) interests can shape global processes, with proper focus and mobilization, less powerful actors can use the tools of global governance to advance their aims. Nadan (2021), for instance, offers a recent first-hand account of the outsized importance of Fiji in the development of the UN Convention on the Law of the Sea. Russell et al (2018) provide similar insights on civil society contributions to deliberations on the World Health Organization's Framework Convention on Tobacco Control (WHO FCTC), which is consistent with my findings in Paper 10. Kohler and Ashton (2010) describe the important role of indigenous arctic peoples' accumulated knowledge of the health effects of persistent organic pollutants to explain their important contributions to negotiations on the Stockholm Convention. Experience with the development of major instruments such as the Convention on the Rights of Persons with Disabilities shows that disabled people's organizations were critical to determining the content of the instrument (Kett 2009). These examples show how "local actors can, at times, navigate spaces of contestation…in ways

that align with their priorities despite national, regional, and global disciplinary processes to pursue a preferred pathway" (Newell et al. 2018: 57).

Structure versus adaptation

As binding legal obligations on their state parties, multilateral treaties structure significant portions of international institutions. The fact that treaties are international law also constrains international organizations to abide by their requirements, even if they are not universal in membership (Alvarez 2017). Moreover, the difficulty of amending multilateral treaties as Aust (2013) describes, makes treaties relatively rigid. The legal nature of international law thus plays an important structurational role as Giddens (2013) defines it.

STM also takes on a structural role within treaty regimes. The processes of STM are continued by treaty bodies such as COPs and secretariats (Ulfstein 2013) over multiple planning cycles, carried through multiple aspects of treaty practice (financing, development planning, science and technology) and shape stakeholder expectations and interactions. This process of implementing STM thickens actors' understanding of the purpose and requirements of treaties (Wiersma 2009). I have seen this result in connection with several treaty strategic plans. While treaty strategies constitute an approach whereby state parties can enable flexibility in treaty application, they also create frameworks for social action, which themselves have a degree of stability. This structurational function of strategies has been observed in research in strategic management in the private sector (Whittington 1992; Jarzabkowski 2008).

The understanding of treaty practices as creating structure must also consider the ways in which they are subject to continuous change. The new treaty practices I have analysed reflect the dynamics of complex adaptive systems (CAS). A threshold condition for these systems is a significant number of parts that interrelate (Mitchell 2009). Other features of CAS include non-linearity, feedback loops, self-organization, path dependency, and the property of emergence (Room 2010; Dopfer and Potts 2008; Ramalignam 2013; Root 2013; Mitchell 2009; Page 2011; Colander 2014).

Among these factors, I find self-organization to be particularly important in in the use of the techniques and technologies in treaty regimes. Self-organization has also been recognized in the context of polycentric governance (see, e.g. Abbott (2018)). While strategy provides an organizing locus, diverse actors drive innovations. Typically, COPs decide to initiate the development of strategic plans, secretariats gather input and frame plan documents, and NGOs and experts provide input to the process. The landscape that emerges is co-created by agents interacting to define behaviour, activities and priorities arising from other STM practices. Strategic plans that COPs develop and adopt for treaties provide central organisation but achieve their full meaning and impact through iteration and elaboration among diverse organisations and stakeholders (Futhuzar 2015; Doherty 2018). In other words, "macro-strategy making at the global level involves successive micro-adaptations by largely self-directed actors" (Paper 8: p281). Likewise, in relation to data collection and scientific research to support treaty knowledge requirements, much of what occurs involves self-organisation among research communities.

Despite these practices' dynamism, path dependencies arise as COPs with support of secretariats replicate structures and behaviours over time (Paper 8). Adoption of successive strategic plans by treaty bodies is an obvious illustration of this tendency (Paper 2). Feedback loops are also evident in the way strategies shape financing, fundraising, synergies, science and evaluation. Developments in these areas feedback into strategy development. Similar activities are carried out by national government ministries through NTIS. Together these activities illustrate the property of emergence, as the whole is not reducible to the sum of its parts. Strategic plans may create the initial focus, but many other elements, activities and actors carry the system forward.

Regime Effectiveness

There is substantial literature on the effectiveness of international treaty regimes. The focus on effectiveness grew out of research on compliance following realist international relations scholars' critiques of the causal effects of international regimes (Mitchell 2008). Over time, analytical shortcomings in compliance studies have reoriented scholarship away from compliance and more towards effectiveness (Mitchell 2008).

Effectiveness has been defined in multiple ways, yet the extent to which a given regime contributes to reducing or solving the relevant underlying problem has been particularly influential (Young 2011). Underdal (2002: 11) characterizes this definition as the "common-sense notion of effectiveness." Building on the problem-solving conception of effectiveness, Stokke (2012: 13), for instance, contends that the extent to which a regime drives behaviour change "that enhances, upholds, or mitigates the problems that states seek to solve" must also be included. Indeed, the factors are connected, as changing behaviour of relevant actors is essential to solving problems (Young 2018).

There are a variety of additional criteria used to assess regime effectiveness. A common approach is counterfactual analysis, which asks what would have happened in the absence of a regime (Young 2011; Mitchell 2008). This approach conceives of effectiveness as the relative improvement caused by a regime (Underdal 2002). An alternative approach is to identify the collective optimum, or degree to which a regime achieves "all that can be accomplished—given the state of knowledge at the time" (Underdal 2002: 8).

Determining appropriate measurement criteria is a challenge across all definitions of effectiveness. Of relevance to earlier discussions on regime interactions and inter-organisational relations, research has also examined how such linkages and dynamics affect institutional effectiveness. Yet Stokke (2020: 227) concludes "differing views on what counts as 'improvement' complicate assessment of success or failure."

As seen in other contexts such as program evaluation, phenomena such as outputs are easier to measure than matters causally further removed, such as improvements in problem-solving (outcomes) or environmental quality (impact). Complicating any approach to measurement is the analytic difficulty of dissociating background conditions from the activity and influence of a given regime (Young 2011). Likewise, Andreson (314: 2012) finds that "there is rarely any specification as to the proportion of change caused by the regime" as opposed to other drivers. Indeed, the settings in which treaties are applied involve many forces interacting simultaneously, thereby making causal determinations difficult (Young 2018).

In addition to these problem-solving oriented conceptions of effectiveness, others have posited somewhat broader conceptions. The degree of epistemic agreement among participants is one such notion (Stokke 2012). Likewise, Miles et al (2002) identified learning and an increase in the knowledge available to regime participants as indicators of regime effectiveness. Another line of research has identified legitimacy and fairness as additional marks of effectiveness (Biermann and Kim 2020; Stokke (2020).

While salient to techniques of strategy and management of multilateral treaties this thesis examines, these practices are still too new to allow strong conclusions about their contribution to regime effectiveness. For reasons well discussed in the literature on effectiveness, there are numerous challenges to measuring regime effectiveness generally, yet these factors are more pronounced in relation to the use of STM, for instance. Among these challenges are the ability to analyse the counterfactual for a particular treaty employing STM, standardising the unit of analysis (e.g., strategic plans) to support comparative research between different treaties, and the complexity of the environments in which treaties operate generally, which makes it difficult to isolate specific causal factors from others. Considerations such as these led to my choices of methodology, particularly the use of qualitative techniques including process tracing.

C.   Framing an approach to practice

In this section, I will discuss gaps I have found between different disciplines relevant to studying multilateral treaties. I will then describe sources relevant to developing practical guides for practice involving strategy and management of multilateral treaties.

Advancing an integrated approach to multilateral treaty research and practice

My work responds to and draws on literature from a variety of disciplines to advance a unique approach that integrates their distinct insights and fills important gaps within and between the fields. These lacunae have led me to develop, test, and refine both conceptual and practical elements of that approach over the past 20 years. I will illustrate some of these gaps in relation to international law, development studies, regulatory theory, strategic

management, global governance and international relations, organizational theory, science and technology, and complexity theory (Figure 1).
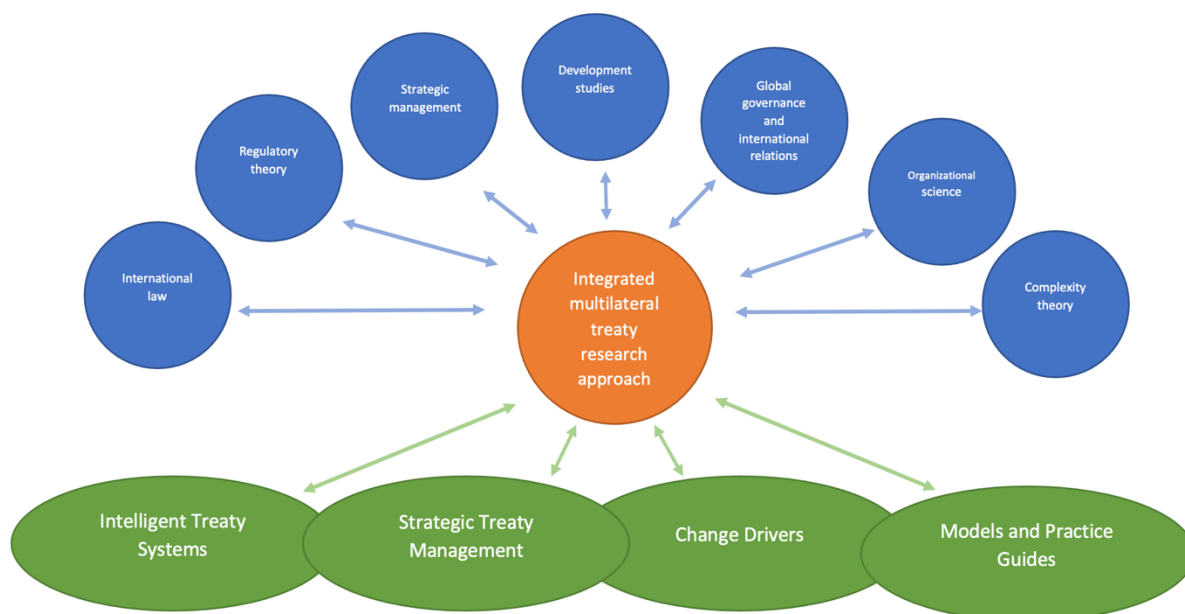

Figure 1. An integrated approach to multilateral treaty research and practice

As an initial matter, international law literature lacks attention to strategy and management of treaty bodies and implementation activities. Furthermore, it has underemphasized regulatory techniques instead concentrating on formal and doctrinal considerations. Scholars such as Koskenniemi (2007) go so far as to claim that managerial approaches to international law are incompatible with the normativity of the law. Of particular importance for Development Studies is the lack of attention to the ways treaty implementation occurs at the national level (McCall-Smith 2019).

Development Studies research contributes important insights into both treaty implementation and the role of treaties in advancing sustainable development internationally. Examples of Development Studies research on relevant treaty matters include studies on the UNDAFs and human rights treaty compliance (Haugen 2015), participatory approaches to treaty implementation (Mitchell 2020), analysis of the fiscal effects of the taxation requirements of the WHO FCTC (Immurana 2021), the influence of national institutions on

socio-economic rights fulfilment (Rosser and van Dierman 2016), the symbiotic relationship between international organizations and treaties (Noriega et al 2019), and the effectiveness of financing mechanisms for national climate adaptation under the FCCC (Sheriffdeen 2022).

I have also found that there are gaps between the study of international treaty law and studies in regulatory theory. As Hilary Charlesworth has observed "regulatory theory has paid little attention to international law, and international legal theory, in turn, has largely overlooked the field of regulation." (Charlesworth 2017: p357). This oversight has prevented international law from engaging with some of the major regulatory innovations occurring at the national level, notably the shift in regulatory theory and policy from command-and-control models to more flexible forms of regulation. Leading work in this field includes the notion of "responsive regulation" in Ayers and Braithwaite (1992), "really responsive regulation" advanced by Baldwin and Black (2008), "management-based regulation" in Coglianese and Lazar (2005), and "smart regulation" by Gunningham (2017). While these approaches to flexible and responsive regulation have transformed regulatory theory and practice particularly in relation to the national level, the insights of these theories have been lost on international law scholars. I have attempted to bridge this divide by explicitly engaging with the regulatory literature to inform approaches to introduce flexibility, calibrate treaty strategies, and maximize regulatory effectiveness (Paper 8 and 13).

An exception to this view is Abbott and Snidel (2013), who apply Braithwaite and Ayers (1998) to international law and regulation. Koenig-Archibughi (2010) is one of the few chapters to address international regulation in Baldwin Cave's (2010) *Oxford Handbook on Regulation*. Drahos (2017) devotes slightly more attention to global regulation. Finally, Braithwaite and Drahos (2000) is perhaps the most significant contribution in this field to global regulation but is limited to business-related matters and covers all types of instruments rather than just treaties. Jacob (2021) applies regulatory theory to explain approaches to creating flexibility in UN processes of norm application.

Further, organizational theory has made important insights into the nature of business organizations through the notion of firm capabilities and the knowledge-based theory of the firm (Nelson and Winter 1982; Dosi, Nelson & Winter 2000). Biermann and Koops (2017)

examine diverse aspects of organizational theory and international organizations. Yet existing literature in organizational theory does not engage with international law or treaties. Alternatively, the limited research on organizational aspects of treaty secretariats such as Desai (2010), focus on the formal legal arrangements and do not consider organizational theory or its implications. Andrews et al (2017) reflect a roughly similar understanding of organizational capabilities from the Development Studies standpoint. Creamer and Simmons (2019) describe similar phenomenon in relation to human rights treaty reporting. As such, I have had to translate concepts in organizational theory to the multilateral treaty context as in Paper 8 and Paper 13.

Within scientific communities, significant efforts are put into developing knowledge to support treaties, yet it is largely technical in nature, not legal or regulatory. Within international law, some attention has been paid to technology and science such as big data as well as problems of technology *for* international law (Johns 2014), but not the instrumentality of technology to *further* international law as in Froehlich and Taiatu (2020), for instance. In contrast, I have developed insights in Paper 6 and 14 with respect to how science contributes to treaty capabilities and can be managed to improve treaty impact.

Given the aims for practical application of my research, my work is informed by and contributes to literature on strategic management in public sector and non-profit organizations. Among these sources are Bryson (2013), whose book provides a comprehensive and definitive account of strategic management in public and non-profit organizations. Papers 1 through 8 were informed by his framing of the elements of strategic management as including strategy development, implementation, and results measurement. While useful for understanding strategic management generally, given the novelty of my subject, significant adaptation of these insights was required to account for treaties' intergovernmental composition and specific legal nature. Research on strategic management and results-based management in international organizations, particularly Alesani (2014) and Missoni and Alesani (2014), was relevant in substance, particularly on functional areas such as financing and results management. Here too, however, my work offers new insights into the specific challenges of treaty bodies by distinguishing such matters as legal compliance strategies from performance management and results-measurement generally.

One limitation of the strategic management literature, however, is its tendency to assume linear models of strategy and execution, which were at odds with the dynamic, iterative, and emergent nature of the treaty processes I have researched and on which I have worked. An exception is Stacey (2010) who provides insights into alternatives to manager-driven models of strategy and the limitations of top-down planning. Boivard (2008) also shows how planning processes undertaken by one organization are no more important than the emergent complex interactions occurring within the broader systems in which those organisations operate. Room (2011) provides a compelling synthesis of institutional research with complexity theory and offers suggestions for practice. Ramalagan (2013) provides insights on planning in international development. Public sector management has also engaged increasingly with complexity perspectives (Eppel and Rhodes 2018).

I have taken these insights from public and private sector management and strategy and applied them to model strategy development in multilateral treaties and related international organizations. My findings are consistent with complexity-oriented strategy and planning experts in finding that managing and negotiating our way through a continually shifting complex global governance environment will require contributions of many actors and individuals (Stacey 2010; Innes 2010).

Methodology

A key objective of my research has been to develop an understanding of how new techniques for strategy, management and operations can improve processes involving international law and global governance for sustainable development. The foundation of my research has been empirical in identifying and understanding these practices. From that basis, I analysed causal results. I have then used the conclusions drawn from this empirical research to develop insights relating to practice. In this research, I have been both an informed observer and active participant, which has provided insights and validated some of my empirical findings and views on praxis.

As a precursor to understanding the nature of institutional change, I have needed to develop an understanding of social institutions, their permanency and changeability. Four main issues are implicated: the question of social structure versus agency; the position of the social scientific researcher; the model of causation; and the choice of methods.

After developing this conceptual understanding, the paper describes and defends the methodologies and research techniques chosen. These include legal and institutional interpretation and analysis, process-tracing, and action research.

Social structure and agency

Because of their engagement with questions of social scientific knowledge, the tension between the demands of existing social institutions and possibility of change, and deep concern about praxis, I have relied on the work of social theorists Pierre Bourdieu and Jürgen Habermas. They provide important insights on the complexity of the social world and institutional landscapes I have studied as well as their capacity for change. For Bourdieu, "objects of knowledge" are "constructed, not passively recorded, and contrary to intellectualist idealism, are a system of structured, structuring dispositions" (Bourdieu 1990: 52). He calls this system the *"habitus"*, which he explains is constructed through practice. He at once seeks to avoid the tendency to reify structure as outside its basis in the reality of human relations and social groups' shared histories, while maintaining its objective reality, yet avoid pure subjectivism which cannot account for the necessity of the social world (Bourdieu 1990). Bourdieu takes seriously the idea that social norms and practices are real structures that affect agents' practices.

These principles function to create regularity without entailing mere obedience to rules and "can be collectively orchestrated without being the product of the organizing action of a conductor." (Bourdieu 1990: 53). The habitus can be understood "as an acquired system of generative schemes" which has an infinite "capacity for generating products—thoughts, perceptions, expressions and actions—whose limits are set by the historically and socially situated conditions of its production." (Bourdieu 1990: 55).

In describing the real constraints that social structures exert, Bourdieu distinguishes between action and agency. These elements embody both the reflexive exercise of agency and its non-reflexive, reproductive elements. (Byrne and Callaghan 2014). Thus, "structure-agency relationships involve both current and past actors, whose actions have become sedimented into structures." (Byrne and Callaghan 2014: p111). Rather than determinative, Bourdieu sees structures as involving "recursive relations between structures in embodied positions in interaction with cognitive, reflexive responses." (Byrne and Callaghan 2014: 112).

This account differs from mechanistic accounts typical of systems theory. Habermas

has drawn on systems theory extensively for its insights on contemporary society but has critiqued it for lacking a convincing account of agency (Habermas 1996). Yet rather than an atomistic conception of agency, he views communicative action as essential to the constitution of society. At its heart, the notion of communicative action is inherently relational, both creating the basis for achieving mutual understanding and ultimately establishing the basis for the type of rationalization that Weber identified found to be characteristic of modern societies.

My work grapples with the concept of treaties as fixed structures versus their potential to evolve and need to adapt to changing circumstances and regulatory requirements. Both Habermas and Bourdieu help explain the constraining effects of social structures and the ability of actors to transcend those limitations to effect institutional change.

Positionality of engaged researcher

Bourdieu challenges the idea of objectivism, which allows scientific observers to adopt a point of view from above and views the social world as a representation or performance "in the theatrical or musical sense), and practices… seen as no more than the acting out of roles, the playing of scores or the implementation of plans." (Bourdieu 1990: 52).

Like Bourdieu's critique of the detached observer, Habermas explains that as researchers we must approach the social world not with the attitude of a scientist but "with the performative attitude of someone who tries to understand what is said to him (this is the attitude of the interpreter, for example)" (Bourdieu 1990: 52). Essentially, Habermas contends, we are not removed from the situations we observe but we are part of it:

"Interpreters relinquish the superiority that observers have by virtue of their privileged position, in that they themselves are drawn, at least potentially, into negotiations about the meaning and validity of utterances. By taking part in communicative action, they accept in principle the same status as those whose utterances they are trying to understand." (Habermas 1992: 26).

Based on this understanding, he contends that "a correct interpretation, therefore, is not true in the sense in which a proposition that reflects an existing state of affairs is true…a correct interpretation fits, suits, or explicates the meaning of the *interpretandum*, that which

the interpreter is to understand." (Habermas 1992: 27). In my engagement with the subjects of my research, I have used my position to validate observations made from documentary research and gain qualitative understandings of institutional dynamics.

Understanding causation

Research in the field of historical institutionalism has informed my understanding of the processes of change in the institutions I have studied. The account of Mahoney and Thelen, in particular, provides a framework for explaining institutional change over time. Echoing Bourdieu on how existing structures condition but do not determine social action, they argue that "the basic properties of institutions contain within them possibilities for change." (Mahoney and Thelen 2010: 10). The precise place where they find incremental change occurs in the internecine spaces within institutions—what they call "soft spots" between the rule and its interpretation or the rule and its enforcement (Mahoney and Thelen 2010).

They posit four modes of institutional change: displacement; layering; drift; and conversion (Mahoney and Thelen 2010). "*Displacement*" involves the replacement of existing rules by new rules. "*Layering*" involves the attachment of new rules to existing rules. "*Drift*" may occur when the rules remain the same, yet external conditions change thus making the rule misaligned to the current environment. Finally, "*conversion*" happens when rules remain formally the same but are interpreted or used in new ways (Mahoney and Thelen 2010). The practices I have studied reflect all these potential change processes occurring through actors' creative use of novel tools of governance in different contexts and times, which reveal the fixed nature of structure and typically bring about incremental rather than revolutionary or transformative change.

Methods used

This section reviews the specific research methods and techniques used in my research. Table 2 below describes each of the research methods and techniques used for each of the published works in my portfolio. For Papers 1-8 and Paper 13 I have developed typologies (i.e., Strategic Treaty Management - STM and Intelligent Treaty Systems - ITS), which I then used to support comparative analysis across the institutions I have studied.

Table 2. Primary research methods and techniques employed

Portfolio item	Methods	Research techniques
Papers 1-8	Legal and institutional interpretation	Primary source official document collection and review
Papers 1-8	Process tracing	Primary source official document collection and review
Papers 1-8	Qualitative	Key informant interviews
Papers 1-8	Qualitative	Technical workshop with treaty secretariats
Papers 1-8	Qualitative	Presentation and dialogue on research findings
Paper 9	Action research	Advocacy and development of strategic plan for WHO FCTC (2017-2018) • Dialogue with member parties WHO FCTC • Drafting manual to advise strategic planning working group • Drafting strategic plan • Advocacy for strategic plan
Paper 10	Action research	Member of Expert Group for the Impact Assessment of the WHO FCTC (2015-2016) (two, weeklong state party visits)
Paper 11	Legal and institutional interpretation	Primary source document review
Paper 11	Qualitative	Participant observation UNEA2 Nairobi
Paper 11	Qualitative	Key informant interviews
Paper 11	Qualitative	• Drafting White Paper • Presenting paper in expert group workshop at HLPF
Paper 11	Process tracing	Primary source document review
Paper 12	Qualitative	Primary source document review and archival research
Paper 13	Qualitative	Synthesis of secondary research
Paper 14	Process tracing	Primary source document review and archival research
Paper 14	Qualitative	Key informant interviews

Legal and institutional interpretation

Across the institutions I have studied, I have drawn on primary legal sources to interpret and analyse the mandates, capacities, and limitations of the relevant institutions. Both treaties and international organizations are products of international treaty law and our ability to understand and support change in them rests in significant part on legal considerations. Such analysis has been foundational to my research and has informed my approach to both process tracing and action research.

Process tracing

In Papers 1-9 and Paper 13, I have undertaken thick description of social practices in international institutions as the basis for process tracing of activities within the specific treaty regimes studied (George and Bennett 2005). Process tracing can be combined with in-depth case studies to examine phenomena with multiple causes and effects on both macro and micro scales (George and Bennett 2005; Byrne and Callahan 2014; Byrne 2011; Davidson 2021; Harvey 2009). It is designed to identify the intermediate factors within causal mechanisms that are often otherwise obscured. (Beach and Pederson 2013). Process tracing, properly understood, seeks to analyse causal mechanisms, not simply identify a series of empirical events (Beach and Pederson 2013: 33).

Using these methods, I have undertaken detailed examination of international treaties and their connections to global governance institutions, national governments, and stakeholder and scientific communities across multiple legal fields and functional areas. Each of these studies proceeds at a micro level, building up to both meso and macro scales. Consistent with the notion of CAS, described earlier, the changes seen in these multifaceted strategic-legal-governance-technical arrangements reflect self-organisation, feedback loops, non-linearity, the co-evolution of institutions and their environments and emergence (Paper 8; Paper 11).

Action research

Once we dispense with the conceit that social scientific research is akin to research in the natural sciences and that it can be done in a detached position of an external objective observer, we overcome the seeming inferiority of qualitative research methods, including methods such as action research in which the researcher plays an active part. As Habermas and Bourdieu describe, researchers are part of the social world they study. My use of action research can be seen as contributing to overcoming the intellectualist bias (Bourdieu 1990) in social science research. Byrne argues that action research fits well with a complexity-

based understanding of social phenomena (Byrne and Callaghan 2014). Rather than viewing the phenomena I study as merely a spectacle that can be observed by a detached objective scientist, following Bourdieu, I see these matters as "problems to be solved" and through my research seek to share some of what I have learned from working with them. This work also helped me gain a phenomenologically richer understanding of the subject as a participant and strategic actor. In my own research, I have had first hand engagement in many of the topics I have studied. This exposure has enriched my understanding and helped to validate my findings.
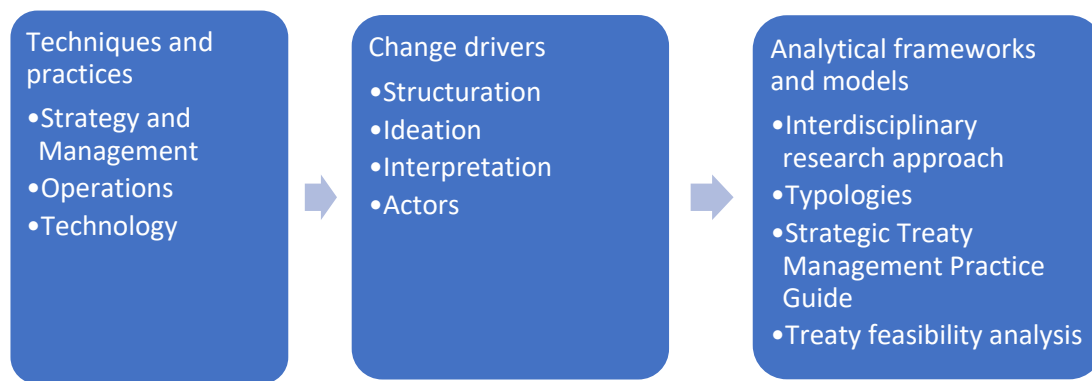
Research techniques

To support these methods, I have applied six main research techniques: the gathering and review of primary source official documents (Technique 1); interviews (Technique 2); workshops and focus groups (Technique 3); presentations and dialogue (Technique 4); participant observation (Technique 5); and action research (Technique 6). A summary of the techniques is presented in Table 2. A description of my experience with action research is set forth in Annex 2.

Key findings and contribution to knowledge

In this section, I present my key findings to answer the overarching question of how strategic, managerial, operational, and technological practices affect international and national processes and activities of multilateral treaties for sustainable development and global problems. My findings build on each other as illustrated below. The research began with analysis of treaty practices in areas including: (i) strategy, management, and operations; and (ii) science and technology. These findings led to my identification of causal drivers of institutional change in treaty operations generated by these new practices. Finally, based on these findings, I formulated approaches to the interdisciplinary study of multilateral treaties, framed typologies to support comparative analysis, and developed guidance on good practices. Together my findings support the view that new techniques for treaty governance and management can improve processes for treaty contributions to global governance and development (Figure 2).

Figure 2. Linking practices, drivers, and frameworks

Techniques and practices		Change drivers		Analytical frameworks and models
•Strategy and Management •Operations •Technology	→	•Structuration •Ideation •Interpretation •Actors	→	•Interdisciplinary research approach •Typologies •Strategic Treaty Management Practice Guide •Treaty feasibility analysis

A. Practices

I focus on three sets of techniques that have been introduced into treaty processes in recent years, which constitute important additions to global governance and development. I begin by discussing STM. Next, I discuss my findings on the role of multiorganizational strategies for advancing treaties in global institutions. Finally, I explain my findings about the use of technology in treaty regimes.

Strategy, management, and operations

Applying STM in treaty regimes has generated a range of new capabilities across all aspects of their governance, management, and operations, which can enhance the processes by which they are applied for sustainable development at both international and national levels. I will centre on three STM practices among the six categories identified in Papers 1-8. First, strategy development at the international level and national levels. Second, the creation of synergies between treaty regimes and international organizations. Third, performance measurement and analysis.

Strategic planning is a foundational element of STM. Through strategic plans, treaty bodies mobilize constituencies to make aspirational commitments about the underlying purpose of treaties, evaluate and set priorities, and respond to performance analysis. In *Strategic Treaty Management*, I included a table setting forth the contents of all treaty strategic plans that had been adopted as of 2015. My findings identified the main elements of

those plans, including vision and mission statements, the number of strategic objectives, and the relation of current plans to preceding plans.

Strategic frameworks have been important vehicles for integrating multiple treaties to create synergies. As an example, I identified the so-called "synergies process" among the chemicals and wastes treaties as an important example of such efforts. In the synergies process, the separate COPs of the Basel, Stockholm, and Rotterdam Conventions (BRS) took strategic decisions to merge their secretariats and harmonize their programs. Subsequently, the Minimata Convention on Mercury secretariat and the BRS secretariat have been exploring approaches to synergies in organisational services and programmatic activities.

Within individual treaty strategic frameworks, such as the CBD, synergies with other treaties have been prioritized. Such synergistic practices have also been advanced by subsidiary treaty bodies, such as scientific committees. Financing mechanisms also employ strategic approaches to promoting synergies. The GEF, for instance, facilitates synergies by supporting implementation of multiple treaties within a sector such as biodiversity and chemicals and wastes at the national level.

In terms of performance management, I examined approaches to evaluation practices among multilateral treaty bodies and international organizations. A key finding was that at the time of writing the general approach to evaluation was based on the OECD Development Assistance Committee (DAC) framework developed in 1991. I observed that this model leaves out many important elements of treaty implementation and performance. Further, reflecting the fact that the evaluation framework was created for international development, it has failed to distinguish notions of development effectiveness from regulatory effectiveness. Notably, it does not reflect insights developed around the concept of effectiveness of global regimes discussed above. An additional shortcoming is the assumption of linearity of this model. As my research has found, treaty governance, management, and operational practices are often nonlinear, which, rather than a negative factor, can contribute positively to furthering regulatory aims (Papers 1-8, 10-11, 14).

Inter-organizational strategies

In addition to the use of strategy by treaty bodies, I have also found that international organizations have used strategies in an effort to integrate multiple treaty regimes in and among multiple international institutions. To support implementation of multiple MEAs and UN entities and programmes with responsibility for environmental matters, for instance, UNEP championed the creation of a United Nations System-wide Framework of Strategies for the Environment. This initiative was led by the Environmental Management Group (EMG), which includes 51 members composed of UN specialised agencies, departments and programmes, as well as 10 MEA secretariats. The EMG members collaborate on advancing their respective mandates for the environment and issue biennial reports on their activities. This initiative was undertaken to support the wider UN system in delivering on the environmental dimensions of the SDGs and 2030 Agenda.

In a similar fashion, the United Nations created the Inter-Agency Task Force on the Prevention and Control of Non-communicable Diseases (UNIATF), which involves multiple UN agencies including the World Health Organization and the Secretariat of the WHO FCTC. The strategic approach ensures the legal status of the WHO FCTC is respected but integrates it into a broader institutional framework. Likewise, the UN Mine Action Service (UNMAS) provides support for remediation of unexploded ordinances (UXO) and victim assistance. It has adopted a strategy that encompasses these goals in their own right as well as through specific treaties such as the APM Convention and CCM. As such, UNMAS strategy promotes synergies across the range of relevant treaty-based and non-treaty-based institutions.

While not a strategy, the Sustainable Development Goals constitute an important framework for integrating multiple treaty commitments, which simultaneously extends their influence within international organizations and mainstreams treaty obligations within development strategies, and financing. It also plays a role in fostering synergies between multiple treaty regimes and provides a basis for measuring results.

Science and Technology

The importance of science and technology for treaty practice was the subject of Paper 6 in relation to STM. Subsequently, I have found that technology is reshaping multilateral

treaty practice by creating new competencies and functions within treaty regimes (Paper 14). A first example is application of intelligent treaty systems within treaty regimes. A second example involves the creation of infrastructure to support scientific research. Next is the creation of scientific panels and research communities to support the knowledge needs of multilateral treaty bodies. Another finding relates to approaches to data interoperability.

I coined the term "Intelligent Treaty Systems" (ITS) in Paper 14 to capture the complex of technology and processes that are being used across treaties in fields ranging from the environment to human rights and arms control. I used the notion of ITS as a categorization which enabled my use of process tracing to study the workflows and routines involved applying these technologies.

There are five distinct components of ITS including: technologies for (1) sensing and generating data; (2) data collection and storage; (3) data processing and automated analysis; (4) the use of indicators as the basis for data collection efforts and as a tool for measuring results; and (5) mapping and visualisation tools to enable actors to make sense of data that is generated (Paper 14). I examine the combination of these different components within multiple treaty regime complexes to understand the processes that constitute ITS as socio-technical systems. Each ITS used in different fields can be viewed as an individual case. The list of treaties examined are set forth in Table 3. A chief finding of this research is that across diverse fields of treaty law, substantially similar processes are being followed. Most of these activities are driven by scientific researchers, however, as described in Paper 6, COPs and subsidiary committees are defining strategies and plans to shape and mobilize research.

Table 3. Selected list of treaty regimes included

- Anti-personnel Mine Ban Convention (1997)
- Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unregulated and Unreported fishing (2016)
- Comprehensive Nuclear Test Ban Treaty (not yet in force)
- Convention on Biological Diversity (1992)
- International Covenant on Civil and Political Rights (1976)
- International Treaty on Plant Genetic Resources for Food and Agriculture (2004)
- UN Fish Stocks Agreement (2001)

- UN Framework Convention on Climate Change (1992)
- WHO Framework Convention on Tobacco Control (2005)

As described in Paper 14, I have found that the different elements of ITS interrelate and support each other. Sensing technologies, including the Internet of Things (IOT) and Earth observational satellites (EOS), generate huge amounts of data. The data gained through remote sensing instruments are stored locally or increasingly in the cloud. High speed computers enable data processing and preparation for data analysis. Supervised and unsupervised machine learning are used to automate data analysis, increasing data throughput by orders of magnitude. Visualisations help end users such as decision makers understand data and models are often created to enable simulations, which support projections and calibrate regulatory standards.

The data generated through these processes enable scientific judgments and assessment reports that feedback into strategies and priority setting as well as adjustments to indicators, which in turn shape future research design (Paper 9; Kissling 2015; Pereira et al. 2013). Scientific platforms and committees have also become critical components of treaty practice. The Intergovernmental Panel on Climate Change (IPCC) may be the most widely known and has influenced other treaty practices. Subsequent examples were the creation of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) for biodiversity, the science and technology conference for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), and the scientific and technology meetings of the APM Convention. Wang et al (2022) describe in detail the ways scientific bodies can support decision making under the Stockholm Convention on Persistent Organic Pollutants.

Overall, I have found that the adoption of ITS has advanced the capabilities of many multilateral treaty bodies and associated institutions and actors significantly. Among these developments are the expansion of the scope and reduction in data latency across treaties as data becomes global and increasingly real time or near real time. In addition, changes in computing power are occurring at exponential rates. Rather than sampling conditions relevant to treaties, in many cases, data coverage encompasses all instances of phenomena, as seen in big data. The adoption of cloud computing is giving treaty bodies and their stakeholders access to other bundled services including supercomputers. Communications

technology is aiding community collaboration, making them more dynamic and comprehensive. The emergence of these capabilities makes the need for regulatory flexibility and responsiveness more salient.

These developments have important implications for developing countries. On one level, they provide access to new sources of information on national conditions. Examples include areas that are difficult to reach, exposing rights abuses governments might wish to keep hidden, and confirming or supplementing national data sources. Cloud computing and ICT is making high-powered computing capabilities accessible to actors in the Global South and facilitating their collaboration with researchers around the world. As Bjola (2022) argues in relation to AI, these illustrations show both the potential and risks of technology, which are discussed in Paper 14 but will require further study.

An additional consideration for international development is the growing role of citizen scientists and indigenous communities in supporting these research agendas. The knowledge of these local groups is increasingly recognized by science panels and in treaty bodies generally (Paper 9). Examples include initiatives by the IPBES to engage with indigenous knowledge in its reports, the Group on Earth Observations creation of an Indigenous Alliance, and the GBIF outreach and support for citizen scientist contributions to its biodiversity data repository.

B. Change drivers

To understand the potential of these new techniques to achieve impact, I have identified causal factors that drive change. These include the role of ideas and new interpretations in shaping strategies, the role of actors, and the structurational function of strategy.

Strategizing creates opportunities to inject new ideas into treaty regimes and ideas are critical drivers of treaty strategy processes. Consultation processes and other dialogue opportunities are important ways of opening treaty regimes to external input. For the World Heritage Convention (WHC), for instance, an extensive consultation meeting was convened at the outset of its strategy development process in 2010, leading to new emphasis on sustainable development within the treaty. The CBD Secretariat and parties also held in

person brainstorming sessions to develop its 2011-2020 Strategic Plan. Likewise, in the development of the third CBD strategic framework in 2021-22, coalitions mobilized to integrate agro-biodiversity and nutrition into the strategic plan. This approach had the effect of broadening the CBD agenda from a conservationist environmental agenda to acknowledging the reality of agricultural production in today's world and to address aspects that threaten biodiversity.

Another function of the introduction of new ideas is to reflect new developments and relate treaties to current challenges. The WHO FCTC strategy, for instance, used SDG Indicator 3.a.1 on Tobacco Use Prevalence, a metric which had been adopted ten years after the treaty came into force. In the strategic plan being developed for the CBD, the Aichi Biodiversity targets are being revised to align with the SDGs and respond to new scientific findings.

Individuals are crucial drivers of change through the new treaty practices I have examined. While the formal decision makers in strategy development and implementation are states or governments, individual representatives in COP meetings or development projects are agents, who can steer processes in positive and negative ways. This finding illustrates the role of agency in modifying existing structures as described by Bourdieu. In the process of developing the WHO FCTC strategic framework, an NGO leader (with my assistance) collaborated with motivated representatives of the Canadian, New Zealand, and Australian governments to champion the decision to undertake a strategic plan and then those governments led the process itself. Likewise, I found that the head of the Normes Division of the International Labour Organization (ILO) played a key role in driving the development of the Maritime Labour Convention (MLC) and the Plan of Action for its implementation.

I have also found that individuals are often behind the apparent self-organizing dynamics that are seen in relation to ITS. ITS are composed of many actors and institutions involving intricate science and technology applications at many scales. The main elements of ITS show extensive interactions and feedback among themselves. Sensing technologies marshalled to generate data are recalibrated as indicators change, for instance. Self-organisation is a feature of these systems as thousands of scientific communities organize to

mobilize research around indicator frameworks (Periera et al. 2013). Scientific communities developed the Essential Biodiversity Variables (EBV) process to facilitate monitoring of the state-approved CBD Aichi Biodiversity targets. Millions of citizen scientists gather data on the fly and upload them to cloud servers where globally dispersed fellow citizens and experts crowdsource analysis of data collected (Fritz 2019; Becken et al. 2019). Reports issued by research communities and their critiques of indicator frameworks feedback into strategy setting and indicator development (Kissling 2015), thus changing what communities are monitoring in the future, illustrating co-creation of the environment.

I have found that the institutionalization of treaty strategies creates path dependencies that make it more likely the practice will be repeated. This observation can be explained by the fact that the existence of a strategic plan for a specific treaty appears to make it more likely that treaty bodies will continue the practice. I have discovered that no treaty bodies have abandoned strategic planning after adopting the practice. In addition, treaty bodies respond to experience with prior strategies. In most cases, I have found that strategies have become more sophisticated, more detailed, and define results metrics more precisely with successive iterations. As such, the existence of prior strategic plans constitutes a driver of change in themselves. Further evidence of the influence of treaty strategies on processes within treaty regimes can be seen in the way these strategies are carried through diverse functional areas. Indeed, given a high degree of decentralization observed in this area, a key finding is the remarkable fidelity of these diverse actors and institutions to agreed strategic frameworks.

C.   Supporting research and modelling practice

In addition to consolidating an interdisciplinary research approach (described in "Literature" above), the typologies I have developed are useful in studying treaty regimes and gaining comparative perspectives. The principal typologies are STM and ITS. The utility of the typologies is reflected in my published works. These will enable future studies by myself and other researchers.

The development of typologies is a product of my comparative research, yet it holds broader implications. The fact that I have found more similarities than differences in the

basic elements of the practices I have studied suggests that common approaches to treaty strategy, management, governance, and operations can be developed. This view contrasts sharply with the assumptions typically made among legal and subject matter experts that their fields are unique and thus require sui generis approaches to such matters. While there are limitations to comparisons across diverse fields as described above, the use of common frameworks in some ways necessitates such comparative analyses. The work of Koremenos (2016) offers substantial insights that can complement and inform future research on these topics.

The potential for common approaches can provide numerous benefits. First, they can facilitate knowledge development among much larger groups of scholars and practitioners. Second, they can enable refinements in practices over time based on assessments of comparative experiences. Third, they can improve efficiency in processes by applying common models. Indeed, I have found that the adoption of common vocabularies and frameworks for structuring activity both within and between multilateral treaties can facilitate inter-operability.

My approach to Paper 9 and Paper 13 provide initial examples of these types of generalized models. In Paper 9, I extended the work of *Strategic Treaty Management* to create a practice guide. In it, I framed a set of steps, which can be used to develop strategic plans for treaties. It draws extensively on specific examples from different multilateral treaties for which strategic plans have been produced. It provides cautionary advice and highlights good practices. The utility of the findings was proved in practice in developing the Medium-term Strategic Framework for the WHO FCTC.

My approach to Paper 13 was an effort to develop a first iteration of an approach to treaty feasibility analysis. The origins of this approach grew out of a course I developed and have taught called Operationalizing Treaties. The framework I developed synthesized insights from the interdisciplinary approach to treaty research described above. I applied the approach to assess the factors which bear on the effectiveness of a proposed pandemic treaty currently under deliberation by the World Health Assembly (Paper 13).

Conclusion

Taken together, my research provides solid evidence to support the conclusion that new measures to improve treaty contributions to global governance and development are generating impact in numerous settings. STM provides grounds for believing that techniques for managing multilateral treaties appear to be improvements on prior methods and should generate further improvements over time. ITS hold potential to improve the knowledge base, comprehensiveness of data, and speed of available information for multilateral treaties. Consistent with the ideas of institutional entrepreneurship and novel combinations of existing tools, it is not difficult to imagine that today's innovations--individually but even more so in combination--can enable broader changes over time.

The approach I have taken to study, compare results, and develop good practice guidance on the key functional areas of treaty practice reflects the notion of operationalizing treaties. The major functions include international and national strategies, financing, synergies, science and technology, and performance management. Operationalization captures better the process of making treaties work than the traditional concept of implementation. The notion also has close affinities with development practice. To make progress on multilateral treaties, we must address key functional needs, which means that the agendas and activities of treaty bodies and supporting international organizations must be aligned.

Judged as a whole, the emergence of STM, global governance changes such as the SDGs, and ITS, provide grounds for positive assessments of treaties' contribution to global governance and development processes. As exemplified by the SDGs, treaties' role in global governance has been enhanced through their integration in institutions because of new strategies and frameworks, the creation of synergies, and integrating treaty norms in programming. Likewise, the integration of NTIS and the prioritisation of global treaty strategies along with the SDGs have catalysed treaty implementation efforts in conjunction with development processes. STM has provided means for domestic actors, including civil society groups, to mobilize advocacy in support of treaty implementation. Regulation has been enhanced by improving flexibility and responsiveness through STM-based performance management and ITS-enabled data collection and indicator refinement. The aspirational

basis of strategic plans may incentivize both national and international actors to stretch to meet goals.

An important lesson of my research is that to make multilateral treaties work better for global governance and development, we need to adopt an appropriate conception of causal change. From one perspective, the developments I have studied suggest an intentional rational process of directing the priorities and work of treaty instruments. *Ex ante* design of strategies, goals, projects, and treaties gives the appearance that top-down processes are determinative. From another perspective, however, much of what happens within and for treaty regimes occurs through organic processes of self-organisation by state and nonstate actors. Complicating the analysis further, the plans and priorities that are purposefully created provide structure through which these self-organising activities occur. Linear conceptions of treaty management and implementation must be balanced with recognition of the existence of high degrees of self-organisation, non-linearity, feedback loops and co-creation of environments – all elements typically associated with complex adaptive systems (CAS). Rather than undesirable developments, these organic initiatives are conducive to achieving treaty aims. Efforts can be made to steer these processes. By bringing in innovation, experimentation, allowing actors to align to their environments and adjusting activities and priorities in light of experience, treaties' contribution to development can be enhanced.

Amid the ongoing (latest) crisis of the multilateral system, the gears of treaty machinery continue to turn. While it is certainly possible for states to withdraw from treaties or reject multilateral institutions, thus far they have not. While existing instruments could be replaced by superior ones, the more feasible alternative, which my research examines in depth, is to introduce flexibility and responsiveness within existing regimes. The innovations I have analysed are endogenous to existing regimes, yet change their agendas and activities through these new techniques. If accurate, this finding suggests that more innovation is possible within existing frameworks, thus reducing the relative appeal of wholesale replacement of today's instruments. At the same time, I believe more work can be done to consolidate and refine existing practices to generate greater impact. Comparing experiences in using similar techniques can help clarify results and guide future practice. Given that so much of what occurs within treaty regimes relates to development, there are potential

reciprocal benefits to continued examination of these topics for the fields of Development Studies in dialogue with multilateral treaty practice. I hope that by straddling these subjects I have helped advance that process. While the approaches my work has studied will not magically improve treaty results, they provide grounds for a degree of hope that further improvements can be made in ways that will ultimately make progress on overcoming the sustainability challenges affecting humanity and the planet.

Annex 1

Summary of published works in portfolio

Papers 1 through 8

McInerney, T.F. (2015) *Strategic Treaty Management: Practice and Implications*, **Cambridge: Cambridge University Press**

Reception for book overall:

The book contains two testimonials on the cover from leading scholars of international law and governance, Peter Drahos and Tom Ginsburg.

"This superb book makes a major contribution to the theory and practice of international treaty-making and implementation. Moving beyond the thin conception of treaties so common in the international relations literature, McInerney draws on management theory to broaden the conceptual frame, while providing concrete suggestions for improving treaty performance. His approach promises to reinvigorate multilateral treaties as a form of international cooperation. This book is a must-read for international law scholars and practitioners."

Tom Ginsburg - Leo Spitz Professor of International Law, University of Chicago Law School

"Treaties have proliferated to affect many different domestic regulatory domains. Yet at the same time there is cynicism about treaties. States, in the eyes of many, will renege on their treaty obligations if it is in their interests to do so. In this highly innovative book Thomas F. McInerney identifies and analyses practices of what he terms 'strategic treaty management'. Understanding these practices is central to helping state and non-state actors realize the promise of treaties they have negotiated. Written with great clarity and drawing together different disciplinary contributions, this book provides scholars and practitioners with a deep understanding of the operational life of treaties."

Peter Drahos - Professor in Law and the Director of the Centre for the Governance of Knowledge and Development in the Regulatory Institutions Network (RegNet), Australian National University

The book was reviewed by Konstantinos D. Magliveras in by the Academic Council of the United Nations System (www.acuns.org)

"... the strength of the book is to invite all those who examine and analyze multilateral treaties not to neglect their form, processes and outcomes while also emphasizing the need for treaties to be managed in a strategic manner, not haphazardly."

Citations: The book has been cited by 8 publications. It is listed as one of the *Selected Books and Articles in the Peace Palace Library Research Guide on Treaties* in the Hague https://peacepalacelibrary.nl/research-guide/treaties.

Sales: 220 copies sold

Invited presentations: Lauterpacht Center Cambridge; Australian National University; Food and Agriculture Organization; UNEP Nairobi Kenya; Bioversity International Conference 2013

Paper 1

Chapter 1.   Introduction

In the past half century, states have created thousands of multilateral agreements to respond to key global concerns in fields such as arms control, labour, the environment, health, human rights, and transnational crime. Despite their increased numbers, criticisms about the performance of international agreements and international institutions are widespread. At a basic level many observers have concluded, on a variety of grounds, that treaties either do not work or do no work. Often scholarship in international law has focused on shortcomings in national compliance as the central factor in poor treaty results, however, this book seeks to focus on emerging practices geared more to treaty performance than compliance. Chapter 1 provides an overview of the analysis and arguments in *Strategic*

Treaty Management: Practice and Implications, specifically the use of the use of strategic management techniques derived from business, government, and non-profit organizations. In addition, it provides an overview of relevant literature, (e.g. Chayes & Chayes 1992) which it relates to the main arguments and approach of the book.

Paper 2

Chapter 2.   Strategic planning

Strategic planning constitutes a central component of STM. Chapter 2 gathers all known strategy documents for multilateral treaties, including some 18 eighteen strategy documents relating to more than 15 fifteen different treaties. By examining specific approaches of different treaty regimes to strategic planning, commonalities and differences between these practices are identified. The efforts reflect elements common to non-profit and public sector organizations, but also include unique characteristics that derive from treaties' specific legal nature, mandates, modalities of work, linkages to other normative instruments, relationship to international organizations, and subject matters. Processes for treaty strategy development include analysis of performance of the treaties and underlying problems, gathering information from stakeholders, and convening workshops and other strategic reflection processes.

Paper 3

Paper 3. Chapter 3. National implementation

Chapter 3 explores the use of treaty implementation strategies at the national level. The approach to treaty implementation strategies pre-dates the aid effectiveness agenda, however, since the adoption of the Paris Declaration on Aid Effectiveness, COPs have increasingly modified their approach by calling for the integration of treaty implementation strategies with national development strategies. One consequence of the use of national development strategies as vehicles for implementing treaty obligations is that multiple treaty implementation activities are brought together under the umbrella of a single national development strategy or sectoral strategy, which requires priority setting. In other cases, international institutions and treaty

bodies have called for mainstreaming, which consists of the more general insertion of treaty goals into the activities of national (or international) administration.

Chapter 3 concludes that ultimately, what may be most important about the relation of development programming to multilateral treaty management is the prospect of aligning these practices with causal drivers of legal and institutional change. This type of thinking about treaty implementation may improve the fit of these activities with economic and social development currents. A key strategic advantage of the national ownership approach is its potential to allow socio-economic drivers to carry forward the treaty agenda.

Paper 4

Chapter 4. Finance

Chapter 4 concerns the role of finance in STM. A key driver of treaty bodies' development of strategic approaches to financing is that while many treaties are supported by assessed contributions, typically following the UN assessment scale, a growing amount of treaty activities are financed through voluntary donations. Relying on voluntary contributions increases the risk that donors will earmark their funds to meet their own priorities, rather than priorities agreed by COPs.

Strategic approaches to treaty financing occur on two distinct – but related – levels. The first is the 'upstream' element, involving the strategic mobilization of resources to fund all aspects of treaty activities. The second is the 'downstream' aspect, in other words the alignment of budgeting with treaty strategies. At its most advanced this approach involves results-based budgeting.

Paper 5

Chapter 5.   Synergies

Chapter 5 considers the ways in which treaty bodies have sought to improve coherence and reduce fragmentation through strategic management techniques. These approaches have

some parallels to efforts of the OECD to promote "whole of government approaches" and "policy coherence for development" and the UN's development of the "delivery as one" framework. The chapter describes and analyzes a number of approaches to creating synergies and rationalizing treaty commitments.

A first way of bringing about synergies is through the merger of multiple treaties into a single instrument, or approaches to inter-treaty collaboration that may constitute the functional equivalent to merger (for example, the synergies process among the Basel, Rotterdam, and Stockholm Conventions). A second method involves partnerships and collaboration between multiple treaty regimes as well as between treaties and international organizations. These efforts involve the engagement of one or more international organizations to assist in the promotion, implementation, and enforcement of one or more treaty norms. A third approach is a combination of the instrument harmonization and institutional collaboration. Treaty bodies seek to promote synergies between treaties, which efforts which are buttressed by international organizations that seek to further those multiple treaty instruments. The final approach involves synergies in national implementation whereby states, IGOs, treaty bodies, and other stakeholders seek to realize synergies in the process of implementing and managing multiple treaty obligations at the national level.

Rather than seeking to create coherence through formal unity, interpretation, or global constitutionalism, this chapter shows that treaties and international organizations are employing functional and pragmatic measures. These efforts generally involve strategic management practices. Instead of static contractually based frameworks for cooperation such as MOUs, these approaches are goal and operationally oriented.

Paper 6

Chapter 6.   Scientific research and data

Chapter 6 examines how scientific research and data collection have become strategic priorities in many treaties. While science is not a new phenomenon in treaty practice, the strategic cultivation and application of scientific research and data is. This occurrence is manifest in the direction and tasks COPs assign to dedicated scientific committees, to strategic

efforts to gather and process data obtained through varied and independent sources and foster collaborations within scientific and research communities. This important role for science and technology in treaty strategies is being enhanced as a result of the historically unparalleled technological change underway today. Treaty capabilities are being enhanced through observational and remote sensing technologies, crowdsourcing, social media, and enhanced computing power and data management.

Chapter 6 examines the role of scientific research and data in treaty strategic decision-making, the execution of strategies, and in strategic efforts to gather and cultivate the use of such information. The functions scientific research and data collection serve go beyond their use as monitoring tools for compliance purposes. Indeed, they provide the basis for improvements in many of the treaty practices described in this book and constitute distinctive capabilities and knowledge endowments.

The role of science and data in STM is two-pronged. Parties and secretariats make strategic decisions to gather data or develop research through their own efforts or in collaboration with other actors, which then generate information and knowledge that feeds back into strategy development at both the global and national levels. In one sense, treaty bodies may prioritize the cultivation of scientific research and data. The other aspect involves the use of science and data in treaty decision-making strategy formulation or strategy execution. Such activities involve the application of research and data to formulate global or national treaty strategies or inform the development of performance indicators. In addition to supporting strategy formulation, such information may be useful as baselines for performance management efforts or in further research.

Notwithstanding the important role of technology in treaty performance, the chapter concludes that treaties are as much development and political projects as they are engineering projects. A firm scientific basis can inform and potentially persuade decision makers but cannot on its own effect change.

Chapter 7.   Performance management

Chapter 7 examines new forms of performance management linked to other STM practices. These approaches identify new forms of accountability and results orientation that other STM practices enable. Under the category of performance management are included audits, evaluations, and reviews, initiated by parties or their host organizations, to determine the results of treaty operations and adequacy of the structures for their operations. These performance management efforts draw from and enlarge the information generated through scientific and data collection practices described in Chapter 6, while providing tools that enable more active management of treaties towards strategic priorities, making them more adaptive to changing contexts and results. While these practices are nascent and heterogeneous in their methods, their continued use appears highly likely given the general trends among international organizations to adopt results-based management systems. Yet, as this chapter shows, the developments cannot be considered an unmitigated success, as the practices raise new challenges that, as of now, have not been understood.

The activities may be undertaken periodically – for instance, annually – or at a mid-point in strategies' terms or upon their conclusion. A typical use of such analyses is to monitor or evaluate the results of strategies to determine what elements to maintain, alter, or end, thereby feeding back into the strategy formulation process. Increasingly, such reviews can draw upon indicators and results frameworks, derived from strategy documents. These practices are not confined to operational performance, for strategy documents also serve as baselines for financial and management audits.

Chapter 7 concludes with the observation that experience thus far with treaty performance management suggests that parties are not diligent in responding to findings these practices generate, which will be critical in ensuring that they actually improve treaty results.

Paper 8

Chapter 8.   Conclusion

The concluding chapter gathers the strands of three themes of the other chapters. These include understanding STM as constituting and reinforcing treaties as complex adaptive systems and the notion of capabilities theory from work in evolutionary economics and organizational theory.

Paper 9

McInerney, T.F. (2016a), *Report on comparative experience with strategic planning among multilateral treaties and advice on the potential elements of a strategic framework for the Framework Convention on Tobacco Control, submitted to Working Group for the Medium-term Strategic Framework for the WHO Framework Convention on Tobacco Control***, Geneva: Secretariat, WHO Framework Convention on Tobacco Control**.

This paper was written to inform the Working Group for the first strategic framework for the WHO FCTC. Drawing on insights from *Strategic Treaty Management*, the paper was intended to serve as a manual or "how to" guide on strategic planning for multilateral treaties. It sets forth a seven step process for strategic planning drawn from the practices seen among multilateral treaties studied in *Strategic Treaty Management* as well as good practices in nonprofit and public sector strategy development and implementation. The seven steps include: (1) planning and organizing the strategy development process, (2) background preparation, (3) drafting a plan, (4) submitting proposals to governing bodies, (5) preparing for performance management, (6) preparing for national implementation, and (7) financing treaty implementation. The paper also discusses the practical implications of theoretical concerns such as complexity theory and strategy development, approaches to societal engagement in strategy development, and the relevance and limitations of theories of change. The paper combines a synthetic analysis of strategy development and implementation practices with more detailed analysis of specific cases.

Paper 10

McInerney, T.F. (2018a) "WHO FCTC and global governance: effects and implications for future global public health instruments", *Tobacco Control* **28:s89–s93, available at: https://tobaccocontrol.bmj.com/content/tobaccocontrol/28/Suppl_2/s89.full.pdf, doi:10.1136/tobaccocontrol-2018-054358**

This article was an outgrowth of my participation in the Expert Group on the Impact Assessment for the WHO FCTC. As part of that work, I focused on the impact of the WHO FCTC on global governance and the ways in which the treaty interacted with global governance institutions. The article examines policy frameworks and strategies of the WHO and other UN agencies in relation to tobacco control and how the separate and distinctive legal mandates of international organizations and treaties developed under their auspices may diverge. At the same time, it finds that the binding legal nature of the WHO FCTC as a treaty enhances its influence within global governance in comparison to other governance tools and mechanisms.

Reception: This article was part of a symposium issue from other members of the Expert Group.

Citations: The article has been cited 12 times.

Paper 11

McInerney, T.F. (2017b), *UNEP, International Environmental Governance, and the 2030 Sustainable Development Agenda***, Nairobi: United Nations Environmental Program, available at: https://wedocs.unep.org/handle/20.500.11822/21247**

This report was written following the adoption of the SDGs and in advance of the second UN Environmental Assembly meeting. It sought to take stock of both of those institutional developments, their implication for UNEP, and ways that UNEP could advance its mandate in response. A theme of the paper was the question of how UNEP could influence practices among more than 600 multilateral environmental treaties, which have autonomous legal status.

Citations: The report has been cited once.

Presentations: UNEP expert meeting at HLPF 2016.

Paper 12

McInerney, T.F. (2014) *Experience involving technology transfer, capacity building, and information exchange for the International Treaty on Plant Genetic Resources for Agriculture (ITPGRFA)***, Rome: ITPGRFA and Bioversity International,**
https://cgspace.cgiar.org/handle/10568/69499

This paper was intended to support deliberations of the International Treaty on Plant Genetic Resources for Agriculture (ITPGRFA) governing bodies regarding approaches to furthering implementation and operationalization of the treaty through technology transfer, capacity building, and information exchange.

Reception: The paper has been cited twice.

Paper 13

Factors Contributing to Treaty Effectiveness: Implications for a Possible Pandemic Treaty, Global Health Center Policy Brief 2021,
https://www.graduateinstitute.ch/sites/internet/files/2021-10/GHC_PolicyBrief2.pdf

This paper was written for the Governing Pandemics Initiative at the Graduate Institute on International and Development Studies in Geneva to inform deliberations in the Special Session of the World Health Assembly (WHA) to consider launching a process of negotiation of a new pandemic treaty. I advanced 16 criteria that were factors that would determine the effectiveness of a pandemic treaty were it developed and entered into force. I intended the approach to analyzing this potential agreement as a first attempt to elaborate a model for treaty feasibility analysis. The paper was reviewed and received comments from three leading experts in global health law.

Citations: no data.

McInerney, T.F. (2022 forthcoming) "The Emergence of Intelligent Treaty Systems and the Future of International Law", Illinois Law, Technology and Policy Journal

This article builds upon the analysis of science and technology contained in Paper 6 (Chapter 6 Science and data in *Strategic Treaty Management*). It expands upon the analysis by considering the role of science and technology generally rather than specifically in relationship to STM. It identifies broader trends in the application of technology and science in treaties, which is conceived as part of a larger phenomenon of intelligent treaty systems (ITS). I define ITS to include five core capacities within treaty regimes for (1) sensing and generating data, (2) gathering and storing data, (3) processing and analysing data, (4) creating models, maps and visualizations of data, and (5) applying data to targets and indicators. I argue that, taken together, ITS has massively improved the ability of state parties and relevant stakeholders to manage treaty operations, monitor implementation, and measure and improve treaty performance. These enhanced capabilities may provide new impetus for treaty compliance, thus supplementing prevailing explanations of treaty compliance such as managerialism, reciprocity, rational choice, or reputation. In the final part of the article, I offer suggestions for future applications of ITS and ways of improving its utility and mitigating potentially negative consequences from its use.

Presentations:

On 17 July 2020, I published an article in World Policy Review on "How New Technologies are Holding Human Rights Abusers Accountable". In November 2021, I published a short piece providing the outline of these ideas in *Tech Crunch*. I was also interviewed for an article published on 17 November 2021 in the *Het Financieelle Dagblad* in relation to the potential impact of technology for the FCCC.

Presentations: American Society of International Law, Midyear Meeting October 2015. On 28 March 2022, presented at a conference on Artificial Intelligence and the Rule of Law: A Focus on SDG 16 organized by the Centre for Law and Development at Qatar University College of Law.

Annex 2

Action Research

      My research reflected in the published works has been informed, tested, and received by stakeholders through my professional activities. For the purposes of this paper, I will provide four illustrations. The first concerns my work related to the World Health Organization's Framework Convention on Tobacco Control (WHO FCTC). Second is my work for Bioversity International (part of the Consultative Group on International Agricultural Research – CGIAR) and the International Treaty on Plant Genetic Resources for Agriculture (ITPGRA). Third is my work with UN Environment on global environmental governance and the UN's 2030 Agenda for Sustainable Development. Lastly is my contribution to preparations within the World Health Assembly (WHA) for a possible WHO Pandemic Treaty. In each of these engagements, I applied, amplified, and refined my research, while receiving considerable validation for the credibility, salience, and utility of my ideas and approaches.

Table 2. Summary of contributions of my research to practice

Published works	Contributions
3, 7, 9	• FCTC Strategic Plan and Implementation • FCTC Impact Assessment • Bioversity project on synergies
5, 10	• Impact assessment FCTC
11	• UNEP Analysis of synergies and mandate for SDGs
12	• Multilateral system of access and benefit sharing
13	• Pandemic treaty preparation • Course material at Graduate Institute of International and Development Studies
14	• Membership in Group on Earth Observations Data Working Group and Law, Ethics and Policy Working Sub-Group

      I began working with the FCTC in 2012 at an early stage of my research on Strategic Treaty Management (STM). Over time, I expanded the scope of my involvement in tandem with developments in my research. Two activities stand out. The first concerned my

participation in an expert group on the impact assessment for the treaty following its tenth year since entering into force. The second pertained to the development of a strategic plan for the treaty. Both activities corresponded to my work in Papers 1-9.

The Impact Assessment Expert Group was convened in 2015 at the direction of the WHO FCTC Conference of Parties. As one of the seven experts in the review of the treaty's impact, I made country visits to the UK and Kenya to review their experience in implementing the treaty. The Expert Group met multiple times over 2015-2016 to review findings from the 10 country visits, desk research, and extensive data from the Secretariat and International Tobacco Control Project. The work culminated in a report that was submitted to the Seventh COP meeting in 2016.

In addition to this work, I also advised a separate Expert Group on Reporting Arrangements for the WHO FCTC on the potential for creating an implementation review (compliance) mechanism. I was interviewed for the FCA Bulletin on 8 March 2016 at COP7, which all WHO FCTC member states receive at COP, on experiences with such mechanisms among other multilateral treaties.

Contemporaneously with the Impact Assessment Expert Group work and following publication of *Strategic Treaty Management*, I engaged with the umbrella civil society organization, the Framework Convention Alliance (FCA), to consider the implications and possible application of my research for the WHO FCTC. FCA members were interested in the idea of creating a strategic plan for the convention and we agreed to engage with WHO FCTC member states at COP 7 to advocate for a strategic planning process for the convention to enhance its impact. At COP7, I explained my research findings to the Canadian, UK, and New Zealand delegations and then worked with them and the FCA to propose the creation of a strategic planning process for the convention. We included several items within the resolution, which derived from my research, such as the inclusion of vision statements, clear strategic objectives, and the need to create targets and metrics to measure the outcomes of the strategy.

Following the COP decision, I was hired by the Canadian government to serve as the primary legal and strategy advisor to the Working Group on a *Medium-Term Strategic*

Framework (MTSF) comprised of state parties and civil society. Among other activities, I drafted a *"How To"* manual on treaty strategy development ("Report on comparative experience with strategic planning among multilateral treaties")(included as Paper 9) and prepared a first draft of a strategic plan as the starting point for negotiation by the working group. After the strategic framework was approved by the working group in early 2018, in cooperation with FCA, I undertook advocacy efforts to support the implementation of the strategic framework. At COP 8 in November 2018, I worked to secure the approval by the COP at COP8 for the MTSF. Through this activity, I helped implement key STM practices and gained first-hand insights into the challenges and opportunities it entails.

I have had similar experience in applying my research to inform a series of projects to strengthen national implementation of the ITPRGFA on plant genetic resources. In 2012, I participated in a meeting Bioversity International convened with national focal points for the ITPRGFA. At these meetings, I presented ideas about how STM could be applied to support harmonized implementation of the ITPRGFA, the CBD, and the UNFCCC among other instruments. In addition, I contributed a blog post on creating synergies between relevant treaties in this area. This work fed into efforts to facilitate dialogue and mutually-reinforcing processes of implementation of those three agreements. Among the findings of the project was the need to improve technology transfer, capacity building, and information exchange (p.14-16).

Subsequently, I was commissioned by Bioversity International to provide the report represented by Paper 12 on comparative experiences on technology transfer, capacity building, and information exchange for the Secretariat of the ITPGRFA. The paper employed similar comparative analysis used in my other research. I drew on insights from the UNFCCC, the Anti-Personnel Mines Convention, and the Montreal Protocol on Ozone Depleting Substances to analyse the needs and opportunities for the ITPRGFA. In addition, I examined experience with aid frameworks for development cooperation used by the Organisation for Economic Co-operation and Development (OECD), the United Nations Sustainable Development Group (UNSDG, formerly UNDG), and the United Nations Development Programme (UNDP). I used these diverse examples to analyse possible approaches for the ITPRGFA.

According to the Secretariat, Paper 12 informed the treaty parties' deliberations on enhancing the functioning of the Multilateral System on Access and Benefit Sharing. Paper 12 was published as part of a series of studies and according to Secretariat staff was *"very welcomed by the treaty's membership and helped set the basis for negotiations of the international community in this area."*[2] The paper has been cited in a recent paper on the feasibility of a pandemic treaty (Garrison 2021).

In 2016, I presented *Strategic Treaty Management* to a meeting of the Division on Environmental Conventions of UN Environment in Nairobi. In the presentation, I described my findings on the use of strategic planning among multilateral environmental agreements (MEAs) and gave particular attention to issues relating to the multiple MEAs in existence and ways of developing synergies and harmonization between them. Following the presentation, UNEP engaged me to prepare a study on global environmental governance and its role in the context of the then newly agreed SDGs.

The report prepared as Paper 11 reflects that assignment. As part of the research for the report, I participated in the Second Session of the United Nations Environment Assembly of the United Nations Environment Programme (UNEA2) and followed discussions on synergies relating to MEAs. I presented a draft of the paper at a workshop in New York in conjunction with the United Nations High-level Political Forum on Sustainable Development (HLPF). Among the feedback received on the paper was the comment by the deputy head of the UN Environment office in New York that my presentation was *"among the clearest analyses of GEG [he] had ever heard."* The paper has been cited by leading scholars in the field of GEG, particularly in relation to its findings on MEAs (Urho, et al. 2019).

More recently, Paper 13 was part of a package of studies given to WHA Member States before the Special Session on a possible Pandemic Treaty in November 2021. My paper was included in a compilation of materials written by Haik Nikogosian, former senior WHO official and Head of the WHO FCTC Secretariat. I participated in three briefings of WHA regional groupings of member states and spoke to my research. In addition, for an

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[2] Email from Alvaro Toledo, Secretariat, International Treaty on Plant Genetic Resources for Agriculture, 4 April 2022.

[upcoming online course](#) on governing pandemics offered by the Global Health Centre at the Graduate Institute on International and Development Studies, Paper 13 was selected *"as one of the few readings for the topic on treaties in a pandemic context in general and the proposed pandemic treaty in particular,"* according to Nikogosian.[3] Collaborators in the Governing Pandemics Initiative have indicated that they believe my paper will gain significant readership during the policy making process related to the pandemic treaty.

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[3] Email from Haik Nikogosian, Senior Fellow, Global Health Center, Graduate Institute of International and Development Studies, 9 April 2022.

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