

The Role of Secretariats in International Negotiations: The Case of Climate Change

Christopher Mirasola*

Large, multilateral, international negotiations have become a mainstay of modern diplomacy. Given the complexity of these negotiations, it is common that they be facilitated by a Secretariat. Typically, the Secretariat is composed of professional staff that is primarily responsible for administering negotiations and, in certain cases, providing support to monitor treaty implementation. Notwithstanding this central role in many of the most consequential international negotiations, however, relatively little research has been conducted regarding their optimal structure so as to maximize the chance for success in these negotiations. This Article explores the role of Secretariats by applying general principles drawn from the study of complex adaptive systems. This interdisciplinary perspective suggests a structure that departs from existing debates in the negotiation theory literature regarding the proper role of Secretariats. The lessons from this interdisciplinary perspective are substantiated by an analysis of the negotiations leading up to and during the 21st Conference of the Parties of the UN Framework Convention on Climate Change, which culminated in the Paris Climate Accord. As shared resource issues proliferate in international politics, coordinated action at a global scale will only become more important. It is essential, therefore, that scholars and practitioners alike devote more energy to understanding these often-neglected focal points of the international treaty system.

* Christopher Mirasola is an Attorney-Advisor at the U.S. Department of Defense Office of General Counsel. The views expressed are solely those of the author and do not reflect the official policy or position of the U.S. Department of Defense, or any component thereof, or the U.S. Government. Thank you to Professors Robert Mnookin and Robert Bordone, who graciously advised and guided this research. The author is particularly grateful for the mentorship, feedback, and support of Heather Kulp, who first introduced him to the world of negotiation research. Without Heather's example, none of this would be possible.

CONTENTS

- I. Introduction 214
- II. The Utility of Large, International Climate Negotiations 217
- III. Secretariats in Negotiations Literature 224
- IV. Large, Multilateral Negotiations as Complex Adaptive Systems 229
 - A. An Overview of Complexity Science 229
 - B. Negotiations as Complex Adaptive Systems 231
- V. Discerning a Proper Role for Secretariats 236
- VI. A Brief Overview of Climate Change Negotiations ... 237
 - A. Path to the 1992 Rio Conference 238
 - B. From Rio to Kyoto 240
 - C. From Kyoto to the Bali Roadmap 241
 - D. Bali to Breakdown in Copenhagen 242
- VII. Insights from the Paris Negotiation Process 244
 - A. From Copenhagen to the Durban Platform 244
 - B. The Durban Platform to Paris 247
 - 1. Staying with the conflict 247
 - 2. Focusing on small project changes 248
 - 3. Flexible strategies for sharing information ... 249
 - 4. Sharing information with both hubs and the periphery 250
- VIII. Conclusions 251

I. INTRODUCTION

International politics since World War II has been built on the progressive development of international law, and particularly on multilateral treaties aimed at creating shared legal regimes. From the United Nations (UN) Charter to the three rounds of law of the sea negotiations¹ to climate change, the scope of topics covered by international agreements has greatly expanded since the 1940s. As topics

1. The first conference on the Law of the Sea was held in Geneva in 1958, and yielded treaties on the territorial sea, continental shelf, and contiguous zone. *See The United Nations Convention on the Law of the Sea (A historical perspective)*, UNITED NATIONS DIVISION FOR OCEAN AFFAIRS AND THE LAW OF THE SEA (2012), http://www.un.org/depts/los/convention_agreements/convention_historical_perspective.htm. As certain States continued to push for broader maritime entitlements, a second conference was convened in 1960, to little effect. *See Second United Nations Conference on the Law of the Sea*, CODIFICATION DIVISION, UNITED NATIONS OFFICE OF LEGAL AFFAIRS (2018), http://legal.un.org/diplomaticconferences/1960_los/. The Third Conference on the Law of the Sea was convened for nine years, starting in 1973, and finally adopted an all-encompassing constitution for the oceans. *See Third United Nations Conference*

have proliferated, so too have the number of States involved in these negotiations. Decolonization and the breakup of the U.S.S.R. greatly increased the complexity of coordinating international action as the number of UN-recognized States skyrocketed from 99 in 1960 to 193 in 2011.² At the same time, non-State actors have steadily played a more important role in international negotiations. While the degree to which non-State organizations are integrated into international negotiations differs by subject area, they have been particularly vocal in environmental negotiations.³

As the number of actors that must be accommodated in international negotiations has proliferated, some activists have called for focusing negotiations within more limited fora. In the context of climate change, for example, the push for negotiations within a coalition of those willing to make substantial changes has been impelled by notable breakdowns in the broader UN negotiation process (e.g., U.S. non-accession to the Kyoto Protocol, breakdown in the Doha Round and Copenhagen climate talks, and U.S. withdrawal from the Paris Accord). Bruce Bueno de Mesquita, for example, has run computational models tending to show that international climate change negotiations will not work. He argues, "Universal treaties have one of two qualities . . . They don't ask people to change what they're doing, and so they're happy to sign on . . . or [they ask] for fundamental changes in behavior and [they lack] monitoring and sanctioning provisions that are credible."⁴ The Paris Agreement's voluntary framework for determining decreases in national carbon emissions, as well as the United States' withdrawal from the agreement, might lead one

on the Law of the Sea, CODIFICATION DIVISION, UNITED NATIONS OFFICE OF LEGAL AFFAIRS (2018), http://legal.un.org/diplomaticconferences/1973_los/.

2. See *Growth in United Nations membership, 1945-present*, UNITED NATIONS, <http://www.un.org/en/sections/member-states/growth-united-nations-membership-1945-present/index.html> (last visited Feb. 8, 2018).

3. See generally, e.g., Elizabeth Burleson, *Non-State Actors and the Emerging Climate Change Law Regime*, 104 AM. SOC'Y INT'L L. PROC. 325 (2010), <http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1887&context=lawfaculty> (showing the degree to which NGOs have been involved both in advising country delegations and lobbying during negotiations); Michael Lisowski, *How NGOs Use Their Facilitative Negotiating Power and Bargaining Assets to Affect International Environmental Negotiations*, 2 DIPLOMACY AND STATECRAFT 361 (2006) (noting how NGOs increase the legitimacy of climate change negotiations by making them more transparent and facilitating meetings between coalitions).

4. Nathaniel Gronowold, *Game Theory: Climate Talks Destined to Fail*, SCI. AM. (Dec. 20, 2010), <https://www.scientificamerican.com/article/game-theorist-predicts-failure-at-climate-talks/>.

to believe de Mesquita's argument. Nevertheless, this Article will argue that large, international negotiations on global issues such as climate change are unlikely to go away. As such, the international community should focus on tactics that can be used to improve the efficiency of these large, multiparty negotiations. To this end, more attention should be paid to the role of Secretariats: institutions, of varying size and complexity, established to organize and facilitate international negotiations within a given issue area. Drawing on insights from multiparty negotiation literature, studies of complex adaptive systems, and interviews related to the Paris round of climate change negotiations, this Article proposes four lessons for the role Secretariats should play in international negotiations.

First, Secretariats should "stay with the conflict," encouraging participants to keep negotiations wide-ranging for as long as possible so as to avoid getting trapped at local optima—outcomes that are moderately but not optimally desirable. Second, Secretariats should focus on making small changes to the negotiation process, mindful of the fact that complex systems are very sensitive to initial conditions and that efforts to radically change those conditions require immense effort and may have significant unintended consequences. Third, Secretariats should adopt flexible strategies for sharing information between negotiation participants. This is particularly important as the negotiation enters new temporal phases—strategies that worked at the beginning of a negotiation are unlikely to be effective later on. And fourth, Secretariats should resist the temptation to focus on perceived "hubs" of the negotiation process. In many cases, the stakeholders on the periphery may be more effective (and more impactful) means by which to share necessary information between participants.

To develop these lessons, Section I begins by addressing arguments against the utility of large, multiparty, international negotiations. Given that climate change is our case study, Section I focuses particularly on critiques of international climate summits. Notwithstanding these concerns, Section I concludes that large, multiparty negotiations are here to stay and, more importantly, advance important interests for less influential States. Section II reviews the existing literature on Secretariats in the negotiations literature. Section III argues why complexity science, a field of study less discussed in the non-quantitative literature, can make sense of the often-contradictory recommendations reviewed in Section II. Section III also presents, in more detail, the four procedural recommendations that motivate the remainder of this analysis. Section IV focuses

on negotiations within the United Nations Framework Convention on Climate Change (UNFCCC). As will be discussed in greater depth in this Section, the UNFCCC provides for a process by which States negotiate agreements aimed at achieving specified reductions in greenhouse gases through successive international meetings called a “Conference of the Parties,” or “COP.” Section IV begins with a brief overview of climate change negotiations, from the signing of the UNFCCC in Rio de Janeiro through the breakdown of talks in Copenhagen. Finally, armed with this theoretical toolkit, Section V analyzes the negotiation process leading up to, and including, Paris using the theoretical framework previously developed. Section VI concludes the Article with thoughts for future research.

Before embarking on this analysis, a few notes about methodology. This Article draws on a number of sources to construct a set of best practices for Secretariats. The underlying theory is culled from existing secondary literature on multiparty negotiations, and particularly negotiations within the climate change context. Given the interdisciplinary nature of complexity science, the Article also includes insights from a wider range of social science literature (e.g., research conducted on the functioning of small groups). Second, the Article draws on meeting records and contemporaneous news reports to piece together a picture of how successive climate change conferences were organized, information was transmitted, and consensus-building mechanisms were used. Lastly, the Article draws on seven in-person interviews conducted with people who had direct experience with negotiations leading up to, and including, Paris. Given the sample size, the Article does not argue that the range of views expressed represents the full spectrum of international opinion on the functioning of the Secretariat during the Paris negotiations, but present the interviews to give more context to the primary and secondary sources mentioned above.

II. THE UTILITY OF LARGE, INTERNATIONAL CLIMATE NEGOTIATIONS

There are reasons to be skeptical about the practical importance of large, international negotiations as they are currently organized. This is particularly so in the climate context. This Section reviews five reasons for healthy skepticism, and then provides reasons why, notwithstanding these deficiencies, there is still an important role for large multilateral negotiations in the climate change context.

First, large international negotiations pose a number of logistical challenges. John Wilson has noted that “an inordinate amount of

time is spent rehashing protocols, voting rules, and other guidelines—a process that is repeated at each conference.”⁵ Indeed, States Parties to the UNFCCC are still unable to adopt rules of procedure first drafted in 1996, forcing presiding officers to rely on ad hoc consensus for what has now become decades.⁶ Notwithstanding the relatively lean nature of the UNFCCC Secretariat, conventions are also costly. In March 2018, for example, the UN Secretary-General requested just over \$1.6 million to host the UN’s first conference aimed at adopting a global compact for safe, orderly, and regular migration.⁷ While many of the UNFCCC’s meetings take place in Bonn, the Secretariat’s headquarters, each Conference of the Parties (COP) has traditionally been held in a different city (e.g., Paris, Copenhagen, Durban), further increasing costs. In addition, the Secretariat itself requires funding. In 2018, the UNFCCC Secretariat, for example, requested 9.8 million Euros (\$12.16 million) to fund intergovernmental affairs and Secretariat operations.⁸ Even disregarding cost, there are significant time and staffing implications to translating thousands of pages of background documents into the six official UN languages—not to mention the interpretive teams needed for each meeting room.⁹

Second, most international negotiations, including the UNFCCC process, operate based on consensus. Within the context of the UNFCCC, this means that decisions are only arrived at when there is no dissent (abstentions are allowed).¹⁰ Scholars have criticized consensus-based processes for a number of reasons. Some argue that consensus perpetuates the “dominance of large countries,” allowing

5. John Wilson, *Using Computer Networks to Improve Prenegotiation Discussions and Alliances for Global Environmental Action*, in INTERNATIONAL ENVIRONMENTAL TREATY MAKING 63, 64 (Lawrence E. Susskind et al. eds., 1992).

6. See Jesse Vogel, *The Problem with Consensus in the U.N. Framework Convention on Climate Change*, 32 PHIL. AND PUB. POL’Y Q. 14, 14 (Winter 2014).

7. See Press Release, General Assembly, Speakers Question Travel, Consultancy Costs, as Fifth Committee Examines Proposed Budget of First United Nations Conference on Migration, U.N. Press Release GA/AB/4228 (Mar. 10, 2017), <https://www.un.org/press/en/2017/gaab4228.doc.htm>.

8. See generally *Proposed programme budget for the biennium 2018-2019, U.N. Framework Convention on Climate Change FCCC/SBI/2017/4*, UNFCCC (2017), http://unfccc.int/files/secretariat/unfccc_budget/application/pdf/chapter4.pdf.

9. See Bo Kjellen, *A Personal Assessment*, in NEGOTIATING CLIMATE CHANGE: THE INSIDE STORY OF THE RIO CONVENTION 152 (Irving Mintzer & J. Amber Leonard eds., 2000).

10. See Interview 3 (Jan. 9, 2017). Interviews cited in this Article were conducted during the winter of 2017 in Germany and Belgium. In accordance with IRB protocol, the author has not included specific names and employers. The author has a full record of meeting notes in the author’s personal files. These interviews were developed through professional connections.

“large, developed countries [to] have an inordinate influence on international negotiations.”¹¹ We saw this in the climate change context, for example, in June 2013, when Russia moved to hold a “formal discussion of meeting procedures,” preventing any progress from being made on important substantive concerns.¹² Jesse Vogel also argues that “consensus obscures more than it reveals” by creating a patina of commonality that papers over real disagreements between parties.¹³ For example, in November 2013, representatives from the United States, Brazil, Venezuela, India, and Bolivia were forced to “huddle” together on the second-to-last day of climate negotiations to draft an agreed text after weeks of lackluster consensus building in meetings of all Member States.¹⁴ While the huddle was effective in this instance, this negotiation tactic had real consequences for accountability and transparency. In the end, Vogel argues, “This was an example of the two-faced nature of consensus negotiations: when parties outwardly dedicate themselves to building international consensus, late-night, side-corridor huddle negotiations become necessary in order to deal with real disagreement.”¹⁵ Additionally, in practice, objections from smaller States have sometimes been ignored when conference leaders have so-called “gaveled in consensus.” At the 16th Conference of the Parties (COP16), for example, Mexican Foreign Minister Patricia Espinosa, leading the conference, gaveled in consensus notwithstanding explicit dissent from Bolivia.¹⁶ This practice resonates with critiques from Chandrashekhhar Dasgupta, who has argued that “consensus procedures in large multilateral conferences tend in practice to confer something approaching a veto only on the most influential states.”¹⁷

Third, and more specific to the UNFCCC process, some have criticized the framework-protocol model that has characterized climate change negotiations. In framework-protocol negotiations, a more hortatory, generalized treaty is first negotiated, after which the States meet at regular intervals to negotiate more specific protocols with

11. Wilson, *supra* note 5, at 64.

12. Vogel, *supra* note 6, at 14.

13. *Id.* at 17.

14. *Id.*

15. *Id.*

16. See David Bosco, *Foreign Policy: How Mexico Mastered Multilateralism*, NPR (Dec. 15, 2010), <https://www.npr.org/2010/12/15/132076505/foreign-policy-how-mexico-mastered-multilateralism>.

17. Chandrashekhhar Dasgupta, *The Climate Change Negotiations*, in *NEGOTIATING CLIMATE CHANGE: THE INSIDE STORY OF THE RIO CONVENTION* 132 (Irving Mintzer & J. Amber Leonard eds., 2000).

discrete goals.¹⁸ Martha Rojas and Christopher Thomas, for example, have argued that this structure introduces the “danger that negotiations may stop after the framework convention is signed.”¹⁹ Signing and ratifying the framework convention, moreover, “may act as an ‘easy way out’ for signatory nations,” preventing real progress from being made.²⁰ Lawrence Susskind has been particularly critical of the framework-protocol arrangement. He finds that this process encourages long, drawn-out negotiations that prioritize the terms of the framework agreement over more technically appropriate protocol agreements.²¹ This process is particularly problematic given that the development of our understanding of climate science has outstripped our ability to negotiate climate treaties. Susskind also argues that the framework-protocol method unnecessarily isolates negotiations, preventing innovative linkages from being exploited between issue areas.²² James Sebenius has made a similar argument, contending that “single-issue protocols may prove non-negotiable unless they can be combined with agreements on other issues that offset the losses (or at least seem to distribute them fairly).”²³

Fourth, and related to points two and three, there is a tendency for negotiated agreements to reach only the lowest common denominator of Member States’ willingness to combat climate change.²⁴ This stems from the fact that different actors have divergent opinions about what success looks like. To some, reaching a formal agreement, almost irrespective of the content, is success; for others concerned with real world climate impact, the substance of the agreement matters far more.²⁵ This type of disagreement was evident in the wake of U.S. withdrawal from the Paris Accord. James Hansen, a pioneering climate change scientist, has said the Paris Accord is “a fraud really, a fake It’s just worthless words. There is no action, just

18. See LAWRENCE SUSSKIND, ENVIRONMENTAL DIPLOMACY: NEGOTIATING MORE EFFECTIVE GLOBAL AGREEMENTS 30 (1994).

19. Martha Rojas & Christopher Thomas, *The Convention on Biological Diversity: Negotiating a Global Regime*, in INTERNATIONAL ENVIRONMENTAL TREATY MAKING 63, 64 (Lawrence E. Susskind et al. eds., 1992).

20. *Id.* at 153.

21. See SUSSKIND, *supra* note 18, at 31, 33.

22. *Id.* at 36.

23. James Sebenius, *Towards a Winning Climate Coalition*, in NEGOTIATING CLIMATE CHANGE: THE INSIDE STORY OF THE RIO CONVENTION 280 (Irving Mintzer & J. Amber Leonard eds., 2000).

24. See SUSSKIND, *supra* note 18, at 32.

25. *Id.* at 12. Susskind calls this a disagreement between pragmatists (those for whom any effort in the right direction is success) and idealists (those for whom measurable, documented improvements are necessary). *Id.* at 13.

promises,”²⁶ concluding that withdrawal would do little since the Accord itself means little. Strong pushback from the United States’ European partners, on the other hand, shows how others saw signing the Accord itself as a success.²⁷ Governments are not the only stakeholders who held this perspective. After the Paris negotiations, Michael Brune, Executive Director of the Sierra Club, stated that, “The Paris agreement is a turning point for humanity. For the first time in history, the global community agreed to action that sets the foundation to help prevent the worst consequences of the climate crisis while embracing the opportunity to exponentially grow our clean energy economy.”²⁸ For those impatient for substantial change, however, the consensus-based, framework-protocol model is unlikely to be sufficient.

Lastly, negotiation by delegation requires that each country arrive at the conference with a set of positions internally coordinated within their respective bureaucracies. Given that conferences typically last for a period of weeks at the most, there is often little time for delegations to be flexible based on developments at the conference. Wilson, again, has noted, “Environmental issues affect so many in-country concerns that positions are very carefully, sometimes acrimoniously, determined before the delegations have left their home soil. The delegations come to meetings locked in and are often without power to change their positions at formal sessions.”²⁹

While many of these critiques surely are justified, there are a number of reasons why large, multilateral negotiations, particularly in the climate change context, are necessary. Large, multilateral negotiations are not the only policy tool available for combating climate change. Lawrence Susskind recognized this fact when he recommended that States should remove disincentives for making progress outside the UNFCCC process (e.g., through unilateral action).³⁰ And in certain important respects, the international community has already witnessed the fruits of taking a multidimensional approach to

26. Oliver Milman, *James Hansen, father of climate change awareness, calls Paris talks ‘a fraud’*, GUARDIAN (Dec. 12, 2015), <https://www.theguardian.com/environment/2015/dec/12/james-hansen-climate-change-paris-talks-fraud>.

27. See Nathan Hultman, *The galvanized world response to Trump’s Paris Agreement decision*, THE BROOKINGS INSTITUTE (June 7, 2017), <https://www.brookings.edu/blog/planetpolicy/2017/06/07/the-galvanized-world-response-to-trumps-paris-agreement-decision/>.

28. *Civil society responds as final Paris Climate Agreement released*, CLIMATE ACTION NETWORK (Dec. 12, 2015), <http://www.climateactionnetwork.org/press-release/civil-society-responds-final-paris-climate-agreement-released>.

29. Wilson, *supra* note 5, at 64.

30. *Id.* at 135.

combating climate change. In November 2014, for example, President Barack Obama and President Xi Jinping jointly announced U.S. and Chinese emissions reductions targets, creating needed momentum leading up to the Paris negotiations.³¹ In the shadow of the United States leaving the Paris Accord, furthermore, the European Union and China announced an Energy Dialogue through which both parties work together to produce energy from non-carbon sources.³² Taken together, these examples show that States understand that the UNFCCC process is only one of many means by which to achieve meaningful action regarding climate change.

More specifically, there are four reasons why large, multilateral negotiations, as currently constituted, continue to play an important role in meaningful climate change mitigation. First, the UNFCCC process provides a forum where all States have a seat at the table. As noted above, it is not the case that, in practice, each State necessarily has an equal voice. It is hard to imagine, for example, that the Mexican leadership would have gaveled over objections from India in the way it gaveled over objections from Bolivia. Yet differences in international influence transcend fora—there is little reason to believe that disempowered States would be any better off in less inclusive contexts. Indeed, their continued participation in the UNFCCC process underscores the degree to which even formal equality, based on the rules enshrined in the text of an agreement, can be important. Second, UNFCCC conferences provide a platform for civil society to engage more directly with States on climate change issues. During COP23, for example, the UNFCCC Secretariat facilitated side events led by non-governmental organizations (NGOs) ranging from the International Water Association to the University of Technology Malaysia.³³ NGOs can also apply to have observer status in the negotiations themselves.³⁴ While more limited than States in the

31. See *U.S.-China Joint Announcement on Climate Change*, THE WHITE HOUSE OFFICE OF THE PRESS SECRETARY (Nov. 12, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change> (reporting that the United States announced an economy-wide target of reducing carbon emissions by 26-28 percent below 2005 levels and that China committed to achieving peak carbon emissions around 2030).

32. See *EU-China Energy Dialogue: clean energy in an international context*, EUROPEAN COMMISSION (June 2, 2017), <https://ec.europa.eu/energy/en/news/eu-china-energy-dialogue-clean-energy-international-context>.

33. See *Side Events & Exhibits: UN Climate Change Conference November 2017 (COP 23/CMP 13/CMA 1-2)*, UNFCCC (Nov. 2017), <https://seors.unfccc.int/applications/seors/reports/archive.html>.

34. See, e.g., *Admitted NGOs*, UNFCCC, http://unfccc.int/parties_and_observers/observer_organizations/items/9519.php.

degree to which they may participate in negotiations, admitted NGOs are able to more directly interact with State delegations and introduce statements into the official conference record.³⁵ While this type of access may seem unremarkable, it is meaningful for NGOs that (1) do not typically have the resources to lobby large delegations and (2) are not granted much latitude for influence in their home countries.

Third, large multilateral negotiations provide a common baseline from which different parties can understand and discuss climate change. Negotiations set the terms of debate; as negotiations become more inclusive, therefore, those terms become more universal. For example, the UNFCCC process has enshrined 2 degrees Celsius as the upper limit for increases in average global temperature (as compared to pre-industrial levels).³⁶ While the feasibility of reaching this target is up for debate,³⁷ it is nonetheless important in that a global benchmark has been established against which individual States' actions can be measured. Additionally, the path to 2 degrees Celsius shows how the UNFCCC should be seen as only one of a variety of fora for climate action. The Council of Europe first established 2 degrees Celsius as a target in 1996.³⁸ Since then, aided by scientific reports conducted by the Intergovernmental Panel on Climate Change (IPCC), this target developed into an international consensus through the UNFCCC process.

Fourth, there are benefits to the framework-protocol model for climate change negotiations in particular. Sebenius notes that the framework-protocol method was initially adopted due to the fact that negotiations on the law of the sea, which strived for an all-inclusive treaty, stretched from 1958 to 1982 (though the final push for a single convention was primarily made during the Third Conference on the Law of the Sea, which still took nine years to negotiate).³⁹ Furthermore, the framework-protocol process has had notable successes in other issue areas; the Vienna Convention for the Protection of the

35. See, e.g., *Observer Cop 23 Guide*, UNFCCC, http://unfccc.int/files/parties_and_observers/observer_organizations/application/pdf/cop_23_observer_guide.pdf.

36. See *The Paris Agreement*, UNFCCC, http://unfccc.int/paris_agreement/items/9485.php.

37. See Oliver Milman, *Planet has just 5% chance of reaching Paris climate goal, study says*, GUARDIAN (July 31, 2017), <https://www.theguardian.com/environment/2017/jul/31/paris-climate-deal-2c-warming-study>.

38. See, e.g., Yun Gao et al., *The 2C Global Temperature Target and the Evolution of the Long-Term Goal of Addressing Climate Change—From the United Nations Framework Convention on Climate Change to the Paris Agreement*, 3 ENGINEERING 272, <https://www.sciencedirect.com/science/article/pii/S2095809917303077>.

39. See James Sebenius, *Negotiating a Regime to Control Global Warming*, HARV. UNIV. GLOBAL ENVTL. POL'Y PROJECT, G-90-10, 3 (1990).

Ozone Layer, for example, yielded the highly effective Montreal Protocol on Substances that Deplete the Ozone.⁴⁰ One reason for this success, Sebenius posits, is that the framework-protocol process allowed for issues to be more manageably deconstructed into smaller packages without the ratification of an entirely new treaty.⁴¹

Taken together, the above arguments suggest that the UNFCCC process should be seen as one of many avenues through which action can be taken on climate change. The UNFCCC certainly is not perfect; it is costly, unwieldy, and comparatively slow moving. But that does not mean that it should be abandoned—nor that it is necessarily the least important forum for meaningful steps to be taken regarding climate change. The UNFCCC's post-Paris focus on implementation, for example, may make it a more tempting forum for those activists impatient for more stringent, binding State commitments. This is not to say that the UNFCCC negotiations cannot be improved from a process perspective. The remainder of this Article will explore scholarly insights into the Secretariat's optimal role within the context of the UNFCCC, and how those insights hold up to the institution's experience leading up to and during the Paris negotiations.

III. SECRETARIATS IN THE NEGOTIATIONS LITERATURE

The majority of multiparty negotiation literature is written from the perspective of participants in the negotiation, as opposed to those organizing it (i.e., Secretariats). And those works that do address organizers are quite contradictory, leaving relatively little certainty as to the tactics and issues that should be prioritized. This Section provides an overview of these arguments. Section III will present four lessons that emerge from the study of complex adaptive systems.

Rosemary Sandford's work has most directly addressed the possible roles Secretariats play in international negotiations. She has called Secretariats "the Cinderellas of international environmental treaty systems . . . often neglected, regularly criticized, and seldom rewarded for assisting governments in meeting their treaty implementation obligations."⁴² Sandford notes that, in most cases, the formal mandate of a Secretariat is limited—they are tasked with managing and providing administrative support to what might be considered the actual participants of a given conference (i.e.,

40. *Id.* at 7–8.

41. *Id.* at 7.

42. Rosemary Sandford, *International Environmental Treaty Secretariats: A Case of Neglected Potential?*, 16 ENVTL. IMPACT ASSESSMENT REV. 3, 3 (Jan. 1996).

States).⁴³ Although Secretariats are often portrayed as the epitome of largess, Sandford argues that they are actually under-resourced in light of their varied responsibilities.⁴⁴ Notwithstanding these more practical challenges, Sandford notes a more fundamental obstacle: there is a wide debate over the proper scope of authority for Secretariats. She posits, in particular, that there are two models that Secretariats might follow—minimalist and maximalist.⁴⁵ Minimalist Secretariats are “politically celibate,” focusing on passive administrative support for the primary treaty negotiators.⁴⁶ On almost all matters of import, “[t]he Secretary-General has little power, conducts diplomatic activity behind the scenes, and does not take initiative when executive authority might be at stake.”⁴⁷ This limited role is repeated at all stages of the treaty-making process. Before negotiations, a passive Secretariat responds to instructions from Member States.⁴⁸ During negotiations, a passive Secretariat provides administrative assistance as requested and advice to particular delegations when asked.⁴⁹ A maximalist (or activist) Secretariat, on the other hand, acts as a servant of the global community.⁵⁰ This understanding of the Secretariat posits the organization as an independent, “even co-equal element in the intra-system power process” of treaty negotiation and implementation.⁵¹ Before negotiations, an activist Secretariat “ensures that all the parties are identified and involved in the negotiation, and activates and coordinates information collection and distribution.”⁵² During the negotiation, an activist Secretariat acts as a moderator or mediator during stalemates, follows up with Member States to ensure the agreement is signed, consults regarding negotiation requirements, and even develops negotiating texts.⁵³

As between these two models, Sandford advocates something more akin to an activist Secretariat. This stems from the fact that Sandford sees Secretariats as the linchpin of international negotiations: “Their professional staff are boundary spanners, that is, they

43. *Id.* at 5.

44. *Id.* at 6.

45. See Rosemary Sandford, *Secretariats and International Environmental Negotiations: Two New Models*, in *INTERNATIONAL ENVIRONMENTAL TREATY MAKING 27* (Lawrence E. Susskind et al. eds., 1992).

46. *Id.* at 27, 29.

47. *Id.* at 29.

48. *Id.* at 31.

49. *Id.*

50. *Id.* at 27.

51. *Id.* at 29.

52. *Id.* at 31.

53. *Id.*

link the organization to treaty stakeholders.”⁵⁴ Their ability to cross divides is founded on trust from Member States and expertise regarding technical issues of implementation, the substance of negotiations, and negotiation process.⁵⁵ Given this role in communicating across boundaries, it is unsurprising that most of Sandford’s recommendations center on ways in which Secretariats can optimize information flows. First, she recommends that Secretariats maintain extensive contacts (formal and informal) both within the treaty system and to stakeholders outside of the system (e.g., the media, academia, industry, and NGOs).⁵⁶ Given frequent staff turnover in Member State delegations, Sandford argues that it is important for the Secretariat to continually reestablish connections such that their expertise can be leveraged in educating these new staff members on best practices.⁵⁷ Second, given that Secretariats act as a reservoir of expertise, it is important that, as an institution, they focus on hiring staff that are well versed in the relevant subject matters and processes.⁵⁸ Additionally, Sandford points out the importance of ensuring that Secretariat staff is diverse in terms of the range of present and potential interests at play within the treaty framework.⁵⁹ Third, Sandford argues that Secretariats should be active in educating Member States on a range of issues, from scientific and economic research, to cultural and social reports, to assessments of relevant national policies and programs.⁶⁰ The goal here is for Secretariats to “anticipate conflict emergence and . . . act as mechanisms for the implementation of processes to encourage the management and/or de-escalation of conflict.”⁶¹

Lawrence Susskind echoes Sandford’s recommendations regarding activist Secretariats. He, too, criticizes traditional, passive Secretariats who are unwilling to take initiative, only intervene when requested, and focus on appeasing Member States.⁶² In many ways, his recommendations also reiterate Sandford’s (e.g., employing a diverse staff and playing an active role in bringing parties to the table). Some of Susskind’s recommendations, however, suggest that he may advocate for a more active Secretariat. He argues, for example, that

54. Sandford, *supra* note 42, at 5.

55. *Id.*

56. *Id.* at 9.

57. *Id.*

58. *Id.* at 10.

59. *See generally id.*

60. *Id.* at 42, 43.

61. *Id.* at 50.

62. *See* SUSSKIND, *supra* note 18, at 58.

at least part of the Secretariat's budget should come directly from the UN, so as to minimize the perception that they are beholden to the Member States.⁶³ Susskind also calls for Secretariats to formulate packages that bridge disagreements, particularly in coordination with NGOs and other non-formal stakeholders, whose interests would not otherwise be taken seriously during negotiations.⁶⁴ Nancy Gabriel goes even further, suggesting that NGOs could be used to fill out Secretariat staff, thereby giving them an opportunity to shape the negotiation agenda, better understand Member State interests and coalitions, and increase their credibility in the eyes of Member States.⁶⁵ Susskind is also keen on the role Secretariats can play in facilitating joint fact-finding and preventing negotiations from descending into adversarial science.⁶⁶ As an example, he points to the success of the Vienna Convention and Montreal Protocol on protection of the ozone layer. He concludes that negotiations here were focused on science, not politics, because the Protocol provided "for scheduled joint fact-finding," which "elevat[ed] the significance of scientific input."⁶⁷ Susskind believes that the same provisions underpinned success in the case of the Convention on International Trade in Endangered Species, which charges the Secretariat with conducting its own research on behalf of Member States.⁶⁸ Other ideas he floats include creating a representative body of scientists, establishing multi-tiered scientific advisory groups, and holding mandatory meetings in which relevant scientific findings are presented.⁶⁹ Whatever the specific model used, Susskind supports structures that minimize adversarial science, which he believes "poses the greatest danger to effective collaboration in response to global environmental threats. If nations and the general public believe that scientists abuse the trust they place in them . . . science will have no standing in environmental negotiations."⁷⁰

Jean Poitras also advocates for an activist Secretariat, although differently than Susskind, Sandford, and Gabriel. Poitras argues that Secretariats should work, *sua sponte*, to strengthen treaty regimes

63. *Id.*

64. *Id.* at 59.

65. See Nancy Gabriel, *Computer Networks and UNCED: Did they Really Increase Participation by Nongovernmental Organizations?*, in 3 PAPERS ON INTERNATIONAL ENVIRONMENTAL NEGOTIATION 4 (Lawrence Susskind et al. eds., 1993).

66. See SUSSKIND, *supra* note 18, at 58.

67. *Id.* at 71.

68. *Id.* at 72.

69. *Id.*

70. *Id.* at 71.

through formal amendments. As a neutral actor, Poitras posits, the Secretariat may be better placed to depersonalize the often acrimonious process of increasing the stringency of Member States' environmental commitments.⁷¹ Again by assembling scientific data, the Secretariat would solicit input from Member States and itself create a single negotiating text.⁷² Poitras sees this as an ongoing, iterative process that would be central to the Secretariat's institutional obligations.⁷³ There may also be a tension between this more activist role and the potential for the Secretariat to be seen as biased.⁷⁴ As a solution, Poitras suggests that a separate facilitation team should be appointed. It is difficult to see, however, how appointments to this facilitation team would be seen as any less of a political act than the Secretariat taking direct control of the fact-finding process.

Not all scholars support such activist understandings of a Secretariat. Jean Wilkowski, for example, proposes a more limited model: that a Secretariat's main functions are "to provide both administrative and substantive support and leadership."⁷⁵ Indeed, Wilkowski argues that while Secretariats should precede and continue after negotiations, they should eventually "disband [their] personnel in an orderly fashion."⁷⁶ Following the minimalist model, Wilkowski further asserts that Secretariats should provide "either impartial or politically balanced leadership."⁷⁷ That said, Wilkowski still sees a role for Secretariats in serving as a boundary-spanning organization. She argues that the Secretary General for the UN Conference on Science and Technology for Development, for example, focused too much on only the sovereigns participating in the negotiation, neglecting to share perspectives and substantive expertise of the periphery (e.g., NGOs).⁷⁸

A number of themes emerge from the accounts above. First, there is a clear preference among these authors for activist Secretariats. All authors reviewed above, perhaps aside from Wilkowski, argue

71. See Jean Poitras, *Reforming the Convention Amendment Process to Facilitate the Strengthening of Commitments*, in *NEW DIRECTIONS IN INTERNATIONAL ENVIRONMENTAL NEGOTIATION* 104, 107 (Lawrence Susskind & William Moomaw eds., 1999).

72. *Id.* at 108.

73. *Id.* at 111.

74. *Id.* at 107.

75. JEAN WILKOWSKI, *CONFERENCE DIPLOMACY II: A CASE STUDY: THE UN CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT, VIENNA, 1979* 5 (1982).

76. *Id.*

77. *Id.* at 6.

78. *Id.* at 7-8.

that purely administrative functions are insufficient to meet the complex task of piecing together environmental accords across a widening array of stakeholders, whether within or outside of the formal treaty-making body. Even Wilkowski sees Secretariats as serving a more facilitative function than the most minimalist understanding of Secretariats might suggest. Second, Secretariats are understood, primarily, to be conduits for information and expertise. Whether that expertise is in their staff's technical knowledge, understanding of negotiation best practices, or accumulation of outside scientific data, the scholarship argues that Secretariats are uniquely positioned to reach across negotiation blocs. Notwithstanding this agreement, there is some difference of opinion on the degree to which Secretariats should be activists and the most profitable avenues through which to pursue this activism. Susskind and Poitras, for example, seem to prefer a Secretariat that itself participates in the negotiation (drafting negotiating texts, proposing amendments, incorporating interests from outside stakeholders, etc.). Sandford and Wilkowski are a bit less sanguine on this point. Sandford, on one hand, instead focuses on the Secretariat's role as a convener to identify possible areas of agreement that would then be acted upon by Member States. Wilkowski, on the other hand, concentrates on the Secretariat's role in disseminating information.

IV. LARGE, MULTILATERAL NEGOTIATIONS AS COMPLEX ADAPTIVE SYSTEMS

How should we make sense of these disparate recommendations? This Section will show that we should start by understanding that large, multiparty negotiations can be best described as complex adaptive systems. To this end, this Section will provide an overview of the complex systems literature, explain why large multiparty negotiations can be understood as complex adaptive systems, and distill key procedural takeaways based on this literature.

A. *An Overview of Complexity Science*

As early as 1948, Warren Weaver identified three types of problems studied in the scientific world. First, there are problems of simplicity, i.e., analysis of two-variable systems.⁷⁹ Second, there are

79. See Warren Weaver, *Science and Complexity*, 36 AM. SCI. 536, 538 (1948), http://people.physics.anu.edu.au/~tas110/Teaching/Lectures/L1/Material/WEAVER_1947.pdf.

problems of disorganized complexity, i.e., statistical analysis of multivariable systems where the units are randomly distributed (meaning that they have little relation to each other).⁸⁰ Weaver gave the example of a billiards table with millions of balls as an example of disorganized complexity: while the fate of any single billiard ball might not be determinable, the use of statistics can reveal the average number of balls per second that hit a given stretch of rail.⁸¹ Lastly, Weaver identified problems of organized complexity—the type of systems on which this Article will focus. He called this problem space the middle region between problems one and two, i.e., systems involving a finite number of agents greater than two.⁸² He argued that this middle problem space is interesting not due to the intermediate number of variables, but because it includes those systems “with a *sizable number of factors which are interrelated into an organic whole.*”⁸³

Focusing on this problem space, the interdisciplinary field of complexity science studies systems that have four properties: (1) they are composed of units that, relative to the system as a whole, are simple; (2) there are non-linear interactions between their components (i.e., activities observed are greater than the sum of the system’s parts); (3) they have no organ of central control (i.e., the system to a significant degree organizes itself); and (4) they exhibit emergent behavior (i.e., system effects can be observed that cannot be reduced to the individual level).⁸⁴

An ant colony is a good example of a complex system: the individual units are relatively simple, yet they interact in sophisticated ways that the actions of no single ant can fully explain (prongs one and two). Put another way, and incorporating prongs three and four, the ant colony as a system exhibits seemingly coordinated behaviors without any central node of control dictating those behaviors. Computer modeling can simulate the behavior of agents within a given system. This has been applied not only to animal behaviors, like ants, but also human biology and social and economic networks.⁸⁵ But this is not just an exercise in modeling. According to John Miller and Scott Page, two scholars of complex adaptive systems, we should care

80. *Id.*

81. *Id.*

82. *Id.* at 539.

83. *Id.* at 540.

84. See Melanie Mitchell, *Introduction to Complexity: Introduction to the Study of Complexity*, COMPLEXITY EXPLORER (2017), <https://www.complexityexplorer.org/courses/74-introduction-to-complexity-2017/segments/5687?summary>.

85. *Id.*

about these types of dynamics because “we want to know when and why productive systems emerge and how they can persist.”⁸⁶ This Article will not use computer modeling to gain insights into the role that Secretariats might play in international negotiations. Instead, it will highlight important, generalizable insights that have emerged from the study of complex systems. Before proceeding to those insights, however, it is necessary to explain why large, multiparty negotiations should be understood as complex systems.

B. *Negotiations as Complex Adaptive Systems*

Large multiparty negotiations satisfy each of the four prongs presented in the foregoing overview of complex systems.

First, large multiparty negotiations are composed of individual agents (delegations) that, relative to the negotiation system as a whole, are simple. At any given moment during UNFCCC COPs, for example, delegations from nearly every country in the world are present. Each delegation is relatively simple because each delegation has relatively straightforward rules by which to interact with other delegations. First, they are all charged with maximizing their country’s self-interest (as they define it). Second, they interact with other delegations through knowable formal and informal rules; in the UNFCCC, this includes the draft rules of procedure as well as usual conventions of international diplomacy. These rules of behavior and interaction are a far cry from the decision rules followed by ants, but this degree of complexity pales in comparison to that of the system as a whole. Gregory Todd Jones, for example, notes that an agreement regarding twenty-five distinct issues with as few as two alternatives allows for more than thirty-three million possible agreements.⁸⁷

Second, there are non-linear interactions between delegations in large multiparty negotiations. It would be preposterous, for example, to argue that the UNFCCC, as an agreement, could be understood simply by looking at the individual conversations that occurred between delegates. No single conversation was dispositive in the successful negotiation of the UNFCCC, and it would be impossible to find any but-for cause for its completion. Instead, we must rely on multi-factor causal analyses to appreciate what contributed to the negotiation process’s success.

86. JOHN MILLER & SCOTT PAGE, *COMPLEX ADAPTIVE SYSTEMS: AN INTRODUCTION TO COMPUTATIONAL MODELS OF SOCIAL LIFE* 7 (2009).

87. See Gregory T. Jones, *Sustainability, Complexity, and the Negotiation of Constraint*, 44 *TULSA L. REV.* 29, 40 (2013).

Third, there is no central organ of control in international negotiations. The United Nations has no coercive ability to independently determine the greenhouse gas reductions, for example, of any given sovereign State. As a meeting of co-equal sovereigns, each delegation is empowered to make its own decisions as it sees fit. Certain States may well have more influence than others, but even the larger negotiating blocs cannot be said to control the negotiation process as a whole. Indeed, why would so many climate negotiations have failed if the process could so easily be controlled?

Lastly, individual agents in large multiparty negotiations exhibit emergent behaviors. Take, for example, the small “huddles,” mentioned above, that took place in November 2013 between the United States, Brazil, Venezuela, India, and Bolivia.⁸⁸ Huddles, as informal discussions conducted on the negotiating floor between delegations that are important for reaching consensus, regularly attract representatives from other delegations who encircle the huddle, yielding information flows and reactions that could not be forecasted if one were to, *ex ante*, imagine the possible consequences of a meeting between the five countries. Furthermore, large multilateral negotiations are also adaptive because they engage in iterative learning. As will be shown in our recounting of the path from Copenhagen to Paris, significant procedural changes were made to the UNFCCC process in light of the lack of transparency to which many attributed Copenhagen’s failure.

Given that large multiparty negotiations should be seen as complex adaptive systems, this Article looks to some of the insights from complexity science that can be applied to the negotiation context. In particular, this Article will draw on insights from two studies—one in the negotiation context, and another concerning small group dynamics.

One of the constituent fields of complexity science is dynamics, the study of how systems change over time. For example, chaos is one type of dynamic. Though modern scholars have not agreed on a definition for chaos, there is consensus that chaotic systems feature sensitive dependence on initial conditions.⁸⁹ This phenomenon has been popularized through what is known as the butterfly effect: the idea that a butterfly flapping its wings in South America can affect the weather in New York City’s Central Park.⁹⁰ From a scientific

88. See Vogel, *supra* note 6, at 17.

89. See Mitchell, *supra* note 84.

90. See Larry Bradley, *The Butterfly Effect, CHAOS & FRACTALS*, <http://www.stsci.edu/~lbradley/seminar/butterfly.html>.

perspective, this rests on the insight of mathematician Henri Poincaré that “[i]f we knew exactly the laws of nature and the situation of the universe at the initial moment, we could predict exactly the situation of that same universe at a succeeding moment But it is not always so; it may happen that small differences in the initial conditions produce very great ones in the final phenomena. A small error in the former will produce an enormous error in the latter. Prediction becomes impossible, and we have the fortuitous phenomenon.”⁹¹ Holly Arrow, Joseph McGrath, and Jennifer Berdhal have found that sensitive dependence on initial conditions extends to the behavior of small groups (i.e., that the trajectory of small group behavior is highly sensitive to the initial conditions under which they are formed). They note that groups rarely switch paths immediately after formation. Instead, the initial conditions upon which they base their actions are sticky and have direction and momentum, thereby increasing the relative costs of switching paths.⁹² Indeed, initial conditions “can have long-lasting effects, even when the conditions that prevailed at formation change a great deal,” thereby narrowing the possibilities for future development.⁹³ They note that initial conditions are particularly important when new members have little or no experience with each other, the group’s purpose is vague or ill defined, or where there is little formal structure.⁹⁴ On the other hand, initial conditions seem to matter less when there is a high degree of order (i.e., when there are many clear, binding rules governing group behavior).⁹⁵ From a negotiation design perspective, this suggests that making small input changes can lead to large changes in system outputs.⁹⁶ These “enlightened experiments,” as they are termed by Wendell Jones, could include anything from changing venue, negotiation teams, or adding culture-specific negotiating features.⁹⁷

A second insight from the field of dynamics relates to the trap of local optima. For this, we must think about negotiation outcomes graphically. Gregory Todd Jones, for example, plotted the below

91. HENRI POINCARÉ, *SCIENCE AND METHOD* 68 (Francis Maitland trans., Cosimo 1914) (1908).

92. See HOLLY ARROW ET AL., *SMALL GROUPS AS COMPLEX SYSTEMS: FORMATION, COORDINATION, DEVELOPMENT, AND ADAPTATION* 79 (2000).

93. *Id.* at 74.

94. *Id.* at 79.

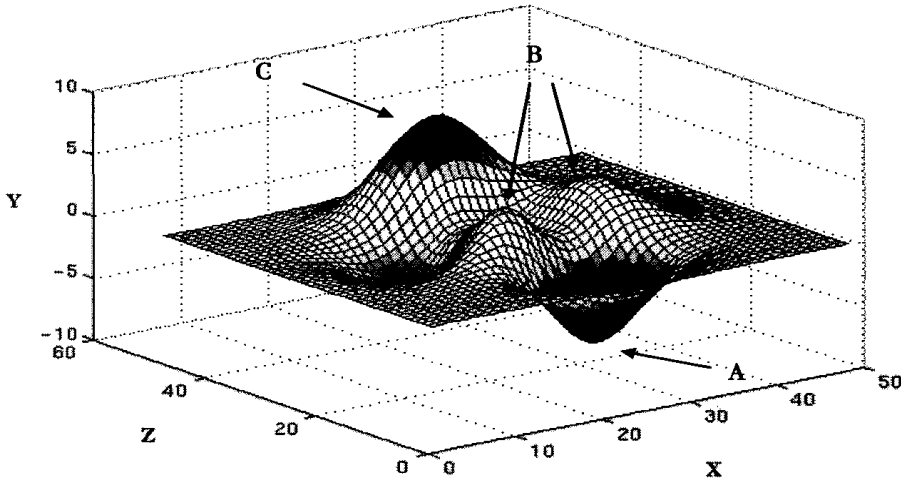
95. *Id.* at 81.

96. See Wendell Jones, *Complex Adaptive Systems*, in *BEYOND INTRACTABILITY* (Guy Burgess & Heidi Burgess eds., 2003), <https://www.beyondintractability.org/es/say/complex-adaptive-systems>.

97. *Id.*

graph of the relationship between two independent variables (X and Z) and one dependent variable (Y).⁹⁸

FIGURE 1. AN ADAPTIVE LANDSCAPE



As the number of independent variables in the graph increases, the number of peaks in the graph would also increase. In this example, peak C is the pareto optimal outcome: it maximizes the value of C along the Y axis. Pareto optimality, generally, is a point at which no redistribution of resources is possible without making one of the parties worse off. The two points labeled B, on the other hand, are what is known as local optima: outcomes that, relative to their immediate surroundings, are optimal, but are not as beneficial as the pareto optimal outcome. Importantly for the purposes of negotiation, without knowing the contours of the entire graph (and in a negotiation of any complexity it is at the least exceedingly difficult to have such a detailed understanding of possible outcomes), it would be very difficult to know, upon arriving at one of the B peaks, that the B peak was only a local optimum. To avoid falling into the trap of local optima, Jones recommends, “stay[] with the conflict.”⁹⁹ By embracing uncertainty and institutional designs that encourage parties to continue investigating the solution space even after a mutually agreeable deal can be struck, Jones argues that one can better avoid non-pareto optimal solutions.¹⁰⁰

98. See Jones, *supra* note 87, at 34.

99. *Id.* at 48.

100. *Id.* at 48–49.

Information analysis, computation, and evolution round out the core disciplines that constitute the study of complex systems.¹⁰¹ While each discipline is supported by a rich array of scientific research, this Section is mostly concerned with two questions: (1) how is information processed and (2) how does information acquire meaning?¹⁰² Before continuing, it is important to note that the field of information theory treats communication as a mathematical concept.¹⁰³ More specifically, it describes the flow of information in terms of uncertainty, or entropy.¹⁰⁴ To answer these questions, Uzi Harush and Baruch Barzel constructed mathematical models of networks that would trace the patterns of information flow between so-called nodes, points of interaction between agents.¹⁰⁵ Harush and Barzel's models are constructed to describe the behavior of a range of social, biological, and technical dynamics, including epidemic spreading, biochemical interactions, mutualistic dynamics in ecology, population change, and genetic regulation.¹⁰⁶ Two conclusions are important to note. First, Harush and Barzel found that the flow of information between nodes changed over time as the simulations continued to run. For example, in the case of epidemic spreading, information began by flowing through hubs (i.e., points where the most number of agents interact), but as the epidemic became a pandemic, information moved further to the system's periphery.¹⁰⁷ The same was found to be true of flow patterns based off of air traffic control data.¹⁰⁸ They conclude, therefore, that information flow patterns are time dependent.¹⁰⁹ This is important for the negotiation context because it suggests that strategies for disseminating information

101. See Melanie Mitchell, *Introduction to Complexity: What is Complexity?*, COMPLEXITY EXPLORER, <https://www.complexityexplorer.org/courses/74-introduction-to-complexity-2017/segments/5687?summary>.

102. *Id.*

103. See ROBERT GRAY, *ENTROPY AND INFORMATION THEORY* x (2013), <https://ee.stanford.edu/~gray/it.pdf>.

104. See Brit Cruise, *Information entropy*, KHAN ACADEMY (2014), <https://www.khanacademy.org/computing/computerscience/informationtheory/moderninfotheory/v/information-entropy>. See also, e.g., Graham Collins, *Claude E. Shannon: Founder of Information Theory*, SCI. AM. (Oct. 14, 2002), <https://www.scientificamerican.com/article/claude-e-shannon-founder/>.

105. See Uzi Harush & Baruch Barzel, *Dynamic patterns of information flow in complex networks*, 8 NATURE COMM. 1, 2 (2017), <https://www.nature.com/articles/s41467-017-01916-3.pdf>.

106. *Id.*

107. *Id.* at 8.

108. *Id.*

109. *Id.* at 9.

throughout a complex system cannot be static. This conclusion is reinforced by a recent critique of information theory modeling, which found that standard understandings of information flows fail to completely capture the dependence that exists in systems where more than two variables interact at any given time.¹¹⁰ Second, and relatedly, Harush and Barzel found that the relative importance of hubs over the periphery depended on the specific characteristics of the dynamics being tested.¹¹¹ Essentially, this means that there is a relationship between the issue area being studied and the particular way in which information flows. For example, the information pathway regarding the spread of epidemics may differ from that of genetic regulation. More specific or dynamic studies may be required to model the UNFCCC process (or individual COPs) in particular. Regardless, Harush and Barzel's conclusions still yield the more generalizable conclusion that it would be inappropriate to assume that hubs should be prioritized in the flow of information.

V. DISCERNING A PROPER ROLE FOR SECRETARIATS

Based on these theoretic insights, successful Secretariats should focus on four tasks in order to make large, international negotiations more efficient and effective. First, Secretariats should be organized so as to “stay with the conflict” (i.e., adopt procedures that encourage negotiations to remain as wide-ranging for as long as possible before settling on text that might represent a local optima). Second, Secretariats should focus on making small changes to the negotiation process, recognizing that small moves can have outsized effects (and large changes can have significant unintended consequences). Third, Secretariats should adopt flexible strategies for sharing information amongst participants; they should be mindful of the fact that optimal information flows will likely change throughout the course of a negotiation. And fourth, Secretariats should resist the urge to focus on information sharing between hubs, since in some systems (and at some times) the most impact may be wrought by focusing on parties at the periphery. Interestingly, these four recommendations based on insights from complexity science rest a bit uncomfortably next to the advice proffered by some of the traditional negotiation literature. This tension does not suggest that the recommendations summarized above are incorrect or unimportant. It is to say, however, that these

110. See Ryan G. James, Nix Barnett & James P. Crutchfield, *Information Flows? A Critique of Transfer Entropies*, SANTA FE INST. WORKING PAPERS 1, 5 (June 20, 2016), <https://arxiv.org/pdf/1512.06479.pdf>.

111. See Harush & Barzel, *supra* note 105, at 8.

four insights from complexity science are important for the Secretariat to prioritize in ensuring the continued good health of the negotiation as a system. Before applying these four recommendations, this Section will outline a few additional reflections on the relationship between insights based in complexity science and the traditional negotiations literature.

First, the four recommendations above reject both the minimalist and maximalist models for a Secretariat. Instead of orienting Secretariat staff towards the substance of the negotiation, these recommendations instead encourage a focus on regulating opportunities for wide-ranging discussion. The Secretariat, first and foremost, is presented as a guardian of the negotiation process. Importantly, however, a guardian does more than keep the trains running. It is a coach, on the lookout for opportunities for procedural improvement on the margins.

Second, the third and fourth recommendations in particular reinforce the consensus in the negotiation literature that Secretariats have a key role to play in shaping the flow of information. They also implicitly help make sense of the truly vast range of recommendations that have been presented as to how negotiation leaders should best facilitate the transfer of information. There is no one-size-fits-all (or one-size-fits-all-times) strategy for managing information. Complexity science teaches us that information flows are contingent, and therefore our strategies for managing that information must remain nimble, both across time and across contexts.

Lastly, the Secretariat must retain access both to the hubs and the periphery of a negotiation. This militates slightly in favor of having a Secretariat that is widely perceived as being a neutral entity. At the least, it suggests the importance of being sensitive to the potential for losing access to certain negotiation participants by engaging in more active, substantive interventions.

Now, armed with these theoretic insights, this Article analyzes how the UNFCCC process acted on these four recommendations in the lead up to the successful completion of the Paris Accord.

VI. A BRIEF OVERVIEW OF CLIMATE CHANGE NEGOTIATIONS

Before applying these insights to the Paris process, it is important to understand the history of international climate change negotiations leading up to 2015. This pre-Paris history can be divided into four stages, each demarcated by pivotal climate change conferences:

(1) before the 1992 Rio Conference; (2) Rio to Kyoto; (3) Kyoto to Bali; and (4) Bali to Copenhagen.

A. *Path to the 1992 Rio Conference*

Discussions about climate change, unsurprisingly, began in the scientific community. By the late 1960s, advancements in climatology had already provided data that caused scientists to be concerned about the effects of carbon emissions on the earth's climate.¹¹² A 1977 report reiterating scientific concerns about global warming led the World Meteorological Organization (WMO) to convene the first World Climate Conference in 1979.¹¹³ The WMO is a specialized organization within the United Nations tasked with studying and coordinating studies between Member States on the Earth's atmosphere and its relationship with the land, oceans, weather, and climate.¹¹⁴ The declaration issued at the end of the First World Climate Conference is notable for three reasons. First, it recognized that climate variations challenged the international community, though the amount of change to be expected was still incompletely understood: "Man today inadvertently modifies climate on a local scale and to a limited extent on a regional scale. There is serious concern that the continued expansion of man's activities on earth may cause significant extended regional and even global changes of climate."¹¹⁵ Second, given this uncertainty, the declaration called for more research "into the mechanisms of climate in order to clarify the relative roles of natural and anthropogenic influences."¹¹⁶ Third, the declaration recognized that a global strategy was necessary for addressing climate issues. For example, it called on "nations to utilize existing knowledge of climate and climatic variations in the planning for social and economic development."¹¹⁷

The WMO subsequently spearheaded the World Climate Programme, an international effort to coordinate scientific research on

112. See *A History of Climate Activities*, WORLD METEOROLOGICAL ORGANIZATION, <https://public.wmo.int/en/bulletin/history-climate-activities>.

113. *Id.*

114. See *Who we are*, WORLD METEOROLOGICAL ORGANIZATION, <https://public.wmo.int/en/about-us/who-we-are>.

115. *Declaration of the World Climate Conference, IOC/SAB-IV/INF.3*, WORLD METEOROLOGICAL ORGANIZATION 1-2, <http://unesdoc.unesco.org/images/0003/000376/037648eb.pdf>.

116. *Id.* at 3.

117. *Id.* at 4.

climate change.¹¹⁸ This process produced an increasing body of evidence that impelled a growing call for international action by the mid- to late-1980s. At the 1985 Villach Conference, for example, scientists called on the international community to collaborate on exploring policies for mitigating anthropogenic climate change.¹¹⁹ This call from scientists would be amplified three years later at the 1988 Toronto Conference on “Our Changing Atmosphere: Implications for Global Security.”¹²⁰ Following on the heels of the Montreal Protocol on ozone depletion, the Toronto conference (composed of policymakers and scientists) called for reducing global carbon emissions by twenty percent below 1988 levels by 2005.¹²¹ A Second World Climate Conference, held in 1990 after the IPCC issued its first report confirming the threat of climate change,¹²² notably called “for negotiations on a framework convention on climate change.”¹²³ An international negotiating committee, created by the General Assembly, negotiated the UNFCCC from February 1991 to May 1992. While negotiations proceeded remarkably quickly, at the time there were reasons to believe that the negotiators would not be able to come to a deal. While China was able to effectively lead the Group of 77 (a group of developing States that now far exceeds 77 countries) towards a unified vision,¹²⁴ developed countries, largely represented by the Organization for Economic Cooperation and Development (OECD) were far less coherent. Dasgupta mostly attributes this to the fact that the OECD had not established a common position in advance of the negotiations.¹²⁵ Bo Kjellen largely concurs, noting that the OECD lacked “real mechanism[s] for formal coordination,” which allowed each OECD Member State to adopt distinct negotiating strategies.¹²⁶ After fifteen months of negotiation, the UNFCCC became available for signature at the

118. See *A History of Climate Activities*, *supra* note 110.

119. See Laurence Boisson de Chazournes, *United Nations Framework Convention on Climate Change: Introductory Note*, U.N. OFFICE OF LEGAL AFFAIRS, <http://legal.un.org/avl/ha/ccc/ccc.html>.

120. *Reflections on the Toronto Conference—25 Years Later*, UNIV. OF PRINCE EDWARD ISLAND CLIMATE LAB (2013), <http://projects.upei.ca/climate/2013/07/02/reflections-on-the-toronto-conference-25-years-later/>.

121. *Id.*

122. See generally *Climate Change: The IPCC Scientific Assessment*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (1991), https://www.ipcc.ch/site/assets/uploads/2018/03/ipcc_far_wg_I_full_report.pdf.

123. SECOND WORLD CLIMATE CONFERENCE: MINISTERIAL DECLARATION, 20 ENVTL. POL'Y & L. 220, 221 (1990).

124. See Dasgupta, *supra* note 17, at 138.

125. *Id.* at 141.

126. Kjellen, *supra* note 9, at 158.

1992 Rio de Janeiro UN Conference on Environment and Development (also known as the Rio Earth Summit).¹²⁷

The UNFCCC entered into force in 1994.¹²⁸ Its aim is to “stabiliz[e] . . . greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”¹²⁹ The Convention also enshrined a number of principles that would guide later climate change accords. First, it established that States would have “common but differentiated responsibilities” based on their level of economic development.¹³⁰ Second, the Convention provided that States should “promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and process that control, reduce or prevent anthropogenic emissions.”¹³¹ It further stated that developed countries “shall provide new and additional financial resources” to meet the costs borne by developing countries in meeting their carbon mitigation targets.¹³² Lastly, the Convention stated that assistance should be provided to meet the costs of climate adaptation, particularly in developing countries.¹³³

B. *From Rio to Kyoto*

The UNFCCC’s entry into force began a process of annual COPs to establish implementing protocols. Each of these COPs would be led by a different Member State. Furthermore, working groups for specific issues in the years leading up to the COP would be led by two co-chairs (typically, filled by a delegate from a developed and developing Member State). By COP2, Member States endorsed the IPCC’s scientific conclusions regarding climate change and their call for legally binding objectives and significant reductions in carbon emissions.¹³⁴ This was a particularly noteworthy development for the United

127. See *Uniting on Climate: A Guide to the Climate Change Convention and the Kyoto Protocol*, UNFCCC 12 (2007), http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/pub_07_uniting_on_climate_en.pdf.

128. See FIRST STEPS TO A SAFER FUTURE: INTRODUCING THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, UNFCCC (2014), http://unfccc.int/essential_background/convention/items/6036.php.

129. United Nations Framework Convention on Climate Change art. 2, May 9, S. Treaty Doc No. 102–38, 1771 U.N.T.S. 107.

130. *Id.* arts. 3, 4.

131. *Id.* art. 4(1)(c).

132. *Id.* art. 4(3).

133. *Id.* art. 4(4).

134. See *Summary of the Second Conference of the Parties to the Framework Convention on Climate Change: 8–9 July 1996*, 12 EARTH NEGOTS. BULL. 1, 1 (July 22, 1996), <http://enb.iisd.org/download/pdf/enb1238e.pdf>.

States delegation, which had previously opposed legally binding protocols.¹³⁵ At COP3, the United States' change in position would pave the way for the Kyoto Protocol, which committed so-called Annex I countries (developed States) to reducing their overall emissions by at least five percent below 1990 levels between 2008 and 2012.¹³⁶ Towards this end, the Protocol allowed for carbon emissions trading,¹³⁷ a market-based approach to reducing emissions championed by the United States under President Bill Clinton.¹³⁸ Famously, however, the U.S. Senate did not vote to ratify the Protocol. Hours after the Protocol was signed, Senator Larry Craig, head of the Republican Policy Committee, called on President Clinton to "promptly submit the treaty and allow the Senate to kill it."¹³⁹ Subsequently, President George W. Bush announced that, even as a matter of policy, the United States would not implement the Kyoto Protocol.¹⁴⁰

C. *From Kyoto to the Bali Roadmap*

Subsequent COPs focused primarily on negotiating the specific terms by which Kyoto's promised five percent reduction in carbon emissions would be effectuated. This included, for example, negotiating a compliance system, eligibility requirements for carbon trading mechanisms, and information sharing.¹⁴¹ When the Kyoto Protocol eventually entered into force in 2005, thirty-seven industrialized countries and the European Community had signed on.¹⁴² Already in 2005, however, there was a sense that the Kyoto Protocol was insufficient, especially given its limited timeline (only extending through

135. *Id.* at 12.

136. See *Report of the Third Conference of the Parties to the Framework Convention on Climate Change: 1–11 December 1997*, 12 EARTH NEGOTS. BULL. 1, 1 (Dec. 13, 1997), <http://enb.iisd.org/download/pdf/enb1276e.pdf>.

137. See *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, art. 3 (10–12), Dec. 10, 1997, U.N. Doc FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (1998).

138. See *A Brief Analysis of COP-2*, 12 EARTH NEGOTS. BULL. 1, 13 (July 22, 1996), <http://enb.iisd.org/download/pdf/enb1238e.pdf>.

139. Helen Dewar & Kevin Sullivan, *Senate Republicans Call Kyoto Pact Dead*, WASH. POST (Dec. 11, 1997), <http://www.washingtonpost.com/wp-srv/inatl/longterm/climate/stories/clim121197b.htm>.

140. See David Sanger, *Bush Will Continue to Oppose Kyoto Pact on Global Warming*, N.Y. TIMES (June 12, 2001), <http://www.nytimes.com/2001/06/12/world/bush-will-continue-to-oppose-kyoto-pact-on-global-warming.html>.

141. See *A Brief Analysis of COP-7*, EARTH NEGOTS. BULL., Nov. 12, 2001, at 15, <http://enb.iisd.org/download/pdf/enb12189e.pdf>.

142. See *Kyoto Protocol—Targets for the first commitment period*, UNFCCC, http://unfccc.int/kyoto_protocol/items/2830.php.

2012).¹⁴³ This concern formed the heart of negotiations at COP13, which yielded the Bali roadmap—a document that provided direction for post-2012 climate negotiations.¹⁴⁴ In particular, the roadmap focused on re-engaging the United States, finding ways to bridge the divide between developed and developing States, and increasing confidence in the effective implementation of previously agreed-upon emissions targets.¹⁴⁵ It also established a number of so-called building blocks (issue areas) that would form the foundation of the Paris Accord, including consideration of mitigation, adaptation, technology transfer, and finance.¹⁴⁶

D. *Bali to Breakdown in Copenhagen*

Copenhagen's COP15 was meant to successfully conclude two years of negotiations under the Bali roadmap. Expectations were high; *Earth Negotiations Bulletin* (the go-to news outlet for UNFCCC climate change negotiations) wrote that “[m]any hoped that the Copenhagen Climate Conference would be able to ‘seal the deal’ and result in a fair, ambitious and equitable agreement, setting the world towards a path to avoid dangerous climate change.”¹⁴⁷ The number of Heads of State (nearly 115) attending the negotiations in Copenhagen further inflated high expectations.¹⁴⁸ Notwithstanding these expectations, however, COP15 failed to deliver.¹⁴⁹

Instead of adopting a version of text that had been drafted in the lead up to Copenhagen, a smaller group of the world's largest carbon emitters negotiated a side deal¹⁵⁰—a “political declaration . . . agree[ing] that deep cuts in global emissions are required according

143. See *Summary of the Eleventh Conference of the Parties to the Framework Convention on Climate Change and First Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol: 28 November–10 December 2005*, EARTH NEGOTS. BULL., Dec. 12, 2005, at 1, <http://enb.iisd.org/download/pdf/enb12291e.pdf>.

144. See *Summary of the Thirteenth Conference of the Parties to the Framework Convention on Climate Change and Third Meeting of Parties to the Kyoto Protocol: 3–15 December 2007*, EARTH NEGOTS. BULL., Dec. 18, 2007, at 1–2, <http://enb.iisd.org/download/pdf/enb12354e.pdf>.

145. See *A Brief Analysis of COP 13 & COP/MOP 3*, EARTH NEGOTS. BULL., Dec. 18, 2007, at 19, <http://enb.iisd.org/download/pdf/enb12354e.pdf>.

146. *Id.*

147. *Summary of the Copenhagen Climate Change Conference*, EARTH NEGOTS. BULL., Dec. 22, 2009, at 1, <http://enb.iisd.org/download/pdf/enb12459e.pdf>.

148. *Id.*

149. Or, in the words of Mark Hertsgaard, “In the end, Hopenhagen became Nopenhagen.” Mark Hertsgaard, *The Ugly Truth About Obama's ‘Copenhagen Accord’*, VANITY FAIR, Dec. 21, 2009, <https://www.vanityfair.com/news/2009/12/the-ugly-truth-about-obamas-copenhagen-accord>.

150. *Id.*

to science . . . to hold the increase in global temperature below 2 degrees Celsius.”¹⁵¹ To this end, Annex I (developed) States “commit[ted] to implement individually or jointly the quantified economy-wide emissions targets for 2020” (though those targets were not specified in the Accord) and Annex II (developing) States agreed to “implement mitigation actions.”¹⁵² A variety of other hortatory declarations were also made concerning the importance of reducing deforestation, market-based approaches to mitigating carbon emissions, and funding for developing countries.¹⁵³ In the end, the full COP would only “take note” of the Accord.¹⁵⁴ This was mostly due to widespread discontent with what was seen as the non-transparent, non-inclusive way in which the Accord was developed. Given that the full COP was given only an hour to read the Accord, the representative from Venezuela objected to having to decide the “lives of millions of people” in so short a span of time.¹⁵⁵ Other reactions were much more acrimonious; Lumumba Stanislaus Di-Aping, leading the G77 Group, stated that the Accord “asks Africa to sign a suicide pact, an incineration pact in order to maintain the economic dominance of a few countries. It is a solution based on values, the very same values in our opinion that funneled six million people in Europe into furnaces.”¹⁵⁶ The vast majority of world leaders were much less radical in their reaction to the Accord, if still disappointed by its substance. U.S. President Barack Obama stated, “We’ve come a long way but we have much further to go.”¹⁵⁷ EU Commission President Jose Manuel Barroso remarked, “I will not hide my disappointment regarding the non-binding nature of the agreement.”¹⁵⁸ French President Nicolas Sarkozy was more pragmatic, stating that “[i]f we had no deal, that would mean that two countries as important as India and China would be freed from any type of contract [T]he United States, which is not in Kyoto, would be free of any type of contract.”¹⁵⁹

151. *Report of the Conference of the Parties on its fifteenth Session, held in Copenhagen from 7 to 19 December 2009, FCCC/CP/2009/11/Add.1* 5, UNFCCC (Mar. 30, 2010), <http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf>.

152. *Id.* at 6.

153. *Id.*

154. *Summary of the Copenhagen Climate Change Conference*, *supra* note 145.

155. *Closing Plenary*, EARTH NEGOTS. BULL., Dec. 22, 2009, at 8, <http://enb.iisd.org/download/pdf/enb12459e.pdf>.

156. *Copenhagen deal reaction in quotes*, BBC NEWS (Dec. 19, 2009), <http://news.bbc.co.uk/2/hi/science/nature/8421910.stm>.

157. *Id.*

158. *Id.*

159. *Id.*

Pundits have disagreed as to the reasons for failure in Copenhagen. Some cite the fact that insufficient progress had been made in ad hoc working groups during the two-year Bali process, leaving draft texts with so many brackets that rendered them practically useless.¹⁶⁰ Others have cited the fact that Danish leadership showed only select countries its own draft agreement, not textually grounded in work completed during the Bali process.¹⁶¹ A previously confidential letter by then-head of the UNFCCC Secretariat, Yvo de Boer, concludes as much, arguing that the Danish text was so clearly advantageous to the West, and procedurally dismissive of other countries, that it was destined to fail.¹⁶² De Boer also concluded that inviting so many Heads of State was a poor choice: “Their early arrival did not have the catalytic effect that was hoped for. The process became paralysed. Rumour and intrigue took over.”¹⁶³

It is with this pyrrhic victory that we begin our analysis of the UNFCCC Secretariat. As the next Section will show, during the six years between COP15 and COP21, UNFCCC Member States incorporated procedural lessons, in line with the four recommendations outlined above, that would lead to success in Paris. This included important changes in the structure of negotiations that should influence the continuing role of the UNFCCC Secretariat.

VII. INSIGHTS FROM THE PARIS NEGOTIATION PROCESS

A. *From Copenhagen to the Durban Platform*

The six years between Copenhagen and Paris was a period of significant introspection and procedural change for the UNFCCC Secretariat. COP16, held in Cancun the year after Copenhagen, was particularly important in this story of procedural change. Given the failure at Copenhagen, “expectations for Cancun were modest, with few anticipating a legally-binding outcome or agreement on each outstanding issue.”¹⁶⁴ Nevertheless, by the end of the two weeks, parties

160. See *A Brief Analysis of the Copenhagen Climate Change Conference*, EARTH NEGOTS. BULL., Dec. 22, 2009, at 28, <http://enb.iisd.org/download/pdf/enb12459e.pdf>.

161. *Id.*

162. See John Vidal, *Copenhagen climate failure blamed on ‘Danish text’*, GUARDIAN (May 31, 2010), <https://www.theguardian.com/environment/2010/may/31/climate-change-copenhagen-danish-text>.

163. *Id.*

164. *Summary of the Cancun Climate Change Conference: 29 November–11 December 2010*, EARTH NEGOTS. BULL., Dec. 13, 2010, at 1, <http://enb.iisd.org/download/pdf/enb12498e.pdf>.

had finalized the Cancun Agreements, which established a Green Climate Fund, new mechanisms for facilitating green technology transfers, a framework for reducing deforestation, processes for advancing discussions on adaptation and reporting mitigation commitments, and a system for monitoring, reporting, and verification.¹⁶⁵ To many, the success of Cancun was driven significantly by procedural changes implemented by the COP's President, Patricia Espinosa of Mexico. According to the *Earth Negotiations Bulletin*, "Given the feelings of mistrust after Copenhagen, the Mexican Presidency understood that they would need to 'change the tone' in Cancun."¹⁶⁶ Faced with repeated rumors that the Presidency would introduce a Mexican text, as did the Danes, President Espinosa "repeated a daily mantra of 'there is no Mexican text' to delegates and emphasized that all parties are welcome to attend all meetings."¹⁶⁷ In particular, the Mexican example underscores the importance of our fourth recommendation that information sharing not be focused only on perceived hubs. Mexican President Felipe Calderón, for example, "held a number of open sessions with delegates at the Moon Palace to recognize the wide range of youth, NGO and other voices with a keen interest in the outcome. In addition, there were open and regular 'informal stocktaking' sessions where both country delegates and NGOs were updated at the same time."¹⁶⁸ The Mexican leadership also pressured the UNFCCC Secretariat to be more forthcoming with the delegates, requesting that more information be made available to all parties.¹⁶⁹

COP17, held the next year in Durban, introduced more procedural innovations that tend to support the recommendations from complexity science. Importantly, these innovations led to the Durban Platform for Enhanced Action (also known as the ADP process), which provided the UNFCCC a mandate for developing "a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties, which is to be completed no later than 2015" to pick up where the Kyoto Protocol left off.¹⁷⁰

165. See Nathan Hultman, *The Cancun Agreements on Climate Change*, THE BROOKINGS INSTITUTE (Dec. 14, 2010), <https://www.brookings.edu/opinions/the-cancun-agreements-on-climate-change/>.

166. *A Brief Analysis of the Climate Change Conference*, EARTH NEGOTS. BULL., Dec. 13, 2010, at 28, <http://enb.iisd.org/download/pdf/enb12498e.pdf>.

167. *Id.*

168. *Id.*

169. See Interview 2 (Jan. 9, 2017).

170. *Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP)*, UNFCCC, <http://unfccc.int/bodies/body/6645.php>.

In achieving these outcomes, the South African leadership showed the extent to which small changes in negotiation procedure can have outsized effects (recommendation two). First, the South Africans made an explicit change to the cultural context surrounding these negotiations. The *Earth Negotiation Bulletin*, for example, wrote, “Stirring a sense of history and leadership, the South African hosts challenged negotiators in Durban to embrace the spirit of *Ubuntu* or interdependence.”¹⁷¹ Others also noted how the South Africans were able to use their clout to shift participants’ mind-sets.¹⁷² This change in cultural context became particularly salient when a former ANC activist, then working for Greenpeace, “led delegates in chants of anti-apartheid anthems seeking climate justice.”¹⁷³ Second, the South Africans also introduced the concept of an Indaba, a small meeting of empowered parties that was explicitly forward-looking and value-creating.¹⁷⁴ From a formal perspective, there was nothing different between these Indabas and traditional sidebar conversations and huddles that had taken place throughout the course of UNFCCC negotiations. However, the explicit expectation of constructive, good faith efforts during Indabas was sufficient to change the way that parties approached the huddle. The South Africans also capitalized on the fourth recommendation (pivoting information sharing towards the periphery) by (1) holding multiple, simultaneous negotiations with all Member States that wanted an audience,¹⁷⁵ and (2) engaging with civil society. At one critical juncture during the negotiations, for example, the South African Presidency convened a meeting “with, apparently, little other purpose than to ensure that global civil society’s expectations were raised and primed to maintain pressure on Ministers and their negotiators.”¹⁷⁶ Third, the South African Presidency also internalized the third recommendation (employing flexible strategies for sharing information). Again, *Earth Negotiations Bulletin* noted, “When these [Indaba] Ministerial sessions ran their course and seemed to fail to take full advantage of the window that was opening for a deal, certain parties began to push the Presidency to take a more proactive approach The Presidency

171. *A Brief Analysis of COP 17 and CMP 7*, EARTH NEGOTS. BULL., Dec. 13, 2011, at 29–30, <http://enb.iisd.org/download/pdf/enb12534e.pdf> (describing Indabas as “designed to encourage a true participatory and open process of deliberations”).

172. See Interview 2 (Jan. 9, 2017).

173. *A Brief Analysis of COP 17 and CMP 7*, *supra* note 171, at 31.

174. See Interview 2 (Jan. 9, 2017).

175. *Id.*

176. *Id.*

responded and a number of helpful conference room papers were distributed at the Indaba sessions.”¹⁷⁷ They recognized, in effect, that a new strategy for information sharing was needed to meet the needs of a changing negotiation.

B. *The Durban Platform to Paris*

Finalization of the Durban Platform leaves us at the footsteps of the Paris Accord. Far from a *fait accompli*, the UNFCCC Secretariat, as well as a series of COP Presidents and working group chairs, built and expanded upon the procedural innovations highlighted in the above history. Leaving behind this narrative, the remainder of the Paris story will be told from the perspective of each of this Article’s four recommendations.

1. *Staying with the conflict*

One of the most notable ways in which the ADP process focused on expanding the range of options considered during negotiations was by keeping negotiations conceptual for as long as possible.¹⁷⁸ The decision to stay away from committing anything to writing for as long as possible was explicitly done to correct perceived procedural errors made in Copenhagen, where leadership compiled textual inputs from Member States that exceeded the UN office’s printing capacity.¹⁷⁹ This was also contrary to the practice of co-chairs before the ADP process, which were much more proactive in drafting texts for Member States to consider in advance of COPs.¹⁸⁰ Both Secretariat staff and negotiators alike recognized that this reticence for committing potential agreements to text was frustrating for Member States.¹⁸¹ But as one interviewee put it, it is “more difficult to be difficult” when you do not have text to haggle over.¹⁸²

Refusing to commit ideas to paper allowed a broader range of concepts to percolate over the intervening four years. It allowed ideas like Intended Nationally Determined Contributions, which empowered Member States to set their own reduction targets for carbon emissions (with the presumption that these targets would be ratcheted up over time), to be socialized in less formal settings, like the

177. *Id.* at 29–30.

178. *See* Interview 1 (Jan. 9, 2017).

179. *Id.*

180. *See* Interview 5 (Jan. 12, 2017).

181. *See* Interview 1 (Jan. 9, 2017); Interview 5 (Jan. 12, 2017).

182. Interview 1 (Jan. 9, 2017).

Major Economies Forum and dialogues held by the Center for Climate and Energy Solutions.¹⁸³ To be clear, none of the people interviewed for this Article framed the decision to eschew drafting text until late in the game as an effort to avoid local optima (the intention was almost certainly to avoid haggling over specific verbiage).¹⁸⁴ Going forward, however, techniques like this can be used to encourage parties to consider a wider range of options, perhaps even mitigating the tendency for negotiations to settle for the lowest common denominator.

2. *Focusing on small process changes*

The UNFCCC Secretariat also began experimenting with small procedural changes to shape the tenor of negotiations. One experiment was a series of changes made to summary documentation regularly provided to negotiation participants by the working group co-chairs. In addition to distributing formal negotiation reports (which focused on procedural matters), the co-chairs would also send out reflection notes—narrative documents, written only in the co-chairs' personal capacities, providing substantive negotiation feedback.¹⁸⁵ Over time, and depending on the needs of Member States, these informal reports would be given different names, and would even have covers printed in different fonts to maintain a sense of informality.¹⁸⁶ This may seem like an insignificant point, but it reinforces the importance of small changes that can be made to better serve the interests and needs of negotiating participants.

Member States also made it a practice to frequently rotate working group co-chairs. Over the four years between Durban and Paris, the ADP went through three sets of co-chairs.¹⁸⁷ While this practice, much like changing COP Presidents annually, may at first seem only to squander expertise, it actually played an important restorative role in the negotiation process. Particularly given frustration about the lack of a formalized negotiating text, Member States would frequently become dissatisfied with co-chairs.¹⁸⁸ Indeed, given their responsibilities, some posited that it might be impossible for a co-chair to retain the full trust of a sufficient number of States for much

183. See Interview 5 (Jan. 12, 2017).

184. See Interview 1 (Jan. 9, 2017).

185. *Id.*

186. See Interview 2 (Jan. 9, 2017).

187. See Interview 1 (Jan. 9, 2017).

188. See Interview 3 (Jan. 9, 2017).

longer than a year.¹⁸⁹ Additionally, electing co-chairs on a regular basis allowed Member States, and particularly developing States, to retain a sense of ownership over the negotiation process.¹⁹⁰

Finally, the Secretariat, and Member States independently, made use of changes in physical venue to reset negotiations. One negotiation participant, for example, noted how the French leadership at Paris (much like in past COPs) would choose specific negotiating rooms for specific types of conversation, mindful of the effect that having a larger or smaller group (or a more or less cramped meeting) would have on the negotiators.¹⁹¹ Much like the South Africans in Durban, COP21 President Laurent Fabius would hold “comités,” informal meetings convened for good faith deliberations oriented towards finding a deal.¹⁹² As stated above, by making these expectations explicit, leadership can have an important effect on the mindset of negotiators. Finally, informal gatherings outside the formal UNFCCC process, like the Major Economies Forum, created neutral spaces in which ideas could be brainstormed without it appearing as though the delegation was committing to anything within the climate change negotiation process.¹⁹³ In the lead up to Paris, the Major Economic Forum (which met three times a year) would involve the COP President, co-chairs, almost all of the G20, representatives from the group of least developed States and the alliance of small island States, and Saudi Arabia.¹⁹⁴ Given the number of States and range of perspectives present, one might even say that fora like this were essentially a constituent part of the UNFCCC process.

3. *Flexible strategies for sharing information*

Negotiation leadership took a number of steps to alter the ways in which information was shared between Member States as negotiations progressed. One of the most visible changes was to the actual written materials that were produced during the ADP process. The aforementioned short reflection notes were used consistently throughout ADP negotiations. But when the participants started focusing on core elements of an accord, and needed something more

189. *Id.*

190. *Id.*

191. *See* Interview 5 (Jan. 12, 2017).

192. *See* Interview 3 (Jan. 9, 2017).

193. *See* Interview 1 (Jan. 9, 2017).

194. *Id.*

formal to capture those core elements, the co-chairs gradually introduced Elements Papers and more formal notes.¹⁹⁵ Each of these documents addressed different political and substantive needs, and represented quite varied ways of communicating core ideas both to Member States and non-Party stakeholders (e.g., civil society). By the time the parties reached Paris, for example, there was an urgent need for, and frustration at the lack of, formalized text.¹⁹⁶ The French catered to this need by producing their own draft agreement, albeit in a manner notably more transparent than what transpired at Copenhagen. During COP21 itself, the French also experimented with a variety of meeting formats to accommodate the changing needs of the negotiation. After more formal discussions at the beginning of the Paris talks, the French negotiating team entered into a series of rolling meetings with different interest groups to test out ideas before committing them to text.¹⁹⁷ The final Friday and Saturday of the COP, for example, essentially became all-day informal consultations as President Fabius maintained an open door policy for all comers.¹⁹⁸ In all, there were no fewer than four different types of negotiating formats at Paris—two formal (the Plenary and contact groups) and two informal (informal consultations and spinoff groups that would be temporarily established to discuss cross-cutting issues).¹⁹⁹

4. *Sharing information with both hubs and the periphery*

Finally, leadership during the ADP process and during Paris employed communication strategies that targeted both what might traditionally be considered hubs of power as well as the periphery, depending on the negotiation's needs. First, a few tools were used to ensure that information would be disseminated to all interested parties. The Secretariat updated its electronic document sharing system so that parties to the negotiation could independently upload documents without requiring the Secretariat's approval. This allowed all stakeholders to have continued access to their counterparts' input and, once they got down to considering draft text, verbiage.²⁰⁰ The *Earth Negotiation Bulletin* also played an important role in creating a common baseline of understanding. Financially supported by the

195. See Interview 2 (Jan. 9, 2017).

196. See Interview 5 (Jan. 12, 2017).

197. *Id.*

198. See Interview 2 (Jan. 9, 2017); Interview 3 (Jan. 9, 2017).

199. See Interview 1 (Jan. 9, 2017); Interview 3 (Jan. 9, 2017).

200. See Interview 1 (Jan. 9, 2017).

Secretariat, it was released each morning and helped smaller delegations catch up on meetings that they were not able to attend.²⁰¹ In another effort to reach the periphery, co-chairs insisted on having facilitators of sub-group discussions held during the ADP process summarize even informal deliberations to all Member States (without debate).²⁰² Second, the Secretariat made a concerted effort to communicate with civil society, recognizing that it could serve as an important forcing mechanism in reaching a deal. UNFCCC Executive Secretary Karen Cristiana Figueres Olsen would personally engage with the NGO community, mindful of their influence as a force multiplier during negotiations.²⁰³ Third, the Secretariat, and many NGOs, would prioritize communications with certain veteran UNFCCC negotiators and other individuals who, due to their own reputation, were particularly influential, notwithstanding the fact that their official roles may not have been particularly empowered.²⁰⁴ One participant noted that these influencers stood out for their doggedness and ability to disrupt the negotiation process.²⁰⁵ As an example, during COP21, French President Francois Hollande would routinely call important negotiators at all levels to increase external pressure for a deal.²⁰⁶

Taken together, the ADP process and COP21 show how a sophisticated Secretariat can make use of insights from complexity science to capitalize on opportunities for a successful negotiation. While none of these procedural innovations were themselves dispositive in coming to an agreement, together they did ensure that the Secretariat remained nimble in the face of changing circumstances.

VIII. CONCLUSIONS

All too often, practitioners and academics alike neglect the role that Secretariats play in large, international, multilateral negotiations. This is unfortunate for a number of reasons. First, as was discussed at the beginning of this Article, large multilateral negotiations have an important role to play in international politics. As one tool among many for dealing with crises of the public commons, it is imperative that we better understand how to make these negotiations

201. *Id.*

202. *Id.*

203. *See* Interview 4 (Jan. 9, 2017).

204. *Id.*

205. *See* Interview 5 (Jan. 12, 2017).

206. *See* Interview 3 (Jan. 9, 2017).

effective and efficient. This requires thinking not only about multiparty negotiations from the perspective of those who participate in the negotiations, but also about those tasked with supporting the negotiations. As this Article shows, one fruitful avenue for brainstorming ways in which Secretariats can best support international negotiations is by thinking of large multilateral negotiations as complex adaptive systems. The interdisciplinary literature on complex adaptive systems reveals four primary ways in which Secretariats can optimize negotiations of this size: (1) encouraging participants to avoid local optima; (2) remaining cognizant of the effects of initial conditions; (3) employing variable, flexible strategies for sharing information over time; and (4) focusing attention on both the hubs and periphery of a negotiation. Taken together, these recommendations reorient Secretariats to function as coaches of the negotiation process—neither mere collators of paper nor interventionist participants in the negotiation process. As coaches, Secretariats are essential as a repository of process expertise and negotiation experience. Secretariats like the UNFCCC should be empowered by Member States to share this expertise with those negotiation participants that rotate into leadership roles, recognizing that the parties themselves must retain primary ownership over the negotiations.

Significant research remains to be done regarding the proper role of Secretariats in large, multinational negotiations. To date, there have been no attempts to quantitatively and holistically model an actual negotiation of this scale. Such an enterprise would be useful not only for gaining greater insight about the role that Secretariats writ large should play, but also for providing more granularity about the dynamics of particular negotiation contexts. As shared resource issues proliferate in international politics, coordinated international action will only become more important. Scholars and practitioners alike, therefore, should be devoting more energy to understanding these “Cinderellas” of the international treaty system.