

Fordham Environmental Law Review

Volume 27, Number 1

2015

Article 1

Rethinking International Environmental Linkages: A Functional Cohesion Agenda for Species Conservation in a Time of Climate Change

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RETHINKING INTERNATIONAL ENVIRONMENTAL LINKAGES: A FUNCTIONAL COHESION AGENDA FOR SPECIES CONSERVATION IN A TIME OF CLIMATE CHANGE

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I. INTRODUCTION

Without much doubt, climate change is having a significant impact on species conservation.² In the midst of a mass extinction crisis, it is simply wise to consider the current state of wildlife law and whether it is adequately equipped to stave the worst climate change outcomes. In certain cases, only preventing further or significant temperature increases will ward off extinction,³ but in many cases, species, if given the opportunity, could adapt to a new climate-affected reality.⁴ Ensuring adequate adaptation requires that conservation planning provide for resiliency—the capacity to respond to disturbances.⁵

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2. Literature here abounds. Perhaps the most influential popular writings on the issue is ELIZABETH KOLBERT, *THE SIXTH EXTINCTION: AN UNNATURAL HISTORY* (2014).

3. See, e.g., Péter K. Molnár et al., *Predicting Survival, Reproduction and Abundance of Polar Bears Under Climate Change*, 143 *BIOLOGICAL CONSERVATION* 1612, 1613 (2010) (discussing the threats to polar bears as a result of shrinking sea ice habitat).

4. See Ary A. Hoffmann & Carla N. Sgrò, *Climate change and evolutionary adaptation*, 470 *NATURE* 479, 479-480 (2011) (identifying the genetic adaptive capacity of some species).

5. See Rob Roggema, *ADAPTATION TO CLIMATE CHANGE: A SPATIAL CHALLENGE*, 231-32 (2009) (noting that dynamic spatial planning is necessary

Emphasis on resilience as a core component of biodiversity conservation generally has been a goal of international environmental law for at least a decade, but it is most certainly an unrealized goal.⁶ Species are declining at alarming rates, and the specter of climate change impacts compounds other threats to species conservation, such as poaching, habitat loss and degradation, invasive species, and pollution, among many other threats.⁷

Given the general failure to meet biodiversity conservation targets and achieve meaningful species resilience, a critical rethinking of international environmental law and governance, as a meaningful paradigm for species conservation in a time of climate change, is paramount.⁸ Despite tremendous expenditure of resources, the international environmental legal regime appears to have failed to generate on-the-ground results at a scale sufficient to achieve international conservation goals.⁹ And climate change will only exacerbate current challenges.¹⁰

because it allows for resiliency and proposing that spatial measures that allow for resiliency are necessary to sustain biodiversity).

6. See GRAHAM BENNETT, INTEGRATING BIODIVERSITY CONSERVATION AND SUSTAINABLE USE 4 (2004) (“The importance of strengthening ecological coherence and resilience as necessary conditions for both biodiversity conservation and sustainable development has attracted growing attention in recent years in a wide range of conservation and development fora.”).

7. Wendy B. Foden et al., *Species susceptibility to climate change impacts*, WILDLIFE IN A CHANGING WORLD: AN ANALYSIS OF THE 2008 IUCN RED LIST OF THREATENED SPECIES 77, 77 (Jean-Christophe Vié et al. eds., 2009).

8. Cf. Rachelle Adam, *Missing the 2010 Biodiversity Target: A Wake-up Call for the Convention on Biological Diversity*, 21 COLO. J. INT’L. ENVTL. L. & POL’Y 123, 165 (proposing that alternatives to the CBD must be explored in order to maintain life on Earth); cf. John K. Seater, *Learning to Live with Losing: International Environmental Law in the New Millenium*, 20 VA. ENVTL. L.J. 139, 141 (2001) (suggesting that failures within climate change negotiations prior to 2000 mark a “turning point for international environmental law”).

9. SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY, GLOBAL BIODIVERSITY OUTLOOK 4: A MID-TERM ASSESSMENT OF PROGRESS TOWARDS THE IMPLEMENTATION OF THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020, 10 (2014).

10. See generally Fitria Rinawati et al., *Climate Change Impacts on Biodiversity—The Setting of a Lingering Global Crisis*, 5 DIVERSITY 114, 114 (2013).

This paper proposes moving forward with an approach built on concepts of subsidiarity and scale,¹¹ complementary environmental principles that engender bottom-up problem solving at multiple levels of governance.¹² This approach is one of functional cohesion—a term that derives from a theory of effective software engineering.¹³ The “functional cohesion” approach for software engineering urges grouping elements of multiple tools, modes, or mechanisms together in a way that contributes to a single, well-defined task.¹⁴ Application of a similar model to the implementation of international environmental law for the benefit of species is revolutionary, simple, and absolutely essential. It could foster thematic implementation across treaties and across a species’ range in order to build resiliency at a relevant scale, particularly in the case of migratory species.¹⁵ With such an approach, international environmental law could have a real, transformative impact on slowing or reversing the decline in populations of certain species.

11. Regarding “subsidiarity,” see Josephine Van Zeben, *Subsidiarity in European Environmental Law: A Competence Allocation Approach*, 38 HARV. ENVTL. L. REV. 415, 417-18 (2014) (describing “legislative subsidiarity” as a determination of the appropriate level of governance at which to address an issue); regarding “scale,” see Richard M. Gunton et al., *The meaning of “scale,”* in SCALING IN ECOLOGY AND BIODIVERSITY CONSERVATION 19 (Klaus Henie et al. eds., 2014) (identifying “scale” as a useful conceptual tool because it accounts for a calibration of the temporal and spatial relationships of problem and solution). Note that “scale” used here is distinct from the “economy of scale” principle.

12. See Graham R. Marshall, *Nesting, Subsidiarity, and Community-based Environmental Governance Beyond the Local Level*, 2 INT’L J. COMMONS 75, 80-81 (2008) (describing community-based governance as a reflection of subsidiarity principles and assessing its up-scaling through nested governance as a means of addressing environmental concerns that occur at larger scales).

13. See EDWARD N. BAYLIN, FUNCTIONAL MODELING OF SYSTEMS 32 (1990) (“The functional cohesion method is the identification of a set of modules which are loosely coupled to each other (highly interdependent of one another) but internally highly coupled (each module is itself comprised of elements very related to one another).”).

14. See *id.* at 33 (noting that functional cohesion is mission- and objective-oriented and that sub-systems and systems are designed to achieve a cohesive final objective or single task).

15. For a description of a similar approach from a different perspective, see Abstract, Chanda Meek et al., *Migratory species, governance, and conservation: a comparative analysis of large-scale social-ecological systems*, Resilience and Development: Mobilizing for Transformation (May 4-8, 2014).

Prior to launching a new idea, however, it is important to assess existing strategies that have aimed at improving the effectiveness of international environmental law.¹⁶ The leading contemporary strategy for inducing a more effective international environmental regime is to identify and create what are called linkages or interlinkages.¹⁷ The complexity and multi-scalar nature of the climate change and biodiversity relationship has fostered a drive to build an international environmental network of linkages.¹⁸ The policymakers, lawmakers, and advocates who shape international environmental law have begun to link the efforts of multiple multilateral regimes ostensibly to address the impacts of climate change on biodiversity, and the law continues to expand in this area.¹⁹ This is occurring at two distinct levels. Momentum has long existed to enable cooperation and coordination amongst international environmental administrative bodies and institutions for the purposes of efficiency and effectiveness.²⁰ Additionally, issue jurisdiction overlap within the

16. For comprehensive perspectives on “effectiveness,” see DANIEL BODANSKY, *THE ART AND CRAFT OF INTERNATIONAL ENVIRONMENTAL LAW* 252-271 (2010) or Oran R. Young, *Effectiveness of International Environmental Regimes: Existing Knowledge, Cutting-edge Themes, and Research Strategies*, 108 *Proceedings of the National Academy of Sciences of the United States of America* 19853 (2011); see also BRADNEE CHAMBERS, *INTERLINKAGES AND THE EFFECTIVENESS OF MULTILATERAL ENVIRONMENTAL AGREEMENTS* 97-129 (2008) (outlining an understanding of theories of effectiveness and their relationship to international environmental law).

17. See CHAMBERS, *supra* note 16, at 9 (noting contemporary interest in pursuing an interlinkages approach and defining “interlinkages” as treaty cooperation).

18. Nils Goeteyn & Frank Maes, *The clustering of multilateral environmental agreements*, in *BIODIVERSITY AND CLIMATE CHANGE: LINKAGES AT INTERNATIONAL, NATIONAL, AND LOCAL LEVELS* 147, 163 (Frank Maes et al. eds., 2013) (noting growing awareness of climate change and biodiversity linkages).

19. See *infra* notes 83 – 142 and accompanying text.

20. See W. Bradnee Chambers, *From environmental to sustainable development governance: Thirty years of coordination within the United Nations*, in *REFORMING INTERNATIONAL ENVIRONMENTAL GOVERNANCE* 13-36 (W. Bradnee Chambers & Jessica F. Green eds., 2005) (providing a history of Multilateral Environmental Agreement (MEA) linkages); Nils Goeteyn & Frank Maes, *The Clustering of Multilateral Environmental Agreements: Can the Clustering of the Chemicals-Related Conventions be Applied to the Biodiversity and Climate Change Conventions?*, in *BIODIVERSITY AND CLIMATE CHANGE: LINKAGES AT INTERNATIONAL, NATIONAL, AND LOCAL LEVELS* 163 (Frank Maes et al. eds., 2013)

international environmental regime has motivated the development of a body of soft law that identifies, addresses, and molds the substantive synergies found in the legal landscape—ultimately, fueling the “paper tiger” frenzy of international environmental law.²¹

In some ways, the linkages movement could be seen as the seed for a new generation of international environmental governance—one that is multimodal and integrationist and ostensibly more effective in producing the desired on-the-ground results.²² However, the failure to achieve biodiversity and specific species targets contradicts this assumption, and a new theory for an innovative, more effective generation of international environmental law must be conceived. The notion that the evolution of international environmental law now calls for multimodality and integration is key,²³ but one must look not

(identifying efficiency and effectiveness as possible gains resulting from clustering); *see also* ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, THE DAC GUIDELINES: INTEGRATING THE RIO CONVENTIONS INTO DEVELOPMENT CO-OPERATION 42 (2002) (regarding a more cost-effective and coherent sustainable development regime and noting complementarities amongst Rio Conventions).

21. *See* Chris Wold, *The Futility, Utility, and Future of the Biodiversity Convention*, 9 COLO. J. INT'L. ENVTL. L. & POL'Y 1, 25-26 (1998) (proposing the development of soft law to address issue jurisdiction issues with the CBD); *see also* PETER P. ROGERS ET AL., AN INTRODUCTION TO SUSTAINABLE DEVELOPMENT 205 (2012) (noting that “paper tiger” sometimes refers to law without teeth); MARK DAWSON, NEW GOVERNANCE AND THE TRANSFORMATION OF EUROPEAN LAW 6 (2011) (soft law as “paper tiger”).

22. Professor Tony Arnold espoused the idea that U.S. environmental law has entered a new generation of law that is “multimodal and integrationist.” Craig Anthony Arnold, *Fourth-generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. REV. 771, 774 (2011) (“Ecological and social forces of change—and the policy imperatives that they create—will move the next generation of environmental law towards integrationist and multimodal methods of addressing complex, interdependent, dynamic, and multiscale environmental problems.”). His argument suggests that multimodal and integrationist lawmaking is necessary to address effectively the increasingly complex and multi-dimensional environmental issues of our times; *see id.* at 837 (describing issues at the nexus of climate change, land use, and water as those issues demanding solutions as dynamic as the problems themselves).

23. *See* Andrew Long, *Global Integrationist Multimodality: Global Environmental Governance and Fourth Generation Environmental Law*, 21 J. ENVTL. & SUSTAINABILITY L. 169, 170-71 (2015) (noting that now that environmental law is becoming multimodal and integrationist it may have the capacity to address global environmental problems).

at lawmaking itself in order to strike at the heart of change but at implementation of the law.²⁴ At the implementation level of international environmental law lays the key to effectiveness; focusing on implementation drives on-the-ground change.²⁵

The notions of multimodality and integration remain useful when reconceiving international environmental law from an implementation perspective. Indeed, the same aspects of complexity drive implementation.²⁶ Implementation must be calibrated to the scale of the environmental problem, and environmental problems, such as species conservation in a time of climate change, are increasingly complex, multi-dimensional issues.²⁷ As a result, solutions to these problems must be multimodal and integrationist.²⁸ If the new generation of international environmental law and governance is multimodal and integrated in character, then capturing synergies and linkages is fundamentally important. However, the

24. "Implementation" specifically refers to "all relevant laws, regulations, policies, and other measures and initiatives, adopted or taken to meet obligations under an environmental agreement." Gregory L. Rose, *Gaps in the Implementation of Environmental Law at the National, Regional, and Global Level* 6 (2011). In other words, "implementation" encompasses the activities taken at the national level to achieve international environmental law's objectives. In some cases, this is as clear-cut as adopting national legislation; in other cases, it refers more to on-the-ground activities that bring about changes in the environment, such as establishment of a protected area or adoption of a species conservation plan, or community-based natural resource management efforts.

25. See Eva-Maria Maggi, *The moment of truth: how the EU can build the ground for lasting environmental policy change in Morocco*, in IEP POLICY BRIEFS ON ENLARGEMENT AND NEIGHBOURHOOD 3 (2012) (linking environmental policy success to prioritization of implementation efforts).

26. See Carl Wright, Secretary General, Commonwealth Local Gov'ts Forum, Statement on the "Means of Implementation and Global Partnership" on Behalf of the LAMG and the GTF at the United Nations Informal interactive hearings on the Post-2015 development agenda (May 26-27, 2015), <https://sustainabledevelopment.un.org/content/documents/14698clgf.pdf> (recognizing that implementation reflects the complexity of development issues).

27. See Long, *supra* note 23, at 206-07 (arguing that the "unimodal, issue-fragmented, and scale-restricted approaches" to environmental problems no longer hold up to the increasingly complex problems we confront).

28. Professor Arnold chooses "integrationist" rather than "integrated" to describe his theory of a new environmental law because "the complexity and multidimensionality of ecological and social systems and subsystems render a truly integrated outcome virtually impossible to achieve." Arnold, *supra* note 22, at 795.

most relevant linkages for achieving on-the-ground results are the means of implementation across multiple treaties at the national level.

The theory of functional cohesion as a means of operationalizing a multimodal and integrated approach to implementation represents an important rethinking of international environmental linkages—one that is necessary to bring about the action-oriented revolution that international species conservation demands. Part II of this paper provides a useful background regarding the development of international environmental law and governance, a history that ultimately resulted in the linkages approach to bolstering the effectiveness of international environmental regimes. Part III details and critiques the interlinkages approach to the institutional and issue jurisdiction overlap between international environmental multilateral environmental agreements (MEAs) relevant to biodiversity conservation and climate change. In an effort to provide some practical guidance, Part IV elaborates on the functional cohesion approach to implementation linkages in the area of species conservation and climate change, sometimes using savannah elephant conservation as exemplar. Notably, this Part is not a prescriptive formulation of a functional cohesion approach, rather it describes a particular contextualization of the approach. Part V concludes that in order to ensure that species attain the resiliency necessary to adapt to climate change, a functional cohesion approach to implementation operationalizes most usefully the opportunities available through international environmental law.

II. THE INTERNATIONAL ENVIRONMENTAL LEGAL LANDSCAPE: CONGESTED AND FRAGMENTED

Understanding the history of employing interlinkages as a means of bolstering the effectiveness of the international environmental regime requires a review of the growth of the current system of international environmental law and governance. Without question, the field of international environmental law has been one of the fastest growing sectors of international law.²⁹ Much of the growth has come in the form of treaty adoption as environmental problems

29. Hilal Elver, *International Environmental Law, Water and the Future*, 27 THIRD WORLD Q. 885, 885 (Richard Falk et al. eds., 2005).

are increasingly viewed as demanding multilateral, even global, solutions.³⁰ Related growth has occurred within these treaty regimes, which are increasingly “thick” with procedural obligations and substantive aspirations in the form of soft law.³¹ Additionally, the development of this area of law has generated a dense network of Secretariat staff and other administrative and technical bodies. All of this development has led to an international environmental legal landscape that appears intractably self-cycling. The feedback loop of lawmaking and administrative bulking has engendered solutions that look inward and further enrich the international environmental legal landscape with more law and new administrative relationships, and as a result, has failed to employ the power of coordinated and synergistic implementation as a means of addressing specific environmental issues.

A. Treaty Proliferation Post-Stockholm

Although environmental treaties have existed in some form at least since the first part of the 20th century,³² the real uptick in the number of treaties adopted occurred in the period since the 1972 United Nations Conference of the Human Environment held in Stockholm, Sweden (the Stockholm Conference).³³ In fact, the Stockholm Declaration³⁴ calls for the development of multilateral treaties specifically as a means of addressing environmental issues.³⁵

30. See BODANSKY, *supra* note 16, at 35 (identifying three stages of international environmental law, including a treaty proliferation stage).

31. Annecoos Wierseman, *The New International Law-Makers? Conferences of the Parties to Multilateral Environmental Agreements*, 31 MICH. J. INT'L. L. 231, 233 (2009) (noting the thickening of hard law obligations via the adoption of soft law).

32. Edith Brown-Weiss, *International Environmental Law: Contemporary Issues and the Emergence of a New World Order*, 81 GEO. L. J. 675, 697 (1993).

33. Less than three-dozen international environmental agreements were adopted prior to 1972, and in the 20 years following the Stockholm Conference, the number rose to nearly 900. *Id.* at 675.

34. United Nations Conference on the Human Environment, Declaration of the United Nations Conference on the Human Environment, U.N. Doc. A/CONF. 48/14/Rev.1, at 3 (June 16, 1972).

35. *Id.* at ch. 1, para. 7 (“A growing class of environmental problems, because they are regional or global in extent or because they affect the common

Currently, 3,000 treaties are now categorized as comprising the body of law known as international environmental law.³⁶

The Stockholm Declaration's call for international environmental lawmaking aligned with a growing understanding of environmental concerns as international issues that warrant global attention.³⁷ International environmental lawmakers "internationalize" environmental issues so that they are appropriately dealt with through multilateral lawmaking.³⁸ A number of treaty regimes and international environmental mechanisms are rationalized by principles developed to reflect this internationalization. Most notably, the United Nations Framework Convention on Climate Change (UNFCCC)³⁹ and the Convention on Biological Diversity (CBD)⁴⁰ rely on the principle of "common concern of humankind" for underpinning their multilateral nature.⁴¹ The IUCN Draft International Covenant on Environment and Development⁴² reflects this understanding as applied to the environment generally, stating that the "global environment is a common concern of humanity."⁴³ Commentary on the Draft Covenant goes on to further explain that "[t]he interdependence of the world's ecosystems and the severity of

international realm, will require extensive co-operation among nations and action by international organizations in the common interest.").

36. Ronald B. Mitchell, INTERNATIONAL ENVIRONMENTAL AGREEMENTS (IEA) DATABASE PROJECT, <http://iea.uoregon.edu/page.php?file=home.htm&query=static> (last visited Aug. 3, 2015) (listing "over 1,190 MEAs, over 1,500 BEAS, and over 250 other environmental agreements").

37. See William Boyd, *Climate Change, Fragmentation, and the Challenges of Global Environmental Law: Elements of a Post-Copenhagen Assemblage*, 32 U. PA. J. INT'L L. 457 (2010).

38. See generally Robert W. Hahn & Kenneth R. Richards, *The Internationalization of Environmental Regulation*, 30 HARV. INT'L L.J. 421 (1989).

39. United Nations Framework Convention on Climate Change, Mar. 21, 1994, S. Treaty Doc. No. 102-38, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

40. Convention on Biological Diversity, Dec. 29, 1993, 1760 U.N.T.S. 79 [hereinafter CBD].

41. UNFCCC pmb. para. 2 ("Acknowledging that change in the Earth's climate and its adverse effects are a common concern of humankind"); CBD at pmb. para. 4 ("Affirming that the conservation of biological diversity is a common concern of humankind").

42. IUCN COMMISSION ON ENVIRONMENTAL LAW, DRAFT INTERNATIONAL COVENANT ON ENVIRONMENT AND DEVELOPMENT (4th ed. 2010), available at https://portals.iucn.org/library/efiles/documents/EPLP-031_rev2.pdf.

43. *Id.* at art. 3.

current environmental problems call for global solutions to most, if not all, environmental problems.”⁴⁴

This general sentiment seems to underpin the proliferation of international environmental law as commensurate with our increasing understanding of the multitude of environmental problems facing the world today, not the least of which is an era of mass extinction.⁴⁵ Professor William Boyd articulates an understanding of the influence of “internationalization” on international environmental law as the relationship between the nature of the problem and the means of addressing it.⁴⁶ Specifically, he explains that a traditional way of thinking about international environmental law is to first identify the nature and scale of a particular issue, then build governance and law at a scale to fit the concern.⁴⁷

Increasingly identifying many environmental issues as matters for international legal concern has led to what some have called the overdevelopment of international environmental law.⁴⁸ This phenomenon is now known as “treaty congestion,” a concept that refers not only to the abundance of international environmental law but also implies that some sort of bottleneck hinders the effectiveness of the regime.⁴⁹ In fact, scholars and practitioners alike have articulated a number of challenges posed by the saturation of the international environmental legal landscape. One author identifies two separate categories of problems related to treaty congestion—substantive consequences and procedural consequences.⁵⁰ The problem of procedural congestion refers primarily to those consequences that relate to the inefficiencies of participating in the international environmental regime, while

44. *Id.*

45. *E.g.*, Boyd, *supra* note 37, at 483 (listing issues like “biodiversity loss, stratospheric ozone depletion, climate change, deforestation, persistent organic pollutants”).

46. *See id.* at 465–467.

47. *Id.* at 494 (critiquing the “standard narrative of environmental law”).

48. *See* BODANSKY, *supra* note 16, at 35 (identifying the problem of too much law as one of the views of contemporary international environmental law).

49. *See* Brown-Weiss, *supra* note 32, at 697 (identifying treaty congestion as a “potentially negative side effect”).

50. Bethany Lukitsch Hicks, *Treaty Congestion in International Environmental Law: The Need for Greater International Coordination*, 32 U. RICH. L. REV. 1643, 1646–47 (1999).

substantive congestion, as the author puts it, refers to what is more commonly known as “fragmentation.”⁵¹

Of all the concerns raised by the specter of treaty congestion, fragmentation has been the focus of the most thorough academic exploration.⁵² Although no single academically endorsed definition of fragmentation exists, it commonly refers to the diversification of a legal landscape, often at the expense of efficiency.⁵³ The inefficiencies inherent in a fragmented legal landscape are many. Of particular concern in the international environmental context are the potential for inconsistent, or even contradictory, obligations, mandates, and goals.⁵⁴ Many scholars and practitioners have explored the issue of substantive congestion and the resolution of hard law conflicts.⁵⁵ In fact, the International Law Commission took up the issue of fragmentation, first in 2000, searching for a cohesive set of principles and problem-solving mechanisms to address the issue.⁵⁶ Despite the intensity of the legal community to address and resolve the issue of fragmentation, it has not proven to be a significant barrier to implementation of international environmental obligations.⁵⁷

51. *Id.* at 1647 (suggesting that procedural congestion “focuses on the problems that arise, especially in developing countries, due to a lack of time and resources to handle effectively all of the procedural duties that arise under each international agreement to which the state is a party”).

52. See Harro van Asselt, *Managing the Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes*, 44 INT’L L. & POL. 1205, 1205-10 (2011) (discussing the “extensive debate” on fragmentation).

53. See Harro van Asselt et al., *Global Climate Change and the Fragmentation of International Law*, 30 L. & POL’Y 423, 425 (2008) (introducing concept of fragmentation).

54. See Wierseman, *supra* note 31, at 274 (regarding sectoral fragmentation).

55. See, e.g., Harro van Asselt, *Managing the Fragmentation of International Climate Law*, 21 IUS GENTIUM 329 (2013); Karen N. Scott, *International Environmental Governance: Managing Fragmentation through Institutional Connection*, 12 MELB. J. INT’L L. 177 (2011); Mads Andenas, *Reassertion and Transformation: From Fragmentation to Convergence in International Law*, 46 GEO. J. INT’L L. 685 (2015).

56. Rep. of the Int’l Law Comm’n, 52d Sess., May 1-June 9, July 10-Aug. 18, 2000, ¶ 729, U.N. Doc. A/55/10 (2000) (adopting “[r]isks ensuing from fragmentation of international law” into the long-term program of work).

57. See Martti Koskenniemi, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study Group of the International Law Commission, A/CN.4/L.682, 140 (Apr. 13,

Occasions of actual conflict have been rare, and, when they do arise, they have often been dealt with through politically driven negotiation and ad hoc decision-making rather than resort to specific legal mechanisms.⁵⁸

Procedural congestion, however, is a practical issue of enormous significance and contributes to a phenomenon known as “treaty fatigue.”⁵⁹ Procedural congestion encompasses many of the factors that lead to the high transaction costs of international environmental lawmaking. Indeed, even the process of the development of the law comes at a high participation cost, with travel, time away from home and work for negotiators, and other related costs often adding up to a significant financial investment.⁶⁰ As negotiators work toward a new climate deal, multiple two-week long meetings per year for years have ensued.⁶¹ For many countries, ratification comes with a hefty price tag and political cost.⁶² Once an agreement has entered into force, again meetings occur on a regular basis, contributing to the

2006) (identifying compromises meant to facilitate compliance when conflict may exist).

58. See, e.g., *CITES and the WTO: Enhancing Cooperation for Sustainable Development*, https://www.wto.org/english/res_e/booksp_e/citesandwto15_e.pdf. For examples in contrast, see Koskenniemi, *supra*, at 22.

59. Rachele Adam, *Waterbirds, The 2010 Biodiversity Target, and Beyond: AEWAs Contribution to Global Biodiversity Governance*, 38 ENVTL. L. 87, 89 (2008) (describing treaty fatigue phenomenon).

60. See Daniel C. Esty & Maria H. Ivanova, *Revitalizing Global Environmental Governance: A Function-Driven Approach*, in *GLOBAL ENVIRONMENTAL GOVERNANCE: OPTIONS AND OPPORTUNITIES* (Daniel C. Esty & Maria H. Ivanova eds., 2002) (noting that participation in international environmental lawmaking may be compromised because of the transaction costs).

61. Brown-Weiss, *supra* note 32, at 698 (pointing out that “[a] normal negotiation may require four or five intergovernmental negotiating sessions of one to two weeks each during a period of eighteen months to two years. The Climate Convention negotiations required six sessions of two weeks each in less than sixteen months. Despite this very full and expensive schedule of negotiations, the Climate Convention negotiations were only one of more than a half dozen global or regional environmental agreement negotiations occurring more or less at the same time”).

62. See Thomas J. Miles & Eric A. Posner, *Which States Enter Into Treaties and Why?* 5 (John M. Olin Law & Economics Working Paper No. 420, 2008) (describing how transaction costs of treaty-making influence treaty participation).

cost of international environmental lawmaking.⁶³ The transaction costs related to compliance can be debilitating for a small developing country government to absorb and manage.

Compliance inefficiencies result when multiple, competing, and overlapping administrative tasks exist for States that are Party to numerous conventions. The most prevalent compliance inefficiency is the obligation to report to multiple convention bodies, often on the same issues, but in different reports that require different formatting, different timing, and perhaps different methodologies, but ultimately seek the same, or at least similar information.⁶⁴ At the national level, the reporting and record-keeping obligations of international conventions have significant personnel and financial costs.⁶⁵ The burden of reporting and record-keeping is so overwhelming for some countries that they persistently fail to meet their obligations, despite their best efforts and intentions.⁶⁶

Although the idea of treaty congestion most commonly refers to the proliferation of hard law in the form of treaties, other aspects of the international environmental legal landscape may also be congested. Over time, the growth of hard law has also led to the development of a dense thicket of soft law and administrative governance.

63. See Malcolm J. Forster & Ralph U. Osterwoldt, *Nature Conservation and Terrestrial Living Resources*, in *THE EFFECTIVENESS OF INTERNATIONAL ENVIRONMENTAL AGREEMENTS: A SURVEY OF EXISTING LEGAL INSTRUMENTS* 96 (Peter H. Sand ed., 1992) (noting the cost of participating in CMS is significant).

64. See HARRO VAN ASSELT, *THE FRAGMENTATION OF GLOBAL CLIMATE GOVERNANCE: CONSEQUENCES AND MANAGEMENT OF REGIME INTERACTIONS* 144 (2014) (noting operational inefficiencies resulting from multiple reporting obligations).

65. See MEINHARD DOELLE & LAVANYA RAJAMANI, *PROMOTING COMPLIANCE IN AN EVOLVING CLIMATE REGIME* 218 (2012) (noting that the costs of reporting are low relative to meeting other UNFCCC obligations but that nonetheless developing countries require “new and additional” financial assistance to cover the costs of submitting required reports).

66. See, e.g., CITES, *National Reports*, CoP15 Doc. 21, paras. 8-10 (2010) (noting that submission of reports is experiencing a downward trend and that a significant number of Parties have not submitted annual reports for three years or more).

B. Thickness through Soft Law

Soft law, in simple, categorical terms, is a category of law, negotiated and adopted, but without Parties' intent that it constitutes or produces binding legal obligation.⁶⁷ Almost predictably, as treaty congestion became a better-known consequence of international environmental lawmaking, the development of soft law witnessed an uptick.⁶⁸ Instead of embarking on the usually slow and delicate process of negotiating a treaty, the international community began adopting instruments that fall short of the status of treaties but nonetheless address environmental issues by providing guidance, stating common goals, and suggesting means of achievement.⁶⁹ The instruments may take any number of forms, but common types of instruments include United Nations General Assembly resolutions and declarations⁷⁰ and international documents, such as the Rio Declaration or Agenda 21.⁷¹ Additionally, the growth of "hard law" in the form of treaties has spawned, in turn, the growth of the body of soft law through the adoption of resolutions and decisions by the Conferences of the Parties of various treaties.⁷²

This second type of soft law includes thousands of documents, providing the hard law architecture a depth and richness that

67. See Pierre-Marie Dupuy, *Soft Law and the International Law of the Environment*, 12 MICH. J. INT'L L. 420, 424 (1991) (discussing the emergence and development of soft law, which Dupuy describes as "law [that] creates and delineates goals to be achieved in the future rather than actual duties, programs rather than prescriptions, guidelines rather than strict obligations").

68. See *id.* at 1-2 (postulating that the growth of soft law is related to the establishment of hard law platforms that allow for flexibility and diversity); see also Brown-Weiss, *Contemporary Issues*, *supra* note 32, at 708 (noting in 1993 that "the formulation of nonbinding legal instruments, or 'soft law,' is likely to increase more rapidly than the negotiation of formal international conventions.").

69. See Fabián Augusto Cárdenas Castañeda, *A Call for Rethinking the Sources of International Law: Soft Law and the Other Side of the Coin*, 13 ANUARIO MEXICANO DE DERECHO INTERNACIONAL 355, 389 (arguing that soft law emerged in response to the needs of the international community for speed and efficiency).

70. See Dupuy, *supra* note 67, at 423 (discussing the role of the UN General Assembly in creating soft law).

71. David Leary & Balakrisna Pisupati, *The Future of International Environmental Law*, 5 (listing examples of soft law, including the Stockholm Declaration and Agenda 21).

72. See Dupuy, *supra* note 67, at 420 (discussing how the development of hard law facilitates the growth and development of soft law instruments).

maintains its timeliness, adequacy, and efficiency.⁷³ The Conference of the Parties to the Convention on Biological Diversity has adopted over 300 decisions, shaping the implementation and application of the treaty, as well as the vision and future work of the Parties.⁷⁴ Indeed, soft law's goals are multiple: resolutions and decisions "interpret treaty obligations and develop rules, modalities, and procedures for implementation of particular provisions of the treaty . . . [and they] provide guidance to the parties about implementation, consider compliance and dispute resolution matters, establish subsidiary organs, address financial and organizational aspects of the treaty and its subsidiary organs, and set strategic frameworks for the future of the treaty."⁷⁵ It is this body of soft law that provides a "thickness" to the international environmental regime.⁷⁶

C. Administrative and Institutional Bulking

Commensurate with the growth of both hard and soft law has been the growth in the administrative network built to support the international environmental legal framework. In nearly all cases, the MEAs each have their own Secretariat, staffed with a Director, legal staff, administrative personnel, policy specialists, scientists, and enforcement officers.⁷⁷ The United Nations Framework Convention

73. See Katrina Lawrence, *The Pros and Cons of International Environmental Soft Law*, JOULE: DUQUESNE ENERGY & ENVIRONMENTAL LAW JOURNAL BLOG (Sept. 23, 2014), <http://www.duqlawblogs.org/joule/the-pros-and-cons-of-international-environmental-soft-law> (discussing how soft law enables Parties to respond more quickly, affordably, and politically acceptably to environmental crises).

74. See *COP Decisions*, CONVENTION ON BIOLOGICAL DIVERSITY, <http://www.cbd.int/decisions/cop> (last visited July 15, 2015). For a helpful chart detailing the number of meetings and documents produced for each MEA; see UNEP Division of Environmental Law and Conventions, *Issue Brief #2: The Environmental Dimension of IFSD: Fragmentation of Environmental Pillar and its Impact on Efficiency and Effectiveness*, <http://www.pnuma.org/gobernanza/documentos/Issue%20Brief%20%20IFSD.pdf> (last visited July 16, 2015).

75. Wierseman, *supra* note 31, at 237.

76. See *id.* at 275 (noting the "thickening" of MEA regimes).

77. E.g., Staff of the CITES Secretariat, CITES, <https://www.cites.org/eng/disc/sec/staff.php>.

on Climate Change Secretariat employs approximately 500 people, comprising the largest MEA Secretariat staff.⁷⁸ Other Secretariats may range from a handful of employees to 100 or so staff members.⁷⁹ In addition to Secretariats, a number of other actors are relevant to the international environmental landscape, including international financial institutions, aid agencies, enforcement organizations, trade organizations, intergovernmental organizations, and much of the United Nations infrastructure.⁸⁰

Taken as a totality, the administrative bulk that supports the international environmental regime is extensive and provides enormous capacity, which supports the day-to-day yeoman's work of international environmental law. However, its expansiveness includes significant redundancies and other inefficiencies that hinder a cohesive global environmental governance framework.⁸¹ Not only is the administrative and institutional regime massively inefficient, its growth has engendered territoriality, superiority complexes, and bad blood, hindering productivity and cooperation.⁸² Overall, the entire administrative and institutional network is equally as fragmented as the legal framework it supports.

78. Christiana Figueres, *Who We Are*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, <https://unfccc.int/secretariat/items/1629.php> (last visited Oct. 28, 2015).

79. For example, CMS employs 28 and CBD 76. Basic Information on Secretariats of Multilateral Environmental Agreements, <http://www.un.org/ga/president/61/follow-up/environment/060612d.pdf>.

80. See W. BRADNEE CHAMBERS, *INTERLINKAGES AND THE EFFECTIVENESS OF MULTILATERAL ENVIRONMENTAL AGREEMENTS* 91 (2008) (providing a diagram depicting the multiple high-level actors involved in international environmental governance).

81. See UNEP Division of Environmental Law and Conventions, *Issue Brief #2: The Environmental Dimension of IFSD: Fragmentation of Environmental Pillar and its Impact on Efficiency and Effectiveness*, <http://www.pnuma.org/gobernanza/documentos/Issue%20Brief%202%20IFSD.pdf> (last visited July 16, 2015) (highlighting the costs, structural inefficiencies, and inconsistencies resulting from institutional fragmentation).

82. See CHAMBERS, *supra* note 80, at 4 (acknowledging conflicts and turf wars amongst the various international institutions and citing Kristin Rosendal and Steinar Andresen, *UNEP's Role in Enhancing Problem-Solving Capacity in Multilateral Environmental Agreements: Co-ordination and Assistance in the Biodiversity Conservation Cluster*, in FRIDTJOF NANSEN INSTITUTE REPORT 29 (2004).

III. INTERLINKAGES AS A SOLUTION

As a result of the fast and arguably disjointed growth of international environmental law, a new trend has emerged built on the idea that cultivating crossover relationships amongst Secretariat staff is a means of harmonizing and galvanizing the international community's environmental goals.⁸³ Although interlinkages developed as a means of addressing governance issues, the idea of interlinkages has also been applied to crossover substantive issues so that many conventions now draw on the various obligations of multiple conventions in delineating the priorities, obligations, and goals. Given the number of international environmental treaties, their increasingly broad mandates, and the multitude of Secretariats scattered across the world, the notion of "capturing synergies"⁸⁴ now drives a significant portion of the work of various multilateral environmental agreements.⁸⁵ An entire body of academic literature has arisen to define, understand, and even promote these interlinkages as a solution to problems related to the subject of international environmental law—that is, issues of environmental degradation—as well as to international environmental law itself. As a cross-cutting theme, climate change as a field of international environmental law features largely in the literature and practice of international environmental linkages. However, neither the identification, nor the recognition, nor the operationalization of these synergies translates into on-the-ground environmental protection.

83. CHAMBERS, *supra* note 80, at 4.

84. The idea of "capturing synergies" has become a buzzworthy topic. *See e.g.* Harro van Asselt, *Managing the Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes*, 44 INT'L. L. & POL'Y 1205 (2012); Elizabeth Bryan et al., *Agricultural Land Management: Capturing Synergies between Climate Change Adaptation, Greenhouse Gas Mitigation and Agricultural Productivity—Insights from Kenya*, Report to the World Bank (2011), https://cgspace.cgiar.org/bitstream/handle/10568/3841/kenyawb_report3b_final.pdf?sequence=2.

85. *See, e.g.*, CMS, Resolution 8.2, CMS Strategic Plan 2006–2011, Nov. 20-25, 2005, *available* at <http://www.cms.int/sites/default/files/document/Resolution%208.2%20strategic%20plan%20e.pdf> (highlighting the pursuit of synergies as one of only nine operational principles in the Strategic Plan).

A. The Interlinkages Approach to Climate Change and Biodiversity

The idea of linkages, or interlinkages, has been a dominant theme in international environmental governance for a number of years now.⁸⁶ Since the origin of the United Nations Environment Programme at the 1972 Stockholm Convention, academics and practitioners alike have considered the idea of nurturing a more coherent international environmental legal and governance system.⁸⁷ In 1992, the Commission on Sustainable Development was borne of the same goal.⁸⁸ And since 1992, building on the Brundlandt Report's integration of environmental and developmental policy and the enormous growth of international hard law, the concept of linkages has driven international environmental governance policy.⁸⁹ Although territoriality and personal agendas may have interfered with application of the linkages theory in its nascent years, in 1999, UNEP convened a conference to promote the idea of interlinkages.⁹⁰ Since then, the idea has galvanized significant efforts.⁹¹

As noted above, although the concept of interlinkages first took hold as a means of addressing administrative and institutional inefficiencies, it now also refers to harmonizing the substantive overlap between treaties. The 1999 meeting on interlinkages identified both synergies, the existence of similar environmentally

86. CHAMBERS, *supra* note 80, at 4.

87. See, e.g., Walker Young, *Rio Conventions Redux: An Argument for Merging the Trio into a Single Convention on Environmental Management*, 12 *CONSILIENCE: THE JOURNAL OF SUSTAINABLE DEVELOPMENT* 197, 198-200 (arguing that the way to advance international cooperation in conserving biodiversity is to overcome the reductionist creation of three separate environmental biodiversity conventions and instead to merge them into a single coherent body).

88. *A Brief History of the CSD*, 5 *EARTH NEGOTIATIONS BULLETIN* 1, 1 (1998) (noting the creation of the CSD in part to "enhance international cooperation and rationalize intergovernmental decision-making capacity").

89. CHAMBERS, *supra* note 80, at 6 (describing the rise of the linkages theory in the 1990s).

90. See Statement by Mr. Klaus Toepfer, Executive Director, UNEP, United Nations University International Conference on Synergies and Coordination between Multilateral Environment Agreements (Jul. 14, 1999), available at www.grida.no/news/press/1971/asp (last visited Jul. 17, 2015).

91. See CHAMBERS, *supra* note 80, at 8 (noting the continuity of the interlinkages discussion at fora such as the General Assembly, UNEP, and Conferences of the Parties).

related interests and coordination, which refers to jointly managed actions of environmental institutions.⁹² In many ways, climate change is the perfect theme for exploring implementation of the interlinkages theory.⁹³ It is a crossover issue that the biodiversity conservation cluster of MEAs recognizes as impacting its work, and the overlapping substantive regimes of the biodiversity conventions naturally lend themselves to harmonization.⁹⁴ Additionally, many of the Secretariats involved represent the largest and most extensive Secretariat networks, including those of the CBD and UNFCCC.

The relationship between climate change and the biodiversity suite of international agreements has given rise to an extensive docket of collaborative efforts, both institutional and substantive. The following sections describe the most prominent of these endeavors, highlighting their strengths and weaknesses. Overall, while these linkages may address some of the inefficiencies of the international environmental regime, they fail to achieve effectiveness, or more simply, on-the-ground change.

92. See Brook Boyer, et al., National and Regional Approaches in Asia and the Pacific, Inter-linkages: Synergies and Coordination among Multilateral Environmental Agreements 3 (2002) (referring to the substantive and policy nature of synergies and the administrative aspects of coordination).

93. The relevance of climate change to the idea of linkages had early proponents amongst environmental scientists and their findings served as one impetus for the linkages movement. In 1997, the United Nations Development Programme convened practitioners and scientists to discuss climate change and ecosystem synergies amongst the Rio Conventions, and one of the scientists later published a report stressing the need for integration of environmental efforts. See UNDP, *Synergies in National Implementation: The Rio Agreements*, UNDP Report, 5 (1997), <https://www.cbd.int/doc/ref/cbd-synergies.pdf> (providing overview of the workshop); see also Robert Watson, et al., *Protecting our Planet Securing our Future: Linkages Among Global Environmental Issues and Human Needs*, 71-73 (1998), <http://siteresources.worldbank.org/INTRANETENVIRONMENT/Resources/ProtectingOurPlanet.pdf> (making the case for increased integration and coordination amongst relevant environmental regimes).

94. This cluster includes CITES, CBD, Ramsar Convention, the World Heritage Convention, Convention on Migratory Species, and the International Treaty on Plant Genetic Resources for Food and Agriculture.

B. Institutional Linkages

i. Multilateral Institutional Linkages

Early recognition of the overlapping goals of the Rio Conventions—the UNFCCC, the CBD, and the United Nations Convention to Combat Desertification UNCCD—led to the development of the Joint Liaison Group (JLG) of the Rio Conventions in 2001.⁹⁵ The Parties and the Executive Secretary of the CBD led these efforts, calling for linking efforts with the UNFCCC under common agenda items beginning in 1996.⁹⁶ Only in 2012, did the JLG finally adopt a Terms of Reference (TOR), which intend to outline a common vision for the work of the JLG.⁹⁷

Although initial intentions were to enhance implementation of each treaty and coordinate efforts amongst Secretariat staff for the dual

95. *See, e.g.*, UNFCCC, Rep. of the Subsidiary Body for Scientific and Technological Advice on its Fourteenth Session, FCCC/SBSTA/2001/2, paras. 39-42 (Sept. 18, 2001), *available at* <http://unfccc.int/resource/docs/2001/sbsta/02.pdf> (endorsing the creation of a Joint Liaison Group). Originally, the Joint Liaison Group was envisioned as a collaboration between only the UNFCCC and the CBD. *See* UNFCCC, Subsidiary Body for Scientific and Technological Advice, Cooperation with Relevant International Organizations, FCCC/SBSTA/2001/INF.3, Annex, para. 9 (Jun. 29, 2001) (sharing a CBD SBSTTA document that “[r]equests the Executive Secretary, in consultation with the Secretariat of the United Nations Framework Convention on Climate Change, to explore the formation of a joint liaison group between the bureau members of the relevant subsidiary bodies of the [UNFCCC] and the [CBD], and their respective Secretariats, for the purpose of enhancing coordination.”).

96. *See* CBD, Subsidiary Body on Scientific, Technical, and Technological Advice, Biological Diversity and Climate Change, Including Cooperation with the United Nations Framework Convention on Climate Change, UNEP/CBD/SBSTTA/6/11, Annex I, para. 2 (Dec. 21, 2001) (noting that the Conference of the Parties to the CBD had been calling for collaboration with the UNFCCC since its third meeting).

97. Terms of Reference and Modus Operandi for the Joint Liaison Group between the Three Rio Conventions, <https://www.cbd.int/cooperation/doc/jlg-modus-operandi-en.pdf> [hereinafter JLG TOR]; *see also* Twelfth Meeting of the Joint Liaison Group of the Rio Conventions, Summary Report, para. 48 (Jan. 2013), <https://www.cbd.int/doc/reports/jlg-12-report-en.pdf> (last visited July 13, 2015) (taking note of the adoption of the Terms of Reference and the inclusion of a “common vision”).

purposes of efficiency and augmented substantive outcomes,⁹⁸ the reality of the group's efforts has fallen far short. At the twelfth meeting of the JLG, updates of the group's activities included production of a calendar, hosting the Rio Conventions Pavilion at relevant meetings, and presentation of a joint statement at the Rio+20 Summit.⁹⁹ Even the TOR seems to reflect the shortcomings of the JLG, rather than its potential. For example, the areas of activity delineated include information-sharing, "providing information on interlinkages," contributing to workshops, and encouraging coordination.¹⁰⁰ On a substantive level, the TOR envisions the development of technical papers.¹⁰¹ Importantly, the "Guiding Principles" of the TOR recognize that the JLG's activities are limited to what can be achieved with existing resources or specifically dedicated funding.¹⁰²

The vision of collaborative substantive work, leading to more effective implementation of the Conventions, seems to have never materialized. The JLG has facilitated the production of a handful of interesting publications on common interests¹⁰³ and the various technical and scientific bodies have engaged in information-sharing that surely has been useful and productive, but larger-scale initiatives remain in limbo. For example, one longstanding goal of the JLG has been to harmonize reporting requirements across the Rio Conventions, but over a decade into the endeavor, barriers remain to actualizing the goal of top-down harmonized reporting, including a common format, transmission, different data sets, and timing, among

98. See *UNCCD/CBD/UNFCCC Joint Liaison Group*, UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION, <http://www.unccd.int/en/programmes/RioConventions/Pages/default.aspx> (noting the purpose of the JLG is to "share information . . . and to explore opportunities to enhance cohesion and synergies among the secretariats and their respective subsidiary bodies").

99. Twelfth Meeting of the Joint Liaison Group of the Rio Conventions, Summary Report, *supra* note 97, at para. 7.

100. JLG TOR at 2.

101. *Id.*

102. *Id.* at 1.

103. See, e.g., Joint Liaison Group of the Rio Conventions, *Forests: Climate Change, Biodiversity and Land Degradation*, http://unfccc.int/resource/docs/publications/rio_20_forests_brochure.pdf.

other things.¹⁰⁴ Ultimately, the utility and impact of a common reporting scheme was questioned by at least one JLG member.¹⁰⁵ As the cornerstone of the JLG's efforts, the failure to achieve streamlined commonality amongst reporting requirements for the sake of efficiency calls into question the overall efficacy of the JLG.

Multilateral linkages also occur outside of the JLG. For example, although not a member of the JLG, the Parties to CMS have recognized the value of the JLG, in collaboration with other conventions, for addressing climate change impacts on migratory species—at least at the institutional coordination level. In a recent resolution on climate change, the CMS Parties urge the CMS Secretariat to liaise with the JLG and other relevant conventions, including the World Heritage Convention and the Ramsar Convention.¹⁰⁶ It remains to be seen whether this call results in a new, formally established multilateral institutional linkage; however, it is clear that Parties continue to recognize a value in Secretariat-level coordination and turn to it as an option, even when considering issues that merit substantive, rather than administrative or procedural, endeavors. While dialogue amongst the Secretariats is surely critical, the idea that multilateral linkages amongst the Secretariats will bring about effective implementation of the regimes themselves seems farfetched. It is unclear whether any of the formally established multilateral institutional linkages have contributed meaningfully to treaty effectiveness.

104. Twelfth Meeting of the Joint Liaison Group of the Rio Conventions, Summary Report at para. 48.

105. *Id.*

106. CMS, Programme of Work on Climate Change and Migratory Species, UNEP/CMS/Resolution 11.26 (Nov. 4-9, 2014) ("Requests the Secretariat to liaise with the secretariats of relevant MEAs, including in particular the secretariats of the CBD, UNFCCC, UNCCD, Ramsar Convention and World Heritage Convention, in collaboration with/through the Biodiversity Liaison Group, to promote synergies and coordinate activities related to climate change adaptation"). The Biodiversity Liaison Group comprises CBD, CITES, Ramsar Convention, and the World Heritage Convention. CBD, Cooperation with other Conventions and International Organizations and Initiatives, Decision VII/26, para. 1 (Apr. 13, 2004) (providing mandate).

ii. Bilateral Institutional Linkages

In addition to the multilateral effort of the JLG, individual Secretariats have organized bilateral relationships with other Secretariats that are intended to foster both administrative and substantive collaboration for the purpose of efficient and effective implementation of each treaty. The CBD appears to be a leader in the field of bilateral agreements, having established bilateral agreements with individual Party governments, other Secretariats, international institutions and organizations, and non-governmental organizations.¹⁰⁷ In fact, The CBD mandates that its COP “[c]ontact, through the Secretariat, the executive bodies of conventions dealing with matters covered by this Convention with a view to establishing appropriate forms of cooperation between them.”¹⁰⁸ Academics and practitioners alike have proposed that bilateral cooperative agreements could promote effective implementation of common or mutually influential treaty objects.¹⁰⁹ However, in reality, climate change does not seem to be as much a driver of these relationships, probably because the JLG captures much of the climate change overlap, but these bilateral relationships nonetheless form a significant layer of institutional linkages.

107. See *Partnership Agreements*, CONVENTION ON BIOLOGICAL DIVERSITY, <https://www.cbd.int/agreements/> (listing over 200 agreements between the Secretariat and various other entities).

108. Convention on Biological Diversity, 31 I.L.M. 818, art. 24(4)(h) (June 5, 1992) (entered into force Dec. 29, 1993). The Conference of the Parties has reinforced and expanded this mandate: “[The COP requests the Secretariat] to coordinate with the [s]ecretariats of relevant biodiversity-related conventions with a view to: Facilitating exchange of information and experience; exploring the possibility of recommending procedures for harmonizing, to the extent desirable and practicable, the reporting requirements of Parties under those instruments and conventions; exploring the possibility of coordinating their respective programmes of work; consulting on how such conventions and other international instruments can contribute to the implementation of the provisions of the Convention on Biological Diversity.” CBD, Relationship of the Convention with the Commission on Sustainable Development and biodiversity-related conventions, other international agreements, institutions and processes of relevance, Decision III/21, para. 3 (1996).

109. See e.g. Scott, *supra* note 55, at 16-23 (evaluating the trend of MEAs to formalize relationships via MOUs and Memoranda of Cooperation).

Certain clusters of convention Secretariats have been aggressive in establishing cooperative relationships. In the context of thinking about climate change and biodiversity, it is relevant that the biodiversity cluster has engaged full throttle in relationship building.¹¹⁰ Additionally, the Secretariats and Parties of the biodiversity convention cluster have recognized the overlapping goals of landscape protection and biodiversity conservation. As a result, arrangements include relevant conventions such as the World Heritage Convention,¹¹¹ the UNCCD, and the Ramsar Convention on Wetlands of International Importance.¹¹²

The cooperative agreements tend to take the form of Memoranda of Understanding (MOUs) or Memoranda of Cooperation (MOCs), and typically contemplate joint or cooperative institutional engagement as well as joint activities pertaining to issues of mutual interest. For example, the MOC between the CBD and the UNCCD establishes a framework for information-sharing, document transmission, and harmonized capacity-building.¹¹³ And it also notes that the Secretariats will coordinate to develop a joint work programme.¹¹⁴ Similarly, the MOC between the CBD and CMS highlights mutually beneficial institutional exchanges; however, it

110. See United Nations Environment Programme, *International Environmental Governance: Multilateral Environmental Agreements (MEAs)* 19-20 (Apr. 6, 2001), available at http://www.unep.org/IEG/docs/working%20documents/MEA_full/INF3_MEA_Ad_d.doc (describing the rich field of biodiversity related cooperative agreements).

111. Convention for the Protection of the World Cultural and Natural Heritage, Nov. 16, 1972, 27 U.S.T. 37, 1037 U.N.T.S. 151; see, e.g., Memorandum of Understanding between the United Nations Educational, Scientific and Cultural Organization and the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals, available at http://www.cms.int/sites/default/files/document/Inf13_MoU_CMS_UNESCO_Eonly_0.pdf.

112. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb. 2, 1971, T.I.A.S. 11084, 996 U.N.T.S. 245 (entered into force Dec. 21, 1975).

113. Memorandum of Co-operation between the Secretariat of the Convention on Biological Diversity and the Secretariat of the United Nations Convention to Combat Desertification (Sept. 18, 2002), <https://www.cbd.int/doc/agreements/agmt-unccd-1998-07-31-moc-web-en.pdf>.

114. *Id.* at Art. 3.

suggests only an exploration of the possibility of a joint work programme, rather than a commitment to coordinate.¹¹⁵

C. Substantive Linkages

Although a number of the institutional linkages identified above have as at least one of their goals to influence the substantive outcomes of each of the relevant Conventions, the Parties to different Conventions have also identified areas of policy and substance that overlap and, as such, have adopted various resolutions or decisions, indicating goals, objectives, and obligations relevant to addressing the issue of biodiversity and climate change. Relative to the administrative linkages described above, the work Parties, Secretariats, and technical experts have done to cultivate substantive linkages has proven more useful. However, in many ways, these substantive linkages are also not necessarily effective at achieving cohesive implementation because they are top-down and they add more “law” to a regime that suffers already from too much law.

i. CBD-Driven Linkages

Again, the CBD has been a driver of identifying and elaborating the mutually influential nature of climate change and biodiversity conservation. The CBD’s position in this regard has been strategic—the CBD’s merit in international environmental law derives significantly from its ability to set policy agendas.¹¹⁶ Although CBD’s “spillover effect” is sometimes criticized, and even maligned, its work on climate change and biodiversity conservation can be harnessed for the purpose of building a bottom-up, country-

115. Memorandum of Co-operation between the Secretariat of the Convention on Biological Diversity and the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (June 13, 1996), <https://www.cbd.int/doc/agreements/agmt-cms-1996-06-13-moc-web-en.pdf>. Although no solid commitment flows from the MOC, Joint Work Programmes have been adopted between CBD and CMS.

116. Chidi Oguamanam, *Biological Diversity*, in ROUTLEDGE HANDBOOK OF INTERNATIONAL ENVIRONMENTAL LAW, 221-22 (Shawkat Alam ed., 2013) (noting that amongst several broadly construed thematic areas, CBD “sets the tone for biodiversity conservation”).

regional-, and species-driven approach to conservation of species affected by climate change.

Foremost, the work of the CBD has cemented the “ecosystem approach” as a linchpin of contemporary conservation policy. Deriving from the text of the convention,¹¹⁷ the emphasis on an “ecosystem approach” fosters integrated consideration and management at multiple levels and at multiple scales, providing both flexibility and expansiveness for biodiversity managers and policymakers.¹¹⁸ One of the core principles of the ecosystem approach is that humans and their culture are integral to the ecosystem and, as such, any application of the ecosystem approach must take into consideration the implications for humans.¹¹⁹ That the CBD emphasizes humans as a key component of biodiversity is significant in the climate change context because it widens the applicability of the ecosystem approach to nearly all mitigation and adaptation measures.¹²⁰

A second important facet of CBD’s work on interlinkages is its capacity for shaping discourse and for scientific and technical productivity. In fact, a number of influential policy papers on the ecosystem approach and climate change mitigation and adaptation have been published under the auspices of the CBD.¹²¹ These papers

117. The concept of “ecosystem” is a core theme of the Convention. It is defined as “a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.” CBD, *supra* note 40, at art. 2.

118. *See generally* SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY, CBD GUIDELINES: THE ECOSYSTEM APPROACH (2001), *available at* <https://www.cbd.int/doc/publications/ea-text-en.pdf> (noting the multiple ways in which the ecosystem approach answers the need for flexibility).

119. CBD, Ecosystem Approach, Decision V/6, para. 2 (2000).

120. *See generally* UNEP, Climate Change and Ecosystem Management: the “win-win-win” Link Between Mitigation, Adaptation, and Sustainability (Dec. 2009).

121. *See e.g.*, Secretariat of the Convention on Biological Diversity, *Interlinkages Between Biological Diversity and Climate Change: Advice on the integration of biodiversity considerations into the implementation of the United Nations Framework Convention on Climate Change and its Kyoto Protocol*, CBD Technical Series No. 10 (2003); Secretariat of the Convention on Biological Diversity, *Guidance for Promoting Synergy Among Activities Addressing Biological Diversity, Desertification and Climate Change*, CBD Technical Series No. 25 (2006), Secretariat of the Convention on Biological Diversity, *Connecting*

promote the ecosystem approach and have had some influence in mitigation and adaptation planning under the UNFCCC.¹²²

The benefits of the CBD's approach to interlinkages are also its shortcomings. As noted, the "ecosystem approach" to conservation, touted by the CBD is helpful because of its capacity to include a broad spectrum of mitigation and adaptation issues. The scale of the approach to the biodiversity-climate change linkage mirrors the breadth of the issues relevant to the work of the CBD, and this hampers effective implementation of the treaty's objectives, including with respect to climate change.¹²³ The National Biodiversity Strategy Action Plans (NBSAPs) and follow-up implementation of some of the savannah elephant range States exemplify this. A review of the NBSAPs indicates that although some Parties identify climate change as a threat to biodiversity, the national reports from these same countries indicate that actions were taken that specifically hamper adaptation, specifically in the case of the African elephant.¹²⁴ Ultimately, the CBD is rich in objectives and themes, creating interesting opportunities for substantive linkages with numerous other treaty regimes, but the expansiveness also creates implementation conflicts. As discussed below, a functional cohesion approach could avoid such conflicts by building species-specific conservation plans that pull substantive obligations from

Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change, CBD Technical Series No. 41 (2009).

122. See, e.g., UNFCCC, DATABASE ON ECOSYSTEM-BASED APPROACHES TO ADAPTATION, http://unfccc.int/adaptation/nairobi_work_programme/knowledge_resources_and_publications/items/6227.php.

123. See Wold, *supra* note 21, at 9-10 (arguing that the comprehensiveness of the C.B.D. hinders its effectiveness).

124. For example, Namibia's NBSAP recognizes that climate change is an important issue, and it noted that Namibia wished to raise awareness and strengthen its capacity to adapt to climate change. NATIONAL BIODIVERSITY TASK FORCE, BIODIVERSITY AND DEVELOPMENT IN NAMIBIA NAMIBIA'S TEN-YEAR STRATEGIC PLAN OF ACTION FOR SUSTAINABLE DEVELOPMENT THROUGH BIODIVERSITY CONSERVATION (2001 – 2010) 43. It also suggested that Namibia would create a committee to study and monitor climate change impacts. *Id.* at 44, 59. However, in its National Report, Namibia documents taking actions that hinder adaptation for elephants but ease immediately a particular human-wildlife conflict. Namibia National Report, 57.

across the international environmental legal landscape, ultimately employing and fulfilling an “ecosystem approach.”

ii. CMS and Climate Change

The work CMS has undertaken on climate change stands as the most direct and relevant work on species conservation and climate change as far as creating a policy framework for national-level implementation.¹²⁵ The CMS climate change framework emphasizes habitat protection, ecological networks, and landscape protection as the most salient features of *in-situ* species conservation.¹²⁶ For species such as the savannah elephant, adequate habitat is crucial as a buffer against climate change impacts. As such, although the CMS climate change work programme has had little influence on southern African elephant conservation to date, it could provide an overarching mandate for the range States to work collectively at a regional scale across multiple relevant treaty obligations, tools, and mechanisms.¹²⁷ Ultimately, though, the principles adopted by the CMS Conference of the Parties require national-level implementation to be effective, and Parties have yet to demonstrate the type of coordinated national-level engagement in international environmental law that could stimulate effective implementation across multiple relevant treaty regimes. The CMS Parties seem to have recognized this limitation, albeit not as a mutually positive deployment of treaty obligations but rather as a concern that achieving mitigation and adaptation objectives under other regimes could negatively impact species.¹²⁸

125. *See, e.g.*, CMS, Resolution 11.26, Programme of Work on Climate Change and Migratory Species, UNEP/CMS/Resolution 11.26 (Nov. 4-9, 2014).

126. *See id.* at Annex, “Measures to facilitate species adaptation in response to climate change” (identifying habitat protection and restoration as critical for improving species’ resiliency).

127. *See infra* notes 180 – 183 and accompanying text.

128. *See* CMS, Migratory Species Conservation in the Light of Climate Change, UNEP/CMS/Resolution 10.19, para. 21 (Nov. 20-25, 2011) (*Urges* Parties and *encourages* non-Parties to include the measures contained in this Resolution in their national climate change strategies, National Biodiversity Strategies and Action Plans (NBSAPs) and other relevant policy processes, ensuring that mitigation or adaptation activities do not result in a deterioration of the conservation status of CMS-listed species).

iii. UNCCD, biodiversity, and climate change

The link between desertification, biodiversity conservation, and climate change is a well-recognized interface under the auspices of the UNCCD.¹²⁹ In fact, the UNCCD drafters specifically identified this important relationship, among others, in the treaty text. Article 8 encourages coordination amongst the UNFCCC, the CBD, and “other related environmental conventions.”¹³⁰ Additionally, the UNCCD instructs African country parties to include conservation measures that “ensure the integrated and sustainable management of natural resources, including... wildlife” within their National Action Programmes—highlighting an important substantive linkage.¹³¹ Yet, neither the COP and nor individual Parties on a broad scale have embraced consideration of the potential interconnectedness of drylands and desertification, climate change, and species conservation beyond the convention text. The Parties have not addressed the issue via resolution,¹³² nor have many Parties identified species conservation as relevant in National Action Programme

129. The preamble to the Convention recognizes the potential for mutual contributions: “Bearing also in mind the contribution that combating desertification can make to achieving the objectives of the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity and other related environmental conventions.” United Nations Convention to Combat Desertification, 1954 UNTS 3 (1994), *entered into force* December 26, 1996.

130. United Nations Convention to Combat Desertification, *id.* at art. 8 (“The Parties shall encourage the coordination of activities carried out under this Convention and, if they are Parties to them, under other relevant international agreements, particularly the United Nations Framework Convention on Climate Change and the Convention on Biological Diversity, in order to derive maximum benefit from activities under each agreement while avoiding duplication of effort. The Parties shall encourage the conduct of joint programmes, particularly in the fields of research, training, systematic observation and information collection and exchange, to the extent that such activities may contribute to achieving the objectives of the agreements concerned.”).

131. UNCCD Annex I, art. 8, § 3, Sept. 12, 1994, 1954 U.N.T.S. 3.

132. Plenty of UNCCD decisions mention climate change, but nearly all concern simply the “promotion” of the institutional linkages of the JLG. Each COP has adopted a decision on the promotion of institutional linkages. *See, e.g.*, UNCCD, Decision 13/COP.1, Collaboration with other Conventions; UNCCD, Decision 9/COP.11, Ways of Promoting and Strengthening Relationships with other Relevant Conventions and international Organizations, institutions, and Agencies.

planning.¹³³ Thus, despite extensive efforts by the CBD Secretariat and Parties to identify and expound on substantive linkages, that effort appears to have had little effect on implementation of the UNCCD.

iv. The Influence of Capturing Substantive Linkages

Multiple other international environmental regimes are substantively connected to the issue of species conservation and climate change. These other relevant regimes include the World Heritage Convention, the Ramsar Convention on Wetlands of International Importance, the Man and the Biosphere Programme, and others. Many of these regimes have also identified and expounded on linkages with the issue of climate change. For example, the Ramsar Convention COP adopted a resolution on wetlands and climate change and “recognize[d] that the conservation and wise use of wetlands helps biodiversity to adapt to climate change by providing connectivity, corridors and flyways, and other migratory pathways.”¹³⁴

These resolutions and decisions add to the relevant soft law architecture of biodiversity and climate change. They highlight important policy linkages, and they establish a framework for further both national and international legal development where biodiversity

133. Botswana’s National Action Programme, of all the southern African elephant range States may be the most comprehensive but it focuses mostly on the negative impacts of elephants on desertification and human-wildlife conflict. It specifically identifies wildlife generally, and elephants in particular, as one of its natural resources and goes on to explain: (1) land use conflict between wildlife and agriculture continues to be a major source of controversy, (2) elephants, which far exceed their carrying capacity in the northern part of the country, play a central role in this controversy, and (3) elephants’ destruction of crops not only destroys the “rural livelihoods of small holder farmers,” but also “provides a conducive environment for desertification to set in.” DEPARTMENT OF ENVIRONMENTAL AFFAIRS, *BOTSWANA NATIONAL ACTION PROGRAMME TO COMBAT DESERTIFICATION* 16 (2006). In contrast, although Zimbabwe is home to between 80,000 and 100,000 elephants, its National Action Programme mentions neither elephants specifically or even wildlife generally as considerations relevant to desertification. MINISTRY OF MINES, ENVIRONMENT AND TOURISM, *THE NATIONAL ACTION PROGRAMME (NAP) IN THE CONTEXT OF THE UNCCD IN ZIMBABWE* 7 (2000).

134. Ramsar Convention Res. XI.14, *Climate Change and Wetlands: Implications for the Ramsar Convention on Wetlands* (July 6-13, 2012).

conservation and climate change adaptation converge. In this way, this body of soft law, taken as a whole, represents an action agenda for international and domestic implementation.

However, the practical influence of this new legal framework may be limited because the approach is one of top-down law/policy-making. In other words, the policies enshrined in these synergies are aspirational and do not necessarily reflect opportunities or actions already occurring or possible at the national level. They do not translate to functionally cohesive, issue-specific guidelines or actions for Parties, and as a result, their influence on domestic implementation is limited.

IV. REFOCUSING LINKAGES THROUGH FUNCTIONAL COHESION

Despite momentum for the interlinkages approach, many have cautioned that it has failed to address issues of national implementation and on-the-ground effectiveness.¹³⁵ Perhaps the most obvious failure of the interlinkages approach is inherent contradiction between problem and solution—the interlinkages approach is intended to address the issues of treaty congestion and fragmentation, yet its core feature is further lawmaking. The pursuit of administrative or institutional linkages has created a quasi-contractual layer to international environmental governance, and the international environmental legal landscape is significantly “thicker,” particularly in the soft law realm, as a result of identifying and

135. See UNEP, *International Environmental Governance: Multilateral Environmental Agreements*, UNEP/IGM/1/INF/3, 28 (2001) (“Although coordination among MEAs has focused on cooperation among MEA COPs and MOPs, secretariats, and their subsidiary bodies, insufficient attention is being given to the more critical issue of coordinating implementation of MEAs at the national level.”); see also Graham Bennet, *Integrating Biodiversity Conservation and Sustainable Use: Lessons Learned from Ecological Networks* (2004), available at <https://portals.iucn.org/library/efiles/documents/2004-002.pdf> (postulating that despite international consensus on conservation principles, “achieving the objectives will only be feasible if a way can be found to translate these broad frameworks into appropriate actions on the ground”). Cf. Craig Anthony Arnold, *Fourth-Generation Environmental Law: Integrationist and Multimodal*, 35 Wm. & Mary Envtl. L. & Pol’y Rev. 771, 795 (arguing that “multimodality by itself may not effectively achieve the desired goals or outcomes if the multiple modes or methods conflict with one another, work at cross-purposes, or undermine the overall system’s resilience”).

elaborating on synergies by Secretariats and COPs.¹³⁶ As a result, international environmental law continues to suffer from its own magnitude and is perceived as top-heavy and burdensome.¹³⁷

A new approach is necessary to capitalize on the multiplicity of international environmental law. And, as wise a man as Albert Einstein purportedly quipped, “The significant problems we have cannot be solved at the sale of thinking with which we created them.”¹³⁸ Turning past thinking on its head allows a bottom-up view of international environmental law that focuses on implementation synergies at the local, national, and regional levels. This approach should not eschew the international environmental legal landscape’s wealth of law; instead, it should provide a basis for integration across vertical and horizontal, multi-scalar axes.¹³⁹ A new model for achieving the sort of results that species in a changing climate require should refocus efforts to meet multiple treaties’ core objectives through a bottom-up approach that emphasizes national and regional ministerial collaboration that integrates treaty functions around singular thematic issues, such as the impact of climate change on elephants. National-level endeavors, once articulated and eventually realized, can be scaled-up at the regional level for the benefit of migratory species. In doing so, governments will have met many of their international environmental law obligations and objectives.

In many ways, this approach is not novel, yet it portends a revolution in implementation of international environmental law because it has the power to be transformative if executed well. At various times, the work of the Rio Conventions on linkages and synergies has identified the need for integration to occur at the national level. For example, the CBD Parties identified collaboration amongst national focal points and cooperation on national-level planning as two key activities in order to capture the synergies and

136. See *supra* notes 67-76 and accompanying text.

137. Cf. Ved P. Nanda, *Global Environmental Governance and the South*, in *INTERNATIONAL ENVIRONMENTAL LAW AND THE GLOBAL SOUTH* 146-48 (Shawkat Alam, et al., eds. 2015) (noting that developing countries need capacity support to implement international environmental law).

138. Albert Einstein, unattributable.

139. See Katrina Brown et al., *Integrated Responses*, in *ECOSYSTEMS AND HUMAN WELL-BEING: POLICY RESPONSES* 429 (describing vertical integration, horizontal integration, and cross-scale responses to environmental issues).

thus co-benefits of the work of the CBD and the UNFCCC.¹⁴⁰ In order to achieve this collaboration and cooperation, Parties are to schedule periodic joint meetings, identify sectors and policies where synergies may be relevant, and “revise relevant plans and policies, as appropriate to enhance cooperation.”¹⁴¹ Even recognizing the limitations and nature of drafting international soft law documents, it is notable that the Parties fall short of identifying actual cooperation as a necessary precursor to capitalizing on synergies. The functional cohesion approach builds on the same logic, but it relies on actual cooperation and collaboration. In addition, it requires cooperation and collaboration on a singular goal, such as a particular species’ climate change resilience. In this way, a functional cohesion approach pushes the idea of synergies further and deeper because it asks governments to pursue broadly multiple solutions for narrowly construed conservation issues.

The bottom-up approach of functional cohesion allows Parties and range States of species like the savannah elephant to identify critical adaptation objectives and strategies, and employ the capacities of the relevant international environmental regimes to facilitate implementation. Multiple levels of functionality are critical across the international environmental landscape. First, international environmental law provides a clear mandate to pursue the interconnected issue of species conservation and climate change. The legal and policy frameworks adopted as substantive linkages between relevant regimes frame these functionalities in a functional cohesion approach. They provide a legal “home” and justification for national and regional initiatives by thematically binding the opportunities to take advantage of international environmental law.

Second, many treaties and other international initiatives provide opportunities for listings, designations, and other legal identifications that confer status on either species or their habitat. These designations of international status are critical for policymaking and fundraising, but foremost, they provide the legal skeleton for any species conservation plan. Third, relevant treaties provide the legal tools and mechanisms that allow governments to plan for and subsequently monitor implementation of stated goals. The planning

140. CBD, Biodiversity and Climate Change, Decision IX/16, UNEP/CBD/COP/DEC/IX/16, Annex II (Oct. 9, 2008).

141. *Id.*

mechanisms in particular provide a crucial opportunity for cultivating an integrated assemblage of conservation goals and treaty obligations and objectives. Finally, the relevant regimes offer important facilitative opportunities, such as scientific expertise, capacity-building, technology transfer, and funding.

When applied to a species resilience plan that harmonizes endeavors across the legal landscape, a scaling up of capacity opportunities occurs that could meet the demands of implementation. Integration at these levels could foster a meaningful contribution to species resilience by harnessing the true power of the international environmental regime.

A. An Operational Mandate for Addressing Species Conservation and Climate Change

The substantive linkages identified above proscribe a clear operational mandate for addressing the issue of species' resilience. Taken together the work of the CBD and the CMS provide a policy blueprint for focusing specifically on those migratory species affected by climate change that act as harbingers of ecosystem health, such as the savannah elephant. On one hand, the CBD's work on the ecosystem approach could be influential on a new framework for addressing species conservation and climate change because it reconfigures the scale at which impacts are evaluated and thus addressed.¹⁴² For a keystone species like the savannah elephant, any conservation policy must bear in mind not just the conservation of the species itself and its space requirements but the space requirements necessary for the species to fulfill its ecosystem role, which ensures the health and well-being of other species and important ecological processes.¹⁴³ Importantly, this would also include a species' impact on humans, both positive and negative.¹⁴⁴

142. CBD, Ecosystem Approach, Decision V/6, para. 3 (2000) (referring to "ecosystem" as "any functioning unit at any scale" and noting that "the scale of analysis and action should be determined by the problem being addressed").

143. See Rudi J. van Aarde, *Elephants: A Way Forward* 2, <http://www.ifaw.org/sites/default/files/default/A-WAY-FORWARD-CERU-IFAW.pdf?sid=4005002> (discussing elephants as ecological engineers).

144. See DR. RICHARD D. SMITH & EDWARD MALTBY, USING THE ECOSYSTEM APPROACH TO IMPLEMENT THE CONVENTION ON BIOLOGICAL DIVERSITY: KEY

Viewed at an ecosystem-scale, the relationship between ecological processes sustained by healthy species populations and human interactions with and dependence on those processes, either directly or indirectly, are relevant to a conservation policy.¹⁴⁵ As such, the CBD's ecosystem approach could substantially influence species conservation planning in a functional cohesion approach.

The CBD's ecosystem approach is broader than simply habitat protection, or single-species conservation, by design.¹⁴⁶ In fact, the CBD Parties have specifically distinguished the ecosystem approach from other habitat-based conservation strategies.¹⁴⁷ The ecosystem approach frames the conservation objective itself broadly and thus differs from the framing suggested by a functional cohesion approach, which asks decision-makers to choose specific, narrowly construed conservation goals that would off wide-ranging co-benefits for the larger ecosystem. Instead of relying on the ecosystem approach to identify the conservation goal, it could instead be used to widen the lens of impact analysis, positive and negative, as well as the potentially relevant decision-makers and stakeholders, including local communities in a functional cohesion approach.

The conjunction of CMS objectives with the CBD's work and influence provides a pragmatic balance by emphasizing the inclusion of habitat protection as part of a species conservation plan that also employs principles of the ecosystem approach.¹⁴⁸ The CMS treaty

ISSUES AND CASE STUDIES 4 (2003) (identifying human impact and impacts on humans as core consideration of a ecosystem approach).

145. Graeme S. Cumming, et al., *Understanding Protected Area Resilience: A Multi-scale, Social-Ecological Approach*, DigitalCommons@University of Nebraska – Lincoln 300-01 (2015), available at <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1163&context=ncfvrustaff> (arguing that opportunities for resiliency are created when the interactions amongst social, economic, and ecological elements are considered).

146. See CBD Guidelines, *supra* note 118, at 2 (noting in Forward that the ecosystem approach is broader than protected area conservation tools and single species conservation programmes); see also *id.* at 32 (providing operational guidance for applying the ecosystem approach and describing the focus on “functional relationships and processes within ecosystems”).

147. CBD, Decision V/6, *supra* note 143, at para. 3 (contrasting definition of “habitat”).

148. See e.g., CMS, Integration of Migratory Species into National Biodiversity Strategies and Action Plans and into On-going and Future Programmes of Work

text itself makes patently clear that habitat protection is critical for the ongoing survival of migratory species.¹⁴⁹ Significantly, the CMS identifies both conservation and restoration of habitat as key to conservation planning.¹⁵⁰ The CMS Parties have elaborated on the need for habitat conservation and restoration through their endorsement of the idea of “ecological networks,” which is an operational model that incorporates the core principles CBD’s ecosystem approach.¹⁵¹ An “ecological network” as defined by the CMS Secretariat and Parties is a “system of connected landscape elements and the international collaboration required to conserve them.”¹⁵² The various “landscape elements” include human interactions with the ecosystem and ecological functions in addition to habitat *per se*.¹⁵³

The “ecological network” model is particularly adaptable to conservation of flagship,¹⁵⁴ umbrella,¹⁵⁵ and maybe even keystone

under the Convention on Biological Diversity, UNEP/CMS/Resolution 8.18, para. 1 (2005).

149. In fact, the word “habitat” occurs eleven times in the treaty text. *See generally* CMS, *infra* note 166; *see also* Chris A. Wold, *World Heritage Species: A New Legal Approach to Conservation*, 20 *GEO. INT’L. ENVTL. L. REV.* 337, 354-55 (providing an overview of CMS’s habitat-related provisions).

150. CMS, *infra* note 166, at art. III(4) (providing obligations for range States of Appendix I species); art. V(5) (indicating elements of an Appendix II AGREEMENT).

151. *See* Graham Bennet, *Integrating Biodiversity Conservation and Sustainable Use: Lessons Learned from Ecological Networks* (2004), <https://portals.iucn.org/library/efiles/documents/2004-002.pdf>.

152. CMS & UNEP, *Living Planet: Connected Planet – Preventing the End of the World’s Wildlife Migrations Through Ecological Networks, A Rapid Response Assessment* 4, http://www.grida.no/files/publications/living-planet/cmsflyer_english.pdf.

153. *See* Bennet, *supra* note 152, at 6 (asserting that a common vision for ecological networks is one of a “coherent system of natural and/or semi-natural landscape elements that is configured and managed with the objective of maintaining or restoring ecological functions as a means to conserve biodiversity while also providing appropriate opportunities for the sustainable use of natural resources”).

154. A flagship species is most commonly defined as a “popular charismatic species that serve as symbols and rallying points to stimulate conservation awareness and action.” *See* Frederic Ducarme et al., *What are “charismatic species” for Conservation Biologists*, 2 (2012), <http://biologie.ens->

species, depending on their particular characteristics.¹⁵⁶ As such, it has the potential as a conservation model to be widely applicable and support “trickle-down” protections to other species and a variety of ecological processes.¹⁵⁷ The ecological network model is also particularly suited to addressing the impacts of climate change because it promotes species resiliency by allowing for sufficient habitat to accommodate the life-cycle needs of species as well as their ecosystem functions.¹⁵⁸ As a model that reflects both CBD and CMS principles, the ecological network theory protects the multiple ways in which a particular species interacts with its ecosystem, including humans and this is inevitably a critical component of climate change adaptation planning.¹⁵⁹

From a policy perspective, specifically coordinating the objectives of the two treaties around specific species conservation goals provides an ideal harmonization of wildlife and human livelihood protection. In truth, coordinating the two treaties’ objectives may

lyon.fr/ressources/bibliographies/pdf/m1-11-12-biosci-reviews-ducarme-f-2c-m.pdf?lang=en (outlining definitions of categories of species).

155. See Jean-Michel Roberge & Per Angelstam, *Usefulness of the Umbrella Species Concept as a Conservation Tool*, 18 CONSERVATION BIOLOGY 76, 76 (2004) (suggesting that a broadly applicable and useful definition of “umbrella species” is “a species whose conservation confers protection to a large number of naturally co-occurring species”).

156. See Daniel Simberloff, *Flagships, Umbrellas, and Keystones: Is Single-species Management Passe in the Landscape Era?*, 83 CONSERVATION BIOLOGY 247, 254 (1997) (defining a keystone species as a species that is likely to “have impacts on many others, often far beyond what might have been expected from a consideration of their biomass or abundance” and also describing the role that keystone species might have in a particular ecosystem).

157. See Roberge & Angelstam, *supra* note 156, at 77-78 (noting that the umbrella species concept hinges on the idea that protecting one typically large, mammalian species will result in the protection of multiple species).

158. See Bennet, *supra* note 152, at 7 (stating that the ecological network model “maintains eco- system processes by conserving a representative array of habitats, allowing species populations access to a sufficient area of habitat (for foraging, the dispersal of juveniles or the recolonization of other habitat patches), allowing seasonal migration, permitting genetic exchange between different local populations, allowing local populations to move away from a degrading habitat (caused, for example, by global warming) and securing the integrity of vital environmental processes (such as periodic flooding)”).

159. See *id.* (emphasizing that the ecological networks model incorporates a sustainable use dimension).

result in a best possible outcome scenario since harmonization addresses the shortcomings perceived in each regime. The CBD's emphasis on livelihoods and the human-ecosystem interface limits the effect on species conservation that some thought the CBD might yield.¹⁶⁰ And the CMS has been criticized for low participation and lack of focus,¹⁶¹ though in part, its lack of stringency is also its advantage—it is structured to provide tremendous flexibility for identifying and pursuing conservation strategies.¹⁶² A functional cohesion approach allows policy-makers and planners at the local and national level to consider the objectives of each treaty in tandem, with a specific species conservation goal in mind. This should result in careful mutual consideration of each treaty's objectives, resulting in a more comprehensive, stronger conservation policy for species.

Realizing the goal of ecological networks almost requires a functional cohesion approach to species conservation. Drawing on both hard and soft law listings and designations, proponents of ecological networks, must first identify the relevant legal protections for different tracts of the network. These are drawn potentially from a huge suite of international environmental laws and initiatives and should be chosen after careful consideration of any potential conflicts or synergies. As such, planning, monitoring and reporting cohesively across the spectrum of relevant international environmental regimes are critical, and sustainable implementation requires significant resources, harnessed from multiple sources for the benefit of species conservation.

B. Listings and Designations

While treaties such as the Rio Conventions are normative in character and present consensus-based principles that governments

160. See Adam, *supra* note 8, at 125 (noting the failure of CBD to achieve gains regarding biodiversity loss).

161. See Nele Matz, *Chaos or Coherence? – Implementing and Enforcing the Conservation of Migratory Species through Various Legal Instruments*, 202 (2005), http://www.zaoerv.de/65_2005/65_2005_1_a_197_216.pdf (noting criticisms of the CMS); see also Elizabeth A. Baldwin, *Twenty-five years under the Convention on Migratory Species: Migration Conservation Lessons from Europe*, 41 *ENVTL. L.* 535, 542 (2011) (noting lack of stringency)

162. Baldwin, *supra* note 162, at 540 (recognizing the latitude provided through CMS's daughter agreements to address a range of species concerns).

are left to turn into concrete actions, other treaties are more specific in application.¹⁶³ These treaties only apply to specific species or specific areas after either a listing or designation occurs.¹⁶⁴ Typically a listing or designation process entails a nomination, a review, and some acceptance or adoption procedure.¹⁶⁵ Multiple listings and designations for both the relevant species and the habitat it requires to achieve resiliency is a critical element of a functional cohesion approach because it enhances the multimodal nature of the conservation strategy, which in turn enhances the comprehensiveness and, hopefully, the effectiveness, of the strategy.¹⁶⁶

i. Species Listings

For those migratory species affected by climate change impacts, a listing under the CMS may be useful. An Appendix I listing¹⁶⁷ triggers several conservation-oriented obligations, including the prohibition of takings.¹⁶⁸ And, importantly, range States of Appendix

163. See Jorge E. Vinuales, *Legal Techniques for Dealing with Scientific Uncertainty in Environmental Law*, 43 VAND. J. TRANSNAT'L L. 437, 453 (Mar. 2010) (describing framework-protocol approach to treaty design).

164. See Catharine L. Krieps, *Sustainable use of Endangered Species under CITES: Is It a Sustainable Alternative?*, 17 U. PA. J. INT'L ECON. L. 461, 501 (1996) (noting that CITES is a narrowly crafted treaty).

165. See, e.g., Convention on International Trade in Endangered Species of Wild Fauna and Flora, art. II, XV, XVI, *opened for signature* Mar. 3, 1973, 27 U.S.T. 1087, 993 U.N.T.S. 243 (entered into force July 1, 1975) [hereinafter CITES] (explaining the three appendices and how they may be amended); Convention on Conservation of Migratory Species of Wild Animals, art. XI, *signed* June 23, 1979, 1651 UNTS 333 (entered into force Jan. 11, 1983) [hereinafter CMS] (explaining the process by which a Party may propose an "amendment to the Appendices," thus listing or delisting a species).

166. See Arnold, *supra* note 22, at 831-32 (noting that "unimodal fragmentation fails to meet the challenges of complex, interrelated, nonlinear, dynamic environmental problems").

167. Appendix I includes migratory species considered endangered. CMS, *supra* note XX, at art. III(1) ("Appendix I shall list migratory species which are endangered."); *id.* at art. I(1)(e) (defining "endangered").

168. *Id.* at art. III(5) (proscribing the contours of the taking prohibition); *and see id.* at art. I(1)(i) (defining "taking" as "taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct"). Notably, the definition of "taking" under the CMS stops short of the expansive

I species must also “endeavour” to “conserve and, where feasible and appropriate, restore those habitats of the species which are of importance in removing the species from danger of extinction.”¹⁶⁹ As noted above, this habitat focus complements a broader CBD strategy by highlighting specifically the role of species as drivers of ecosystem health and the role of species habitat protection as facet of an ecosystem approach.¹⁷⁰

An Appendix II listing does not produce the same takings prohibition, but it does offer an interesting opportunity to employ functional cohesion. Ultimately, range States of Appendix II species must consider and endeavor to conclude new international conservation agreements for individual or categories of migratory species.¹⁷¹ Although this paper critiques the drive to produce more law to solve ostensibly new environmental issues, Appendix II species agreements offer an opportunity for range States to collectively, at an appropriate scale, consider the range of opportunities available via existing international environmental law and develop an agreement that draws on the multiple functionalities of these treaties in such a way that might have a measurable on-the-ground impact. It also provides a forum for bringing together relevant decision-makers from the Ministerial-level down, from across multiple subject jurisdictions, such as climate change and wildlife officers, to work cohesively and collectively on a focused species conservation plan.

Additional species listings may also be helpful in a functional cohesion approach to species conservation. Building resiliency calls for creating opportunity for species to avoid biologically devastating declines in the face of changes due to climate change, climate-change related disasters, or even poaching crises, among other things.¹⁷² In order to create this space most effectively all cumulative impacts on species conservation must be considered as part of a functional cohesion

definition under U.S. endangered species law. Compare CMS, *supra* note 166, at art. I(1)(i), with 16 U.S.C. § 1532(19) (2012 & 2012 Supp.) (“The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”).

169. CMS, *supra* note 166, at art. III(4)(a).

170. See *supra* text accompanying notes 151 to 161.

171. CMS, *supra* note 166, at art. IV(3).

172. See *supra* notes 6-7 and accompanying text.

approach. For example, in the case of savannah elephants, decision-makers would want to consider both legal and illegal trade as a cumulative impact that would affect the species resiliency to adapt to climate change.¹⁷³ In this case, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)¹⁷⁴ would be a relevant element of a species conservation plan. A functional cohesion approach allows decision-makers to consider jointly the multiple avenues for pursuing species resiliency and the multiple impacts on species populations that could hinder resiliency.

ii. Space Designations

Species resiliency requires adequate space, and it might mean a variety of different types of space that incorporate multiple user interests, multiple environmental implications, and multiple intended uses.¹⁷⁵ For this reason, resiliency planning is necessarily a multimodal and integrationist endeavor.¹⁷⁶ Effectiveness depends on drawing upon the many opportunities for designating specific characteristics and plans for a variety of spaces. This is especially true for a species like the savannah elephant, which requires

173. See van Aarde, *Climate Change and Africa's savannah elephants* (draft paper, on file with author) at 17 ("Future management also must consider existing populations and ensure that abundances are stable or that population trends convert to stability, not on a local level but at regional scales. Habitat creation, however, will not be effective for promoting range expansion where populations are declining, as is the case for elephants populations exposed to high poaching levels or where people degrade habitat and block dispersal corridors. Every effort to reduce poaching and secure corridors hence make sense.") [internal citations omitted].

174. Convention on International Trade in Endangered Species of Wild Fauna and Flora, art. II, XV, XVI, *opened for signature* Mar. 3, 1973, 27 U.S.T. 1087, 993 U.N.T.S. 243 (entered into force July 1, 1975).

175. See Cumming, *supra* note 146, at 303 (highlighting fact that spatial resilience "requires a hierarchical, cross-scale and multilevel framework in which different scales and institutional levels are connected by a set of interactions between different actors, resources, and processes").

176. See Craig Anthony Arnold & Lance H. Gunderson, *Adaptive Law, in* SOCIAL-ECOLOGICAL RESILIENCE AND LAW 333 (Ahjond S. Garmestani & Craig R. Allen, eds.) (2014).

significant space in order to absorb climate change impacts and remain biologically resilient.¹⁷⁷

The World Heritage Convention and the Ramsar Convention provide two important hard-law designation options. The World Heritage Convention allows State Parties to nominate areas of cultural or natural outstanding universal value,¹⁷⁸ and if adopted as World Heritage sites by the World Heritage Committee, such designations bring both international prominence and legal obligations that could be relevant for species conservation.¹⁷⁹ In some cases, savannah elephants, for example, might be one of the outstanding values for which a site is listed as World Heritage—in that case, a State Party has an obligation to protect and conserve those elephant populations as they form part of either the cultural or natural heritage of that site.¹⁸⁰ In other cases, elephants may happen to be found in World Heritage sites that are listed for other reasons.¹⁸¹ In these situations, governments may want to reevaluate whether the natural or cultural heritage of a site includes such elephants and amend the site's designation.¹⁸² Alternatively, it may be that even without amending a designation to include elephants as

177. See generally S. Mansourian, et al., *The Role of Protected Areas in Adaptation to Climate Change*, FAO CORPORATE DOCUMENT REPOSITORY, <http://www.fao.org/docrep/011/i0670e/i0670e13.htm>.

178. See World Heritage Convention, *supra* note 111, at art. 3 (calling for States Parties to “identify and delineate” cultural heritage or natural heritage sites); see also *id.* at art. 1, 2 (defining “cultural heritage” and of “natural heritage”).

179. See *id.* at art. 13 (explaining the adoption of World Heritage sites and the limits upon international recognition); see also, e.g., *id.* at art. 29 (requiring States Parties to submit reports on actions taken to implement the Convention, including “legislative and administrative provisions” and “details of the experience acquired in the field”).

180. See *id.* at art. 4 (stating the obligations of any State Party to recognize and conserve its sites).

181. For example, elephants are found within the Mapungubwe Cultural Landscape in northern South Africa. See Mapungubwe Cultural Landscape Nomination, <http://whc.unesco.org/uploads/nominations/1099.pdf>.

182. See Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, Operational Guidelines for the Implementation of the World Heritage Convention, 166 (2013) [hereinafter Operational Guidelines].

an outstanding universal value, some conservation benefit accrues anyway.¹⁸³

The Ramsar Convention provides for the designation of Wetlands of International Importance.¹⁸⁴ This designation also brings international prominence to ecologically important areas and it provides useful management parameters that could provide conservation benefits for species affected or likely to be affected by climate change.¹⁸⁵ In many instances, wetlands themselves might be affected by climate change, which in turn, could have significant ecological consequences.¹⁸⁶ The Parties to the Ramsar Convention have recognized that climate change could greatly affect the world's wetlands and the species dependent on them.¹⁸⁷ Because humans also depend on wetlands for environmental services, both core principles of the Ramsar Convention—wise use and conservation—are of fundamental importance, where relevant, to species resiliency planning.

Although the World Heritage Convention and Ramsar Convention stand out as hard law designations, a number of additional soft-law frameworks could also be relevant. At the ecosystem and ecological network scale, the Man and the Biosphere Programme may be a useful tool for land-use planning purposes. With emphases on science and the relationship of humans to the environment, the designation of one or more biosphere reserves provides an opportunity to overlay priorities that bind multiple designations and objectives.¹⁸⁸

183. In the case of the Mapungubwe Cultural Landscape, elephants roam an area largely unimpacted by human intervention. See Mapungubwe Cultural Landscape, Description, UNESCO website, <http://whc.unesco.org/en/list/1099>.

184. See Ramsar, *supra* note 112, at art. 2.

185. *Id.* at art. 2 (noting the list of sites is maintained by an international body and that internationally recognized sites should be selected based on reports on a wetland's "ecology, botany, zoology, limnology or hydrology").

186. See, e.g., Eric L. Gilman et al, *Threats to Mangroves from Climate Change and Adaptation Options: A Review*, 89 AQUATIC BOTANY 237 (2008) (noting how mangroves, a type of wetland, may suffer from climate change).

187. See, e.g., Ramsar, Resolution XI.14: Climate Change and Wetlands: Implications for the Ramsar Convention on Wetlands (Jul. 6-13, 2012) (recalling past recognitions of the potential impacts of climate change and resolving to take certain actions to combat the effects of climate change on wetlands and waterfowl).

188. See Man and the Biosphere, *The Statutory Framework of the World Network*, in BIOSPHERE RESERVES: THE SEVILLE STRATEGY & THE STATUTORY FRAMEWORK OF THE WORLD NETWORK 16, 16 art. 3 (UNESCO 1996)

Additionally, biosphere reserves are designed to encompass multiple uses and users. Each biosphere reserve comprises three zones that serve complementary functions and follow a hierarchy of protectiveness—a core area, a buffer zone, and a transition area.¹⁸⁹

Another important soft law or policy framework useful for planning, organizing, and managing spatial requirements for species resiliency is the International Union for the Conservation of Nature's (IUCN) protected area categories system.¹⁹⁰ Like Biosphere Reserves, the IUCN protected area categories may overlap with other designations, and as such, careful planning is necessary so that management achieves mutual objectives. The categories offer several options helpful for species resiliency planning and management ranging from areas that severely limit human interaction to those that fully support human incursion and sustainable use of natural resources.¹⁹¹ Many national parks have taken advantage of the categories system and use the management rubric to shape management policies that reflect multiple interests and multiple users by weaving together multiple designations over a wide area.¹⁹²

International environmental law provides a number of important hard and soft law designation opportunities that could be useful for resiliency planning—the key is utilizing these designations wisely to provide for an ecological network, or other spatial needs, that

("[B]iosphere reserves should strive to . . . contribute to the conservation of landscapes, ecosystems, species and genetic variation [and] . . . foster economic and human development which is socio-culturally and ecologically sustainable[.]") [hereinafter MAB].

189. *See id.* at 17 art. IV(5) (explaining the suggested "appropriate zonation" for a reserve).

190. *See generally* NIGEL DUDLEY, ED., *GUIDELINES FOR APPLYING PROTECTED AREA MANAGEMENT CATEGORIES* (2013).

191. *See id.* at 13-14, 22-23 (explaining how the categories "Strict nature reserve" and "Protected Areas with Sustainable Use of Resources" differ from one another and from the other categories).

192. The Kavango-Zambezi Transfrontier Conservation Area is one example of such a patchwork of protected areas. The KAZA TFCA comprises protected areas, including game reserves, forests, and national parks, in Namibia, Angola, Zambia, Botswana, and Zimbabwe, and it is the largest transboundary conservation area in the world. *See Memorandum of Understanding Concerning The Establishment of the Kavango-Zambezi Transfrontier Conservation Area*, art. 3 (Dec. 2006) (establishing geographic extent).

accommodates on-the-ground realities.¹⁹³ As human-wildlife dynamics are likely to shift and, in some cases, intensify, due to climate change, involving local communities is crucial for the success of any protected or designated space.¹⁹⁴ Many of the designations available through international environmental law accommodate local community involvement and human interactions and uses of protected areas. The key is shaping a resiliency plan that allows for historical and future human uses while providing species adequate resources and space through buffer zones and other means.¹⁹⁵

C. Resiliency Planning and Management

An ecological network or other area designated for conservation purposes only achieves its goals when it is well-designed after scientific research, risk assessments, stakeholder engagement, and strategic deployment of a variety of management, legal, and policy tools, and its planning is scaled across the multiple, relevant international environmental legal regimes.¹⁹⁶ Importantly, these elements only come together at a relevant scale for resiliency planning in a manner that is cohesive and effective when planning implements vertical integration of stakeholders and decision-makers and cross-sector, or horizontal, integration of options, opportunities,

193. See IUCN, *Global Protected Areas Programme*, IUCN PROTECTED AREAS CATEGORIES SYSTEM, http://www.iucn.org/about/work/programmes/gpap_home/gpap_quality/gpap_pacategories/ (identifying categories ranging from Category 1a, strict nature resources, in which human visitation is strictly controlled and monitored, to Category VI areas, which explicitly support the sustainable use of natural resources).

194. See CMS Secretariat, *Ecological Networks: Case Studies, Challenges, and Lessons Learned*, UNEP/CMS/ScC18/Inf.10.3.1, 18 (May 2014), http://www.cms.int/sites/default/files/document/Inf_10_3_1_Case_Studies_Ecological_Networks.pdf (underscoring importance of community and stakeholder involvement).

195. *Id.* at 11 (noting that buffers against risk and variability are important for functional integrity); see also *id.* at 18 (“A strategic network-scale approach has resulted from the application of a well-coordinated mix of different management and protection tools (game reserves, Wildlife Management Areas, [and] buffer zones.”); see also *id.* at 14 (discussing the need to build “reserve capacity” into ecological network design because of climate change).

196. Cumming, *supra* note 146, at 305 (noting that ignoring cross-scale interactions at any level can lead to management challenges and failures).

costs, and management strategies.¹⁹⁷ Building this integration from the bottom-up is at the heart of a functional cohesion approach, and a number of MEAs present occasions to engage in integrated planning.¹⁹⁸ In some ways, aspects of a functional cohesion approach appear already as planning principles now adopted for certain MEA processes; however, multiple planning processes seem to occur in isolation from each other and integrated consideration is not evident in country submissions.¹⁹⁹

Planning is a foundational element of the Rio Conventions.²⁰⁰ Drafters of the CBD first proposed national planning as a means of identifying and addressing unmet biodiversity conservation needs, and soon both the UNCCD and UNFCCC adopted national-level planning as a core implementation strategy.²⁰¹ Each of these planning opportunities offers an opportunity for national policy determination, and the plans are meant to drive implementation of the conventions

197. See generally Katrina Brown, et al., *Integrated Responses, in ECOSYSTEMS AND HUMAN WELL-BEING: POLICY RESPONSES, VOLUME 3* (Kanchan Chopra et al., eds) (2005).

198. See Joint Liaison Group of the Rio Conventions, *Adaptation Under the Frameworks of the CBD, the UNCCD, and the UNFCCC*, 9, http://www.unccd.int/Lists/SiteDocumentLibrary/Publications/adaptation_eng.pdf (no date) (“Synergy between the NAPs under the UNCCD, which are building bridges between development and environment policies, NBSAPs under the CBD and NAPAs under the UNFCCC presents an opportunity to establish comprehensive policy instruments.”).

199. See *supra* notes 29-31.

200. Anju Sharma, *Planning to Deliver: Making the Rio Conventions More Effective on the Ground – Climate Change, Biodiversity, Desertification*, 6 (noting that national action plans are important implementation tools for the Rio Conventions).

201. See CBD, *supra* note 40, at art. 6 (calling on all Parties to “Develop national strategies, plans or programmes for the conservation and sustainable use of biodiversity”); UNCCD, *supra* note 98, at art. 9 (providing that national action programmes form part of the central element of the strategy to combat desertification and mitigate the effects of drought); UNFCCC, *The Cancun Agreements: Outcomes of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention*, 1/CP.16, FCCC/CP/2010/7/Add.1, paras. 11-35 (2011) (setting out the Cancun Adaptation Framework, which builds on the National Adaptation Plans of Action by calling for National Adaptation Plans).

by developing national policies, prioritizing national actions, and identifying funding needs.²⁰²

Those who think about synergies and linkages have identified the planning mechanism under the CBD, the National Biodiversity Strategy and Action Plan (NBSAP) as particularly useful for achieving coherence at least amongst the biodiversity-related Conventions.²⁰³ Indeed, the NBSAPs are powerful tools and could also be an instrument for realizing coherence in light of climate change considerations as well.²⁰⁴ Policymakers perceive the NBSAPs as framework documents for the development of national, overarching policies in addition to opportunities to propose and coordinate local and national activities designed to meet national objectives.²⁰⁵ As a result, some criticize NBSAPs for being overly ambitious, lacking clear action-oriented roadmaps, and only skimming the surface of critical issues.²⁰⁶ The challenges mean that on-the-ground activities seldom result from these plans.²⁰⁷ In many ways, it appears that governments reflect in these planning opportunities the same top-heavy and top-down afflictions prone to international environmental law and governance itself.

NBSAPs should be redesigned so that they represent not just one overarching national policy but multiple, interconnected national policies designed around specific biodiversity priorities, such as elephant conservation. These specific biodiversity priorities should be chosen for their potential to bring positive knock-on effects to a

202. See Sharma, *supra* note 201, at 6-7 (highlighting usefulness of national action plans).

203. See UNEP, "Outcomes of the first multi-stakeholder expert meeting on elaboration of options for synergies among biodiversity-related Multilateral Environmental Agreements" (Aug. 2014), <https://www.cbd.int/doc/.../notifications/2014/ntf-2014-138-attachment-02-en.docx/>.

204. See CBD, Promoting Synergies in Addressing Biodiversity and Climate Change Adaptation Issues: Linking National Adaptation Plans and National Biodiversity Strategies and Action Plans, UNEP/CBD/COP/12/INF/29, 6 (2014) (suggesting that NBSAPs offer wide latitude for incorporating climate change adaptation planning).

205. See Sharma, *supra* note 201, at 40 (noting the interrelationship of national policy planning and local action).

206. See *id.* at 5 (identifying numerous challenges faced by national action planning processes).

207. *Id.* at 7.

broad spectrum of conservation issues.²⁰⁸ The co-benefits of pursuing elephant conservation as a biodiversity priority, for example, are tremendous and span such international objectives as climate change adaptation and combatting desertification, as well as biodiversity conservation.²⁰⁹ Redesigned accordingly to reflect a functional cohesion approach, NBSAPs could be instrumental in addressing species conservation in a changing climate.

The adaptation planning process under the UNFCCC presents a complementary mechanism, and efforts to plan for species resiliency to impacts of climate change, should take advantage of both opportunities in ways that maximize each. The UNFCCC framework invites least developed countries to develop National Adaptation Programmes of Action,²¹⁰ and it encourages all Parties, but specifically least developed countries, to adopt National Adaptation Plans.²¹¹ These plans are comprehensive and focus primarily on the adaptation needs of human populations, but they may also articulate the adaptation needs of particular species, other elements of biodiversity, or of ecosystems generally.²¹² Additionally, through adaptation planning, as well as through other reporting obligations that concern also mitigation, Parties are able to highlight the value of

208. A number of conservation strategies attempt to derive multiple benefits by targeting specific species or particular places. The “landscape species” concept may prove a particularly useful tool for concentrating limited resources in a manner that achieves the greatest conservation benefit. *See generally* Pete Coppolillo, et al., *Selection Criteria for Suites of Landscape Species as a Basis for Site-Based Conservation*, 115 *BIOLOGICAL CONSERVATION* 419 (2004).

209. *See id.* at 425 (noting that in analyses, elephants scored high as “landscape species”).

210. UNFCCC, Guidelines for the preparation of national adaptation programmes of action, Decision 28/CP.7, FCCC/CP/2001/13/Add.4., <http://unfccc.int/resource/docs/cop7/13a04.pdf#page=7>.

211. UNFCCC, The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, Decision 1/CP.16, FCCC/CP/2010/7/Add.1, paras. 14-15 (2010), <http://unfccc.int/resource/docs/2010/cop16/eng/07a02.pdf#page=25.14-15>.

212. *See generally* International Union for the Conservation of Nature, *A Guiding Frame for Mainstreaming Biodiversity and Development into National Adaptation Programmes of Action* (2011), <https://portals.iucn.org/library/efiles/documents/2004-110.pdf>).

certain species' habitats and ecosystems as having value in mitigating climate change and supporting adaptation.²¹³

In particular, a species such as the savannah elephant, because of its role in preserving the functional diversity of an ecosystem and thus supporting ecosystem resiliency, could feature heavily in adaptation or mitigation plans. If decision-makers pursue planning opportunities cohesively, and plans themselves reflect multiple international environmental goals and opportunities, transformative thinking is likely, such as pursuing elephant conservation as a climate change adaptation and mitigation strategy. The efficiency factor of integrating international goals and objectives through a singular national goal is significant. Already it is clear that prioritizing elephant resiliency as a national goal would achieve both biodiversity and climate change objectives.

The UNCCD also supports this approach.²¹⁴ Desertification impacts elephants, and elephants impact desertification.²¹⁵ As such, an elephant resiliency plan may address both the causes and effects of desertification.²¹⁶ The Annex dealing with Africa-specific needs emphasizes the important connection between wildlife and desertification; it highlights wildlife management and conservation

213. Secretariat of the Convention on Biological Diversity, Technical Series 41: Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change 31-61 (2009) (describing the important interplay between biodiversity and climate change adaptation and mitigation).

214. The UNCCD suggests that Parties produce "National Action Programmes" as a means of achieving the objectives of the Convention. UNCCD, *supra* note 98, at art. 9.

215. See generally Graham I. H. Kerley, et al., *Desertification of Subtropical Thicket in the Eastern Cape, South Africa: Are there Alternatives?*, in DESERTIFICATION IN DEVELOPED COUNTRIES (DAVID A. MOUAT & CHARLES F. HUTCHINSON, EDS.) (1995).

216. Although it does not clearly identify elephants as cause and effect of desertification, Botswana's National Action Programme provides that elephants are an important natural resource requiring consideration of desertification impacts, and at the time identifying the overpopulation of elephants in northern Botswana as a cause of desertification. See DEPARTMENT OF ENVIRONMENTAL AFFAIRS, BOTSWANA NATIONAL ACTION PROGRAMME TO COMBAT DESERTIFICATION 16 (2006), available at <http://www.unccd.int/ActionProgrammes/botswana-eng2006.pdf>.

issues as a feature of National Action Programmes (NAPs).²¹⁷ Building components of an elephant resiliency plan that specifically address desertification issues brings into the fold the objectives, tools, funding opportunities, national focal point, and other aspects of the UNCCD, creating a scenario wherein one narrowly construed, albeit large-scale, environmental goal can be scaled-up not just regionally via interconnected project development, planning, management, and on-the-ground activities, but also scaled-up as a means of achieving the synergistic goals of the three Rio Conventions.

The Rio Conventions represent one cohort amongst international environmental law, but as this paper makes clear, a number of other important treaties may bear on the issue of species conservation in a changing climate. For example, building an elephant resiliency plan could incorporate land designations from both the World Heritage Convention and the Ramsar Convention.²¹⁸ These treaties, for example, require Party submissions that include detailed explanations of management objectives and techniques as well as descriptions of the area included in the designation.²¹⁹ While the planning mechanisms of the Rio Conventions require broad stakeholder participation but operate at a high-level of policy-making,²²⁰ the management mechanisms of these other treaties provide a means of engaging in particular local area managers and day-to-day decision-makers who are fully cognizant of on-the-ground realities.²²¹ These

217. UNCCD, *supra* note 98, at Annex I, art. 8(3)(b)(i).

218. *See supra* notes 191-223 and accompanying text.

219. Operational Guidelines, *supra* note 183, at paras. 169-176 (reactive monitoring), 199-210 (periodic reporting); Ramsar Convention, *supra* note 183, at Art. 3(2) (obligation to monitor and report regarding ecological changes to designated wetlands); *see also* Ramsar Convention, Working Definitions of Ecological Character, Guidelines for Describing and Maintaining the Ecological Character of Listed Sites, and Guidelines for Operation of the Montreux Record, Resolution VI.1 (1996).

220. *See* Training Module, Ensuring Stakeholder Engagement in the development, implementation and updating of NBSAPs, 6 (2007), <https://www.cbd.int/doc/training/nbsap/b5-train-stakeholder-nbsap-en.pdf> (identifying the range of stakeholders likely to participate in a NBSAP consultation) [hereinafter Ensuring Stakeholder Engagement].

221. Operational Guidelines, *supra* note 183, at Annex 7, Section II (“The preparation of periodic state of conservation reports should involve those who are responsible for the day-to-day management of the property.”)

local land managers and users are the on-the-ground stewards of land and wildlife and their participation and, most importantly, buy-in are crucial elements of success.²²²

A functional cohesion approach creates opportunities for balanced and integrated execution of planning and management obligations in international environmental law because development of requisite plans and other submissions would no longer occur in isolation from one another. The layering aspects of functional cohesion ensure that both day-to-day managers and high-level politicians participate in designing and achieving international environmental objectives. In fact, with a singular, or multiple narrowly construed objectives tying each of these opportunities together, cohesive responses and integrated outreach is necessary. This ensures buy-in and ownership at the lowest level of governance and broadest level of stakeholders.

D. Maximizing Funding Opportunities

Planning for species resiliency is expensive, without doubt.²²³ One of the most important benefits of a functional cohesion approach to species conservation and international environmental law is that it draws in as many international funding opportunities as possible through its multi-treaty approach. It also strengthens the ability of each funding dollar to achieve maximum benefits.²²⁴ A functional cohesion approach represents a win-win-win for donors, recipients, and the environment generally.

Although a number of international institutions fund international environmental projects, the Global Environment Facility is the institution most closely aligned with funding projects that pertain to

222. See Ensuring Stakeholder Engagement, *supra* note 221, at 4 (lamenting top-down approaches to compliance).

223. See Climate Change Impacts on Migratory Species: The Path Ahead, <https://www.cbd.int/cop/cop-10/doc/unep-cms-cop10-cc-en.pdf> (last visited Oct. 13, 2015) (noting that one of greatest challenges to implementing adaptation strategies for migratory species is cost).

224. See OECD, Environment and Development Finance: Capturing Synergies for Sustainable Development, Third International Conference on Financing for Development, n.p. (July 2015) (“Tackling these environmental challenges through common solutions can save money and time, and indeed, . . . deliver multiple objectives.”).

the implementation of the Rio Conventions, and its focal areas reflect this fact.²²⁵ The GEF funds projects related to biodiversity, climate change, international waters, land degradation, and chemicals and waste.²²⁶

Of the GEF's focal areas, countries provide the most support for biodiversity, and the GEF can only fund CBD-related biodiversity projects.²²⁷ For this reason, the CBD is particularly influential when it comes to international environmental financing and its policy priorities often drive funding priorities.²²⁸ The GEF's current funding cycle emphasizes habitat protection, overexploitation, and invasive alien species,²²⁹ and specifically draws attention to the need to pursue activities that will generate resiliency.²³⁰ The GEF highlights protected area designation and management and ecosystem-based adaptation as two critical responses to the biodiversity crisis.²³¹ Certainly, species resiliency planning when devised around a species that provides functional diversity is of utmost relevance to the GEF's biodiversity priorities. As described above, pursuing a functional cohesion to resiliency planning has the potential to align with

225. See Stephen Silard, *The Global Environment Facility: A New Development in International Law and Organization*, 28 GEO. WASH. J. INT'L. L. & ECON. 607, 615 (1995) (describing the early evolution of the GEF).

226. GEF, *About the GEF*, GLOBAL ENVIRONMENT FACILITY, <https://www.thegef.org/gef/whatisgef> (last visited Oct. 13, 2015).

227. See GEF, GEF-6 (1.296 billion provided for biodiversity); see GEF, *The GEF-6 Biodiversity Strategy* (2014), <https://www.thegef.org/gef/sites/thegef.org/files/publication/GEF-6-BD-strategy.pdf> [hereinafter *Biodiversity Strategy*] (1.296 billion provided for biodiversity); GEF, GEF-6 (1.296 billion provided for biodiversity).

228. In fact, the CBD is alone amongst biodiversity conventions for its ability to influence GEF policies and priorities. See THOMAS F. MCINERNEY, *STRATEGIC TREATY MANAGEMENT: PRACTICE AND IMPLICATIONS* 149 (2015).

229. *Biodiversity Strategy*, *supra* note 228 at 5., <https://www.thegef.org/gef/sites/thegef.org/files/publication/GEF-6-BD-strategy.pdf>

230. See *id.* at 11 (“[T]he GEF will initiate support for the development and integration of adaptation and resilience management measures as part of protected area management projects.”).

231. See *id.* at 5.

multiple GEF focal areas, making such an approach particularly attractive to donors and recipients.²³²

While the GEF is the major funder of biodiversity activities, and likely of species-specific conservation, it is significant that it cannot directly fund activities pursued under the ambit of other biodiversity treaties, such as CMS, the WHC, Ramsar, or CITES.²³³ Arguably this is a tremendous opportunity cost because the cumulative impacts of these treaties on species conservation is substantial.²³⁴ However, the GEF has begun interpreting its mandate sufficiently broadly that it will fund projects as long as they at least indirectly meet CBD's strategic priorities.²³⁵ Thus, if World Heritage sites or Ramsar Wetlands of International Importance or migratory species projects compose elements of an overarching species resiliency plan, then the GEF may fund relevant projects, even if not specifically CBD projects.²³⁶ Leveraging CBD cohesion is not a new phenomenon amongst other biodiversity conventions,²³⁷ but a functional cohesion approach to species resiliency provides an opportunity to scale-up funding for such projects.

Examples exist of such projects already within the GEF-funding pipeline. Currently, the GEF is funding two biodiversity-relevant projects that may be particularly good models for a project proposal for elephant conservation. First, the GEF is funding a project to develop Zimbabwe's Hwange-Sanyati Biological Corridor (HSBC).²³⁸ This project aims to improve management of

232. See GEF Secretariat, *GEF-5 Programming Document*, GEF/R.5/31/CRP.1, iii (2010) (emphasizing "cross-cutting themes" and "transformational scale-up" opportunities).

233. See MCINERNEY, *Supra* note 229, at 149 (noting the GEF's limited disbursement capacities).

234. See Biodiversity Strategy, *supra* note 230, at 5.

235. See *id.*

236. See MCINERNEY, *Supra* note 229, at 148 (observing that the CBD has broadened its scope).

237. See, e.g., CITES Secretariat, *Contributing to the Development, Review, Updating, and Revision of National Biodiversity Strategies and Action Plans (NBSAPs)* (2011); CMS, *Enhancing Engagement with the Global Environment Facility*, UNEP/CMS/Resolution 10.25 (2011).

238. GEF, *Detail of GEF Project #4645*, http://www.thegef.org/gef/project_detail?projID=4645 (last visited Oct. 13, 2015), http://www.thegef.org/gef/project_detail?projID=4645.

Zimbabwe's Hwange National Park, promote better forestry practices, and reduce human-wildlife conflict.²³⁹

The second model project aims to establish what it calls "Priority Socio-Ecological Production Landscapes and Seascapes," or SEPLS. The project defines SEPLS as human-influenced (but not human-dominated) areas where better management practices could improve connectivity between protected natural areas.²⁴⁰ It promotes managing areas where both humans and wildlife interact and share space in such a way as to allow both to prosper.²⁴¹ The goal is to manage these shared spaces as connections between designated protection zones, such as Biosphere Reserves and World Heritage Convention Sites.²⁴²

The GEF, and now the Green Climate Fund, also offer financing for adaptation and mitigation projects.²⁴³ Species resiliency planning is also a critical component of adaptation planning, and, in some cases, it might also offer mitigation co-benefits.²⁴⁴ For this reason,

239. GEF, Project Identification Form, [http://www.thegef.org/gef/sites/thegef.org/files/gef_prj_docs/GEFProjectDocuments/Multi%20Focal%20Area/Zimbabwe%20-%20\(4645\)%20-%20Hwange-Sanyati%20Biological%20Corridor%20\(HSBC\)%20Environm/05-29-12%20PIF%20document%20Revised.pdf](http://www.thegef.org/gef/sites/thegef.org/files/gef_prj_docs/GEFProjectDocuments/Multi%20Focal%20Area/Zimbabwe%20-%20(4645)%20-%20Hwange-Sanyati%20Biological%20Corridor%20(HSBC)%20Environm/05-29-12%20PIF%20document%20Revised.pdf). GEF, Project Identification Form, [http://www.thegef.org/gef/sites/thegef.org/files/gef_prj_docs/GEFProjectDocuments/Multi%20Focal%20Area/Zimbabwe%20-%20\(4645\)%20-%20Hwange-Sanyati%20Biological%20Corridor%20\(HSBC\)%20Environm/05-29-12%20PIF%20document%20Revised.pdf](http://www.thegef.org/gef/sites/thegef.org/files/gef_prj_docs/GEFProjectDocuments/Multi%20Focal%20Area/Zimbabwe%20-%20(4645)%20-%20Hwange-Sanyati%20Biological%20Corridor%20(HSBC)%20Environm/05-29-12%20PIF%20document%20Revised.pdf).

240. GEF, Project Identification Form, [http://www.thegef.org/gef/sites/thegef.org/files/gef_prj_docs/GEFProjectDocuments/Biodiversity/Global%20-%20\(5784\)%20-%20Mainstreaming%20Biodiversity%20Conservation%20and%20Sustai/04-16-14_MSP_PIF_and_PPG_Request_Document_final.pdf](http://www.thegef.org/gef/sites/thegef.org/files/gef_prj_docs/GEFProjectDocuments/Biodiversity/Global%20-%20(5784)%20-%20Mainstreaming%20Biodiversity%20Conservation%20and%20Sustai/04-16-14_MSP_PIF_and_PPG_Request_Document_final.pdf).

241. *See id.*

242. *See id.*

243. *See* UNFCCC, Green Climate Fund, Background, http://unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5869.php (last visited Oct. 13, 2015), http://unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5869.php (noting Parties request to operationalize the mitigation and adaptation windows).

244. *See, e.g.,* Guy Midgley, et al., Biodiversity, Climate Change and Sustainable Development—Harnessing Synergies and Celebrating Successes, Final Technical Report (2012) (describing a successful adaptation project built around biodiversity conservation and carbon- and energy-neutral agricultural production); Nathalie

mainstreaming biodiversity considerations, or more specifically, species resiliency planning, into adaptation plans could leverage funding from sources that are not otherwise thought of as relevant for biodiversity conservation. The CBD's ecosystem-based approach can be equally applied to conservation planning as adaptation planning, and it seems to be the main policy framework for integrating biodiversity and climate change considerations.²⁴⁵ In fact, the UNFCCC emphasizes ecosystem-based approaches to adaptation, highlighting the multiple co-benefits that ecosystem-based adaptation achieves.²⁴⁶ In the case of the GEF, projects built to achieve multiple goals in multiple focal areas are desirable and efforts are ongoing to promote local and national-level linkages.²⁴⁷ The ability of large-scale species resiliency projects to leverage funding from multiple sources has the potential to contribute to the likelihood of success of such projects, and as such, to contribute to the effective implementation of multiple international environmental goals.

Although many other funding opportunities exist, such as the World Heritage Fund, and other smaller-scale treaty-specific financial mechanisms, and private donors, another significant pool of money that could fund species resiliency projects draws on bilateral aid money or direct overseas development assistance funding. The European Union contributes significantly in this area and, in fact, has prioritized the conservation of "key landscapes" through its funding program.²⁴⁸ The multi-faceted dynamics of an issue such as species resiliency, which include both human and wildlife elements in most

Doswald & Matea Osti, Ecosystem-based approaches to adaptation and mitigation – good practice examples and lessons learned in Europe, 4 (2011), https://www.bfn.de/fileadmin/MDB/documents/service/Skript_306.pdf.

245. See, e.g., UNFCCC, DATABASE ON ECOSYSTEM-BASED APPROACHES TO ADAPTATION, http://unfccc.int/adaptation/nairobi_work_programme/knowledge_resources_and_publications/items/6227.php.

246. See Subsidiary Body for Scientific and Technological Advice, Ecosystem-based approaches to Adaptation: Compilation of Information, FCCC/SBSTA/2011/INF.8 (Nov. 16, 2011).

247. Scientific and Technical Advisory Panel, GEF, A Conceptual Design Tool for Exploiting Interlinkages Between the Focal Areas of the GEF, GEF/C.24./Inf.10, 7 (Nov. 10, 2004).

248. See EUROPEAN COMMISSION, LARGER THAN ELEPHANTS: INPUTS FOR THE DESIGN OF AN EU STRATEGIC APPROACH TO WILDLIFE CONSERVATION IN AFRICA, VOLUME 2: SOUTHERN AFRICA (2015).

cases, offer an opportunity to translate broadly-scoped international environmental law into species-specific goals, which in turn serve to achieve multiple international environmental goals, including those goals that reflect human-centered socio-economic issues.

V. CONCLUSION

Functional cohesion is a technique of software engineers who often work with environments as diverse, thick, and rich as international environmental law. Descriptors such as “thick,” “rich,” and “diverse” can have negative as well as positive connotations—for some scholars these terms in international environmental law translate as congestion, fragmentation, and bulk. Working from the perspective of functional cohesion, however, could be transformative for international environmental law, and the thickness, richness, and diversity of international environmental law could positively impact species conservation as well as achievement of broader environmental objectives.

Building effectiveness around narrowly tailored issues rather than thematically broad, even if interlinked or synergistic topics of international environmental interest engenders a bottom-up, country-driven, vertically and horizontally integrated approach to species conservation that may be more likely to lead to on-the-ground results than current top-down governance reforms and policy efforts. Choosing the right species around which to build resiliency plans offers knock-on opportunities and cumulative co-benefits that serve the interests of species conservation specifically, and biodiversity conservation, climate change adaptation and mitigation, and desertification concerns broadly. In so doing, species resiliency planning presents an opportunity to capture synergies or create linkages at the national level, which rather than adding to an already top-heavy balance in international environmental law, generates real prospects for ensuring the effectiveness of international environmental law.